College of Letters & Science

IN FOCUS

February 2022, Vol. 12, No. 2

Forging his own Twisted Path

UWM alum Brian Sammons thrives in his Milwaukee distillery

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Published the first Tuesday of each month by the College of Letters and Science at the University of Wisconsin-Milwaukee.

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UWM breaks ground on new chemistry building

UWM broke some very frozen ground on Wednesday, January 26, taking the first concrete step toward a new chemistry building. Inside the adjacent Kenwood Interdisciplinary Research Complex, dignitaries lifted a smoking lemonade toast to the start of a project that's been 10 years in the making.

At the suggestion of Chemistry Department Chair Joseph Aldstadt, the toast – smoking with the help of carbon dioxide cubes – was given in the name of Antoine Lavosier, known as the father of chemistry. Outside the building in near-zero temperatures, UWM alum Scott Christman (BS in civil engineering) put the excavator to work on the first shovelful of dirt.

Hailing the start of the long-sought project was a group that included Chancellor Mark Mone, UW System President Tommy Thompson, Milwaukee County Executive David Crowley and Scott Gronert, dean of the College of Letters & Science.

Many careers rely on chemistry

The new building will help prepare students for the many careers that rely on a strong background in chemistry, Mone said. While the stereotype of chemists is people in white coats working with beakers, skills in the field are used by nurses, pharmacologists, nuclear medicine technologists, forensic scientists, teachers and others, he said.

Thompson talked about how the new building will help grow talent in Wisconsin.

"This new facility will represent much of what the Wisconsin Idea is all about," Thompson said. "To meet the state's biggest and thorniest challenges and, most importantly, to equip our students with the knowledge and tools they need to succeed."

New state-of-the art facilities like this are really an investment in the potential of Wisconsin's citizens and businesses, Thompson said.

Helping the talent pipeline

Crowley emphasized how important the new building is to the county and how it can be part of efforts to increase the talent pipeline within Milwaukee County for both Black and white students in the STEM (science, technology, engineering and mathematics) fields that are so important to future careers. "We have to find ways to bridge these gaps."

The new building will help UWM attract, retain and train the next generation of scientists so they can contribute to innovation, discovery and analysis, Gronert said.

Left: Dignitaries including UWM Chancellor Mark Mone and UW System President Tommy Thompson lift a toast on Jan. 26 to the start of a new chemistry building at UWM. In the background is an excavator set to break ground on the project. (UWM Photo/Troye Foxe)

Figures from a 2021 American Chemistry Council fact sheet showed chemistry industry jobs generated $1 billion in payroll across Wisconsin and $121 million in state and local tax revenue. One in five new jobs in Wisconsin are in science, technology, engineering and math fields, which are rooted in chemistry, Aldstadt said.

UWM received state-supported borrowing to begin work on the building as part of the UW System's $1 billion 2019-2021 capital budget plan. Construction is scheduled to be completed in late 2023 or early 2024 at a cost of $118 million.

Below: The artist's rendering of the new chemistry building shows the view from the north. The building at left is the Kenwood Interdisciplinary Research Complex. (Kahler Slater)

Beyond UWM

The new four-story, 163,400-square-foot building will serve as a gateway to the STEM buildings and departments that house those subjects – science, technology, engineering and mathematics. It will include space for the nearly 5,000 UWM students who take chemistry and biochemistry classes each year.

In addition to UWM students who take chemistry, so do high schoolers and middle schoolers from across the state and K-12 teachers who come to learn how to design classroom lessons for their students.

"As the 'central science,' students in a broad array of fields — natural sciences, health sciences, engineering — have curricula requiring knowledge of chemistry, an understanding of the structure and reactivity of matter in its myriad forms," Aldstadt said.

The new building will replace one that was built in 1972.

By Kathy Quirk, University Relations

The threat at the theater: Film Studies professor highlights historic dangers at the movies

The COVID-19 pandemic has made it a dangerous time to go the movies – but then, there has always been danger at the movies, said Jocelyn Szczepaniak-Gillece. From gang bombings to mass shooters to pandemics, violence has often spilled off the silver screen and into the aisles.

And still, audiences flock to see the newest release.

Szczepaniak-Gillece is an associate professor of English and the Director of the Film Studies program at UWM. She's also a movie theater enthusiast and enjoys talking about the theater industry's – at times – sordid history.

She did just that in her recent essay, "Bombed Pasts, Burning Futures: Notes on Demolition and Exhibition," published in **Framework**. She explored how movie theaters have long been a hotbed of danger, and why we keep coming back.

A history of violence

When Prohibition's decline inevitably led to the repeal of the 18th Amendment in 1933, the nation's mobsters saw their bootlegging and rum-running revenue streams dry up. They looked around for another source of cash, and found it in movie theater unions.

In particular, said Szczepaniak-Gillece, Willie Bioff, an associate of the infamous Al Capone, had the idea to infiltrate the International Alliance of Theatrical Stage Employees. His idea caught on and soon mobsters were penetrating the ranks of movie theater unions throughout the Midwest and along each coast.

"There's racketeering happening around the country at that time and this is a small element of gang activity, but they were setting off bombs (in theater lobbies and auditoriums). Stench bombs were really big, which is so disgusting," Szczepaniak-Gillece noted. "Mobsters threatened to take away union projectionists, which is a problem because it's really, really hard to be a projectionist at the time."

Jocelyn Szczepaniak-Gillece (UWM Photo/Elora Hennessey)

Having a good projectionist was crucial; the film reels were heavy, the projectors were difficult to run, and nitrate film was extremely flammable – so much so that fires were a serious risk at theaters.

"There's a reason we see 'exit' signs displayed really prominently in a movie theater today; it's because of these fears of fire," Szczepaniak-Gillece said.

As years passed and the mob lost its stranglehold on theaters, society began to worry about other hazards in its place.

"(There were) fears around, young people are going to go to movies and make out and there will be a rash of teen pregnancies," she noted. "A major fear in the 1950s and 60s was fear of miscegenation. Most movie theaters are segregated before Civil Rights takes hold in the country. … In parts of the country, movie theaters are actually the site of Civil Rights protests."

Later, movie theaters became targets for gun violence, the most infamous of which was the Aurora, Colorado theater shooting in 2012. Then in 2020, the pandemic brought movie-going to a grinding halt. As theaters slowly reopened, audience members had to weigh the risk of sitting in a crowded room with strangers who might be spreading COVID-19.

The overlooked victims

But if audience members have faced dangers in their brief visits to the theater, employees have worked alongside it for decades. Szczepaniak-Gillece points to a 1930s mob bombing that killed a janitor at the Lows Midland Theater in Kansas City, Missouri. These days, not only do ticket takers and snack bar cashiers work with the specter of COVID-19, but they also face the ire of movie-goers upset at masking policies.

Not to mention that job protections have declined. Szczepaniak-Gillece noted how movie theater jobs, once high-paying, salaried careers with union protection, have devolved into low-wage, seemingly low-skill positions.

"I think it's high time to recognize that and to say that maybe there was some value to the risk when the job was stable and it paid more," she said. "I always hope, as a historian, that my work can enable whoever is reading to think about people in the past as similar to me, as somebody I can understand. By that same token, I hope we can bring that forward to being empathetic and kind to one another."

She hopes that theater workers will be included in the national conversation the country is facing regarding employee treatment and compensation.

'Like democracy'

If it has been historically fraught with danger, why do people keep going to the movies?

Szczepaniak-Gillece thinks it's for the same reasons that can make theater scary in the first place.

"You're in a room with a bunch of people you don't know. You're sitting next to somebody you didn't choose to sit next to, that you might never choose to sit next to. … And then you're sitting there in the dark. Who knows who is sitting there in the dark?" she said.

"But those are all the factors that make it really wonderful and give it this wonderful aura of possibility. Because if everything works exactly right in a movie theater, you're sitting with a bunch of people that you don't know that you would never choose to be with, and you're all thinking about the same thing at the same time. And that sounds like democracy."

It's dangerous. It's messy. But the moment when the lights go down and the music starts never gets old.

By Sarah Vickery, College of Letters & Science

Want to learn more about movie theaters and movie-going with Jocelyn Szczepaniak-Gillece? Check out her episode on the Curious Campus podcast, highlighted on **Page 14**.

UWM alum's 'Twisted' path leads straight to success and happiness

On the straight-edged corner of Becher and 1st Street lies the Twisted Path Distillery. The front doors open into a tasting room with scattered tables, a polished bar, and racks upon racks of flavored spirits.

Beyond the tasting room, owner Brian Sammons is in his distilling element. A huge still dominates the converted warehouse, across from the storage tank and the hot water heater that Sammons' father designed for his operation. Just beyond in another room, there's a second still, this one extra tall for making vodka. Sammons' bottling operation is in here too, and the wall is lined with bottles bearing the Twisted Path label.

Twisted Path has been in business seven years. Sammons has been building a reputation, and the business is becoming known for its custom cocktails.

It's not bad gig for a former spy.

Starting on the twisted path

Sammons grew up in Whitefish Bay, Wisconsin, and was not at all interested in school. He spent summers with his friends trailing after the band The Grateful Dead. When it came time for college, Sammons chose UWM because it was close and inexpensive.

He started out as an engineering major, but soon discovered it wasn't the right – ahem – path for him. Sammons started taking general education courses to fill his time and meet his graduation requirements while he figured out what he did want to do. Those gen eds were his spark.

"Around that age, my brain started waking up," he joked. Sammons found he loved economics, especially classes with Professor James Peoples. He fondly recalls arguing with Dr. Sami Hawi during philosophy classes, and he remains in awe of his political science classes with Professor Shale Horowitz.

"It was intense. I loved it. It was a super interesting subject and super interesting perspectives coming at a firehose pace," he recalled.

Somewhere along the line, Sammons said, he got interested in counterterrorism. After graduating from UWM in 1999 with majors in political science and economics, Sammons applied for and got a job with what is now the National Geospatial Intelligence Agency. His job was to pore over satellite imagery to look for patterns in terrorists' movements. He was searching for one in particular: Osama bin Laden.

"There was a handful of us playing 'Where's Waldo' in Afghanistan,'" Sammons said. "We found him, more than once." But, he added, though they knew bin Laden's location, they didn't have the weaponry available to act on that information.

And then came Sept. 11, 2001.

"This is war"

Sammons recalled being horrified, but not surprised, when the towers were hit.

"I was like, that's what we've been waiting for. Because we knew something was coming. We just didn't know what," he said.

He and his colleagues were immediately pulled into a meeting with Charlie Allen, the Assistant Director of Central Intelligence for Collection at the time. Allen told them all to get ready: "We're going to war."

Sammons and his colleagues began working around the clock for the next few months, stopping only to shower, eat, and sleep before returning to work hunting for bin Laden. Soon after, Sammons is sure that he found the mastermind behind the 9/11 attacks hiding in Afghanistan – but the personnel and equipment immediately available would not be enough to take bin Laden out. Sammons begged his superiors to delay their attack, but he was overruled. The attack went forward. Bin Laden survived and escaped as Sammons feared he would. The U.S. would not find him again until 2011.

Later, Sammons transitioned his role in the CIA and began training to be a case officer for the clandestine service – "what normal people would call a spy," he joked. He was assigned to counterintelligence where he worked to keep foreign governments from discovering U.S. intelligence operations.

After a career in the CIA and as a lawyer in Milwaukee, UWM alumnus Brian Sammons ('99, BA Economics and Political Science) is now enjoying his time as the founder and owner of Twisted Path Distillery in Milwaukee. Photo by Sarah Vickery.

The path to civilian life

Sammons knew he wanted to raise a family, and a CIA career was not the most conducive to his goal. He entered law school at UW-Madison, peeled back his agency cover, met his now-wife, and left the CIA altogether. Sammons took a job as an assistant district attorney in Milwaukee County as they began their family, and later took a position at the law firm von Briesen and Roper.

A corporate lawyer, Sammons is not.

"At that point, we're at, I hate my job and I'm working a lot," he said. He and his wife wanted to be their own bosses and make their own hours. If they were going to be working as hard as they were, Sammons, reasoned, it should be at jobs that they liked.

He credits his wife, Laura Singleton, for being the driving force behind quitting and starting their business venture. "My wife is the one with all the guts," he said proudly.

Sammons had been home distilling as a hobby ("Which is a felony, but it's outside the statute of limitations so I don't mind admitting it"), so Singleton suggested founding a distillery. Twisted Path Distillery opened its doors in 2014.

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Distilling, distilled

Twisted Path Distillery makes small-batch, organic spirits from scratch. Founder Brian Sammons crafts vodka, whiskey, rum, gin, and more in his warehouse location in Milwaukee's Bay View neighborhood.

Distilling follows several basic steps. First, Sammons creates a mash in hot water. Different fermentable materials will turn into different liquors. Whiskey is made from grain, for example, and rum from molasses. Interestingly, there is no rule on what base you use for vodka, he added – making vodka instead relies on how the mash is distilled.

After the mash is made, the starch is broken apart by special enzymes to make sugar. Yeast feeds on those sugars, releasing alcohol as a byproduct. Sammons boils that mix in his still. The alcohol vapor evaporates and is turned back into liquid in the condenser above the still.

When the alcohol is ready, Sammons dilutes it with water or other liquids – like chai tea – to both get the spirit to the correct proof and to add flavor. Then, it's time to bottle the spirit and bring it out for the world to enjoy.

Twisted Path

Continued from Page 6

With a twist

“The idea of Twisted Path is to do our own thing and don’t think about what other people might do,” Sammons said.

That guiding principle has led Sammons to rethink standard distilling procedures. When he couldn’t find an electric still that could make American whiskey correctly, he invented one and patented it. He and his bartenders spent four years perfecting a Bloody Mary vodka so that they didn’t have to bother with the standard Bloody Mary mix.

Sammons also has a “flavor library” – an enormous rack of flavored liquors and spirits that he and his bartenders can experiment with to come up with new cocktails. You’ll find tastes like garlic, allspice, schisandra berries and bupleurum root.

“I like figuring things out and coming up with new things. There is infinite opportunity to do that,” he said. Some of those experiments have been interesting to say the least – sugar snap pea cocktail, anyone? – and some of have been great successes. Sammons has a chai vodka that he makes by diluting pure vodka with his wife’s chai tea recipe.

She’s very much a part of the business, Sammons said. “She’s very smart. Day to day, I’m in the weeds. She can take the 10,000-foot view.”

He also credits UWM for some of his success.

“It was easy to get a well-rounded education there. It’s about learning how to learn and learning how to think,” he said. “I don’t want to do just one thing my whole life. I want to keep doing what’s interesting – following the twisted path. Going forward, I’m well-equipped to figure out what I need to figure out.”

No matter how many twists that path takes.

By Sarah Vickery, College of Letters & Science

What: Twisted Path Distillery

Where: 2018 South 1st Street, Milwaukee

Hours: Wednesday and Thursday, 5-11 p.m.
Friday and Saturday, 5 p.m.- 12 a.m.

More info: https://www.twistedpathdistillery.com/

Must be: 21 years of age

Family fun with Science Bag!

Join the UWM campus community for a brand new Science Bag in February!

What goes into science?

Have you ever wondered what makes science, well, science? We often focus on the logic, rigor, measurement, and proof needed for science. In this month’s Science Bag, we’ll discuss these and other aspects, and make the case that creativity and imagination are as much a part of doing science as of making art.

The February Science Bag is presented by Associate Professor Alan Schwabacher, Department of Chemistry and Biochemistry.

Science Bag is a family-friendly educational program designed to engage all from ages 8 to 88. Shows are every Friday in February at 7 pm plus a matinee on Sunday, February 13 at 2 pm. Location is the UWM Physics Building on the corner of Kenwood and Cramer, Room 137. No registration necessary.

WHAT: Science Bag

WHERE: Physics 137

WHEN: Feb. 4 at 7 p.m.
Feb. 11 at 7 p.m.
Feb. 13 at 2 p.m.
Feb. 18 at 7 p.m.
Feb. 25 at 7 p.m.

MORE INFO: https://uwm.edu/science-bag/

Mathematics student broadens her horizons in Hungary

The **Budapest Semester in Mathematics** program brings American and Canadian college students to Hungary for a semester of study under Hungarian mathematics instructors hailing from the country’s top universities. Taught in English, the classes are rigorous and cover statistics, logic, analysis, and more.

Taking four high-level mathematics courses in a foreign country was harder than anything UWM mathematical sciences major Olivia Peterson had ever done.

But, she added, it was also one of the best things she’s ever done.

“It was definitely a challenge and I do feel like I rose to that challenge,” she said with pride. She has long enjoyed math and began UWM with an intent to major in education and teach art or math. But, she discovered, if she wanted to teach math, she wanted to learn more math first. She switched her major to mathematical sciences, and now wants to teach at the university level.

Peterson spent the fall 2021 semester living in Budapest, studying mathematics, and traveling around the country. It was her first time overseas.

UWM partners with the Budapest Semester in Mathematics program, and also invites students to apply for the E. Paul and Jane Humke International Mathematics Scholarship for financial support. Peterson, who was awarded the scholarship, saw posters for the program hung near her classrooms, and mathematics professors Gabriella Pinter and Istvan Lauko, Hungarians themselves, encouraged her to apply.

Her start was delayed thanks to the pandemic. When she was finally able to go, Peterson already had enough credits to graduate from UWM, but she put it off in favor of completing the program. She graduated this past December instead.

It was worth it, said Peterson.

“I do feel like a different person with new experiences and different outlooks. Just because of the rigor of school, (it) definitely gave me a little perspective of what I will be doing and encountering as I go further in my education,” she said. “I made a lot of good friends who I hope to continue to be friends with. I just loved the experience of being able to go somewhere new.”

Olivia Peterson, who majored in mathematical sciences and graduated in December, smiles against the backdrop of the Hungarian Jewish Museum and Archives in Budapest, Hungary, during her study abroad in that country. Photo courtesy of Olivia Peterson.

The pandemic did curtail some of her travel plans. The students were not allowed to leave Hungary to visit neighboring EU countries for fear that they would not be allowed back into Budapest over Covid concerns. Even so, Peterson and her friends manage to find plenty of things to do within Hungary’s borders.

“(We went to a town) called Szentendre, and that was really pretty. It was super-picturesque. … We went during an arts festival. We visited a bunch of stores and saw a dance performance. We took a boat to get there, which was really cool – on the Danube. We went to a castle in a town called Visegrád and ate at this Medieval reenactment restaurant. They had all of the Medieval plates and food, and everyone was dressed up,” she recalled.

And Budapest itself had plenty to offer.

“I could just walk around and look around at the whole city. All of the buildings looked really old and intricate and beautiful,” she said.

Her favorite memories include attending a live concert when Budapest hosted the MTV European Music Awards and regularly picnicking with her friends in one of the city’s parks.

She hopes to return; she’s applied for graduate school in Hungary, as well as in Germany and Amsterdam.

By Sarah Vickery, College of Letters & Science

Better pay for truckers may save money over the long haul, study finds

Increasing average pay for truck drivers by about 6% might entice them to stay longer in an occupation that historically has had high turnover, while also saving trucking companies money, a study says.

The promise of higher paytypically helps to keep workers in any occupation from looking around for new jobs. But there is added urgency to bring stability to a trucking industry straining to keep up with an uptick in shipping.

For instance, the Biden administration has **announced a plan** to recruit and train new truck drivers to help ease logjams in the supply chain that have been made worse during the pandemic.

“This problem was there long before COVID, but COVID just made it worse,” said James Peoples, a UWM economist.


James Peoples

6% higher wages

Peoples and Steven Trick, a former lecturer in finance at UWM, are two of the authors of **a study published in November** in the journal *Research in Transportation Economics* that found that the average salary of drivers who stayed on the job in 2018 was 6% higher, or $2,836 more a year, than the average salary of drivers who left their job.

That wage difference is less than the roughly $3,600 it would cost a trucking company to replace a driver, what the study called a conservative estimate that accounted for expenses including testing fees, referral or sign-on bonuses and recruitment, orientation and training costs.

The impact of driver shortages is felt most on long-haul routes, Peoples said.

“It’s been that way this entire century, and the reason for that is that companies have offered relatively low wages, relative to the work that is required,” he said.

Long-distance truckers can be on the road for long periods of time and away from their family. Some rest stops may not be the most inviting of places to take breaks.

Some may prefer churn

Peoples said one theory is that some trucking companies may prefer more churn because it keeps wages low if they are always hiring new workers.

However, there are signs that driver pay was increasing before the pandemic began.

American Trucking Associations has said that the average pay, including bonuses, of a long-haul driver working a national, irregular route, was $58,000 in 2019, up $6,000 from the trade group’s previous survey in 2017.

The **White House said** that truck driver wages have increased at least 7% in the last year alone, though employment in some parts of the industry remain below pre-pandemic levels. The Bureau of Labor Statistics has estimated that the number of long-haul truck driving jobs would increase 6% between 2020 and 2030, with much of the **projected growth** due to the recovery from the COVID-19 recession.

Driver shortage may hit record

Another American Trucking Associations **report in October** estimated that the driver shortage was on target to hit a record high of 80,000 drivers in 2021. Among reasons cited were a high number of retirements of older drivers, lifestyle issues and a federally mandated minimum age of 21 to drive commercially across state lines that posed a recruiting challenge.

“COVID presented an environment for some workers to take time away and re-evaluate and say, ‘I really don’t need to work in this environment unless you properly compensate me,’” Peoples said. “This is a labor market where the leverage is with the employee.”

Another solution to ease the driver shortage is to make a male-dominated occupation more attractive to women, Peoples said, which might include creating safer and more welcoming environments for female drivers at truck stops. The trucking association said in October that women make up just 7% of the driver workforce.

By Genaro C. Armas, University Relations

Professor lands grant for homeschoolers

Gladys Mitchell-Walthour is an associate professor and the chair of the African and African Diaspora Studies Department, but it’s her teaching outside of UWM that just landed her a $10,000 grant.

Mitchell-Walthour is a member of a group of Black Milwaukee families that homeschool their children. The group, called Freedom Kilombo, meets weekly so students can interact with their friends and get additional learning opportunities through field trips and special classes.

“We all worked together to apply for this grant,” Mitchell-Walthour said. “The focus was not just on our children, but how can we use these resources to reach out to other Black homeschoolers?”

Students in the Freedom Kilombo homeschooling group show off the African masks they created after learning a lesson on their cultural significance from UWM PhD student Maria Hamming (African and African Diaspora Studies), seen on the left. Photo courtesy of Gladys Mitchell-Walthour.

She and two other mothers, Rachel Johnson, a PhD candidate at UW-Madison and a UWM alumna, and Aletha KhielSelah, led the charge to submit the grant proposal. The monies, awarded by a private foundation that has chosen to remain anonymous, will fund educational opportunities for children in the homeschooling group. Mitchell-Walthour notes that the grant will help pay for things like museum memberships or guest lecturers and speakers.

That’s important because Mitchell-Walthour and the other parents in Freedom Kilombo want to make sure that their children are getting an education beyond reading, writing, and mathematics.

“For me, it’s really important that young people – it would be nice if *all* young people – were able to see the contributions of Africans and African descendants in all subject areas. One very easy thing we do, even when teaching math, (is) we’ll talk about Black mathematicians. I even organized a series of Black engineers who spoke to (the students),” Mitchell-Walthour explained.

“For me, it’s really important for them to see – of course there are Black engineers! It’s important for them to know that anything is possible. If you want to be an engineer, you can be an engineer. If you want to be a scientist, you can be a scientist. But in a school, they’re not going to necessarily get there. If we were teaching a curriculum void of that, they’re not going to get it.”

That’s why, she added, it’s important that her group intentionally showcases the contributions of Black scientists, scholars, writers, and more, so that seeing Black people in those professions becomes normalized for the students.

Beyond that, Mitchell-Walthour has also made sure that the students of Freedom Kilombo are introduced to the abundant educational opportunities around Milwaukee, including at UWM.

“We visited the (UWM Library) Archives; we visited the American Geographical Society Library. If UWM had African dance (classes or events) we would bring the kids there,” Mitchell-Walthour said.

She’s also invited one of her own graduate students to teach a class on African masks to the group – a lesson met with great enthusiasm – and even brought the kids to tour UWM’s Connected Systems Institute.

“I pass this building all the time, and I’m like, oh my gosh – there are robots in there! I was super excited,” she joked.

Mitchell-Walthour chose to begin homeschooling her daughter, now 8 years old, about four years ago after her child faced racism and sexism at two different preschools. Being a part of Freedom Kilombo has let Mitchell-Walthour’s daughter gain some excellent educational opportunities alongside kids who look like her.

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UWM physicist untangles how new superconductors work

In the nanoscale world, chemical, electrical and optical processes occur among relatively small numbers of atoms. And these processes, which are too small to be seen, behave according to "quantum mechanics," a different set of governing rules than bulk materials – those at human-scale.

Those atomic behaviors could have a host of uses in the human-scale world. That's why scientists are so interested in materials called superconductors, which are bulk materials that display some quantum behaviors. However, most of them will become superconductive only at very low temperatures – typically around minus 350 degrees Fahrenheit.

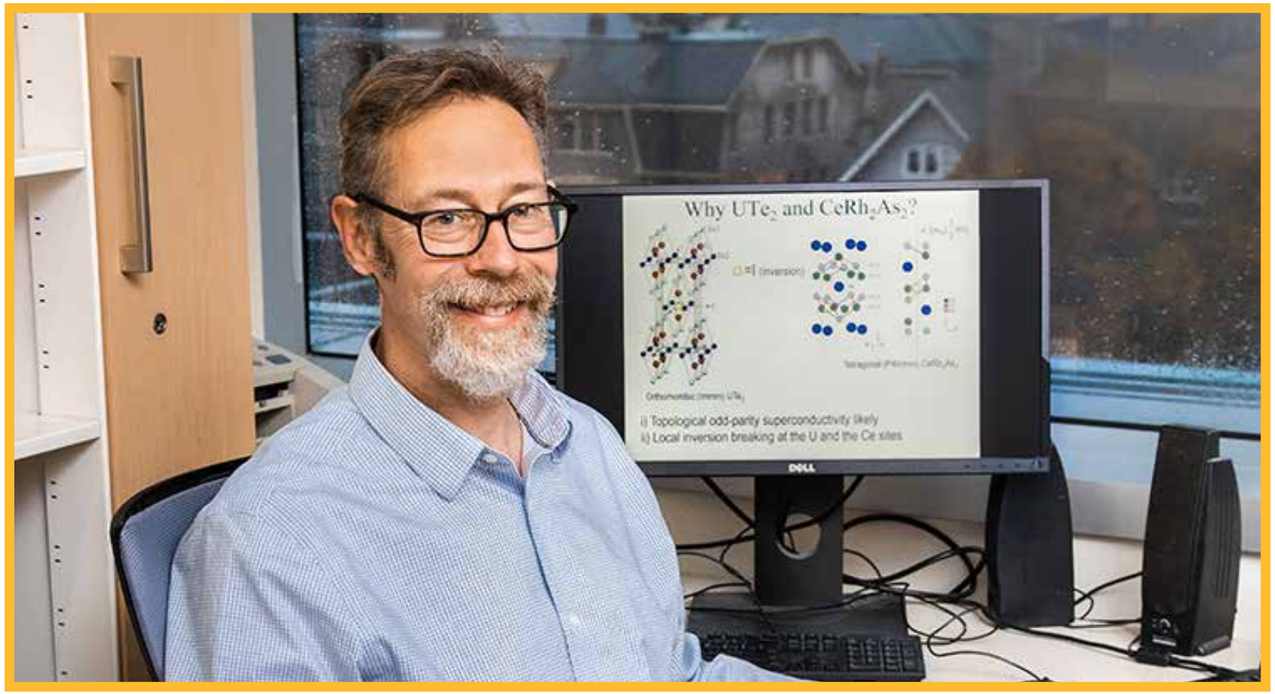
In superconductors, electrons flow freely without any resistance that is found in other bulk materials that conduct electricity. This could lead not only to dramatic improvements in energy efficiency in the electrical grid, but also produce next-generation computers – quantum computers – that can store much more information than current computers.

Two teams of scientists, both of which included UWM professor of physics Daniel Agterberg, have published papers in the journal Science on the behaviors of two new superconducting materials, UTe2, and CeRh2As2.

Agterberg, recently talked about the research and its importance.

Tell us a little more about quantum physics as it relates to superconductors.

We've probably all heard that electrons can behave like either particles or waves, right? Quantum mechanics usually emphasizes the wave aspect. So, you can imagine



UWM physics professor Daniel Agterberg was part of two teams of scientists who published papers recently in the journal *Science* on the behaviors of two new superconducting materials, UTe2, and CeRh2As2. (UWM Photo/Elora Hennessey)

electrons as oscillating in space and time. We call that their "wave functions."

In the context of superconductivity, electrons pair up to make two-electron molecules. We're interested in the wave functions of these molecular bound pairs.

Superconductors are so fascinating because they create these wave functions over an entire material, so we see manifestations of quantum mechanics in the human-scale world. This means you can get a different kind of behavior out of these types of materials.

Superconductors aren't widely used, relatively speaking. Why is that and where are they currently used?

Because superconductors conduct electricity perfectly, you'd most likely use a superconductor in power cables. And there are some places where they've replaced high-density copper wires with superconducting cables. The downside is, of course, you have to cool them. So, whenever you make the wire, you need some kind of cooling sheath around it to make sure they stay very cold. It's not cheap, and so you won't see them everywhere.

Perfect conduction is also useful for making magnetic fields. Superconductors are used this way in MRI machines and submarine motors. They're also used as filters of electromagnetic fields, used by base stations for cell phones.

How do superconductors benefit quantum computing?

A quantum computer uses the properties of quantum physics to store information and perform computation. Conventional computers store information on a bit. And that bit has only two states – zero or one. In a quantum computer, you can have any combination of zero and one. And so there's an infinite amount of memory in a quantum bit, or qubit. The phase of the superconductive wave plays a role in that.

What is so special about these two new superconductors you studied?

The "S" wave function is the simplest, most symmetric molecule you can make from two electrons binding together. But in the two papers we have just published, we found that UTe2 and CeRh2As2exhibit a different kind of wave function, called a "P" wave.

These "P" wave superconductors allow new applications. They tend to be much more robust to magnetic fields than "S" wave superconductors.

And, on the boundaries of these materials, you have low energy states that can conduct more than what's on the inside of the material. These states on "the edge" could be manipulated to become the qubits needed for a new class of quantum computer.

Why can't quantum computing be achieved with an "S" wave superconductor?

It can, and there are certain quantum computing technologies that use "S" wave superconductors as the basis for their qubits. But "P" wave superconductors would allow qubits to be more robust to environmental changes. Existing quantum computers are plagued by noise, vibrations, temperature fluctuations and other physical interference.

What has been your role in this research work?

My side of things is really about the fundamental understanding of superconductors themselves. I investigate what kinds of superconductors we can make and then what properties they have that would be different than properties that we already know about. The experiments that my collaborators have done show that the "P" wave happens. And my contribution was to show how the theory explains how it happens.

What's the next step for the groups that you've been working with on these two papers?

One clear next step is to verify that our explanations of the properties we found are right. What we need to understand now is why do we get those "P" wave superconductors? What is the origin of them? If we can understand them better, we can learn how to make more of them.

By Laura Otto, University Relations

Homeschool grant con't.

Continued from Page 11

Gladys Mitchell-Walthour

"My daughter is in a lot of activities. She's usually the only Black girl," Mitchell-Walthour noted. "She takes Mandarin; she's the only Black girl. She takes violin; she's the only Black girl. I could go on and on. … At least in her (homeschool) learning experience, she won't have to be the only. She'll be there with other Black children."

She hopes the grant will allow more Black students around the Milwaukee area to get the same opportunities with the same classmates.

"I want other people who may not have the same resources to be able to (access this learning)," Mitchell-Walthour said. "We don't want people to feel like, I don't have the money so I can't be involved. … There should really be no barriers of entry to learning."

By Sarah Vickery, College of Letters & Science

Catch up with the Curious Campus podcast

Join UWM for discussions on science, discovery and culture. Curious Campus is produced by UWM, in cooperation with its research partners. Our work improves the economic outlook and quality of life of our city, state and global community.
www.wuwm.com/show/curiouscampus

How movie theaters responded to the pandemic


Jocelyn Szczepaniak-Gillece


Andrew Mencher

Many cinemas have reopened in 2021 after being shuttered during the COVID-19 pandemic. There have been other positive signs that theaters may be rebounding, especially as more Americans get vaccinated. Still, some customers are wary about returning to indoor public spaces such as theaters.

On this episode of Curious Campus, we talk about movie theaters and the movies with Jocelyn Szczepaniak-Gillece, an associate professor of English and Director of the UWM Film Studies program; and Andrew Mencher, director of programming and operations at the **Avalon Theater** in Washington, D.C.

Mencher also is owner and operations director of **The Cinema Club**, a national organization that, in non-COVID times, offers sneak previews to new independent and foreign films, and hosts post-screening discussions. Szczepaniak-Gillece is a co-moderator of the **Milwaukee chapter** of The Cinema Club.

Pick up some popcorn and listen to the full show at **WUWM.com** or on your favorite podcast app.

What makes watching a movie in a theater special?

Szczepaniak-Gillece: To me, it's about the democratic aspects of the movie theater, how there is a possibility for all manner of different people to enter the theater. That's not to say that it's always been a democratic space, nor one that has welcomed everyone at all times.

We don't choose our seatmates at the movie theater, usually, and that's a really powerful thing – the possibility of experiencing something sweeping, emotional and empathetic with a person we wouldn't necessarily to choose to sit next to. That doesn't happen very much.

Mencher: I come down along the lines of someone who would define this from the industry side, and as a spectator and movie lover, and that is, "What isn't great about the going-to-the-movies experience?" There's the grand aspect of watching something on a huge screen with excellent sound and excellent lighting, and truly being forced to sit there and pay attention to the time the movie is going to unfold. An inability to walk away and be distracted – I think that has become more and more precious these days, because it's nearly impossible to find a similar situation.

How were smaller, nonprofit or independent theaters affected by the pandemic?

Mencher: For a nonprofit theater, we had a lot we could lean on. We were able to take advantage of (federal Paycheck Protection Plan) loans and local grants. A lot of theaters did very well by the Shuttered Venue Operators grant. Frankly, that was a lifeline for an enormous number of venues that would be gone if not for that bill.

We also had people who donated. It was somewhat of an advantage over the commercial venues that didn't have that same sort of customer base that they could lean on. I certainly have my concerns about how we go forward and what it looks like. Our sort of theater, and I would imagine theaters like the Oriental Theatre in Milwaukee, which has a strong customer base, would probably be in reasonably good shape.

How have theaters tried to bring back customers?

Szczepaniak-Gillece: I've been to the movies a few times this year, each time has been packed, which I think is a good sign. I've gone to the Avalon Theater in Milwaukee, and I think part of the reason that the Avalon has been so successful is not only its strong customer base, but it's one of those theaters that relies on concessions.

You can get nachos and chicken fingers delivered to your seat. In this moment of crisis, there is this pivot toward extra possibilities in the movie theater. With concessions, including getting a full meal, and, certainly in Milwaukee, being able to buy alcohol and getting it delivered to your seat, it's a big part of bringing audiences back in.

By Genaro C. Armas, University Relations

Fish may hold the secret to reversing blindness


Ava Udvadia


Fiona Watson

When a person's optic nerve is damaged, by disease or injury, their eyesight goes with it. The nerve can't be healed, and blindness is permanent.

That's not the case for fish, which can regenerate their optic nerve in as little as 12 days and regain their eyesight about 80 days after an injury. Amphibians, like frogs and salamanders, also can reverse vision loss through regeneration.

Scientists are closing in on identifying the exact genetic components that fish and amphibians use to regenerate their optic nerve after injury. The work may one day provide new treatments for human eye diseases and prevent permanent vision loss.

On this episode of **Curious Campus**, we talk with Ava Udvadia, UWM associate professor of biological sciences, and Fiona Watson, associate professor of biology at Washington and Lee University. The two scientists, one of whom studies regeneration in fish and the other who studies it in frogs, discuss their work in this conversation.

Would you explain the basics of vision for us and how that relates to the work you're doing?

Udvadia: Our eyes are just the detectors of light, and that raw light information has to get to the brain to be processed as an image that we actually perceive. The light information gets transmitted to the brain through the optic nerve.

In diseases such as glaucoma or other optic neuropathies, that conduit gets damaged. So you may still be collecting all the light that you need with your eyes, and your brain may still be working fine, but there's no communication between them. The problem is, humans don't have the capacity to regenerate nerves in our central nervous system the way fish and frogs do.

Watson: During our development, our nerve cells grow and connect the eyes to the brain. This is a developmental program, initiated by a particular set of genes. Once they've established the connection, a whole other set of genes is used for maintaining that connection. So people have the same genes that fish and frogs use for regeneration, but we can't reactivate the genes that are turned on during development once the optic nerve is built.

What controls the genetic programming necessary for regeneration in fish and frogs?

Udvadia: We can think of our genome as a recipe for making every part of us. A recipe contains the list of ingredients and the instructions of what to do with those ingredients. Think of the ingredients as our genes. The instructions of how to build the nerve, for example, would be analogous to the genes' regulatory regions which control when to turn the genes on, how much to make, and where to make it in the body. We're trying to understand how the method for development and the method for regeneration differ so we're looking at the regulation of those genes.

Watson: Each of us has generated a list of "ingredients" – the genes that are active and not active during regeneration – for frogs and fish. And we're now comparing the regulatory regions to see and timing the progression of regeneration in each animal.

Ava had worked out that for zebrafish. And I've been able to work out the entire timeline for 1-year-old frogs.

How can this work help save the eyesight of people?

Udvadia: Ultimately we hope to take what we learn from the fish and frogs and apply it to humans. And we think that we can. We hope to be able to compare the injury response of humans to the response of fish and frogs. Then we can begin to get at how to tweak the response in humans.

By Laura Otto, University Relations

People in Print

Andrew Porter (Foreign Languages and Literature and Classics). 2022. Homer and the Epic Cycle: Recovering the Oral Traditional Relationship. Boston: **Brill**.

Andrew Whetten (Mathematical Sciences). 2022. Detection of Multidecadal Changes in Vegetation Dynamics and Association with Intra-Annual Climate Variability in the Columbia River Basin. in **Remote Sensing** 14(3): 569.

Craig Guilbault (Mathematical Sciences), Molly Moran, and Kevin Schreve. 2022. Compressible spaces and EZ-structures. **Fundamenta Mathematicae**, 256(1), 47-75.

Blain Neufeld (Philosophy). 2022. *Public Reason and Political Autonomy*. **Routledge**.

Sarah Riforgiate (Communication) and S.J. Tracy (2022). Management, organizational communication and emotion. In *Handbook on language and emotion* (G. L. Schiewer, J. Altarriba and B. C. Ng , eds.). Boston, MA: De Gruyer Mouton.

Video Message

College of Letters & Science Dean Scott Gronert welcomes students back for the start of the Spring 2022 semester and looks back on some of the successes of 2021.
https://youtu.be/40gw7wfUgmA

Applying for college and choosing a major can be an exciting time. Incoming students can learn more about many of the majors in the College of Letters & Science by attending our upcoming Open House events. All Open Houses are virtual.

Students should register for Open House events at **https://uwm.edu/letters-science/open-houses/**. Email **let-sci@uwm.edu** with questions.

Events are scheduled on the following dates:

Feb. 19: Philosophy; 4 p.m.

Feb. 22: Biological Sciences; 5:30 p.m.

Feb. 23: Psychology; 8 p.m.

Feb. 25: Italian; 5 p.m.

Feb. 28: Political Science, 4:30 p.m.

March 1: Pre-Med/Pre-Physician Assistant/Pre-Pharmacy and other pre-healthcare; 4:30 p.m.

March 2: Communication; 5 p.m.

March 3: Geosciences; 5 p.m.

March 5: Physics; 11 a.m.

March. 8: English; 6:30 p.m.

March 9: Classics; 4:30 p.m.

LGBTQ+ Studies; 7 p.m.

March 10: Journalism, Advertising, and Media Studies; 4:30 p.m.

March 13: Psychology; 11 a.m.

March 14: Math / Data Science / Actuarial Science / Applied Math & Comp Sci; 6:30 p.m.

March 16: French, 4:30 p.m.

March 17: Global Studies; 4:30 p.m.

March 30: German, 5 p.m.

April 5: Geography; 4:15 p.m.

April 6: Economics, 5:30 p.m.

April 7: History, 4 p.m.

April 15: Conservation and Environmental Science; 3 p.m.

April 15: Pre-Med/Pre-Physician Assistant/Pre-Pharmacy and other pre-healthcare; 4 p.m.

February 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

Upcoming Events

February 10
Asylum: A Memoir and a Manifesto. 4-5:30 p.m. Online. Enjoy an afternoon with author and activist Edafe Okporo. Pre-register for this event at **https://bit.ly/3FglAqp**.

Creative Writing Graduate Program Faculty-Student Reading Series: United We Read. 7-8 p.m. Curtin 175. Featuring Steven Flores, JT Lachausse, Angela Voras-Hills, and Liam Callanan.

February 16
Planetarium Show: Stars, Stories, & Rhythms of Africa. 6-8 p.m. **Manfred Olson Planetarium**. Celebrate Black History Month under the stars! This free, family-friendly event includes live music, dancing, storytelling, and stargazing in different African cities. This event is cosponsored by the Black Student Cultural Center and Sociocultural Programming at UWM. Not recommended for children under 4. Masks are required on the UWM campus for all visitors.

February 23
Ctr. for 21st Century Studies Book Talk: "Elephant Trails". 3-5 p.m. Online. Nigel Rothfels (UWM) discusses his work. Participants receive a 30% discount on the book. Registration required. Register at **https://bit.ly/NigelRothfelsRegistration**.

February 25
In this Together: Feminist Mutual Aid for Survival and Mobilization. 3-4:30 p.m. Online. Dean Spade, Seattle University School of Law, speaks on his new book. **Registration** is required.

Planetarium Show: Constellations of the Zodiac – Pisces. 7-8 p.m. **Manfred Olson Planetarium**. Delve into the astronomy and mythology behind the zodiac and learn how to find your zodiac constellation in the night sky. In this live, interactive show, we will explore the stories and science of the zodiac constellations with a focus on what makes this month's constellation, Pisces, unique. Not recommended for children under 4. Masks are required on the UWM campus for all visitors. Tickets are $5.

Join UWM for Darwin Day at the Greene Geological Museum!

Darwin Day is a free scientific education event open to guests of all ages. Learn about paleontology, natural history, and evolution from UWM Geosciences students and educators. See real Wisconsin fossils and hear how these ancient animals once lived and died. Come experience Thomas Greene's world-renowned mineralogical collection. UWM scientists will be present answer your questions and give you an inside look into the active research at UWM. Have an interesting rock or fossil at home? Bring it in, and we might be able to identify it for you! Activities for young children will also be available. We hope to see you for all the educational fun!

When: Feb. 12, 10 a.m.-3 p.m.

Where: Lapham Hall 168

The Festival of Films in French

UWM once again hosts the annual Festival of Films in French. Shown in the Union Cinema, all films are shown in their original language with English subtitles. For a synopsis of each film, please visit **https://bit.ly/3IUCPRz**.

Schedule:

Friday, Feb 11: Je m'appelle Humain (Call me Human), 7 p.m.

Saturday, Feb. 12: Je m'appelle Humain (Call me Human), 4:30 p.m.

Nin e tepueian – Mon cri (My Cry), 7 p.m.

Sunday, Feb. 13: La langue est donc une histoire d'amour (Language is a Love Story), 2 p.m.

Antigone, 4 p.m.

Wednesday, Feb. 16: Marcher sur l'eau (Above Water), 7 p.m.

Friday, Feb. 18: Atlantique (Atlantics), 7 p.m.

Saturday, Feb. 19: 35 rhums (35 Shots of Rum), 4:30 p.m.

Nous (We), 7 p.m.

Sunday, Feb. 20: Iya tundé, la mère est revenue (Iya Tundé, The Mother Came Back), 2-4 p.m.

Atlantique (Atlantics), 4 p.m.

Laurels and Accolades

Lisa Silverman (History and Jewish Studies) will serve as the Michael Hauck Visiting Professor for Interdisciplinary Holocaust Research at the Fritz Bauer Institute for the History and Impact of the Holocaust at the Goethe-University in Frankfurt for the summer semester in 2022.


Lisa Silverman

Joel Berkowitz (English and Jewish Studies) was elected to a two-year term as Vice President for Publications of the Association for Jewish Studies.

Fourteen **UWM programs** were ranked among the best in the country by Intelligent.com in its 2022 report, including History, ranked at No. 1.

This video by Dusan Harminc of StumpTown Media was created by Lisa Moline (Art) and **Lane Hall (English)** with friends of the Overpass Light Brigade, supported by students attending a National Institutes for Health funded STEM summer camp for students run by the Electa Quinney Institute, and inspired by the Indigenous Nations Poets (InNaPo) organization founded by **Kimberly Blaeser (English; American Indian Studies)**. It includes all of the Indigenous languages Milwaukee students can currently study for credit at UWM. Words contained in the video can be found on **Ojibwe.net**, which is supported in part by grants from the Andrew W. Mellon Foundation and the National Endowment for the Arts.

Graduate student **Yunus Orhan (Political Science)** was among the recipients of the **American Poltical Science Association's** Doctoral Dissertation Research Improvement Grant for 2021. The award provides support to enhance and improve the conduct of doctoral dissertation research in political science. Orhan's dissertation examines why voters in developing countries vote for illiberal politicians.


Yunus Orhan

Mark Schwartz (Geography) is the co-Principal Investigator of a project known as "CHEESEHEAD," which was featured in the October issue of the *Bulletin of the American Meteorological Society*, the flagship publicaiton of the AMS. Schwartz described the project: "The living biosphere interacts with atmospheric processes at a multitude of scales. Understanding these processes requires integration of multiple observations for comparison to theories embedded in atmospheric models. But, all observations mismatch the scale of all models. Therefore, spatial and temporal scaling of surface fluxes is fundamental to how we evaluate theories on what happens within the sub-grid of atmospheric models and how those feed back onto larger scale dynamics. The Chequamegon Heterogeneous Ecosystem Energy-balance Study Enabled by a High-density Extensive Array of Detectors (CHEESEHEAD) was an intensive field-campaign designed specifically to address long-standing puzzles regarding the role of atmospheric boundary-layer responses to scales of spatial heterogeneity in surface-atmosphere heat and water exchanges. The high-density observing network was coupled to large eddy simulation (LES) and machine-learning scaling-experiments to better understand sub-mesoscale responses and improve numerical weather and climate prediction formulations of sub-grid processes. The experiment generated knowledge that will advance the science of surface flux measurement and modeling, relevant to many scientific applications such as numerical weather prediction, climate change, energy resources, and computational fluid dynamics."


Mark Schwartz

Krista Grensavitch (History; Comparative Ethnic Studies; Women's and Gender Studies) was appointed as a Teaching Resource Developer for the American Historical Association's "Teaching Things: Material Culture in the History Classroom," a twelve-month project funded by a grant from the National Endowment for the Humanities. Krista will be part of a collaborative research team that will produce resources that employ material culture for use in secondary and college level history classrooms.

Winson Chu (History) recently co-edited a digital project with the German Historical Institute in Washington, D.C., to provide online documents and audiovisual sources on German history since the 1500s. His module on "**Germanness**" contains some 200 sources and is now online.

In the Media and Around the Community

Jeffrey Sommers (African and African Diaspora Studies and Global Studies) made several appearances in December and January, including a presentation entitled "A Political Economy of the Post-WW II Era" at St. John's on the Lake; a one-hour segment as a guest expert on NATO, Russia, Ukraine, and the U.S. on "The Grass is Greener" show on WXRW 104.1 Radio; and a presentation titled "Political Economy of US Order" for the Public Enterprise Committee.

If you've already failed to live up to your New Year's Resolution, **Stacy Nye (Psychology)** gave some advice on **CBS 58 News** on how to stick to your exercise and healthy habits goals.

Margaret Noodin (English and American Indian Studies) **gave praise** to Ojibwe speaker Eli Baxter's book *Aki-wayn-zih* ahead of Baxter's presentation at Lakehead University in Ontario. She also appeared on **Michigan Radio**, an NPR affiliate, to discuss a website that expands opportunities for Anishinaabek people to learn about their language online.

Krista Lisdahl (Psychology) outlined the harms smoking marijuana can cause children and teens in an article published on **MedScape.com** and other **news sites**.

What's your sign? For those born under Aquarius, **Jean Creighton (Planetarium)** explained the history and the mythology of that Zodiac constellation on **WUWM Radio**.

WUWM Radio spotlighted a study by **Rina Ghose (Geography)** exploring the geographic breakdown of the spread of online COVID-19 misinformation and subsequent spikes of the disease.

If you've seen those little green boxes on social media, or you've posted them yourself, you know how widespread the popular online game Wordle has become. **Michael Mirer (Journalism, Advertising, and Media Studies)** explained to **CBS 58 News** why it's captured our national attention.

Alumni Accomplishments

Michael Vedder ('02, BA Political Science) was promoted to Vice President Senior Commercial Lender at **Community First Credit Union** after a long history with the institution. He is responsible for his own commercial lending portfolio and also supervises CFCU's team of credit analysts. Community First Credit Union is based in northeastern Wisconsin.

Lauren Nelson ('18, BA Journalism, Advertising, and Media Studies) appeared on **TMJ4 News** to discuss her sobriety during "Dry January." Nelson is the Tenant Experience Coordinator at Schlitz Park; the founder of Roar Philanthropy, which helps nonprofits raise money; and a recovering alcoholic hoping to help others in their struggles.

Leslie Brothers ('87, BA Art History) was hired as the next executive director of **Kenosha Public Museums**. Her purview includes the Downtown Kenosha Public Museum, the Civil War Museum and the Dinosaur Discovery Museum. Brothers is currently a museum director in Kansas.

Tara (Swartz) Wietor ('09, BA Psychology) was selected as the national director of Project Management for **Integral Senior Living**, a senior living management company based in California. She boasts more than a decade of project management experience.

Noah Kamsler ('10, BA Journalism, Advertising, and Media Studies) was named the interim director of **East Georgia State College** in Statesboro. He previously served the college as the institutional services coordinator and assistant director of Student Affairs.

Peter Cunningham ('96, MS Anthropology) was named the executive director of the **State Bar of Michigan** by the Board of Commissioners. Cunningham previously served as the assistant executive director. He will oversee the operations of the State Bar.

Joe Lamers ('06, Masters of Public Administration) was approved by the Milwaukee County Finance Committee as the director of Milwaukee's newly-created **Office of Strategy, Budget, and Performance** in January. Lamers, who was Milwaukee County's Budget Director, would be responsible for fostering cooperation between county government departments and maximize the access to, and the quality of services offered to County residents. His appointment will be taken up by the Milwaukee County Board in February.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