



College of Letters & Science
UNIVERSITY OF WISCONSIN-MADISON

*V³: a newsletter for alumni and friends
of mathematics at UW-Madison*

2026



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A Word from the Chair



Dear Friends and Alumni of the Math
Department,

Greetings from Madison, and welcome to the
Summer 2026 Van Vleck Vector!

This issue comes at an exhilarating time
to be a part of the research mathematics
community. Recent developments in artificial
intelligence have enabled a series of startling
advances in mathematics research, and
mathematics has never been featured so
frequently and prominently in the national
news. There are naturally concerns about

what these changes will mean for the practice of mathematical research and the role
of mathematical training. However, rather than dampen interest in mathematics, the
recent visibility of our profession has fostered a huge sense of excitement and curiosity
about mathematics within the broader community. For the first time, we encounter
undergraduate students and even friends and neighbors stopping us to learn about
sphere packing, Jacobians, and Paul Erdős and his conjectures.

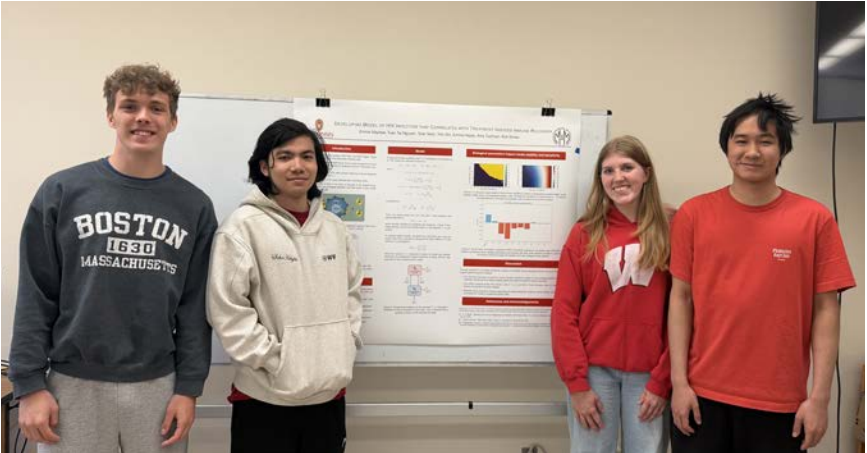
In these pages you'll read about the amazing work of our faculty, postdocs, students,
and staff whose efforts make our department one of the best places in the country to
learn mathematics and carry out mathematical research. As we look toward the new
year, we are thinking about the ways we can shift to meet the needs and interests of
our undergraduate and graduate students, as well as incorporate new tools into our
research. At the same time, mathematics—with its rigorous training and grounding
in absolute truth—will always have a place within the foundations of an excellent
undergraduate education and will offer an opportunity for our majors to flourish.

We welcome and appreciate your continued support, and we would love to hear from
you! We encourage you to follow us on social media, where we post more frequent
updates about our activities.

On, Wisconsin!

Betsy Stovall

Betsy Stovall
Department Chair



MXM Spotlight

Understanding how the immune
system responds to HIV (human
immunodeficiency virus) is key to
improving long-term health outcomes.
CD4 “helper” and CD8 “killer” T-cells
fight viruses, but HIV infects CD4 cells,
weakening the body’s defenses. CD8 cells
work to eliminate infected cells, including
CD4 cells. Without treatment, HIV results
in AIDS (acquired immunodeficiency
syndrome). While there is no cure,
treatment allows patients to live long,
healthy lives.

Past studies have focused on the quantity
of CD4 cells, but researchers in the
Madison Experimental Math Lab (MXM)
investigated the impact of the CD4/CD8
ratio on patient health outcomes, a novel
idea based on more recent studies. The
goal of the project was to mathematically
model the dynamics of HIV infection and
the body’s immune response.

The undergraduate research team
included Emma Mayhew '26 (Math/
Biochemistry), Tuan Tai Nguyen x'27
(Math/Computer Science), Tyler Seils
x'28 (Math/CS), and Yilin Shi x'27
(Math/CS). The project was co-led by
Robert Striker (Department of Medicine)
and Amy Cochran (Department of
Mathematics and Department of
Population Health Sciences), with Math
PhD student Emma Hayes serving as
a graduate mentor. As MXM’s first
interdepartmental project, the students
enjoyed hearing their faculty mentors
collaborate and bring together their
different areas of expertise in real time.

Guided by their mentors, the students
spent the first month learning background
information, reading papers, and
comparing models before selecting the
model described in Banks et. al. The
students simplified this model and ran

simulations to uncover three equilibrium
states based on viral load. Each student
contributed based on their strengths:
Tyler analyzed equations, Yilin generated
and interpreted graphs, Tai conducted
sensitivity analysis to identify key
parameters, and Emma used her biology
background to compare real patient data
with their models. They appreciated that
simulations were far more efficient than
collecting data by hand.

The project brought several challenges.
The students worked with massive data
sets for the first time and lacked the high-
powered computers researchers typically
use. This meant testing all possible
algorithms to simplify each model.
The equations were long, with lots of
parameters. They also had to understand
the topic from a biological perspective,
not just a mathematical one.

Ultimately, their reduced subsystem
produced a nearly identical equilibrium
pattern to the complete Banks model,
successfully visualizing three distinct
steady states that determine patient
clinical outcomes. Their findings suggest
promising directions for future research
on whether the CD4/CD8 ratio could help
predict HIV patient outcomes.

The students agreed that the skills
they gained with MXM will be valuable
in their future careers, especially at
the intersection of science, computer
science, and AI. Emma developed a
stronger interest in quantitative biology
for graduate school, Tai and Tyler hope
to use AI and machine learning in future
scientific research, and Yilin plans to
apply his new modeling skills to his
previous research about cancer.

MXM operates through donations to the
Department of Mathematics and a grant
from the National Science Foundation
(NSF).



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Calculated Movement

For Marissa Stolt, attending UW–Madison felt like destiny. Born in Madison and raised in Plover, WI, she grew up in a family of Badger alumni and always envisioned herself on campus. Although she had been dancing since age four, she initially viewed dance as a passion rather than a career path, applying to UW–Madison as an economics major with a mathematics emphasis. But as her freshman year approached, she realized she wasn't ready to leave dance behind. Just one week before the application deadline, she applied to the dance program as well, beginning a college journey that would eventually unite two seemingly opposite disciplines.

Although economics and dance were always part of the plan, mathematics emerged later. After completing linear algebra during her sophomore year, Stolt found herself reluctant for her math coursework to end. What drew her to the subject was not the formulas themselves, but the way mathematics engaged her mind. Through proof-based mathematics and the process of wrestling with difficult concepts, she developed stronger problem-solving skills and learned the value of “productive struggle.” The contrast between dance and mathematics became one of the defining features of her education, creating a balance that enriched both her learning and creative work.



This interdisciplinary mindset became the foundation for her Senior Honors Thesis project, one of only three selected annually through a competitive Dance Department proposal process. Initially, Stolt planned to explore the relationship between music and movement, but a breakthrough came during an abstract analysis course taught by then



Department of Mathematics Professor Simon Marshall. As she watched visual representations of mathematical proofs take shape on the board and in her notes, she began to see similarities between group theory and dance choreography. The idea sparked a project blending movement, mathematics, education, and technology.

“By revealing these structures through movement, hopefully math feels less distant and dance feels more legible. Group theory gives us language for transformation, while choreography allows us to experience transformations visibly. This bridge between abstraction and embodiment is why I made this work and why I believe mathematics belongs not only in textbooks and classrooms, but in studios, theaters, and bodies.”

The project began with significant uncertainty. During the summer before her senior year, Stolt experimented with creating algebraic animations using Desmos, teaching herself the necessary technical skills despite having no prior coding experience. At that stage, there was no choreography—only visual explorations of mathematical concepts. As the project evolved, she recruited dancers and expanded the work into a 50-minute performance featuring 22 dancers. Her abstract ideas became tools for movement creation, allowing performers to physically explore concepts such as transformations, rotations, and symmetry.

One of the performance's most innovative elements was a lecture-demonstration introducing audiences to group theory. Through narration and live demonstrations, dancers embodied

mathematical structures, including the order-12 dihedral group, by arranging themselves into formations and transforming those formations to illustrate group operations. The lecture component, led by Stolt, explained the axioms that define mathematical groups and demonstrated how those principles informed the choreography. The result was a production that made advanced mathematical concepts accessible to audiences regardless of background.

The interdisciplinary approach resonated with viewers from many fields. Math Learning Center tutors attended performances and offered feedback on communicating complex ideas, while audience members without mathematical training reported that they could still understand and appreciate the concepts. For Stolt, the project demonstrated the power of bringing together disciplines often viewed as unrelated. She believes its impact stemmed precisely from the combination of mathematics and dance; neither discipline alone would have created the same experience.

She reflected on how dance influenced her confidence in mathematical spaces. Dance environments encourage artists to share ideas, provide feedback, and embrace ambiguity—skills that translate well to proof-based mathematics and collaborative problem-solving. While many peers shied away from the rigors of proof-based mathematics, Stolt embraced them. For her, math is not simply about memorizing formulas; it is about a particular kind of problem-solving. “Math is just a feeling for a lot of people,” Stolt explains. “It unlocks a different part of the brain. It taught me a lesson in perseverance.”

This perseverance became the bridge between the rigid logic of the classroom and the fluid expression of the dance studio. She found that the contrast between the sciences and the arts provided a necessary balance, allowing her to approach each discipline with a fresh perspective.

After her May 2026 graduation, Stolt is relocating for a career in corporate finance at Ecolab. But she does not plan to leave dance behind. Having secured an André De Shields seed grant from the

Wisconsin Union Theater, she hopes to continue developing the ideas from her Senior Honors Thesis and exploring new ways to connect mathematics and movement. While she is still deciding where that work will lead, her experience at UW–Madison has shown her that some of the most meaningful discoveries happen at the intersection of seemingly different worlds.

A video of Marissa's full performance can be found at: <https://go.wisc.edu/dancing-math>

New Master's Bridges Applied Math, Computing, and Data

Mathematics plays an ever-growing role in data science, artificial intelligence, technology, engineering, finance and many other fields. To help prepare students for this fast-moving landscape, the department has established a new Master of Science in Applied and Computational Mathematics. Approved last fall after several years of planning and review, the program will welcome its first cohort in Fall 2026 and serve as an applied counterpart to the department's existing Master of Arts in Mathematics: Foundations of Advanced Studies. The 30-credit curriculum gives students a rigorous foundation in applied mathematics, scientific computing and the mathematics of data, while leaving room for electives that match their interests in areas such as optimization, probability, partial differential equations, machine learning and statistics. Students can earn their degree in just 12 to 24 months, accelerating their entry into the workforce or further doctoral studies.



Planning, approval, and implementation were spearheaded by Sebastien Roch (left), the program's first director, and Leslie Smith (right) with extensive input from faculty. Xin Cui-Dowling (center), the program's coordinator, played a key role in launching the new MS on a short timeline.

Bringing Mathematics into the Age of AI: A New Department Seminar

This spring, our department launched a new initiative at the intersection of mathematics and artificial intelligence: an AI-focused seminar designed to bring together perspectives from across the mathematical sciences. The seminar began with a four-part lecture series entitled “AI research in Math at UW”, featuring speakers from applied mathematics, logic, probability, and applied algebraic geometry. The goal was simple but ambitious—to showcase how deeply modern AI is intertwined with core areas of mathematics, and to create a foundation for ongoing collaboration and conversation within the department.

Artificial intelligence is often seen as the domain of computer science and engineering. But behind many of its most exciting advances lie fundamental mathematical ideas: optimization, probability, geometry, algebra, and logic. The April lecture series was designed to make these connections visible, both to specialists and to a broader mathematical audience.

The series opened with a talk by Professor Qin Li on optimization in modern AI, highlighting a striking shift in perspective. Classical optimization typically focuses on finite-dimensional objects—vectors or matrices. In contrast, many modern machine learning models require optimizing over entire probability distributions. This shift leads to rich new mathematical structures, such as gradient flows in spaces of measures and transport-based dynamics, where familiar tools must be reinterpreted and extended.

The second lecture given by Professor Uri Andrews turned to formal argumentation theory, an area that models reasoning itself. Drawing on ideas from logic, combinatorics, and probability, this line of research seeks to formalize how conclusions are supported or undermined by competing arguments. As AI systems increasingly aim to reason, explain, and interact with human users, such frameworks provide a mathematically rigorous way to study these capabilities.

The third lecture given by Assistant Professor Hanbaek Lyu focused on optimal transport and the Sinkhorn algorithm, a powerful computational method that has become central in machine learning. These techniques allow researchers to compare and transform probability distributions efficiently, with applications ranging from image processing to knowledge distillation. What begins as a classical problem in analysis and matrix scaling now plays a key role in large-scale data-driven models.

The series concluded with a lecture given by Associate Professor Jose Israel Rodriguez, offering a perspective from applied algebraic geometry, exploring the concept of identifiability in neural networks. When can we recover a model's internal parameters from its observed behavior? By framing such questions in terms of algebraic varieties, symmetries, and parameter spaces, this emerging “neuroalgebraic” viewpoint connects machine learning to deep geometric and algebraic ideas.

Taken together, these talks illustrate a broader theme: AI is not a single field, but a meeting point for many areas of mathematics. Each perspective offers different tools and insights, and the interplay between them is often where new breakthroughs occur.

The April series was intended as a starting point rather than a conclusion. Building on its success, we are continuing the AI seminar as a regular event, with the aim of fostering an ongoing community around these topics within the department. We hope this initiative will not only highlight current research, but also inspire new collaborations, attract students to emerging areas, and strengthen the role of mathematics in shaping the future of AI.

This effort reflects something enduring about the department: a commitment to engaging with new ideas while remaining grounded in mathematical depth and rigor. AI may be a rapidly evolving field, but its foundations are, more than ever, mathematical—and our department is actively contributing to that foundation.



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Math 345: Linear Algebra and Optimization

Fields like data science, artificial intelligence (AI), machine learning, and computing are evolving rapidly, and they rely heavily on a particular blend of mathematics: linear algebra, multivariable calculus, and optimization. Professor Sebastien Roch saw an opportunity to refresh the curriculum and better serve students entering these fields by integrating these topics.

The result was MATH 345, "Linear Algebra and Optimization", first offered as a pilot in Spring 2025. On the linear algebra side, the course covers the essentials (e.g., vectors, matrix algebra, and eigenvalues), but also pushes into computational and applied concepts like QR factorization and the singular value decomposition (SVD). On the calculus side, the focus is on partial derivatives, gradients, Jacobians, Hessians, Taylor approximations, the chain rule, and unconstrained optimization, all chosen for their direct relevance to modern data-driven methods.

Students also get a taste of machine learning applications like k-means clustering, simple linear regression, and gradient descent. Computational work in Python helps students see mathematics in action, introducing them to the

ideas behind search engines, language processing, and data compression.

The biggest challenge was that no existing textbook covers this particular combination of topics. Pulling together linear algebra, multivariable calculus, optimization, coding, and applications into a coherent course meant building a lot from scratch.

Other members of the department supported the course's development. Dr. Kaitlyn Phillipson, the department's Linear Algebra Coordinator, has developed extensive "skeleton" lecture notes and related resources that Roch adapted and used as a model for building the rest. Jacob Denson PhD'25 helped convert the notes into PreTeXt, an accessible format for math-heavy content, which allowed them to create a standalone textbook for the course. Former postdoc Sarah Strikwerda taught the second iteration of the course in Spring 2026 and provided invaluable feedback for further development. Finally, the Center for Teaching, Learning and Mentoring (CTLM) gathered student feedback through its Student Instructional Feedback Technique (SIFT) program.

Positive student feedback reflects the course's impact. Michelle Lyu x'27 and Jack Stegall x'28 took MATH 345 because of the real-world applications and coding involved. Lyu studies data science and economics. She found

it rewarding to develop a deeper understanding of math in practice, rather

than just memorizing formulas. Stegall studies Mathematics for Economics and Finance, partially because MATH 345 showed him "how powerful and applicable mathematics can be." He plans to further explore programming, computing, and machine learning. Both students' favorite projects involved gradient descent, but Lyu also enjoyed the SVD project.

The course will be offered again in Fall 2026. Following up on previous feedback, Roch has been working on further integrating the linear algebra, optimization, coding, and applications components of the course, and incorporating connections to large language models (LLMs).

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Join our UW-Madison Math Alumni network to build connections with fellow alumni. Find us on LinkedIn, our Math Alumni website (no account required), or send us an email to let us know what you've been up to.

LinkedIn: [linkedin.com/company/uw-madison-mathematics/](https://www.linkedin.com/company/uw-madison-mathematics/)

Math Alumni website: mathalumni.math.wisc.edu

email: mathnews@math.wisc.edu

Alumni Updates

Dallas Webster PhD'70 (Bing) founded and now serves as an Assistive Technology Specialist at Upstream Technology.

Jim Kracht BS'77 MS'78 majored in math and computer science, and received his master's degree in computer science. He worked as a software engineer for numerous employers, including 17 years with Cisco Systems. He found that adding the math major was an asset in fostering logical thinking and analytical reasoning for a resilient career. Unfortunately, recent health issues have dampened retirement's joy, so any positive vibes sent his way are welcomed.

Jay Chesky BS'81 is a retired U.S. naval officer and Department of Defense civil servant. He was a submarine officer for the first half of his naval career. During that time, he qualified as a nuclear propulsion plant engineer. In 2000, he received a master's degree in National Security and Strategic Studies from the U.S. Naval War College. He later worked as a program analyst in command, control, and communications (C3). At the end of his naval career, he was working to improve C3 interoperability with U.S. allies and with NATO. He continued that work as a DoD civil servant, working for the Defense Chief Information Officer until he retired in early 2022 after a 41-year career. Upon his retirement, Chesky received a letter of commendation from the Commander, Joint Forces Command, UK Ministry of Defense, for his work supporting U.S. allied forces.

John Murphy BS'83 retired from the Engineering Physics Department at UW-Madison. He also worked in aerospace engineering with Rocketdyne (Rockwell International) in Canoga Park, California where he performed various calculations on the space shuttle main engines and SDI experiments. In total, Murphy spent 30 years studying reactor accident scenarios and teaching courses on advanced reactors and nuclear engineering design.

Bill Brown BS'85 recently retired from IBM where he worked as an operating system programmer. During his time there, Brown received a patent for a mathematical equation which displayed the distance of a computer's processors from the memory used. It has been useful in optimizing performance of the system.

Trond Kvamsdal MS'91 is Professor at the Department of Mathematical Sciences, Norwegian University of Science and Technology (NTNU), in Trondheim, Norway. and also holds a part time Senior Scientist position in the Department of Mathematics and Cybernetics at SINTEF Digital. His positions at NTNU are within computational mathematics, i.e., development of new theories/methods within applied mathematics and numerical analysis to make robust and efficient numerical software programs for challenging applications in science and technology. Kvamsdal's main areas of research are Adaptive Finite Element Methods (AFEM), Reduced Order Modeling (ROM), and Hybrid Analysis and Modeling (HAM) to enable predictive digital twins. He is the current President Elect of the ECCOMAS Executive Committee serving through 2030.

David A. Lamb PhD'92 (Kunen) works as a Senior Research Scientist in the U.S. Army Ground Vehicle Systems Center. His work focuses on Analytical Modeling and Simulation (M&S) of military ground vehicles using High Performance Computing (HPC) where he uses applied mathematics and theoretical computer science. Lamb was elected as a Fellow in the Society for Automotive Engineering (SAE), and he is the Industry President of the Great Lakes section of SIAM. He won a "Hero Award" from the DoD HPC program.

Aaron Schumacher BS'06 works as a Data Scientist at Meta.

Jordan Gerth BS'09 MS'11 PhD'13 serves as a Supervisory Physical Scientist at National Oceanic and Atmospheric Administration where he is responsible for flight and ground architectures and joint venture projects that support environmental satellites. He triple majored in math, atmospheric and oceanic sciences, and political science as part of his bachelor's degree, and subsequently earned a master's degree and PhD in atmospheric and oceanic sciences, all from UW-Madison.

Theresa C. Anderson BS'10 (former Van Vleck Visiting Assistant Professor 2015-2018) is currently Associate Professor of Mathematics at Carnegie Mellon University. She has won an NSF CAREER award (2023-2028) and the Gregg Zeitlin Chaired Professorship (early career chair at Carnegie Mellon, 2023-2025).

Aaron Peterson PhD'14 (Nagel) was promoted to Professor of Instruction at Northwestern University in Fall 2025. He was named Charles Deering McCormick Distinguished Professor of Instruction in 2023. He joined the faculty at Northwestern in 2014.

Thomas O'Leary-Roseberry BS'15 just began a tenure-track Assistant Professor position in the Department of Mathematics at The Ohio State University. He works on numerical mathematics, scientific computing, optimization, machine learning, and other related topics.

Elnur Emrah PhD'16 (Seppäläinen) began in January 2026 as Lecturer (Assistant Professor) at the School of Mathematics and Statistics at University College Dublin, Ireland.

Christopher Janjigian PhD'16 (Valkó) was promoted to Associate Professor at the Department of Mathematics at Purdue University.

Ryan Prestil BS'16 works at Revvity as a Senior Scientist.

Jim Brunner PhD'18 (Craciun) is a scientist at Los Alamos National Laboratory where he studies mathematical modeling of microbial communities.

Evan Sorensen PhD'23 (Seppäläinen) will begin a tenure-track Assistant Professor position in Fall 2026 at Indiana University - Bloomington.

Adam Distler BS'24 was one of only 19 to receive a 2026 Hertz Fellowship, the nation's most competitive doctoral fellowship in science and technology. Distler completed a double major in Astronomy-Physics and Mathematics in two years, and spent an additional year at UW-Madison as a Post-Baccalaureate Astrophysics Researcher. He is now a first-year doctoral student in astronomy and astrophysics at the Center for Astrophysics | Harvard & Smithsonian, where he studies the link between the galactic environment and planetary structure.

Jack Westbrook BS'25 is currently a master's student in pure mathematics at Imperial College - London specializing in arithmetic geometry.

Undergraduate Awards & News



Undergraduate Awards

Augusta Schurrer Scholarship

Samanyu Arora
Qiushi Lu
Chengxiang Lou
Yilin Shi
Jaan Srimurthy
Kashika Mahajan
Mirana Zhang

Frank D. Cady Mathematics Scholarship

Haran Mouli

Mark H. Ingraham Math Scholarship

Rohan Sohoni
Annelise Alvin

Violet Higgitt Frank Scholarship

Haochun Zhang

Linnaeus W. Dowling Scholarship

Lilliana Ruggini

R. Creighton Buck Prize

Vincent Lanzito
Quintin Hammi
Sharon Wang
Elkhan Aday
Katherine Jensen

Terry Millar Memorial Scholarship

Alexander Howen
Xinzhen Sun
Yuxin Yang
Lena Zide
Benjamin Grotta
Singer Xing

Felice Michaels Levin Scholarship for Mathematics

Lingfang Yuan
Sunman Cao

I. L. Newman Mathematics Scholarship

Oliver Jing

David L. Young Mathematics Scholarship

Daniel Youngberg

Julia Strong Math Scholarship

Chenning Cai z



Left to right: Jason Dong, Ryan Gao, and Yanjun Yang

Modeling Excellence: Team Achieves First Ever Outstanding Ranking in MCM

Every February, over 30,000 teams worldwide participate in the COMAP Mathematical Contest in Modeling (MCM). Teams of three undergraduate students have 96 hours to research, model, and write a complete solution to an open-ended, real-world problem. This year, the department fielded six teams and achieved exciting results.

The team of Jason Dong, Ryan Gao, and Yanjun Yang earned UW-Madison’s first ever “Outstanding” ranking and MAA Award, placing them among the top 41 teams (unranked) out of 32,213 teams in the world. They were recognized for their work on Problem C: “Data with the Stars,” where they were tasked with estimating hidden fan votes in the TV show Dancing with the Stars, even though the actual voting data was not made available. Additionally, the team of Pritam Kayal, Mark Miller and Yifan Yang received an Honorable Mention, given to 22% of the teams who worked on Problem A: “Modeling Smartphone Battery Drain.” The team’s challenge was to analyze how different factors impact smartphone battery life and to use their models to estimate time-to-empty and recommend strategies for improving battery performance.

Two students from the “Outstanding” team wrote about their experience with the contest.

Ryan Gao x’27 recalls the surprise of receiving the “Outstanding” ranking:

"The problem asked us to establish a model for ranking participants of a TV show (Dancing with Stars), given data on fan votes and specialty, and then to analyze the fairness of the show's ranking rules. We performed an exploratory analysis, e.g. normality test and correlation analysis, to extract some valuable features from noisy data. And we used a multi-criteria decision-making method called RSR and differential equations to establish a dynamic model. We then performed numerous sensitivity tests for robustness. We were not expecting to get such a good result. I was actually shocked when I heard that we received the “Outstanding” rank."

Dancing with the Data: An Outstanding MCM Experience" by Jason Dong x’27

It was all such a blur and I have already forgotten many of the small details. I remember that I slept for about five hours a day across the four day competition. But strangely, the moment I found out we had received the top ranking, I didn’t just think back on the competition itself. It also made me think back to my elementary and high school years.

Before coming to UW-Madison, I almost never finished homework on time or in the required amount (my high school was famous for giving a huge amount of homework). Many students responded by copying answers from each other in private class group chats. Instead, I suffered punishments like not being able

to attend class. But I figured out my own way of studying, and eventually, after everything, found myself in Madison.

But this early experience taught me how to think outside of the box, a skill that I think paid off during the contest. In recent years, many people have started using tools like Deep Learning (DL) to solve problems. At the outset, our team considered using a neural-network-based approach. The data contained many variables across contestants, weeks, ratings, and public attention, and a neural network seemed like a good way to capture hidden patterns. But as we discussed the problem more deeply, we realized that this approach risked becoming too much of a black box. The challenge was not only to predict eliminations but also to explain how hidden fan support could evolve week by week and why those estimates were reasonable. So instead of relying on a neural network, we decomposed the problem into more understandable parts: feature screening, a static scoring system, a differential-equation model for fan-support dynamics, and Monte Carlo validation for uncertainty. Just as I had to go my own way in high school, here too I was drawn to seeking out a solution using more fundamental, traditional methods.

I think one reason our team won was that we were good at stepping back and seeing how things really worked.

This experience also showed us what strong teamwork really means. We divided our work clearly, but we also trusted each other. One of us, Ryan, had competed before. His experience and strategic advice paid off! His understanding of what judges might value helped us rethink our modeling direction at a crucial moment. And Snowy (Yanjun) did great work on data collection, filling data gaps, visualizations, and polishing the language of the paper. Many of these contributions may not be obvious at first glance, but they made the final paper clearer, more complete, and more convincing. And we were grateful to Professor Spagnolie for his support throughout the process. We were very pleased with our Outstanding ranking!

The department has fielded 70 teams since 2012, and has been supported in large part by donations from alumni of the AMEP degree program. Faculty advisors are Saverio Spagnolie and Amy Cochran. <https://go.wisc.edu/comap>

Math Competition Results

Every year, UW undergraduates participate in two math competitions: the Big One (the William Lowell Putnam Mathematical Competition) and the Friendly One (our in-house Undergraduate Math Competition, now in its tenth year).

21 students took part in Putnam (that's a lot!). Our team, **Haran Mouli, Jaan Srimurthy, and Tomasz Sobkowicz-Oliveira**, placed 40th nationwide out of 488 participating institutions.. **Haran Mouli** and **Jaan Srimurthy** also placed individually in the top 500 (out of 4335 participants).

Undergraduate Math Competition Results

1st place: Haran Mouli
2nd place: Matthew Norton
3rd place: Duncan Shen and Daniel Zikel
Honorable mention: Campbell Squires and Jack Pan



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Outreach



From left to right: Saverio Spagnolie, Sylvia Shi, Jingyi Li, Hanzhang Mao, Michael Zhao, Yue Sun, Giovanni Bordiga, and Carsen Grote. Photo by Erin Breu

Geometry Labs United Conference

The Madison Experimental Mathematics Lab hosted the 4th iteration of the Geometry Labs United Conference in Madison, WI from June 1-4, 2026. The conference was organized by Caglar Uyanik, Grace Work, and Paige Hillen from UW, and Anton Lukyanenko from GMU. In addition to plenary talks aimed at undergraduates, the conference had panels on careers, short talks given by undergraduates and a poster session. One conference day was dedicated to outreach, where over 75 local high school students, as well as a few children from the community, participated in hands-on mathematical explorations including building their own platonic solids to discover Euler's formula, creating perler bead patterns using the algorithms of cellular automata, and replicating the Buffon's needle experiment to approximate pi. Participants were also encouraged to view the undergraduate research posters and vote on their favorite. As a final activity, they attended a plenary lecture by Jean-Luc Thiffeault who talked about the mathematics of taffy pullers!

Squishy Science Sunday

This March, over 12,000 scientists convened at the Global Physics Summit of the APS (American Physical Society). "Squishy Science Sunday" is a public outreach event which is held each year on the day before the meeting. Over 1,500 people of all ages came to the Denver Museum of Nature and Science to explore a wide

array of interactive experiments, and to talk to the 150+ faculty and student volunteers. There were audible gasps from the attendees, and a "MY GOD" from one five year old.

The UW-Madison Mathematics contingent was led by Yue Sun, a postdoc in the UW-Madison Mathematics Department, and supported by numerous graduate students and one undergraduate student from the AMEP Lab.



Rachel Heikkinen, Summer Al Hamdani, and Gabriela Brown. Photo by Erin Breu

Applied Math in Geosciences YouTube Series

Modern scientific challenges, such as extreme weather, environmental risks, and the growing complexity of data, sit at the intersection of multiple disciplines.

In their research, Charlotte Moser and her advisor, Associate Professor Nan Chen, recognized the power of combining mathematics, physics, and data-driven methods. They also saw how difficult it can be for ideas to cross interdisciplinary barriers, which led them to create a new YouTube series to bridge that gap.

The "Applied Mathematics in Geosciences" YouTube series was inspired by an invited perspective article currently under review at Nature Geoscience, which brought together leading researchers across mathematics, Earth science, and physics. The group's shared vision is that communicating these ideas more broadly can help connect disciplines, reach new audiences, and ultimately accelerate scientific progress. Moser and Chen were strongly encouraged by their coauthors to create their YouTube series.

Through this YouTube series, Moser and Chen explore what they believe to be some of the most important and fascinating questions in modern science: How do we understand complex systems like the Earth? What can we predict, and what are the limits? More broadly, the series invites viewers to reflect on

a deeper question: What does it really mean to understand a complex system?

Moser and Chen intentionally designed their videos for a broad audience, including students, researchers, and anyone curious about how mathematics helps us make sense of the natural world. Through short, accessible videos, the series introduces key ideas such as modeling, uncertainty, prediction, and scientific insight, all through the lens of real-world geoscience problems.

Ultimately, their goal is to help more people engage with the ideas, tools, and ways of thinking from applied mathematics that shape how we understand and anticipate the future of the Earth. Moser and Chen hope these ideas not only engage viewers, but also encourage more students, especially those in mathematics, to think about how their skills can contribute to science and society in meaningful ways.

Visit Charlotte Moser's YouTube channel, where she explains complex topics in applied mathematics for wider audiences. <https://go.wisc.edu/moser-you-tube>

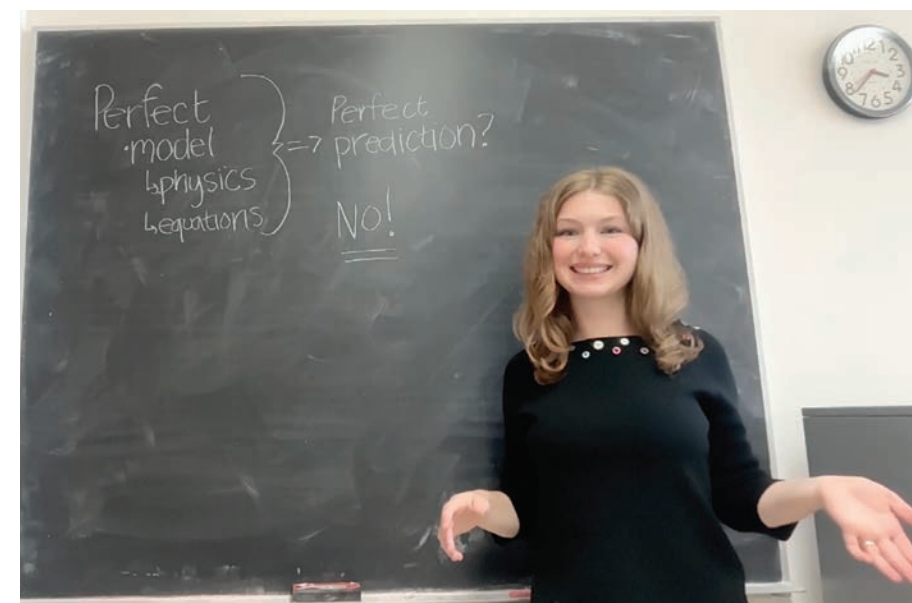


Photo courtesy of Charlotte Moser

Several episodes explore big, thought-provoking questions that resonate with a wide audience.

A few of these key episodes are:

- More Data $\neq$ More Understanding
- The Hidden Tradeoff: Detail, Accuracy, and Insight
- Why Prediction Has Limits (Even with Perfect Models)
- How Models and Data Actually Work Together
- Can AI Understand the Earth or Just Predict It?
- Can We Predict Tipping Points?

Graduate Awards & News



2025-2026 PhD Graduates

Mingfeng Chen (Seeger)
Jacob Fiedler (Stovall)
Varun Gudibanda (Smith)
Amin Idelhaj (Marshall/Zimmer)
Haley Kottler (Cochran)
Yuchen Li (Lyu)
Joey Yu Luo (Yang)
Sam McKeown (Seppäläinen)
Antonio Nakid Cordero (Soskova)
Karan Srivastava (Ellenberg)
Amelia Stokolosa (Street)
James Tautges (Stovall)
Yingling Zhang (Chen)



Photo by Sydney Gums

Where are our graduates going?

Joey Yu Luo: CLE Moore instructor, MIT

Qi Sun: postdoctoral fellow, Rutgers

Sam McKeown: postdoctoral fellow,
Nanyang University of Technology in
Singapore

Yinling Zhang: postdoctoral fellow

Karan Srivastava: Atomic Machines, a
nanofabrication startup in California

Haley Kottler: Senior Data Analyst in
Curriculum Analytics, Western Governors
University in Salt Lake City, UT

Hannah Ashbach – Adult Ed Instructor,
Literacy Services of Wisconsin

Mingfeng Chen – postdoctoral fellow,
Institut des Hautes Études Scientifiques
(IHES)

Math Department Graduate Student Research Awards

Excellence in Mathematics Research Award

Joey Yu Luo
Mingfeng Chen
Jacob Fielder
Allison Byars
Caitlin Davis
Diego Rojas La Luz
James Tautges
Aleks Skenderi

Henry Schaerf Mathematics Graduate Award

Kaiyi Huang
Jack Piazza
Charlotte Moser

John A. Nohel Prize

Yuchen Li
Martin Guerra
William Powell

Math Department Teaching Assistant (TA) Awards

Early Excellence Awards (for TAs
who have shown exceptional teaching
during their first 4 semesters of teaching
assignments)

Gabriela Brown
Emma Hayes
Dhruv Kulshreshtha
Molly MacDonald

LTTA Teaching Award (for one LTTA
who has provided multiple semesters of
exceptional teaching service to the math
department)

Tate Poole

Exceptional Teaching Award (for TAs
with at least five semesters of teaching
experience who have shown exceptional
teaching)

Ari Davidovsky
Ethan Schondorf
John Spoerl
Chiara Travasset

Exceptional Service Award (for PhD
students who have performed exceptional
service related to the mission of their
department and university)

Ivan Aidun
Diego Rojas La Luz

Capstone Award (for graduating PhD
students with an extraordinary teaching
record during their graduate career)

Allison Byars
Caitlin Davis
Boyana Martinova
Karan Srivastava



Karan Srivastava and his advisor, Jordan Ellenberg.
Photo by Sydney Gums

Campus-Wide Graduate Student Awards

Boyana Martinova was selected as a
recipient of a 2025-26 Campus-Wide
Teaching Assistant Awards. She was
recognized with the Capstone Teaching
Award, which recognizes dissertators at
the end of their graduate program with
an outstanding teaching record over
the course of their UW-Madison tenure.
<https://go.wisc.edu/2026capstone>

Yiwen Bai and **Charlotte Moser** won
Ruth Dickie Awards from the UW-Madison
Chapter of Graduate Women in Science
(GWIS). These awards recognize graduate
women of outstanding ability and promise
in research. Bai received a Ruth Dickie
Grant-in-Aid, which will allow her to visit
other experts in the field and present her
results. Moser was selected as a first-
place award recipient for the Ruth Dickie
Research Scholarship. <https://go.wisc.edu/dickieaward>

Ethan Schondorf and **John Spoerl**
were chosen to be L&S Teaching Mentors.
They were selected for their enthusiasm

and capacity to help others develop as
effective and equitable teachers.
They will not only serve as role models, but
also as sources of support and knowledge
for both new and returning TAs. [https://
go.wisc.edu/2026teachingmentors](https://go.wisc.edu/2026teachingmentors)

Haley Kottler received the WISL
(Wisconsin Initiative for Science Literacy)
Award for Communicating Research to
the Public for her thesis chapter titled “A
gentle introduction to causal interference
with proxy variables.” [https://go.wisc.edu/
mathcommaward](https://go.wisc.edu/mathcommaward)

Other Awards and Honors

Marios Andreou won first place in the
Poster & Short Talk Competition of Data
Science Week 2025. His talk was titled
“Assimilated Causal Inference,” and the
paper related to his presentation was
accepted by Nature Communications.

Charlotte Moser won the Best Student
Presentation Award 2026 at the Days
of Applied Nonlinearity and Complexity
conference.

Ren Watson, currently an undergraduate
at the University of Texas at Austin, has
been awarded a prestigious NSF Graduate
Research Fellowship as well as a CGRS
Graduate Fellowship from UW-Madison.
Ren is broadly interested in algebra,
number theory, and combinatorics,
with her past research focusing on
additive number theory, arithmetic
combinatorics, and algebraic geometry.
At UW-Madison, Ren wants to continue
exploring algebraic number theory and
algebraic combinatorics. The NSF GRFP,
awarded to those with high potential for
significant and impactful research, will
provide her with three years of funding.
The CGRS Graduate Fellowship is offered
to graduate students at UW-Madison
who have demonstrated substantial
achievement and will contribute to
fostering a diverse academic community
at UW-Madison, and will provide her with
an additional two years of funding.

2025-2026 MA Graduates

Alexandros Antonorsi
Qianyi Cao
Peiwu Chen
Xiyao Chen
Yiyu Chen
Yuhang Chen
Stephen Cornelius
Ruiming Diao
Ruochen Gu
Jiayi Hu
William Huang
Xingrui Huang
Mingxu Jiang
Yi Jin
Yunshu Lei
Jiarui Li
Jiaxin Li
Zihao Liu
Ziji Ma
Michael Maxfield
Lingyu Men
Jeremy Nohel
Shawn Perry
Tate Poole
Kornrapas Saywizard
Samarth Sheth
Yongqing Shi
Yue Su
James Vineyard
Yingzhou Wang
Yiqing Wang
Xiaolin Wu
Hairuo Xiao
Jun Xu
Yichuan Xu
Heng Yang
Jingze Yang
Yixiang Yang
Minghao Yin
Hongyang Zhang
Jinbo Zhang
Wuyang Zhang
Yingnan Zhao
Shaolei Zhou
Yanfei Zhu

Faculty & Staff Awards & News

Faculty & Staff News

Professors **Dima Arinkin**, **Alexei Poltoratski**, and **Andreas Seeger** received the 2026 Simons Fellowship, a prestigious award that helps faculty cover the cost of a full-year sabbatical. About 50 fellowships are awarded across all math departments in the US and Canada each year.

Assistant Professors Dallas Albritton and **Paul Apisa** were selected as 2026 Sloan Research Fellows. Their achievements and potential as early-career researchers place them among the next generation of scientific leaders in the US and Canada.

RTG Trainee **Brandis Whitfield** was awarded a prestigious NSF Mathematical Sciences Postdoctoral Research Fellowship. Dr. Whitfield works with **Assistant Professor Marissa Loving** and **Professor Autumn Kent** in the areas of geometric group theory and low-dimensional geometric topologies with general interest in mapping class groups (big and small), the geometry of curve and arc complexes, and hyperbolic 3-manifolds.

Professor Jean-Luc Thiffeault was named as a fellow of the Society for Industrial and Applied Mathematics (SIAM). Dr. Thiffeault was recognized for inventive approaches to the modeling and characterization of mixing, chaotic and complex flows, microorganism transport, braids and dynamical systems.

Professor Saverio Spagnolie has been elected to the chairline for the American Physical Society (APS)'s Division of Soft Matter Physics. Dr. Spagnolie will begin his tenure by directing DSOFT outreach efforts (see page 10). Upon ascending to Chair, he will take on primary executive responsibilities, presiding over meetings and managing strategic needs. Among his stated goals for this service is to "bring the math" to APS DSOFT.

Professor Jordan Ellenberg has been elected as a member of the American Academy of Arts & Sciences. Chartered

in 1780, the academy was established to recognize accomplished individuals and engage them in addressing the greatest challenges facing the young republic.

Professor Mihaela Ifrim was named to the Scientific Advisory Board of the Banff International Research Station (BIRS).

Associate Professor Jose Israel Rodriguez was named the associate editor for the SIAM Journal of Applied Algebra and Geometry (SIAGA) and the Notices of the American Mathematical Society.

The journal Advances in Continuous and Discrete Models awarded their 2025 Best Paper Award to **Professor Hung Vinh Tran** and **Dr. Jiwoong Jang** PhD'24 (University of Maryland - College Park). Their paper, "Discrete coagulation-fragmentation equations with multiplicative coagulation kernel and constant fragmentation kernel," offers a significant contribution to the mathematical understanding of coagulation-fragmentation (CF) processes.

Professor Chris Rycroft received a Vilas Mid-Career Investigator Award. Eighteen professors across all disciplines at UW-Madison received Vilas Faculty Mid-Career Investigator Awards, which recognize research and teaching excellence. The award provides flexible research funding for three years.

Professor Qin Li was the winner of a Vilas Associate Award. The competition recognizes "new and ongoing research of the highest quality and significance." Tenure-track assistant professors and tenured faculty within 20 years of their tenure date are eligible.

Assistant Professor Caglar Uyanik was recognized with the 2026 Award for Mentoring Undergraduates in Research, Scholarly and Creative Activities. The award acknowledges the important role mentors play in fostering undergraduates' intellectual, personal

and professional growth through participation in high-impact practices including research, scholarly and creative endeavors.

Associate Professor Nan Chen was awarded one of UW-Madison's Reimagining Next Phase Research Awards. Growing from a need to diversify research funding sources, the UW Foundation developed this new award to smooth over interruptions from federal sources to help researchers continue to innovate.

Dr. Sarah Strikwerda was awarded a campus-wide Postdoc Excellence Award in Teaching. Strikwerda joined the department as a postdoc on the RTG in Analysis and Applications. She has been working with **Professor Hung Tran** and **Assistant Professor Laurel Ohm**. "In her four semesters at UW-Madison, Dr. Strikwerda has taught courses across the undergraduate curriculum. Whether an introductory course for non-majors, a first course in proofs for students transitioning from computational to theoretical mathematics, or an advanced course for students in the final year of the program, she excels at creating a classroom environment where students are given the opportunity to have meaningful interactions with her, each other, and the course content." - Melissa Lindsey, Director of Instructional Staff Operations

Professors Andreas Seeger and **Stephen Wright** (UW-Madison Computer Science) were invited to speak at the 2026 International Congress of Mathematicians (ICM) in Philadelphia, PA.

Professor Timo Seppäläinen delivered the Doob Lecture at the 45th Conference on Stochastic Processes and Their Applications (SPA) held in Ithaca, NY, on June 14-20, 2026. SPA is the main annual international conference on probability theory and its applications, organized by the Bernoulli Society for Mathematical Statistics and Probability. In addition to plenary lectures, each SPA features three prominent lectures



Yingkun Li, Yousheng Shi, and Qiao He celebrate their wins at ICCM 2025.

named after Joseph Doob (1910-2004), Paul Lévy (1886-1971), and Oded Schramm (1961-2008). Dr. Seppäläinen also gave a plenary lecture at the 2010 SPA in Osaka and chaired the scientific program committee of the 2018 SPA in Gothenburg. UW-Madison hosted SPA in 1989.

Professor Shamgar Gurevich, with Roger Howe (Yale) and Sophie Kriz (Princeton), organized an Institute for Advanced Study (IAS) workshop devoted to the discovery of the notion of size of symmetry. Dr. Gurevich's talk was titled "A Look at Representations of $SL(2, q)$ Via the Lens of Size: Motivations, Rank, Eta Correspondence."

Professor Jordan Ellenberg gave a UW-Madison Focus on the Humanities talk in March 2026 discussing the value of using math as a tool for helping people to think honestly about uncertainty. He encouraged his audience to embrace uncertainty rather than using a false promise of mathematical

precision to suppress it.

Several faculty and former members of the department were honored at the International Congress of Chinese Mathematicians. **Qiao He** (former postdoc and VISP student), **Chao Li**, **Yousheng Shi** (former postdoc), and **Professor Tonghai Yang** won the Best Paper Gold Award in Number Theory for their paper "A proof of the Kudla-Rapoport conjecture for Kramer models." **Assistant Professor Yingkun Li** won the Best Paper Gold Award in Number Theory for the paper "Algebraicity of higher Green functions at a CM point."

2025-26 Distinguished Lecture Series:

Dr. Wei Zhang (MIT) gave a series of talks in October 2025 titled "Gross-Zagier Formula in High Dimensions," which was delivered in two parts, and "Proportionality and the Arithmetic Volumes of Shimura Varieties and the Moduli of Shutkas."

Dr. Aaron Naber (Institute for Advanced Study) delivered a series of talks in October 2025 titled "Structure of Singular Sets." He gave a colloquium-level talk titled "Non-Linear Harmonic Maps and the Energy Identity" and a seminar-level talk titled "Recent Progress on Manifolds with Ricci Curvature."

Department of Mathematics Postdoctoral Awards:

Postdoctoral Excellence in Teaching Awards: **Thierry Laurens**, **Hyukpyo Hong**

Postdoctoral Excellence in Mentoring and Outreach Award: **Yukun Yue**

Erin Breu, Administrative Assistant, was one of ten campus employees honored with the 2026 University Staff Recognition Award. She was nominated by the Math Department Awards Committee based on the criteria of teamwork, dedication to excellence, problem-solving abilities and innovative approaches to her job.



Photo by Taylor Wolfram / UW-Madison

Research Spotlights

Advances in approximation methods: Sergey Denisov

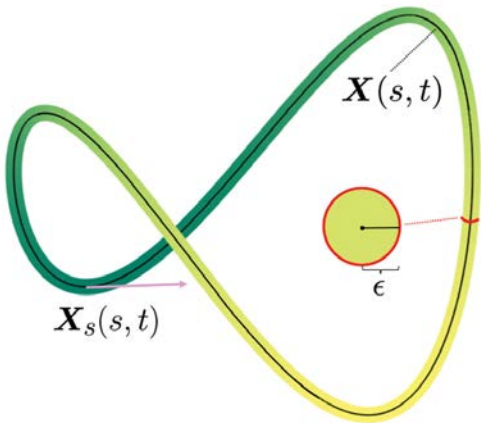
The AAA (Adaptive Antoulas-Anderson) algorithm computes rational approximations of functions from a set of sampled data points. AAA is one of the fastest and most robust approximation algorithms available, with standard implementations in MATLAB and Chebfun.

Recently, with Maxim Yattselev, our own Sergey Denisov used Complex Analysis to prove the algorithm’s remarkably fast convergence for a broad class of holomorphic functions.

AAA was the focus of a 2026 summer REU in which four talented UW undergraduates—B. Janke, J. Vandervaat, H. Zhang, and D. Zikel—conducted extensive numerical experiments to explore its strengths and limitations.

Mathematics of swimmers: Laurel Ohm

Curve evolution equations model the motion of thin, elastic structures immersed in a very viscous fluid (such as cilia or flagella). This year, Laurel Ohm carried out an analysis of the ‘slender body free boundary problem,’ finally establishing a theoretical basis for the filament dynamics that many popular numerical methods are actually approximating.

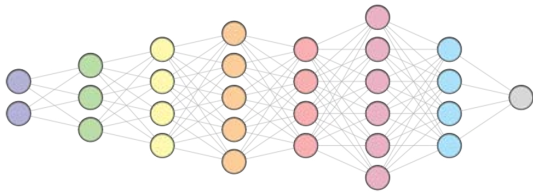


Bridging Earth System Models with Explainable AI

Can simple mathematical models make today’s most advanced Earth system models better? Research from Professor Nan Chen’s group, led by postdoctoral researcher Pouria Behnoudfar, shows that they can. The team developed an explainable AI framework that bridges idealized mathematical models with state-of-the-art operational models, substantially improving their simulations while revealing why the corrections work. Demonstrated through major improvements in El Niño simulations, the general framework could also support next-generation Earth system emulators and new approaches to studying and predicting extreme events. The work was featured by SIAM Dynamical Systems Web.

Polynomial neural networks: Jose Israel Rodriguez

Deep linear networks involve repeated multiplication of an input vector by matrices, which are the parameters of the networks. A polynomial neural network (PNN) is a generalization in which an activation function (such as a power function) is inserted between the linear maps, yielding a polynomial map from the network parameters to a space of homogeneous polynomials. In recent joint work, Kevin Dao and Jose Israel Rodriguez gave the first example of a minimal filling PNN architecture in which the hidden layer widths are not unimodular, that is, that do not increase monotonically and then decrease, disproving a conjecture of Kileel-Trager-Bruna from 2019. The Dao-Rodriguez counter-example is shown in the image below.

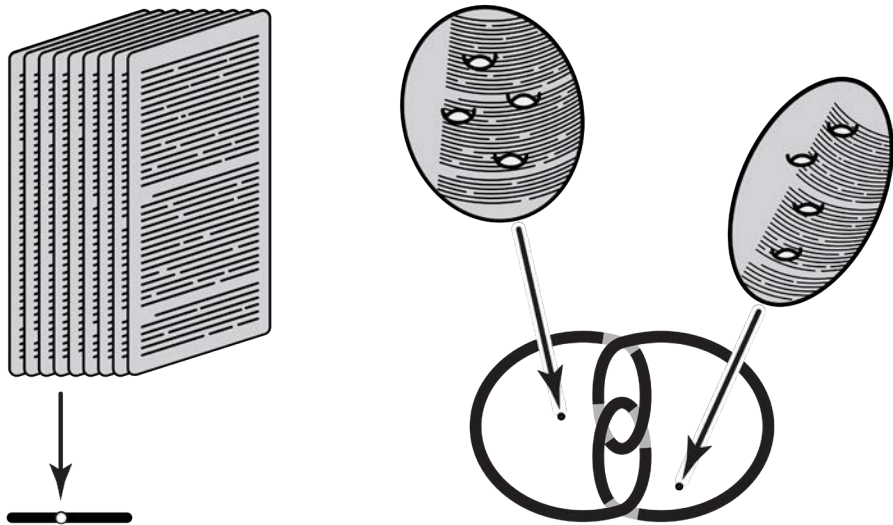


Atoroidal surface bundles: Autumn Kent

In April of 2024, Professor Autumn Kent and her collaborator Chris Leininger produced the first examples of compact aspherical surface bundles over surfaces with no rank-two free abelian subgroups in their fundamental groups. Whether or not such "atoroidal surface bundles" existed had been open for more than 30 years, and has for the last 25 years been one of the most difficult and coveted open problems in the study of Teichmüller theory, mapping class groups, and surface bundles. The question arises in the study of hyperbolic geometry where it is natural to ask if there are hyperbolic 4-manifolds that fiber as surface bundles over surfaces. Thurston had shown in the seventies that many hyperbolic 3-manifolds are surface bundles over the circle and he asked then if every hyperbolic 3-manifold has a finite covering space that fibers in a such a way. Thurston's question

was answered spectacularly by Ian Agol in his Breakthrough Prize (\$3M) winning work on the Virtually Haken Conjecture. Such 4-manifolds, though conjectured not to exist, would be atoroidal, and this gives rise to the question that Kent and Leininger answered.

Kent and Leininger establish the existence of their bundles by going up a dimension and showing that there is a thrice--punctured torus bundle over the complement of the figure--eight knot with the property that the only rank-two free abelian subgroups are the ones arising from the peripheral torus in the figure--eight knot complement. The abundance of essential surfaces in the figure--eight knot complement and a branched covering trick then give the desired surface bundles over surfaces. Their proof is elegant and surprising, and makes use of very little heavy machinery. It was the primary focus of a conference in Madrid in the summer of 2025, and their paper will appear in the prestigious Annals of Mathematics.



A book is a bundle of pages, with one page for each number, say 1 to 300, for a novel. Imagining a page for each number in the interval [0,1], we would have a bundle of rectangles over an interval. The figure-eight knot complement is the 3-sphere minus the figure-eight knot, pictured at right. A surface bundle over the figure-eight knot complement has a “page” of some genus (in the figure, this is four) for each point in the knot complement.

Sharon Paulson Retires



Sharon Paulson celebrates with current and former Math coworkers at her retirement party. From left to right: Char Burke, Wendy Ohrmundt, Sharon Paulson, Jenni Hart, Tori Cooper, Teresa Fastabend, Serena Boman

After 28 years as Copy Center Manager, Sharon Paulson retired in 2026. Beyond printing millions of pages of worksheets and exams, her dedication, integrity, and humor made her a steady presence on the second floor. She frequently took on extra duties to help the department, including purchasing, managing the textbook library, staffing the front desk, organizing visitor travel, and planning and executing social events.

Sharon also served as the administrative coordinator for the Talent Search, the Math Department’s oldest and most popular outreach program. She collected problem set submissions from students all over the world and organized 27 Honors Day celebrations, inviting over 600 Wisconsin students to Van Vleck.

While she enjoyed many parts of her job, the people she met and worked with were truly the highlight of her time on campus. In her retirement, Sharon looks forward to catching up on household projects, camping, and attending music festivals with her husband.

New Staff Arrivals



Matt DeLong

In his role as Associate Director of Instructional Support, Matt primarily supports and develops the post doctoral staff and new tenure track faculty in their instructional roles. He also trains and supports the summer graduate student instructors.

Prior to UW-Madison, DeLong was a faculty member for 27 years at small liberal arts colleges and was involved in faculty development at campus teaching and learning centers as well as on the leadership team of the MAA’s Project NEXT.



Wendy Ohrmundt

As the departmental Travel & Event Coordinator, Wendy organizes travel arrangements for departmental visitors and manages event logistics including booking and coordinating flights and hotel accommodations, scheduling food orders and offering on-site support for the Math Department.

Prior to her position at UW-Madison, Ohrmundt spent more than 25 years as a corporate meeting and event planner, organizing large incentive programs, handling registration, coordinating transportation and lodging, managing vendor and venue communication, and overseeing all on-site operations for the events.



Kyra Young

Kyra Young manages the Department of Mathematics Copy Center. She is responsible for printing worksheets, exams, and posters. Kyra also assists in producing the annual department newsletter.

Young comes to us from Picture Salon in Madison, WI, where she was in charge of greeting card production. Kyra is a graduate of Madison Area Technical College and has a background in graphic design.

In Memoriam



Daniel Russell McMillan, Jr.

Daniel Russell McMillan, Jr. passed away on April 21, 2026. He was a professor of mathematics at the UW from 1966 to 1997. He received his masters and doctorate degrees from UW-Madison, defending in 1960, and advised by R.H. Bing.

After obtaining his Doctorate degree, Russ spent a number of years as an associate professor at the University of Virginia in Charlottesville which is where he met Evelyn Francis Rupard, a graduate student in mathematics completing her own doctorate degree who was working as a teaching assistant for one of his lectures. The pair married in 1965. Russ returned to the UW in 1966. Evelyn completed her doctorate and worked as a lecturer in the math department as well. In 1971, they welcomed their son, Stephen.

Russ continued to work for the University of Wisconsin for 31 years, retiring in 1997. Despite his love for the math department at the UW, he relished retirement and the ability it gave him to indulge his passion for film, love of new computer technology, and investing. His love of film dated back to childhood. Russ would always get a twinkle in his eye when he spoke of the 10 cent movies he would attend with his close childhood friend Edward. The boys’ Saturday afternoons would be filled with the movies of Harold Lloyd and Buster Keaton, his favorite, while keeping them out of the Georgia heat and confounding Russ’ mother Leonora who felt her son



should be outdoors more. This love for film never wavered and Russ was a long standing patron of Cinematheque on the UW campus and a Roger Ebert devotee. A brain trained for mathematics needed to be kept satisfied so staying up to date with the latest releases from Apple and personal investing helped satiate this need.

McMillan was a prominent topologist, specializing in the study of 3-manifolds and the properties of geometric shapes that remain unchanged under continuous deformation.

Key highlights of his work include:
The McMillan Cellularity Criterion: One of his most significant contributions is a condition (often called the "McMillan Property") used to determine when a subset of a manifold is "cellular," meaning it can be shrunk down to a single point within a neighborhood.

Manifold Decompositions: He published extensive research on the topology of 3-manifolds, including a well-known summary of results on contractible open manifolds.

Collaborations and Influence:
His work was foundational during a period of rapid discovery in geometric topology and is frequently cited in Transactions of the American Mathematical Society.

He advised 13 graduate students during his time at the UW, and 56 descendants, according to the Math Genealogy Project.

Tom Kurtz

Professor Jin Feng, PhD’96 from the University of Kansas spoke at the PDE/Geometric Analysis seminar on March 16th. He dedicated the final slide of his talk to the memory of Tom Kurtz, his PhD advisor and Math professor emeritus. Hung Tran, Feng’s host for the visit, appreciated this meaningful gesture.



Michael G. Crandall

Michael “Mike” G. Crandall died on March 22, 2026 after a long illness. Mike worked at the UW from 1974 to 1990, after getting his Ph.D. from UC-Berkeley in 1962. He worked primarily on partial differential equations, e.g., with bifurcation theory, evolution equations, generation of semigroups of transformations on Banach spaces and the theory of Hamilton–Jacobi equations. He worked at UC-Santa Barbara from 1988 until he retired.

He won the Steele prize in 1999 for two seminal papers: “Viscosity solutions of Hamilton–Jacobi equations” (joint with P.-L. Lions), Trans. Amer. Math. Soc.277 (1983), 1–42, and “Generation of semi-groups of nonlinear transformations on general Banach spaces” (joint with T. M. Liggett), Amer. J. Math. 93(1971), 265–298.

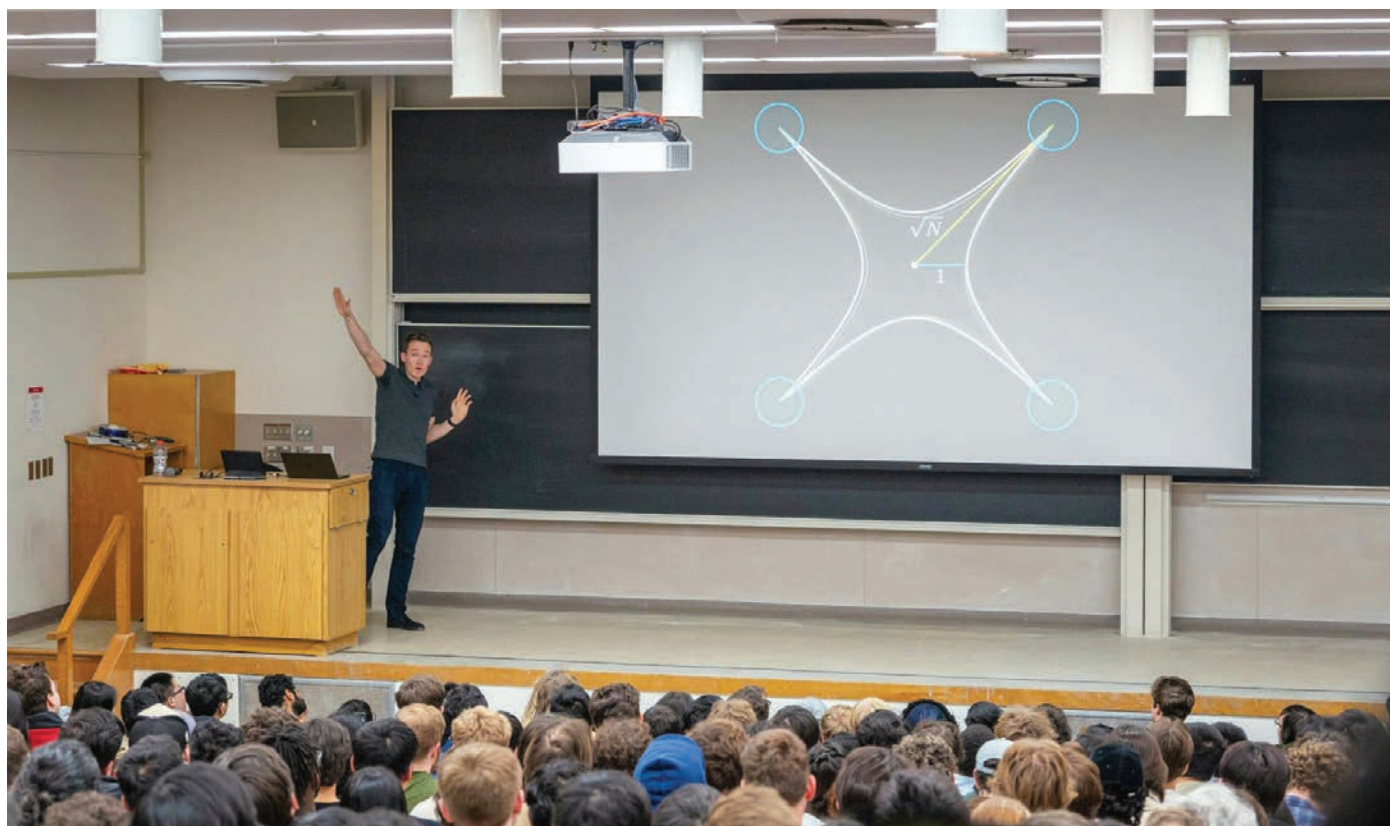
This work has had wide ramifications in diverse applications, including control theory, image processing, phase field models, front propagation, and the Perron Procedure for degenerate fully nonlinear elliptic or parabolic equations. This joint work with Crandall is one of the main contributions in the citation for the Fields Medal which Lions was awarded in 1994 in Zürich.



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Grant Sanderson, creator of the popular YouTube channel 3Blue1Brown, spoke to a packed lecture hall in February. His talk, titled "Who cares about high-dimensional spheres?", was hosted by the Math Club. Photo by Jake Piper for The Daily Cardinal