

March 2022

GEORGIA PATHWAYS

M A G A Z I N E

Marie Kurz:
Helping science
on watersheds

Women's History Month

A Quest to Cure Cancer
CITLALLY LOPEZ

The Technology Association of Georgia Education Collaborative (TAG-Ed) strengthens the future workforce by providing students with relevant, hands-on STEM learning opportunities and connecting them to Technology Association of Georgia (TAG) resources. Formerly the TAG Foundation, TAG-Ed is a 501(C)(3) non-profit organization formed by TAG in 2000. Later, the organization's name was re-branded to TAG Education Collaborative to facilitate our role as the leaders for K-12 STEM education in Georgia.

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This magazine services the STEM education industry needs of the state of Georgia. This magazine is viewed by the consumer with the understanding that the information presented is from various sources from which there can be no warranty or responsibility by the Technology Association of Georgia, the Technology Association of Georgia Education Collaborative and/or their affiliates as to legality, completeness or accuracy.

Ga. State Ranks #2

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A Quest to Cure Cancer

CITLALLY LOPEZ

Time Crystals

HOLLY OBER / UC RIVERSIDE

Faith Berger: Women's History Month

JUDY R. GOODMAN

Please enjoy and share the March issue of Georgia Pathways Magazine.



TAG's interest in technology is rooted in our commitment to the success of people--especially the next generation of tech talent.

In these turbulent times, young people need science, technology, engineering and math (STEM) education more than ever. It's absolutely crucial to coping with emerging technology and the digital transformation reshaping our lives and businesses. STEM sets future leaders on the path of success, and it works as a leveler for people to handle the changing needs of society.

Learning the basics of STEAM today can lead to great careers tomorrow. That's true for many growth-oriented fields: media, film, gaming, finance, world health, bio-science, sports, aerospace and robotics. The list goes on.

According to Microsoft, the U.S. is estimated to have 13 million new tech jobs by 2025, and more opportunities are expected to open in the decades after that. As technologies evolve, students with robust STEAM education will have a big advantage in the job market. STEAM education provides the practical skills employers seek now and in the future.



That's why TAG-Ed was proud to host Georgia STEM Day March 4. Thousands of schools across Georgia participated in the all day celebration. Schools, educators, students, and companies across the state engaged in activities involving STEM and STEAM—all in addition to other TAG programs in support of STEM and STEAM year round.

On April 26 and 27, TAG will host the Georgia Technology Summit at the Georgia World Congress Center. We'll celebrate the businesses and leaders who fuel the innovation economy and hold fascinating conversations about the future of work. In June, we'll host Fintech South and take a deep dive into one of the most dynamic fields in technology. I look forward to seeing you at these and other TAG programs in 2022.

Larry K. Williams
President
TAG / TAG-Ed

Larry K. Williams serves as the President and CEO of the Technology Association of Georgia (TAG) and President of the TAG Education Collaborative (TAG-Ed). TAG-Ed's mission is to strengthen Georgia's future workforce by providing students with relevant, hands-on STEM learning opportunities by connecting Technology Association of Georgia (TAG) resources with leading STEM education initiatives.

WORKFORCE DIVERSITY PROGRAM

The CyberWarrior Foundation, in partnership with the Security & Infrastructure Security Agency (CISA), is creating high-wage career opportunities for historically underrepresented communities, including the underserved, women, veterans, and underemployed individuals.

Our mission is to bridge the technology skills and diversity gaps by providing cybersecurity training, employment opportunities, and transitional support necessary for people to gain the knowledge, skills, and abilities for career opportunities and growth. We understand that strength lies in differences, not in similarities, so diversity is our core value, and we actively promote it through the cybersecurity industry.

Our Cybersecurity Workforce Development and Training Program for Underserved Communities, in coordination with the Department of Homeland Security and CISA, serves people from the Northeast (CISA Region #1) and the Southeast (CISA Region #4).

If you are from a state on one of the following maps, visit cyberwarrior.org/diversity for more information.



BOOTCAMP PROGRAM OVERVIEW

CyberWarrior has developed a training that brings together vocational lab-driven exercises delivered by ethical hackers and industry experts, combined with the hands-on knowledge, tools, and certifications necessary to launch a career in cybersecurity. Further, the content was built using the National Institute of Standards and Technology (NIST) framework and mapped to the National Initiative for Cybersecurity Education (NICE).

CLASSROOM AND LAB TRAINING

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national recognized
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800
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28
weeks

7
proprietary
technical courses

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| ✓ CompTIA Network+ | ✓ Malware Analysis | ✓ Firewalls and IDPS |
| ✓ CompTIA Security+ | ✓ Incident Response | ✓ Vulnerability Management |
| ✓ EC-Council Certified Ethical Hacker (CEH) | ✓ Security Automation | ✓ Package Analysis |
| ✓ EC-Council Certified Network Defender (CND) | | ✓ Security Monitoring |

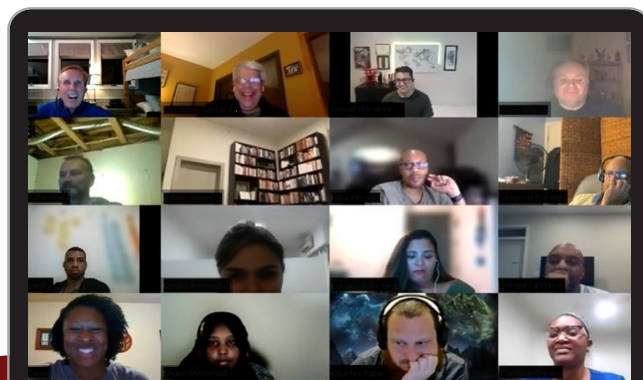
Our students have the opportunity to receive 27 college credits, making CyberWarrior Cybersecurity Bootcamp the most comprehensive cybersecurity program today.

Our innovative Career Hacks course delivers the soft skills to engage in the “business” of cybersecurity. Moreover, CyberWarrior exclusively connects the students with industry practitioners (recognized CISOs, security directors, and more) to share real-world experiences, “a day in the life” of a Cybersecurity professional, what the student should expect upon graduation, and receive personal mentorship each week.

DELIVERY METHODOLOGY

CyberWarrior’s curriculum is refined for online learning and is purposely dynamic to meet the evolving needs of our employer partners. Our model includes 4-hour online classes with live instructors, quizzes, and hands-on labs, in individual and group settings. Instructors are experts who can give real examples of our content’s relevance during an attack.

Launch your cybersecurity career in just six months.
To learn more, visit us at CyberWarrior.org/diversity.



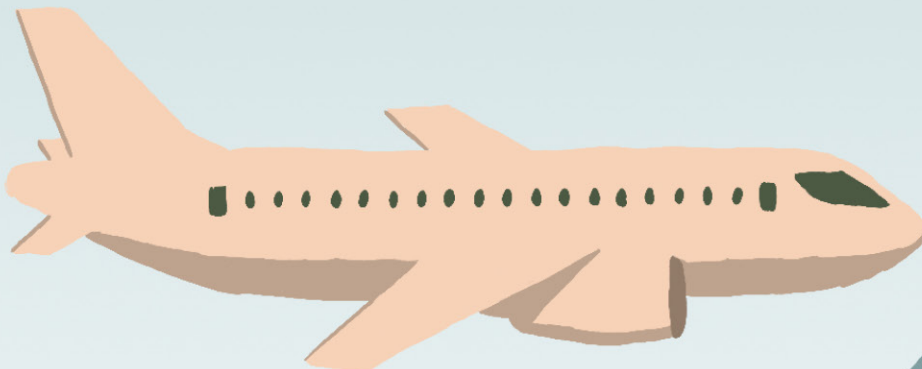
Book Your Ticket for

CATALYST

Your Learning Liftoff

Saturday
April 9th, 2022

Register at:
catalyst.hexlabs.org





Georgia State

Ranks No. 2 For Innovation-
Remains Top Public University for
Undergraduate Teaching In 2022 U.S.
News & World Report Survey

Andrea Jones

Vice President

Public Relations and Marketing \
Communications

Georgia State University is ranked the No. 2 most innovative university in the country and No. 2 for best undergraduate teaching in the 2022 edition of U.S. News & World Report's Best Colleges.

Georgia State improved its position in the categories, having ranked No. 3 for both innovation and undergraduate teaching in the 2021 survey. It's the fourth year in a row the university has been ranked by the magazine in the top three among national universities for its "unusually strong commitment to undergraduate teaching." Georgia State is the top-ranked public university in the category.

The innovation and undergraduate teaching rankings are based on a survey of presidents, provosts and admissions deans at colleges and universities across the country.

“We continue to improve our position among higher education institutions across the nation because we are focused on what matters to our students: success in the classroom and after graduation,” said Georgia State President M. Brian Blake. “Our place at the top of U.S. News’ rankings for innovation and undergraduate teaching recognizes our continued commitment to serving students and providing them with the tools and technologies they need to succeed.”

For the third year in a row, the university ranked fifth in the Learning Communities category. College and university presidents, chief academic officers, deans of students and deans of admissions rank these programs, which offer students opportunities to take two or more linked course as a group.

Georgia State also remains among the most diverse campuses in the nation, according to U.S. News’ diversity index, which gives only 12 institutions a higher score.

The university’s J. Mack Robinson College of Business is 49th this year, up from 53rd, in the magazine’s ranking of

“Among the most diverse campuses in the nation”

Georgia State also once again ranked highly in the Social Mobility and Academic Programs to Look For categories. The Top Performers on Social Mobility rankings are based on how well a school advances equity among low-income families and families with stronger financial backgrounds. Georgia State ranked 11th in the category on the 2022 survey.

In the Academic Programs to Look For category, Georgia State ranked sixth for its first-year experience. The indicator measures how well a university builds into its curriculum first-year seminars or other academic programs that regularly bring small groups of students together with faculty or staff.

undergraduate business programs. Its Risk Management & Insurance program remained at fourth in the rankings. Robinson’s Computer Information Systems program ranked 8th.

The business school and program rankings are based on a survey of deans and senior faculty at institutions across the country.

The All Home Safe Innovation Challenge Virtual Competition

April 22, 2022

for High School and Middle School Students

over \$11,000 in scholarships and prizes



First Responders

Tuesday, April 19th

Professionals will help you understand their needs during a response to an emergency.



Technologists

Wednesday, April 20th

Experts will help you understand how to include different technologies in your apps.



Pitch Specialists

Thursday, April 21st

Specialists will help you finalize your team's pitch for the competition.



Pitch Competition

Friday, April 22nd

You will pitch your idea to a panel of judges for a chance to win scholarships and prizes.

Register Here



A close-up photograph of a welder in a workshop. The welder is wearing a black protective helmet with a clear viewing window that reflects a blue and purple light. They are wearing black gloves and holding a welding torch with a red and blue handle. The torch is positioned over a metal workpiece, and a bright blue flame is visible at the tip. The background is slightly blurred, showing industrial equipment and a blue light source.

"Welding is cool"

"Welding is STEM"

Marie Kurz:

Helping science on watersheds flow across disciplines

By Kimberly A Askey / ORNL

Spanning no less than three disciplines, Marie Kurz's title — **hydrogeochemist** — already gives you a sense of the collaborative, interdisciplinary nature of her research at the Department of Energy's Oak Ridge National Laboratory. Still, those six syllables only hint at the vast web of relationships encompassed in her work.




ORNL's Marie Kurz examines the many factors affecting the health of streams and watersheds.
Credit: Carlos Jones/ORNL, U.S. Dept. of Energy

Kurz studies how rivers flow through landscapes; what kinds of nutrients, contaminants and other material sail through them; and how they transform along the way. As an experimentalist, her favorite part of the job is getting into the field. Depending on the season, Kurz can be found clad in tights, gloves reaching her shoulders, a neon vest and a pony-tail-taming cap as she sloshes in olive hip waders through the particular stream under her scrutiny. The getup, she said, always makes her feel a bit like the Michelin man.

After setting up measurement equipment along a kilometer or two of stream, checking and re-checking calculations and calibrations, the fun part comes. From her perch on the bank, she upends two big buckets of non-toxic dye into the water — one purple, the other neon green — transforming the waterway into a vibrant, dynamic tableau. The dyes meld into a bright, leaf green, taking on new patterns as the water swirls, seeps and eddies.

“You’ve made the invisible visible for that short window of time,” Kurz said. “It’s fun to be able to actually see it.”

The scene is an apt metaphor for her life as a scientist. Kurz’s career, built on collaborating with experts from other fields and regions, has landed her everywhere from the creeks of Oregon’s Cascade Mountains to the Karst Springs of North Florida, from the vast Delaware River to forest streams in northern Germany.



Wissahickon Creek in Philadelphia, PA. Credit: Marie Kurz

Now, after joining ORNL last fall, Kurz gets to dip a rubber-shod toe into the Tennessee River watershed, working with world-leading modeling experts and other scientists to build on decades of data on one of the world's most intensively studied waterways.

“I’ve always been drawn to the large, collaborative initiatives,” Kurz said. “It’s where I get a lot of my motivation and stimulation.”

Her dyes’ complex, kaleidoscopic colors also reflect Kurz’s science. She works to untangle relationships among the many factors affecting stream ecology, research she hopes will ultimately help protect waterways.

Complex problems, complex solutions

As an outdoorsy kid, Kurz’s stomping grounds were as diverse as her path as a scientist. A self-described “astronomy brat,” she followed her physicist dad and astronomer mom from one observatory to another, roaming through California canyons, exploring Arizona arroyos, then later wandering through the alpine foothills of Germany.

While the surroundings changed, her way of interacting with them never did: Thanks to her parents, the scientific method was a way of life.

“I was always inquisitive, asking, ‘Why is this rock here? Why is that mountain shaped like that?’ And they’d encourage

me to look for answers,” Kurz recalled. Science was personal and practical.



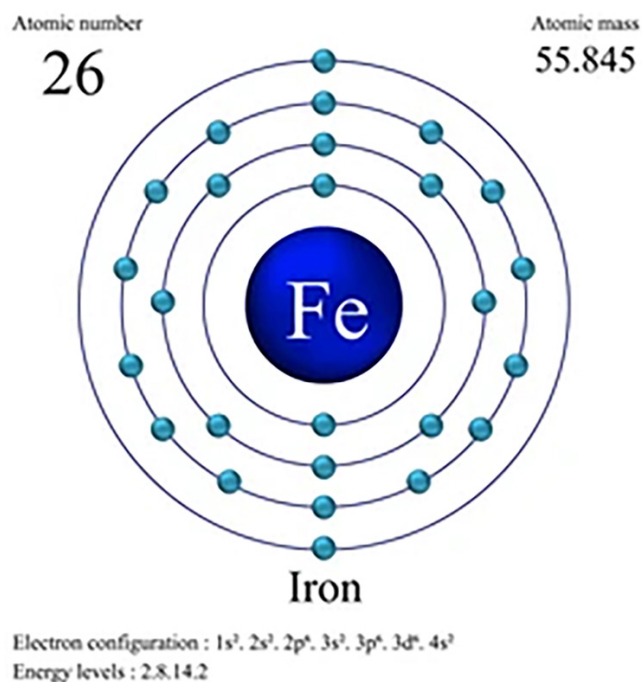
Marie Kurz calibrates fluorometers to measure tracer concentrations at a lowland stream in West Sussex, UK, in 2015. The data was later used by ORNL scientists to validate models of stream transport. Credit: Jay Zarnetske

She majored in geology at the College of William & Mary as an undergraduate. The field took a practical, “problem-first” approach, which resonated with her. “I’ve always been drawn to the more applied research side of things,” Kurz said, “to having a clear definition of, ‘Why am I studying this? Why is it important — especially societally?’”

As she pursued graduate work at the University of Florida, the answers to those questions became clearer: There were

plenty of problems hiding in the waters of the world, including mercury released from coal-fired power plants; PFAS chemicals (also known as “forever chemicals”) originating from sources such as takeout boxes and firefighting foam; and excess nitrogen and phosphorous from fertilizers.

Kurz continued her studies as a doctoral student, learning just how intertwined the myriad factors relating to stream health actually are. Her thesis focused on the filamentous algae that had overtaken many Florida springs by that time. Conventional wisdom held that excess nutrients from fertilizer runoff had caused the algae to run amok, but the research group she belonged to at UF found evidence that multiple processes were in play. Kurz’s research revealed that increased iron levels were one factor likely contributing to the growth. The group’s findings could help watershed stewards better understand how to save the springs.



“This world is so amazingly complex,” said Kurz, “and most solutions, especially to these complex problems like climate change, degraded water quality and loss of biodiversity — are as complex as the problem, if not more.”

A storied creek’s science legacy

Kurz’s primary tools for probing these complexities are her colorful tracers. The green is her “non-reactive tracer,” and corresponds to the “hydro” part of her title. The same fluorescent green concoction used to give the Chicago River a shamrock hue every St. Patrick’s Day can be used to measure the water’s highly variable flow. It shoots swiftly down the middle of the waterway but takes several minutes to appear in the shallow margins.

Along the edges of waterways and in the sediments below — areas known as transient storage zones — the flow is hampered by nooks and crannies, debris and rocks where water can linger.

Those are the spaces targeted by Kurz’s purple dye. This “reactive” tracer is used to gauge the amount of cellular respiration at different points in a stream. That measurement tends to be higher in certain transient storage zones where microbes are active. Microbes play a critical role in transforming nutrients and contaminants that wash into waterways. They turn mercury, for example, into the much more toxic methylmercury, which then makes its way up the food chain.

Examining the effects of mercury cycling has long been an area of expertise at ORNL. The Y-12 National Security Complex used mercury for weapons development in the 1950s and 1960s, and mercury contamination ended up in the surrounding environment. That included East Fork Poplar Creek, which originates at Y-12 and flows through the city of Oak Ridge. ORNL has collected data on the 23-kilometer long creek since the 1950s and for the past decade through its Critical Interfaces Science Focus Area, which is sponsored by the Biological and Environmental Research program in DOE's Office of Science.

Over that time, ORNL has developed extensive expertise in disciplines related to this effort, including biogeochemistry, hydrology, microbiology and watershed modeling, said Eric Pierce, director of the lab's Environmental Sciences Division. But perhaps even more importantly, ORNL has created an environment where a diverse team of specialists can piece together the elaborate puzzle of how these systems operate, each contributing unique insights.

"Having people from different scientific disciplines bring their talents to understand the stream — whether it's fish community population, whether it's microbial community populations, whether it's [remote sensing] data of the tree canopy, hydrology data, water chemistry measurements — that's rare," Pierce said. "And we have that in East Fork Poplar Creek.

It's the synthesis of all of that data that allows us to gain insights on not just our system, but other systems outside Oak Ridge."

Pierce plans to expand beyond the East Fork Poplar Creek stream corridor to study the entire watershed and provide an even fuller understanding of the system's complexity.

Kurz is the latest expert to join this long-running ORNL effort. She has arrived at a time when watersheds are facing new pressures, including increased development and more frequent and intense rains, causing more flooding and erosion. All these factors will impact how watersheds store, process, transport and discharge materials.

Kurz is clearly cut out for the work: "Fun" is her go-to adjective when discussing her job. But it's the potential impact of her research that really drives her. What she and her colleagues learn in a modest Tennessee tributary can be leveraged to understand and help protect watersheds around the world.

"Once you have that understanding, you can apply it to different places, to different problems," Kurz said. "That's to me the perpetual challenge that keeps me going." UT-Battelle manages ORNL for the Department of Energy's Office of Science, the single largest supporter of basic research in the physical sciences in the United States. The Office of Science is

working to address some of the most pressing challenges of our time. For more information, please visit energy.gov/science. — Kristen Coyne



Marie Kurz



Kimberly A Askey / Media Contact



Marie Kurz stands downstream from where she injected tracer dyes into Wissahickon Creek in Philadelphia, PA, in 2018. Credit: Marie Kurz



Donate to Georgia public schools and reduce your state taxes

Georgia Foundation for Public Education encourages support of state schools

Davis Knox is a resident of Athens-Clarke County and founder and CEO of Fire & Flavor. He serves as chair of the Georgia Foundation for Public Education. In this guest column, he explains the foundation's purpose and encourages Georgians to donate to public schools through the foundation.

By Davis Knox

Our schools have been through a lot in the last two years, and students and teachers need our support. If you love the state of Georgia and want to see our public schools strengthened, consider supporting public schools through a donation to the Georgia Foundation for Public Education. In exchange for your donation, you can receive a dollar-for-dollar state tax credit, which we call the Qualified Education Donation (QED) tax credit.

Donated funds are directed toward innovation in Georgia public schools, with a specific focus on the lowest-performing 5% of schools. Schools and school districts have the opportunity to apply for grant funds for projects they propose, meaning the ideas and projects we fund are developed and steered from the ground up, by those who know students best.

In May 2021, Gov. Brian Kemp signed legislation merging the Innovation Fund Foundation — formerly housed within the Governor's Office of Student Achievement — with the Georgia Foundation for Public Education, the philanthropic arm of the Georgia Department of Education. The two organizations now operate under the GFPE name, expanding our capacity to fund innovation and meet financial needs in Georgia's K-12 public schools. Specifically, the merger expands fundraising capacity for the Qualified Education Donation — we are working to increase donations made through the tax credit program and ultimately provide more funding to support innovation and expand opportunities for students.

The Qualified Education Donation has previously funded support for COVID-19 relief efforts in Georgia schools, Innovative Education Fund grants for teachers, the Governor's Honors Program, and more.

Specific examples include:

- Early County High School used an Innovative Education Fund grant to implement a program emphasizing real-world science experiences, with a focus on agriculture — helping students learn skills they could apply to future careers. The program trained students to use unmanned drone devices to survey farmland and collect data for local farmers.
- The Richmond County School System used an Innovative Education Fund grant to provide 24/7 on-demand and live instruction for K-12 students, allowing students the opportunity to receive tutoring services aligned with their needs and family schedules.
- Ivy Preparatory Academy used an Innovative Education Fund grant to implement Raspberry Pi, a program designed to teach students the fundamentals of computer science.
- Houston County's Northside Middle School used an Innovative Education Fund grant to establish a STEAM Farm to enhance hands-on and project-based learning. Specifically, the grant allowed the school to expand its recycling program and raised vegetable beds, and add hydroponic towers, a quail hatchery, an arboretum, and seating for an outdoor classroom.

All Georgians — from parents, families, and students to educators to business owners — benefit from a strong public education system. Donating through the Qualified Education Donation is one of the simplest and most impactful ways you can show tangible support for public schools in our state.

I encourage you to become a donor and invest in public education today.

To learn more, including tax credit limits based on filing status, go to gfpe.org/tax_credit/donor_information.



TIME CRYSTALS

By Holly Ober



We have all seen crystals, whether a simple grain of salt or sugar, or an elaborate and beautiful amethyst. These crystals are made of atoms or molecules repeating in a symmetrical three-dimensional pattern called a lattice, in which atoms occupy specific points in space. By forming a periodic lattice, carbon atoms in a diamond, for example, break the symmetry of the space they sit in. Physicists call this “breaking symmetry.”

Scientists have recently discovered that a similar effect can be witnessed in time. Symmetry breaking, as the name suggests, can arise only where some sort of symmetry exists. In the time domain, a cyclically changing force or energy source naturally produces a temporal pattern.

Breaking of the symmetry occurs when a system driven by such a force faces a déjà vu moment, but not with the same period as that of the force. ‘Time crystals’ have in the past decade been pursued as a new phase of matter, and more recently observed under elaborate experimental conditions in isolated systems. These experiments require extremely low temperatures or other rigorous conditions to minimize undesired external influences, called noise.

In order for scientists to learn more about time crystals and employ their potential in technology, they need to find ways to produce time crystalline states and keep them stable outside the laboratory.

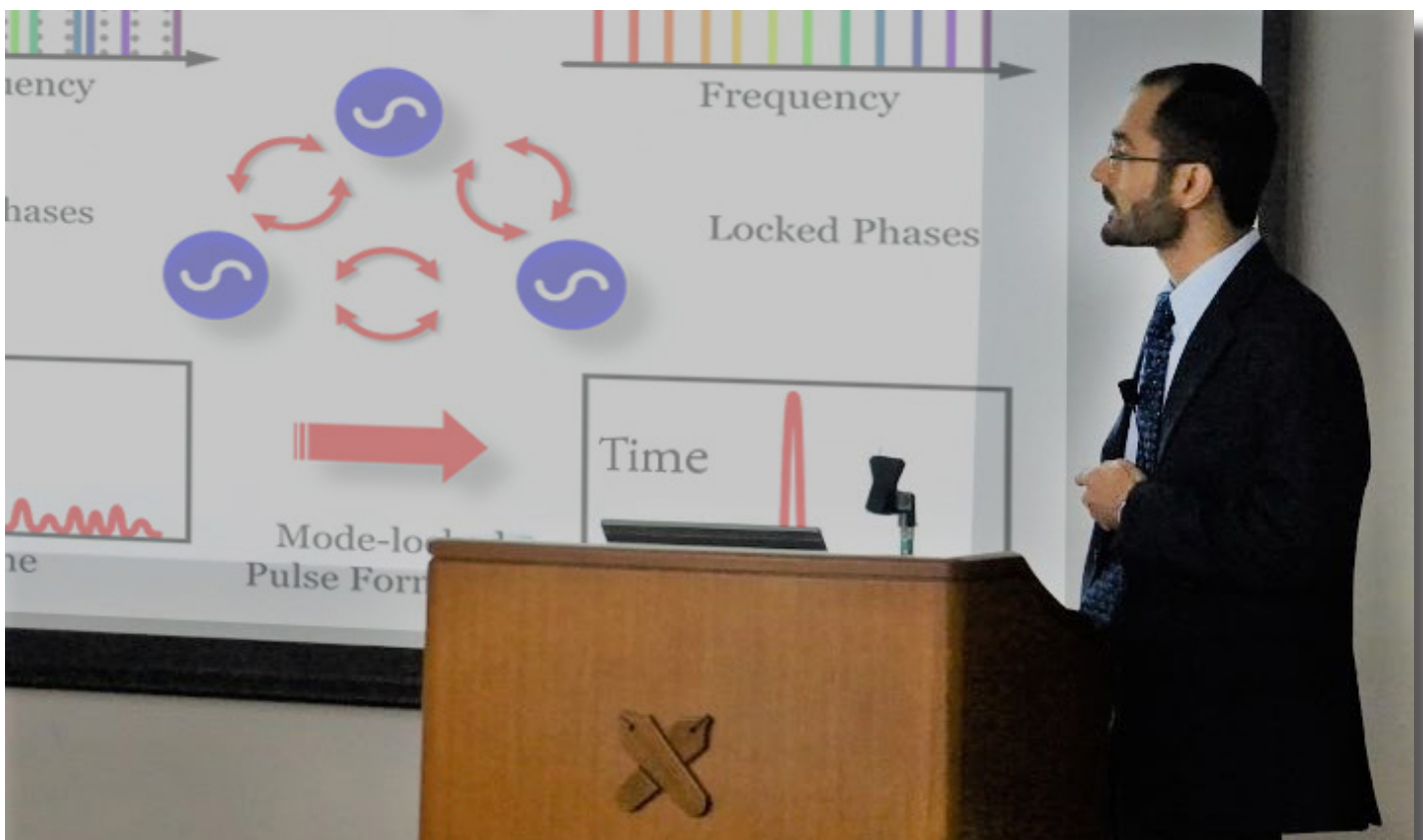
Cutting-edge research led by UC Riverside and published this week in Nature Communications has now observed time crystals in a system that is not isolated

from its ambient environment. This major achievement brings scientists one step closer to developing time crystals for use in real-world applications.

“When your experimental system has energy exchange with its surroundings, dissipation and noise work hand-in-hand to destroy the temporal order,” said lead author Hossein Taheri, an assistant research professor of electrical and computer engineering in UC Riverside’s Marlan and Rosemary Bourns College of Engineering. “In our photonic platform, the system strikes a balance between gain and loss to create and preserve time crystals.”

The all-optical time crystal is realized using a disk-shaped magnesium fluoride glass resonator one millimeter in diameter. When bombarded by two laser beams,

Dr. Hossein Taheri



the researchers observed subharmonic spikes, or frequency tones between the two laser beams, that indicated breaking of temporal symmetry and creation of time crystals.

The UCR-led team utilized a technique called self-injection locking of the two lasers to the resonator to achieve robustness against environmental effects. Signatures of the temporally repeating state of this system can readily be measured in the frequency domain. The proposed platform therefore simplifies the study of this new phase of matter.

Without the need for a low temperature, the system can be moved outside a complex lab for field applications. One such application could be highly accurate measurements of time. Because frequency and time are mathematical inverses of each other, accuracy in measuring frequency enables accurate time measurement.

“We hope that this photonic system can be utilized in compact and lightweight radio frequency sources with superior stability as well as in precision timekeeping,” said Taheri.



A Quest to Cure Cancer:

Student Wins Prestigious Pfizer Research Scholarship

Organic chemistry undergraduate Citlally Lopez strives to diversify science.



When people think of Pfizer, their minds tend to go straight to COVID-19 vaccines. But in a lab tucked deep within UNLV's chemistry building, there's a student researcher working with the company to cure the world of another debilitating illness — cancer.

Citlally Lopez is on a quest to break down cultural, gender, and language barriers on her way to becoming a physician-scientist who performs her own House, M.D.-version magic, unlocking cures for diseases while making medical care accessible to underserved populations.

A first-generation Mexican American junior majoring in biological sciences, Lopez is the first recipient in UNLV history of the 2021-22 Pfizer La Jolla Academic Industrial Relations Diversity Research Fellowship in Chemistry. The prestigious \$20,000 award aims to diversify a field long dominated by white males. Lopez's project, under the direction of noted organic chemist and UNLV College of Sciences professor Jun Yong Kang, focuses on creating a drug that stops the growth of cancer cells.

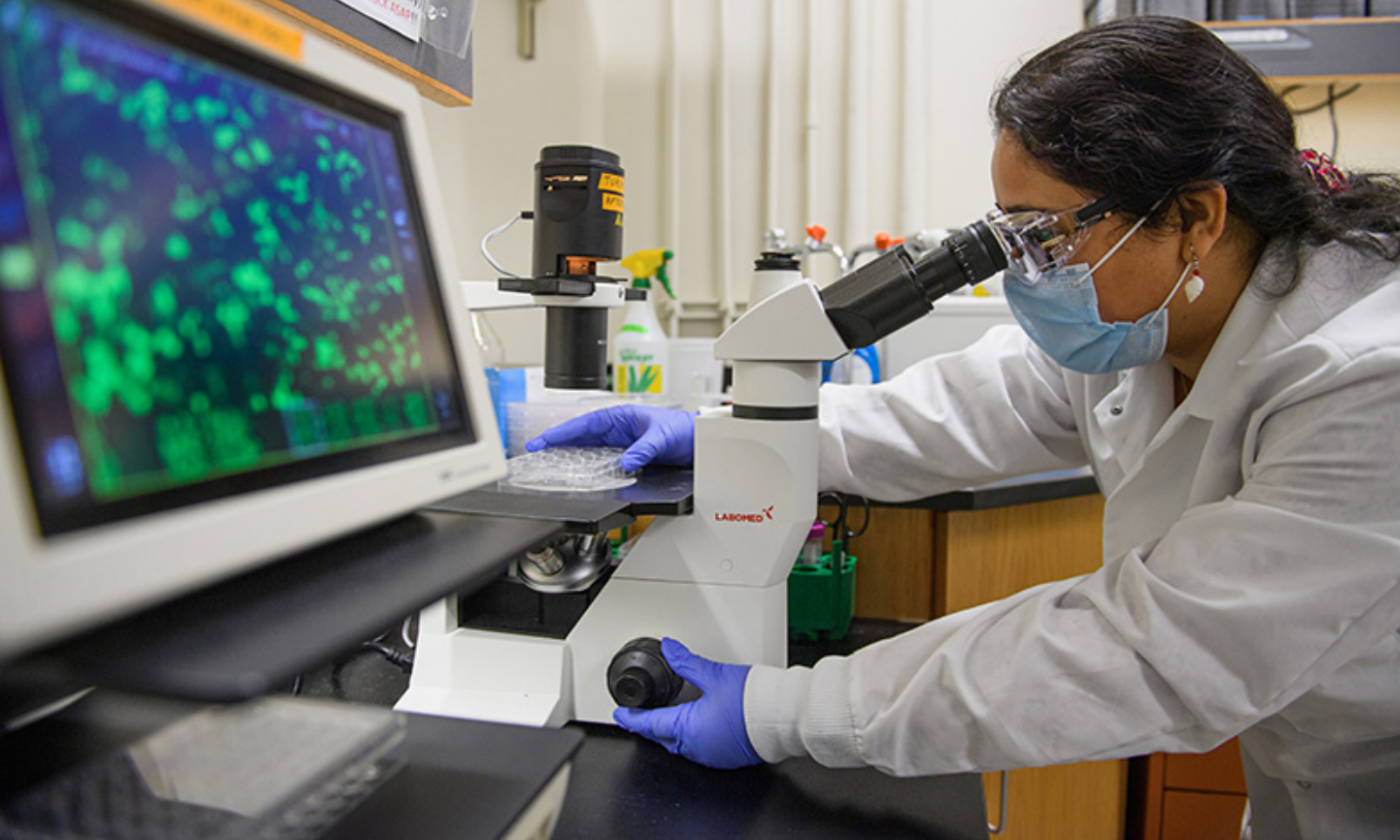
Lopez's days are spent peering into the window of a lab fume hood as she carefully mixes chemical compounds to produce from scratch CBB3001 — a molecule that has shown early promise in binding to cancer cells and halting their growth — then adding and removing various elements to create a new, even more effective anti-cancer agent. CBB3001 is thought to be especially potent in the fight against embryonic cancer and tumors of hair, muscle, bone, and reproductive gland tissues.

"I don't only want to be a doctor," said Lopez, a UNLV Honors College student. "I want to be actively searching for the cure." It's a big dream for the daughter of immigrants from small, secluded towns in Mexico, where "machismo" culture opines that women are better suited to housework than educational coursework. She is one of two women from her household pioneering a field dominated by people who look nothing like them: her older sister, Ruby, is currently in medical school.

Lopez felt the first twinge of excitement about science in elementary school while reading a nonfiction short story about people with careers in veterinary science and medicine. It was in a Valley High School classroom that a fictional family's pain surrounding a novel character's losing battle with Duchenne muscular dystrophy piqued her passion to help patients with incurable or rare diseases. To test her hypothesis, she began volunteering in the emergency room at Sunrise Children's Hospital, which only solidified her plans.

"I volunteer in a hospital with mostly Spanish speakers, and it's a struggle sometimes because some doctors are unable to really connect to the patients because there's a language barrier," said Lopez, who often helps translate. "I see a gap and I want to show the community what's possible."

She added: "It makes a huge impact for patients to have someone there who understands. And it's sad to see them in pain, connected to tubes. If you could find that one cure, it could make a whole world of difference." To help get there, Lopez dove headfirst into scientific research the summer before she officially enrolled as a UNLV freshman. She worked in several labs before joining Prof. Kang's research team in summer 2021. Kang said Lopez quickly became a top student, never missing a day of class and maintaining a 4.0 GPA while rapidly picking up research skills faster than any student he'd encountered in nearly a decade at UNLV.



“From that moment, I knew Citlally was really motivated. She demonstrated that she could do high-caliber work,” said Kang, adding that awards like the Pfizer fellowship are critical in attracting young minds to the industry who will drive scientific progress. “We have different ideas and perspectives in labs all across UNLV.

That’s how diversity , the culture, thinking helps develop ideas and technologies and create something new.”

Lopez is working with Kang to complete a report that she will submit to Pfizer in May. In August, she will travel to La Jolla to present her findings. She views the cancer research project as a building block that will help her one day synthesize cures for other diseases, like Duchenne muscular dystrophy.

“I vowed to myself that I would fervently pursue research in spite of all obstacles that were to come, and they did come,” she said. “Pfizer offers individuals of my community the chance to persevere and prevail in spite of one’s background.” Viewing herself as a “late bloomer” on the science journey compared to her peers, Lopez advises other aspiring scientists to “stick with it.”

“There’s a quote from Mulan that really resonates with me: ‘the flower that blooms in adversity is the most rare and beautiful of all.’”

Women's History Month

A perfect time to celebrate and elevate today's women who are making a difference

By Judy R. Goodman

For nearly 50 years, Faith Berger, CEO, Taylor Scientific, has followed trends related to women in various businesses. Today, she is a woman leading the way and recently registered her company through the Missouri Department of Equal Opportunity to become a certified WBE. Unique in the scientific industry - they are a distributor of laboratory supplies and chemicals - the positive responses and results were immediate.

Through the OEO, Taylor Scientific qualifies for the Missouri Buys program that automatically sends bidding opportunities in this category. They are now aiming for the WBENC that will qualify their business as a WBE in nine states.

"As we build our reputation and position, the WBE designation will become an integral part of our business plan,"



said Berger. “Today, corporations look to WBE’s to distribute their orders, to reflect that they actively give business to minorities. A bonus is that we are building relationships with other top-level women.”

Women are considered a minority category. Berger recognizes the opportunity to make inroads as more companies feel pressure, especially with a woman-owned under-served industry. Growing up in a St. Louis suburb, Berger’s business sense was influenced by her father and uncles who owned the go-to shoe store for families.

At Toby’s Shoes, parents and children would flock to get the latest in saddles, Keds, tennis shoes, and the ever-needed Mary Jane. Along with other children, she would play at the store and eagerly wait for her turn. In the stock room she was awed by thousands of boxes of corrective shoes, ballet, jazz, and sports shoes, along with dancing school clothes, new shoelaces, and shoe polish. Pulling down the lever at the cash register was a big thrill.

“These early influences inspired my thoughts about retail and fashion,” said Berger. “Unconsciously or consciously, witnessing so many positive customer experiences helped to set my high standard for excellence in business. Of course, another by-product is that I’m admittedly a shoe fanatic!”

Faith Berger’s career path is impressively multi-faceted, to say the least. She is, at heart, an artist. In her mind, science and

art have a distinct connection. While totally focused on business development at Taylor Scientific, she can be stimulated with ideas for her artwork, and come home to paint a painting.

For 27 years, she co-owned the well-known Barucci Art Gallery in St. Louis, which hosted hundreds of local and national artists, and donated art pieces from the gallery to a variety of nonprofits resulting in more than \$3 million for the organizations. “I also maintain a wonderful group for Faith Berger Art Consultants that manages my e-commerce, prints and order fulfillment,” explained Berger.



“We are set to start licensing images. My art business continues to operate because of the format I initially developed. There is so much useful crossover, regardless of the industry.

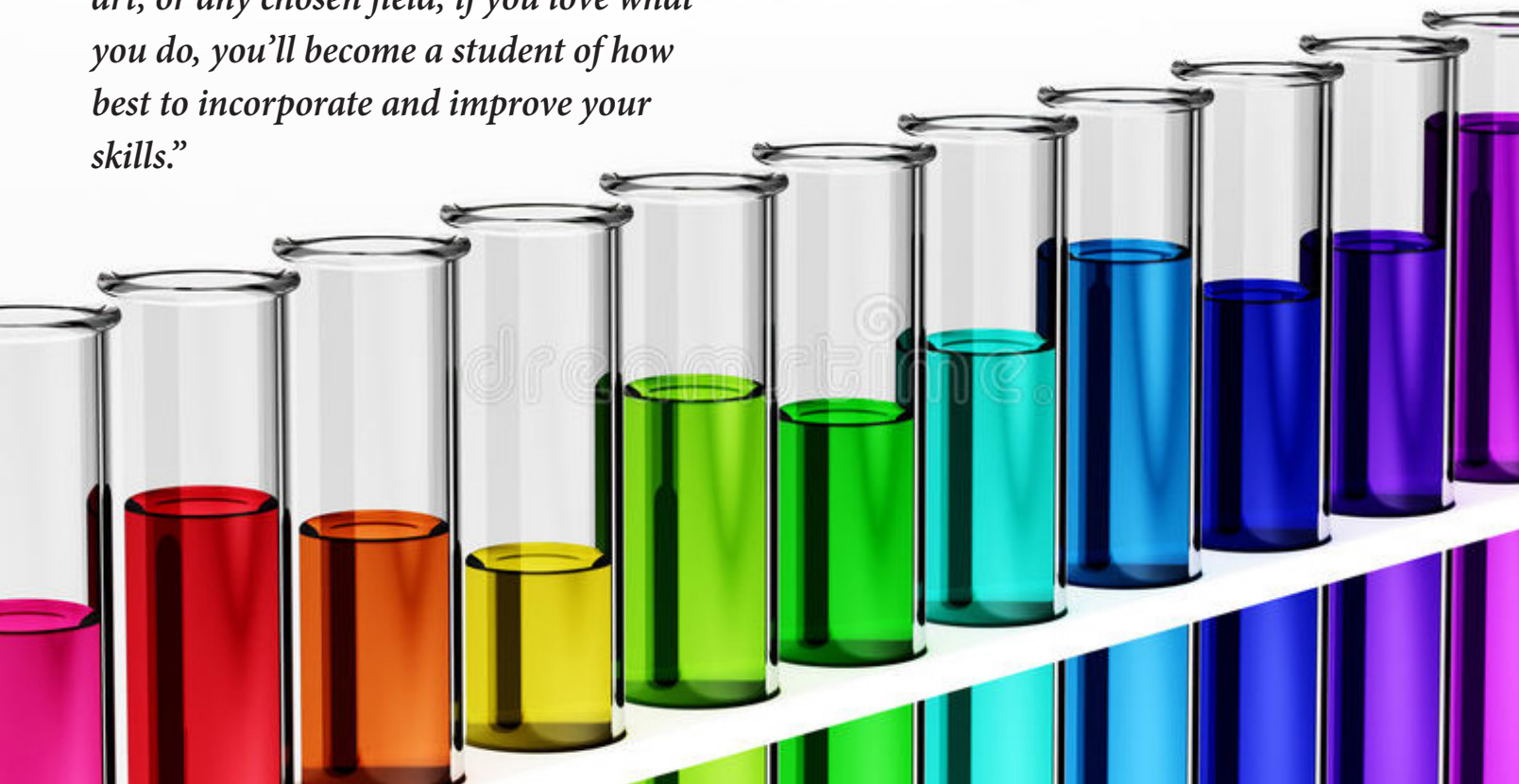
I find business to be an outlet for my creativity in planning new business strategies. Every year, I start with my own review and lessons learned. From there, I develop a plan based on the current economic conditions and try to fill needs by developing alternatives that are different from our competitors. Coupled with customer service and building relationships, we identify our niche and go for it.”

Berger offers a bit of mentor advice-

“Build on all your diverse talents, experiences, and management skills to further enhance your personal goals for achievement. Bottom line, whether it’s chemicals, art, or any chosen field, if you love what you do, you’ll become a student of how best to incorporate and improve your skills.”

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