MAA AWARDS AND PRIZES

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MAA
MATHEMATICAL ASSOCIATION OF AMERICA

maa.org/awards

Competitions

The 85th William Lowell Putnam Mathematical Competition

The William Lowell Putnam Mathematical Competition is the preeminent mathematics competition for undergraduate college students in the United States and Canada. Prizes are awarded to the participants with the highest scores and to the highest-ranked teams' math departments.

The Putnam Fellows

Jiangqi Dai, *Massachusetts Institute of Technology*
Papon Lapate, *Massachusetts Institute of Technology*
Brian Liu, *Massachusetts Institute of Technology*
Luke Robitaille, *Massachusetts Institute of Technology*
Qiao Sun, *Massachusetts Institute of Technology*

Elizabeth Lowell Putnam Prize

Jessica Wan, *Massachusetts Institute of Technology*

Winning Teams

1. **Massachusetts Institute of Technology**: Papon Lapate, Luke Robitaille, Qiao Sun
2. **Harvard University**: Kevin Cong, Andrew Gu, Eric Shen
3. **Stanford University**: Robert Dragomirescu, Andrei Mandelshtam, Worrawat Rungaramsin
4. **Carnegie Mellon University**: Alan Abraham, Lei Li, Bo Peng
5. **University of California, Santa Barbara**: Victor Bernal Ramirez, Pico Gilman, Om Mahesh

The United States of America Mathematical Olympiad

The USAMO is part of a worldwide system of national mathematics competitions in which mathematicians challenge students and recognize their success in creative problem solving. The USAMO is a six-question, two-day, nine-hour essay/proof examination that serves as an important step toward selecting the US team for the International Mathematical Olympiad. This year it was held March 19-20. Here are the USAMO Gold medal winners who gave permission to have their names published.

Gold Medal Winners (in alphabetical order)

Christopher Bao, *Davidson Academy*
Rohan Bodke, *Homestead High School*
Andrew Carratu, *Phillips Exeter Academy*
Karn Chutinan, *Dover Sherborn High School*
Jonathan Du, *AlphaStar Academy*
Rohan Garg, *Amador Valley High School*
Darren Han, *University of Texas at Austin*
Henry Jiang, *Detroit Country Day School*
Shihan Kanungo, *AlphaStar Academy*
Hengrui Liang, *Harker Upper School*
Andrew Lin, *Yu's Elite Education*
Jiahe Liu, *John Carroll University*
Aryan Raj, *Chantilly High School*
Liam Reddy, *Waterford School*
Aarush Vailaya, *Harker Upper School*
Alexander Wang, *Millburn High School*
Ruilin (Calvin) Wang, *Thomas Jefferson High School for Science and Technology*
Channing Yang, *Elkins*
Feodor Yevtushenko, *UCI-Math Circle*
Qiao Zhang, *Sierra Canyon School*

The International Mathematical Olympiad

The International Mathematical Olympiad (IMO) is the world's premier high school mathematics competition, attracting the best young mathematicians from around the globe. Six students qualify for the USA Team through their performance in the MAA American Mathematics Competitions (AMC) program. This year's team members were:

Karn Chutinan, *Dover Sherborn High School*
Hannah Fox, *Proof School*
Andrew Lin, *Hopewell Valley Central High School*
Alexander Wang, *Millburn High School*
Ruilin (Calvin) Wang, *Thomas Jefferson High School for Science and Technology*
Qiao (Tiger) Zhang, *Sierra Canyon School*

The European Girls' Mathematical Olympiad

The European Girls' Mathematical Olympiad (EGMO) is a mathematical olympiad for girls that started in 2012. This year's competition was held in Prishtina, Kosovo from April 11 to 17. The United States took second place, represented by the team of:

Shruti Arun, Gold medal
Hannah Fox, Gold medal
Alansha Jiang, Gold medal
Angela Liu, Gold medal

The Romanian Master of Mathematics

The Romanian Master of Mathematics is an annual competition for students at the pre-university level, held in Bucharest, Romania; the 14th RMM was held from February 10 - 15, 2025. The United States took third place, represented by the team of:

Rohan Bodke, Bronze medal
Andrew Lin, Silver medal
Aprameya Tripathy, Silver medal
Oron Wang, Silver medal
Feodor Yevtushenko, Silver medal
Michael Zhao, Silver medal

Edyth May Sliffe Awards

The Edyth May Sliffe Awards for Distinguished Mathematics Teaching in Middle School and High School are given annually to middle and high school mathematics teachers who have done outstanding work to motivate students in mathematics by participating in one of the MAA American Mathematics Competitions (AMC) competitions.

Chad Miller, *Saint Edward's School*, Vero Beach, FL
Christina Theodoru, *Franklin Road Academy*, Nashville, TN
Curtis Kendrick, *Lake Norman Charter Middle School*, Huntersville, NC
Daniel Kang, *Whitney M. Young Magnet High School*, Chicago, IL
Daniel Lowe, *Frisco High School*, Frisco, TX
Deborah Brown, *Wesleyan School*, Peachtree Corners, GA
Eric Shulman, *University High School*, Irvine, CA
Ethan Tannen, *Julia R. Masterman Laboratory and Demonstration School*, Philadelphia, PA
Gregory Emerson, *Eastlake High School*, Sammamish, WA

Hiram Golze, *Waterford School*, Sandy, UT
Hong Zhao, *McCanny Secondary School*, Toronto, ON, Canada
James Fox, *Neuqua Valley High School,* Naperville, IL
Jason Consolo, *C. Leon King High School*, Tampa, FL
Jessica Merrick, *Ransom Everglades School*, Coconut Grove, FL
Josh Frost, *Jonas Clarke Middle School*, Lexington, MA
Junaid Mansuri, *College Preparatory School of America*, Lombard, IL
Kevin Taylor, *Rock Bridge High School*, Columbia, MO
Kristie D'Ambrosi, *Boulan Park Middle School*, Troy, MI
Marina DeVino, *Hillsborough High School*, Hillsborough, NJ
Olivia Craine, Pullman High School, Pullman, WA
Raafa Abdulla, *Crofton House School*, Vancouver, BC, Canada
Rebecca Nelson, *Escondido High School*, Escondido, CA
Rhonda De La Mar, *River Hill High School*, Clarksville, MD
Ryan Sasaki, *Iolani School*, Honolulu, HI
Svetlana Ryzhik, *Briarcliff Middle School*, Briarcliff Manor, NY
Thomas Goebeler, *The Episcopal Academy*, Newtown Square, PA
Tianyao Xiao, *Grandview Heights Secondary School*, Surrey, BC, Canada
Trudy Thompson, *Lima Central Catholic High School*, Lima, OH
Wafi Abdulla, *Lauremont School*, Richmond Hill, ON, Canada

Young Women in Mathematics Awards and Certificates

The Young Women in Mathematics Awards & Certificates program celebrates the achievements of young women who excel in the MAA American Mathematics Competitions (AMC) and inspire other young women and students from underrepresented groups in mathematics to participate in these exciting competitions. Thanks to the support of our generous sponsors, the MAA provides prizes for the highest-scoring girl-identifying participants in each competition. Additionally, the highest-scoring girls in each MAA Section are recognized with a certificate for each competition. Here are the 2025 Award winners with permission to have their names published.

Maryam Mirzakhani AMC 8 Award (in alphabetical order)

Aiyang Cheng, AB
Alice Wang, CA
Amber Qiao, CA
Angela Li, CA
Angelica Feng, NJ
Angie Zhu, MD
Anika Sharma, CA
Annabelle Shaw, UT
Anqi Chen, CT
April Wu, TN
Ariel Jiang, CA
Ashley Xu, CA
Avril Yu, IL
Bella Feng, WA
Betty Yang, CT
Blaire Li, BC
Cassie Lei, MA
Catherine Chen, OH
Cathy Yin, AB
Charlotte He, ON
Charlotte Hu, QC
Charlotte Yang, CA
Chelsea Qin, PA
Chloe Sha, CA
Cindy Hu, OR
Cinri Liu, BC
Claire Qiu, NY
Claire Ren, CA
Coco Zhang, BC
Dylan Mi, BC
Elaine DU, ON
Elizabeth Liu, NY
Elizabeth Pang, IL
Ella Feng, CA
Elle Mathew, CA
Ellie Zhu, CA
Emma Yu, CA
Grace Zheng, NJ
Hailey Lu, CA
Hannah Zhou, QC
Heiyu Sheng, QC
Iris Li, CO
Iris Yan, CA
Isabella Gu, ON
Jasmine Zheng, BC
Jennifer Xu, ON
Jiaheng Tu, CA
Jianna Qu, OH
Jiayu Shen, BC
Jingyao Shao, TX
Kailey Ye, WA
Katharine Wen, NJ
Katherine Chu, WA
Lancy Zheng, CA
Laura Zhang, CA
Lauren Wang, ON
Leislie McNarland, SK
Liana Lee, CA
Liying (Bella) Zhou, CT
Lucy Yang, CA
Mia Zhou, ON
Minerva Gao, CA
Mohini Goswami, TX
Moxi Zhu, CA
Nancy Li, ON
Navya Singh, CA
Nina Liu, CA
Olivia Chong, CA
Olivia Gao, TX
Rachel Wu, MD
Ren Li, TX
Ruozhen Ma, TX
Ruth Li, CA
Sahanya Pallikonda, CA
Serena Qin, WA
Shiyu Zhang, NY
Shuoran Feng, ON
Shuyin Liu, WA

Sierra Liu, CA
Sissi Yu, QC
Siyona Agarwal, MA
Sophia Chen, IN
Sophia Han, OR
Sybella Zhao, IL
Sylvia Zhu, BC
Tina Jin, CA
Vanessa Wu, ON
Yiqing Wei, ON
Yolanda Yu, MA
Youyi Cao, VA
Yujie Wu, CA
Zoey Xu-Rui, TX

D. E. Shaw Group AMC 10 Award (in alphabetical order)

Christina Zhou, SK
Elena Beckman, CA
Holly Wang, BC
Laura Wang, WA
Selena Ge, MA
Sophia Han, OR
Vivian Dai, BC
Xinyi Li, TX
Yiqing Wei, ON

Two Sigma AMC 10 Award (in alphabetical order)

Elaine Gu, CA
Emma Li, ON
Evelyn Kim, CA
Irene Xue, CA
Nuo Shen, CA
Phoebe Zhu, ON
Tianqi Zhang, CA

Jane Street AMC 12 Award (in alphabetical order)

Barbara Cao, CA
Christina Wang, NJ
Fiona Fei, CA
Honjar Xing, ON
Huini Xu, CA
Liran Mason, NJ
Rachel Chen, MO
Ruyan Meng, ON
Victoria Wang, CA

Citadel and Citadel Securities AMC 12 Award (in alphabetical order)

Bowen Xiao, MD
Cathy Sun, ON
Guixin Zhang, PA
Vivian Shen, NJ
Yi Yu, BC
Zimeng Lu, PA

Henry L. Alder Awards

In January 2003, the MAA established the Henry L. Alder Award for Distinguished Teaching by a Beginning College or University Mathematics Faculty Member to honor beginning college or university faculty whose teaching has been extraordinarily successful and whose effectiveness in teaching undergraduate mathematics is shown to have influence beyond their own classrooms. An awardee must have taught full time in a mathematical science in the United States or Canada for at least two, but not more than seven, years since receiving their PhD. Each year, at most three college or university teachers are honored with this national award and receive $1,000 and a certificate of recognition from the MAA. Award recipients will make a presentation at MAA MathFest. Nominations for the award may be made by any member or by section of the MAA.

Elizabeth Arnold

Colorado State University

Dr. Elizabeth Arnold received her PhD in mathematics education from Montana State University and joined the faculty at Colorado State University in 2020. In Fall 2024, she excitedly returned to her alma mater and joined the faculty in the Department of Mathematical Sciences at Montana State University. She received Colorado State University's College of Natural Sciences' Early Career Faculty Excellence in Teaching Award in 2023 and the MAA's Rocky Mountain Section Early Career Teaching Award in 2024.

Through her teaching, Dr. Arnold has the extraordinary ability to simultaneously excite, challenge, and support her students. An undergraduate student wrote that Dr. Arnold's passion for teaching and her creative activities continually piqued their interest, and they described her classroom as one where "every student feels important and wanted." A graduate student shared an experience initiated by receiving feedback on an initial writing assignment in Dr. Arnold's class. Dr. Arnold's feedback on that assignment and her dedicated teaching and mentoring throughout the course resulted in the student's writing dramatically improving; their interest in mathematics education deepened, leading them to pursue a master's degree studying with Dr. Arnold.

Beyond the college classroom, Dr. Arnold also utilizes her teaching skills in several community outreach programs. Dr. Arnold co-directed GirlsGetMath@CSU, a one-week summer program for high school girls that seeks to encourage young women to pursue careers in mathematics and STEM-related fields. She and a colleague created and implemented Cafecito con Matemáticas, which brings together students, parents, and teachers with university students and faculty for an evening of fun math games, puzzles, and exploratory activities offered in both Spanish and English. Another of Dr. Arnold's community-oriented initiatives is her pen pal exchange, pairing pre-service elementary teachers and local 4th- and 5th-grade classrooms.

Dr. Arnold's scholarship around mathematical knowledge for teaching directly impacts the pedagogical practices of teachers. For example, Dr. Arnold co-authored two books that offer a framework for teaching mathematical modeling to K-12 students in a way that embraces community issues and empathy. Dr. Arnold also collaborated on an NSF-funded MAA project focused on adding "secondary teaching" to the list of applications of areas of undergraduate mathematics. This project aims to develop an understanding of mathematics content and of how teachers provide classroom experiences that foster mathematics learning by creating curriculum materials for undergraduate math courses. These curriculum materials have been published in the MAA Notes Volume, *An Aspirational Approach to the Mathematical Preparation of Teachers.*

Dr. Arnold has achieved tremendous success as a teacher, and it is a pleasure to recognize her distinguished teaching at the national level with the 2025 Henry L. Alder Award.

Response

Words cannot express the deep gratitude and appreciation I have for not only being nominated for this award but for having the honor to receive it. The best part of my day is when I'm in the classroom teaching and learning from my students. The second-best part of my day is when I have the opportunity to talk about teaching with my colleagues, with my pre-service teachers, or with my dad. My earliest memory of wanting to be a mathematics teacher occurred in the fourth grade during a "take your kid to work day." I distinctly remember joining my dad for the day as he taught mathematics at a community college. Sitting in his office chair, pretending to grade papers, listening to him during office hours, walking around campus, and watching him teach in a college classroom had me mesmerized. From that moment on, I knew two things: that I wanted to major in mathematics and that I wanted to be a teacher when I grew up.

My journey and growth in teaching have been made possible by surrounding myself with a community that believes in me, supports and challenges me to succeed, and values mathematics education. This community includes my family, my teachers from my own education, the departments that I have had the honor to work in, my amazing mentors, the colleagues and lifelong friends that I have made, professional organizations like the MAA, and most importantly the students who have taught me that teaching mathematics means more than just teaching content. Teaching mathematics is a human and social activity, and interacting with students and their mathematical thinking necessitates getting to know our students as people.

While there is not enough room to acknowledge every colleague who has influenced my career in mathematics education, there are two whom I'm forever grateful to. Dr. Elizabeth Burroughs at Montana State University and Dr. Hortensia Soto at Colorado State University have been, without a doubt, cornerstones in my career. Thank you for your mentorship and friendship. Your support over the years has been instrumental to my growth as a teacher, as a math ed scholar, and as a mother balancing family and academia. I can only hope to have the same impact on others in my future.

Lastly, I'm grateful to the MAA for all of its support and opportunities to grow as a mathematician, as a teacher, as a scholar, and as a member of the mathematics education community. In the last few years, I have found "my place," a place where I have opportunities to thrive, opportunities to interact with a community vested in mathematics education, and opportunities to integrate three aspects of my job–teaching, research, and service–in a meaningful and powerful way. Thank you!

Biographical Sketch

Dr. Liz Arnold is an assistant professor of mathematics education in the Department of Mathematical Sciences at Montana State University. Throughout her career, she has taught a variety of undergraduate and graduate-level mathematics courses; these include undergraduate mathematics major courses, specialized mathematics content courses for K-12 pre-service teachers, methods of teaching courses, and graduate-level mathematics education courses. In all of her courses, she strives to create a welcoming classroom environment that is student-centered and fosters collaboration, creativity, compassion, and deep mathematical thinking. She believes that mathematics education is a collective, shared responsibility that requires learning with and from each other, trying ideas, learning new perspectives, and being willing to change our thinking.

Her research centers on the mathematical preparation and development of pre-service and in-service K-12 mathematics teachers, with a focus on mathematical knowledge for teaching mathematics, mathematical modeling, and teaching and learning statistics. She is a co-editor of the MAA Notes volume An Aspirational Approach to the Mathematical Preparation of Teachers (2024) and a co-author of Becoming a Teacher of Mathematical Modeling, Grades K–5, and Becoming a Teacher of Mathematical Modeling, Grades 6–12, both published by NCTM. She is an active member of the MAA, serving on the SIGMAA-MKT and COMET committees, and is on the steering committee for the upcoming Mathematical Education of Teachers III report.

Henry L. Alder Awards

Sarah Klanderman

Marian University

Dr. Sarah Klanderman is a talented member of the mathematics community, committed to helping students succeed. Her academic profile is a testament to her dedication, encompassing engaging classroom instruction, impactful research, and meaningful service.

Dr. Klanderman joined Marian University in 2020 directly after completing her PhD at Michigan State University, where she was the first graduate student in forty-five years to be recognized with a university-wide citation for teaching excellence. Dr. Klanderman has continued this strong work at Marian University, teaching across the curriculum and supporting students at all levels. From foundational courses to advanced electives, her teaching utilizes the latest evidence-based strategies to encourage students to take intellectual risks and grow as communicators. Students comment that they feel both challenged and supported in her classes and that they have learned to view their progress with a growth mindset.

Dr. Klanderman is committed to her continued development as an educator. She is an MAA Project NExT alum, took part in PCMI's Undergraduate Faculty Program, and completed two Master Class Series through Marian's Center for Teaching and Learning. Her participation in the CURM and AIM REUF programs increased undergraduate research engagement at Marian. Dr. Klanderman has an extensive body of work in the scholarship of teaching and learning. Her publications address topics including math placement tests, proof-writing, alternative assessment, and combating gender bias and impostor syndrome. She co-authored a book on using graphic novels in teaching STEM.

In addition to her teaching and research, Dr. Klanderman is deeply committed to service. She founded a student chapter of the AWM at Marian and was part of the Marian steering group for the Indiana Women's Prison College Program. She is acting PI on an HHMI Inclusive Excellence grant and co-PI on an NSF S-STEM grant. These grants focus on promoting student equity, inclusion, and success. She has had multiple service roles in the Indiana MAA section and on education-oriented committees at Marian.

Dr. Klanderman is a truly outstanding teacher and scholar who promotes the growth and success of her students and fellow educators and makes our mathematics community a more welcoming and inclusive place. With gratitude and admiration for this important work, we recognize Dr. Sarah Klanderman with the 2025 Henry L. Alder Award.

Response

In receiving this award, I would be remiss not to focus on the village of incredible students, colleagues, and mentors who support me. In some ways, math is the "family business"— my father started me on my math journey by sharing his love of teaching students as a mathematics educator, and he was and continues to be a resource for all of my questions, especially mathematical and pedagogical. Further, I will always be grateful to have had the most amazing advisor who served as a role model not only in research but also in teaching, believing in me and continuing to mentor me long after I finished graduate school. When I was a new faculty member fresh out of my PhD, my department chair personified wisdom and kindness, creating a collegial community and advocating on behalf of others. Finally, I am especially grateful to my students, who continue to challenge and motivate me to keep growing, and my colleagues, whose collaboration, guidance, and innovative ideas have significantly contributed to my growth as an educator. I am deeply honored and humbled to receive this award and look forward to the next chapter of continually developing my teaching through countless lessons from these and many more inspiring individuals with whom I've had the privilege to work. I appreciate the MAA community, particularly MathFest and Project NExT, which have played an instrumental role in broadening my perspective and deepening my commitment to inclusive and effective teaching.

Biographical Sketch

Dr. Sarah Klanderman is an Assistant Professor of Mathematics at Marian University. Her research interests include computations related to topological Hochschild homology, studying students' transition to proof-writing courses, connections between mathematics and other disciplines, and her work with undergraduate research students at the intersection of number sequences and graph theory. Her grant work is focused on supporting underrepresented students in STEM.

Henry L. Alder Awards

Shanise Walker

Clark Atlanta University

Dr. Shanise Walker earned her PhD in 2018 from Iowa State University and then taught at the University of Wisconsin-Eau Clare for four years before moving to Clark Atlanta University in 2022 as Assistant Professor in the Department of Mathematical Sciences. Teaching courses at the introductory through graduate level, Dr. Walker views learning as a collaboration between students and instructors. Through guided notes, engaging warm-up activities, and instant polling, Dr. Walker ensures that course material is accessible and engaging. In and out of class, Dr. Walker combines encouragement and challenge to create, as one student writes, "a learning environment where we feel both supported and motivated to excel."

For Dr. Walker, classroom instruction is just one aspect of a broader package of mentoring students on their educational journeys. Utilizing her own excellent research on extremal combinatorics and graph theory, she mentors students in collaborative research projects resulting in publications and conference presentations. She offers personalized guidance and support to students as they prepare and apply for internships, fellowships, and graduate school. As one student attested, "whether it is reaching out to check in on us, advocating for us, or providing support when we need it, she goes above and beyond to ensure we thrive academically and are prepared for life post-graduation."

A key part of Dr. Walker's teaching is fostering an inclusive classroom that promotes belonging. This includes sharing her innovative methods with colleagues and the broader mathematics community. She organizes and speaks at conferences, serves on panels, and participates in workshops supporting women and underrepresented groups. Dr. Walker is an editor and contributor to the AMS publication *Aspiring and Inspiring: Tenure and Leadership in Academic Mathematics*, and her work on the NSF Education Core Research Program "Studying Successful Doctoral Students in Mathematics from Underrepresented Groups" informs the mathematical community on creating better learning experiences for students from marginalized communities. Through MAA Math Values blog posts and conference talks, her efforts have influenced colleagues at Clark Atlanta University and beyond to enhance the educational experiences of their students.

Dr. Walker excels as an educator, researcher, and mentor, inspiring both students and colleagues.

We enthusiastically recognize Dr. Shanise Walker as a recipient of the 2025 Henry L. Alder Award.

Response

It is an honor to receive the Henry L. Alder Award, and it means so much to me to be recognized for my teaching and service. While this award comes as a surprise to me, it motivates me to keep learning, growing, and contributing in meaningful ways to the mathematics community. I am beyond grateful to be a part of such a community.

Many individuals, mentors, and organizations have been integral in my journey thus far. I am grateful for my K-12 education teachers, who inspired me to pursue mathematics beyond the classroom curriculum. Their inspiration led me to initially pursue a career in teaching secondary mathematics. Through my college experiences as both an undergraduate and graduate student, I found a love for teaching collegiate mathematics. It was during graduate school at Iowa State University that I was able to grow as a young educator and experiment with various teaching styles, like emporium style and team-based learning-that further developed my teaching. I would like to thank Dr. Barb Licklider (retired from Iowa State University) for the wonderful college teaching course and for providing mentorship through my beginning stages of becoming an educator.

Beyond my graduate school experiences came the MAA community. Thank you to the MAA and MAA Project NExT for providing me with opportunities to grow and enhance my teaching techniques and pedagogy. In the years since earning my PhD, I have leaned on the MAA community at various stages for continued support in teaching and building community in mathematics. I would also like to thank my mentors, the University of Wisconsin-Eau Claire and Clark Atlanta University, for your continued support of my professional work, especially in teaching mathematics and mentoring students. Moreover, a special thank you to my family, who listen to my teaching ideas and provide me with space to see each idea through, sometimes through short demonstrations in which they are summoned to engage. Finally, but not least, a huge thank you to my students who continue to push me beyond measure and allow me to bring my ideas to life, both inside and outside of the classroom, no matter how wacky they are. Teaching and mentoring students has been extremely rewarding and a highlight of my professional career.

Biographical Sketch

Dr. Shanise Walker is an Assistant Professor of Mathematical Sciences at Clark Atlanta University (CAU). She was born and raised in Columbus, Georgia. She earned a BS in Mathematics from the University of Georgia in 2012 and a PhD in Mathematics from Iowa State University in 2018. Prior

to her position at Clark Atlanta University, she held an Assistant Professor position at the University of Wisconsin-Eau Claire (UWEC) for four years. Dr. Walker is deeply committed to the learning and teaching of mathematics and increasing diversity and belonging in the mathematical sciences community. A significant portion of her work includes mentoring undergraduate students in mathematics research and supporting their success and advancements. As a graduate student, she received three awards of recognition for her teaching and one graduate student mentor award. Dr. Walker's research interests lie in combinatorics and graph theory. To date, she has several publications and has co-edited an AMS book entitled Aspiring and Inspiring: Tenure and Leadership in Academic Mathematics. At UWEC, she received a "*UWEC Authors Celebration*" honor for her research, and recently, she received recognition as an "Outstanding Researcher" at CAU. When Dr. Walker is not doing mathematics, she is spending time with family, reading, trying new dishes, sewing, or painting.

Carl B. Allendoerfer Awards

The Carl B. Allendoerfer Award, established in 1976, is made to authors of expository articles published in *Mathematics Magazine*. Carl B. Allendoerfer, a distinguished mathematician at the University of Washington, served as president of the Mathematical Association of America, 1959–60.

Jeffrey D. Blanchard and Marc Chamberland

Salvaging College Registrations During COVID-19 via Integer Programming. *Mathematics Magazine*, 97(2), 167–180. https://doi.org/10.1080/0025570X.2022.2089472

Scheduling college courses lies at the intersection of elegant mathematical optimization and messy real-world exceptions. For many universities, the COVID-19 pandemic brought this into stark relief when courses needed to be moved online or rescheduled to facilitate social distancing, disrupting universities' standard practices of course scheduling. In "Salvaging College Registrations During COVID-19 via Integer Programming," Jeffrey D. Blanchard and Marc Chamberland provide an engaging and informative real-world case study of modifying class registrations at Grinnell College after students had already completed registration at the beginning of the pandemic.

With clear, concise prose and formulas accessible to students who have taken linear algebra, the authors guide the reader through their integer programming optimization model, incorporating constraints imposed by both students and faculty. The model's implementation is in phases to allow feedback from stakeholders. An initial heuristic approach was used to find feasible solutions, which earned buy-in by exceeding the expectations of the administration and academic planning committee before the full integer programming approach was implemented. Based on the near-optimal solution obtained, more feedback was solicited, and manual post-processing was done to achieve an acceptable distribution of course offerings between the first and second halves of the semester. A separate optimization was then assigned time slots for the course offerings. Such a multi-phase approach may be adaptable to reducing conflicts in other college class scheduling and registration problems.

Embedded in the article is a concise, insightful tutorial on the fundamental concepts and techniques of integer programming, clearly explaining linear constraints determining the feasible region, the linear programming relaxation, cutting planes, branch and bound, optimality gap, and random perturbation. The article also highlights an important lesson about mathematical modeling, emphasizing that the model is a simplification of the

real-world situation; to get a solution that is acceptable to all stakeholders, it may be necessary to relax your notion of optimality.

"Salvaging College Registrations During COVID-19 via Integer Programming" provides a great introduction for students who may be interested in mathematical modeling and optimization while simultaneously inspiring math faculty who may be interested in using their skills to help solve scheduling challenges at their own institutions. With its elegant blend of high-level mathematical overview and institution-specific details, this article demonstrates a facet of applied mathematics that beautifully illustrates the interplay between mathematics and application.

Responses

Blanchard: It is a wonderful surprise to be recognized with the MAA's Allendoerfer Award. The story of this project starts with a global tragedy, a meeting many feet apart in my backyard, an incredible amount of work, and a persistence that paid off with this incredible recognition. Marc and I both teach our Mathematical Modeling course, where we focus heavily on communicating the models and the results. This pandemic-induced problem made us put all of that into practice, as convincing our colleagues to trust this process was as big a challenge as the mathematics. I am also very happy to have the "real-world" nature of this problem called out as an important part of defining "optimality." Often, as mathematicians, we relish our precision and forget that most problems have many very good solutions, some of which will make people happier than others. I live by the motto that everything is linear algebra, so I greatly appreciate the Committee's recognition of its fundamental role in this paper.

We should all be thankful that *Mathematics Magazine* is willing to share an applied mathematical story like this one. This final version of the article is also an example of positive contributions from a review process. I am grateful to the Magazine's editor, Jason Rosenhouse, and the anonymous referee, whose requests for "some insight into what integer programming actually is and how it attacks such problems" led us to write the tutorial highlighted in the Committee's citation. I am honored by this award and am glad to have solved this problem with Marc. I hope this paper, with this recognition, inspires someone to apply mathematics to their own institution's challenges.

Chamberland: It is a wonderful honor to receive the Carl B. Allendoerfer Award. The MAA's journals, which explicitly value not only solid content but also engaging, well-organized exposition, have long held my admiration. The mathematical community is well-served by these journals. It's humbling to be added to the list of accomplished communicators. When the pandemic

enveloped us in March 2020, I was on sabbatical. The students were sent home to complete the second half of the semester online, plunging them and their professors into chaos. I recall thinking, "That's rough, I wish everyone well, and I'm glad everything will be back to normal in the fall." Not only was my prognostication completely wrong, but the situation for Fall 2020 was even more challenging: the college faced the daunting logistical task of dealing with registration again. I pondered this problem and realized that optimization tools, specifically integer programming, could apply here. I contacted Jeff, asking, "I have a [math] problem, can we meet?" We got together in his backyard to talk, sitting fifteen feet apart on folding chairs. It was the start of a fascinating collaboration! For two decades, Jeff and I have alternated in teaching MAT 306, Mathematical Modeling. Now we were pressed with applying some of this to the college's registration problem. We discussed pursuing both approximate solutions with simulations and exact solutions with integer programming. Jeff did the heavy lifting of obtaining and cleaning the data from the Registrar's Office, spending a huge number of hours with computer implementation, and selling the administration that the mathematical solution we found should be adopted. To see a mathematical solution to this practical problem emerge was simply poetry. It was a joy to be part of this adventure.

Biographical Sketches

After receiving his PhD from Washington University in St. Louis, **Jeff Blanchard** was an MAA Project Next Fellow, a VIGRE Postdoctoral Fellow at the University of Utah, and an NSF International Research Fellow at the University of Edinburgh before joining Grinnell College. Jeff works primarily in applied harmonic analysis, compressed sensing, and scientific computing. He is currently the Director of Grinnell College's Wilson Center for Innovation and Leadership. Jeff loves spending time with his wife and four children, running, and refereeing high school and collegiate soccer.

Marc Chamberland is the Myra Steele Professor of Mathematics and Natural Sciences at Grinnell College. His research interests have wandered among differential equations, dynamical systems, analysis, and number theory, often colored with the paradigm of Experimental Mathematics. He has also sought to popularize math with his book *Single Digits* (Princeton), the YouTube channel Tipping Point Math, and mathematical art. When not doing math, you might find him enjoying time with family and friends, biking, meditating, engaging in music, or stumbling through German.

Carl B. Allendoerfer Awards

William Q. Erickson

The Break Buddy Problem. *Mathematics Magazine*, 97(2), 194–199. https://doi.org/10.1080/0025570X.2024.2312800

William Q. Erickson's paper "The Break Buddy Problem" begins at an outdoor swimming pool. The day promises to be warm, and once the pool opens, it will quickly be crowded with swimmers trying to escape the heat. There seems to be no mathematics in sight, but as this paper describes, there's actually math lurking just below the surface.

The pool has seven lifeguard stations, and ten lifeguards are working today. Each station must be staffed at all times, and every fifteen minutes, the lifeguards rotate from one station to the next. The standard rotation consists of three stations, followed by a break, then the four remaining stations, followed by two consecutive breaks.

The lifeguards have worked together many times, and experience has taught them that each of them will have exactly one "break buddy," with whom they will share two breaks in each full rotation. In fact, it turns out that your break buddy is always the guard five stations behind you in the rotation. They also know that there are four lifeguards with whom they will share exactly one break and four with whom they will share no breaks. The lifeguards have learned all of this by living through it, but could they have figured it out ahead of time? And can we predict what will happen if we add a lifeguard and a new station? Or a lifeguard and a new break?

This is where the math surfaces. Erickson starts by introducing the generating function $B(x)$ in which the coefficient of x^k is the number of breaks you share with the coworker who is k stations ahead of you. This generating function lives naturally in the group ring over the integers of the cyclic group of order n, where n is the total number of lifeguards as well as the total number of stations and breaks. Our analysis will involve computations in this ring, so Erickson warms us up with a description of the arithmetic in the ring and an example.

We can now factor $B(x)$ into a product of two polynomials in the group algebra that can be written down directly from the pattern of breaks and guard stations. For each pattern r of stations and breaks, we write $b_r(x)$ to denote the element of the group ring in which the coefficient of x^j is 0 if the j^{th} position is a station and 1 if it's a break. In other words, if we've designated one position in the pattern as the initial position, then the coefficient of x^j in $b_r(x)$ encodes whether the j^{th} position ahead of the initial position is a break

or a station. Replacing x with x^{-1} in the group ring changes the direction in which we travel, so the coefficient x^j in $b_r(x^{-1})$ will encode whether the j^{th} position behind the initial position is a break or a station. This means that the coefficient of x^k in the product $b_r(x)br(x^{-1})$ will be the number of pairs of breaks that are separated by exactly k stations. This is also the number of shared breaks for guards who are k stations apart, so this product is exactly the generating function $B(x)$.

After proving this result and providing some Mathematica code one can use to compute $B(x)$ for any pattern of breaks and stations, Erickson jumps into the deep end. He confirms the guards' observations computationally and looks at what happens when we add or remove one station. (Spoiler: the result depends on where in the cycle the station is added or removed.) He also analyzes the situation at a rival pool where the guards get longer breaks. Perhaps the best part comes at the end, when he concludes the paper with a variety of related questions to explore.

In sum, this paper is a gem -- it draws readers in with a familiar yet seemingly non-mathematical swimming pool staffing problem, reveals rich mathematics for solving it, and gifts readers with additional problems to dive into.

Response

Among Carl Allendoerfer's contributions to math education was a series of whimsical, short, animated films explaining concepts such as cycloids or set theory, or the Gauss-Bonnet theorem. I am, therefore, especially honored to receive this award bearing his name, having tried my best to convey something similar in spirit – a brief, offbeat glimpse at a concrete problem with a neat solution. I wish I had come to appreciate the power and elegance of generating functions earlier in my own education, and so I hope that this little article might offer some readers a taste of this wonderful concept. The algebra essentially took care of itself, but I owe many thanks to the real-life swimming pool that motivated the entire article: Buchner Pool in Waukesha, Wisconsin, built in 1967 and torn down in 2020. Surely there are better ways to honor the memory of a place than to immortalize it in a math problem, but until I think of one, I hope this problem is a worthy memento. The article is dedicated to my fellow Buchner lifeguards, wherever they are now, and above all, to my good friend, mentor, and pool manager Jeff Valleskey and his family.

I should add that since the article was published, one of my students (Nicholas Jones, now a PhD student at the University of North Texas) has vastly improved upon the break buddy problem. Nick not only rediscovered some much more important applications of this problem (e.g., X-ray crystallography and microtonal music theory), but also obtained a new result

previously described in the literature as very difficult: in effect, a classification of all pool setups with the same distribution of shared breaks, where the number of breaks is 5. In light of Nick's work, I would certainly write the original article much differently now, but that is the nature of math even the simplest or silliest problem can often extend far deeper than the problem writer ever imagined.

I am deeply grateful to the MAA for this honor and to Jason Rosenhouse for handling the editorial process. I am also appreciative of the helpful feedback given by the anonymous referee. Finally, thanks as always to my PhD advisor, Jeb Willenbring, and to Rebecca Bourn, both of whom constantly supported and encouraged me in writing expository articles such as this one throughout my time in graduate school.

Biographical Sketch

Will Erickson is a postdoc at Baylor University. His research interests include algebraic combinatorics, representation theory of Lie groups, and algebraic statistics. He spent 17 summers as a lifeguard.

Mohammad K. Azarian Scholar Award

The Mohammad K. Azarian Scholar Award seeks to recognize individuals who contribute to the advancement of mathematics through their exceptional ability to craft innovative problems featured in MAA publications and the robust world of AMC.

Joseph DeVincentis, Thomas C. Occhipinti, and Daniel J. Velleman - *The American Mathematical Monthly* 12309 - Eliminating Tiles

Problem proposal:
Problems and Solutions. *The American Mathematical Monthly*, 129(3), 285–294. https://doi.org/10.1080/00029890.2022.2018241

Problem solution:
Problems and Solutions. *The American Mathematical Monthly*, 130(10), 952–962. https://doi.org/10.1080/00029890.2023.2252314

This is an elegant combinatorics problem that can be thought of as describing a game played with tiles. A pair of tiles can be removed if they are adjacent, or a single tile can be expanded into four tiles otherwise. The expansion could lead to an ever-growing wave of tiles, but the question is when can one rein it in and eliminate all the tiles. The answer is simple and elegant, and the solution, though requiring a degree of care, is elementary.

Responses

Velleman: The composition and solution of problems have always played a prominent role in the work of the Mathematical Association of America. As Benjamin Finkel and John Colaw, the founders of *The American Mathematical Monthly*, wrote on page 1 of the first issue of the *Monthly*, the solution of problems is it's "the ladder by which the mind ascends into the higher fields of original research and investigation." It is a great honor to be one of the first recipients of the MAA's prize for the composition of problems, the Mohammad K. Azarian Scholar Award. I would like to thank my coauthors, Thomas Occhipinti, who came up with the original idea for the problem, and Joseph DeVincentis, who helped us work out the general solution. I would also like to thank Stan Wagon, who brought us together and encouraged us to submit the problem to the *Monthly*.

DeVincentis: As a winner of the inaugural Azarian Scholar Award, you might think I was blazing a trail, but in truth, that trail has been there for generations, and it is only now that we are being recognized for it. I hope my

work (and the prize!) inspires others to pose interesting problems to help future generations learn to love mathematics and the many possibilities it opens up. Practically since I was able to read the problems, I enjoyed solving and exploring problems such as those presented by Martin Gardner. In later years, I sought out problems like his from a variety of sources, not restricting myself to those presented by any single author, in any single forum, or within any single field, because mathematics is everywhere. I have many mentors to thank, starting with my parents, who didn't have the educational backgrounds to accompany me on my journey but had the wisdom to help me pursue it. Next in line are my teachers and professors, from elementary school all the way up to graduate school. And I cannot forget the writers, whether they are the composers of interesting problems or just those who made me aware of them. Some of them know not the joy they have provided me, but the age of the Internet made it increasingly possible to communicate with them directly on their interesting problems. That is how I shared an interesting solution to the problem for which I won this award, one which helped make clear it was of an appropriate difficulty level.

Biographical Sketches

Daniel J. Velleman received his BA from Dartmouth College in 1976 and his PhD from the University of Wisconsin-Madison in 1980. He was a professor of mathematics at Amherst College from 1983 to 2017. He has also held visiting and adjunct positions at the University of Texas, the University of Vermont, Middlebury College, and St. Michael's College. He is the author of several books, including *How To Prove It: A Structured Approach, Calculus: A Rigorous First Course*, and two books of problems (coauthored with Stan Wagon), *Which Way Did the Bicycle Go?* and *Bicycle or Unicycle?* He was the editor of *The American Mathematical Monthly* from 2007 to 2011.

Joseph DeVincentis had a love of math from an early age, with successes leading him to attend the national MathCounts competition in 1985 and the Math Olympiad Program in 1988. He combined that passion with interests in other fields to obtain a BS in chemical engineering from Rice University in 1993 and an MS in chemical engineering from the University of Texas at Austin in 1998 before embarking on a lifelong career as a technical writer. In that role, he has explained complex software for modeling and designing chemical processes to generations of scientists and engineers, and in more recent times, helped them learn to employ artificial intelligence. But through all of this, he never forgot his love of mathematics and problem-solving. In 2004, he was a member of the winning United States team at the World Puzzle Championship. Subsequently, he was on multiple winning

teams at the MIT Mystery Hunt and also wrote dozens of problems in a variety of styles (some of them math-related) presented there and at other events. To this day, he continues to study interesting problems both in his career and in his spare time.

Runners-up:

Gregory Dresden - Mathematics Magazine 2160 - Find the Area of the Checkboard Pattern

Problem proposal:
Problems and Solutions. (2022). *Mathematics Magazine*, 95(5), 573–582. https://doi.org/10.1080/0025570X.2022.2126649

Problem solution:
Problems and Solutions. (2023). *Mathematics Magazine*, 96(5), 566–575. https://doi.org/10.1080/0025570X.2023.2266959

This is a pretty geometry problem that asks for the total area of an infinite checkerboard pattern. It is vaguely reminiscent of the opening credits of the first Star Wars movie, with quadrilaterals fading off into infinity at the bottom. The individual quadrilaterals are not hard to analyze, and the resulting double sum giving the total area leads to a clean but somewhat surprising answer.

Response

I'm overjoyed to receive this award! Writing and solving math problems is a great entryway to learning about more serious mathematics, and I'm delighted that the new Azarian Scholar award will recognize this type of contribution to the world of mathematics. My heartfelt thanks go to the selection committee, to the MAA, and to the founder of this award, Mohammed K. Azarian.

Biographical Sketch

Greg Dresden received his PhD from the University of Texas in 1997 and now teaches at Washington and Lee University in the Blue Ridge Mountains of Virginia. When not thinking about math, he enjoys playing piano and spending time with family. As a living kidney donor, he encourages everyone to learn more about living organ donation.

Haoran Chen - *The American Mathematical Monthly* 12266 - Arbitrarily Disconnectable Polyominos

Problem proposal:
Problems and Solutions.*The American Mathematical Monthly*, 128(7), 658–666. https://doi.org/10.1080/00029890.2021.1930431

Problem solution:
Problems and Solutions. *The American Mathematical Monthly*, 130(5), 485–494. https://doi.org/10.1080/00029890.2023.2178225

This is a challenging problem involving polyominos. If one cuts out a polyomino Q from a larger polyomino P, the remainder can be a single piece, but it can also be many pieces. This question asks roughly whether there are polyominos P that are so delicate that the subtraction (of a fixed size Q) must lead to a residue with lots of pieces. Designing such a polyomino and analyzing all its possible residues is elementary, but also requires a great deal of care, leading to a challenging, but rewarding, problem.

Response

I am deeply honored and grateful to receive an Honorable Mention for the MAA's Azarian Scholar Award. This recognition holds great significance for me. For years, I have aspired to create original, engaging, and challenging mathematical problems, and now, this aspiration has not only been realized but also acknowledged by the committee. I would like to express my heartfelt gratitude to two individuals who made this possible. The first is Andy Liu, former IMO team leader for the USA and Canada. Without his help, I would never have seen so many problems and written my first book on competition problems. Our collaboration continued until just weeks before his passing in 2024. The second is Stan Wagon, problem editor of the *Monthly*, whose insightful feedback transformed my rough ideas into refined mathematical work. Regarding the polyomino problem, if we cut out a subgraph Q from a graph P, it is easy to find examples where the remainder has many pieces. The simplest one may be a star with n leaves: deleting any 2-vertex subgraph (and its incident edges) will break it into n-1 isolated vertices. The challenge for polyominos is that every vertex is connected to at most four other vertices. Yet, it turns out that a binary tree structure with lengthened leaves can also do the job, and from a macro perspective, it resembles a star graph!

Biographical Sketch

Haoran Chen received his BS from Zhejiang University in 2006 and his PhD from the University of Minnesota in 2013. Since 2022, he has been a

senior teaching fellow at Xi'an Jiaotong - Liverpool University. His interests include problem solving and composing, especially in combinatorics. He has translated a few books between Chinese and English, including Mathematical Olympiad in China series 2017-2018, 2021-2022, and 2023. He is a problem solver and composer in the *Monthly* Problems and Solutions column. He is a history fan and semi-professional bridge player.

Carl Schildkraut, The 54th United States of America Mathematical Olympiad, Problem #2, 2025.

This is, on its surface, an algebra problem, but with some combinatorics hidden inside. It concerns a very unusual condition on a polynomial, namely that all its divisors of a fixed degree must have a zero coefficient somewhere. At first glance, one might think that this condition wouldn't say anything interesting about the polynomial, but in fact, as the problem asks the solver to show, it forces the polynomial to have a nonreal root. There are a few different ways to approach the solution, depending on the tools one wants to employ, but any solution also requires bringing together ideas from different areas of mathematics.

Response

I am delighted to receive an honorable mention for the Azarian Scholar Award. It's immensely gratifying to have my work in problem-writing recognized in such a way. I've been writing problems for about as long as I've been solving problems. To me, the joy of problem-solving lies in the act of creating additional structure to supplement and elucidate what's given to you. I love the way a well-constructed definition or lemma can turn a problem from near-impossible to simple. From this perspective, problem solving and problem writing are not so different—both are about building things. When writing problems, you're just building a bit closer to the ground. I strive to write problems that bring the solver as close to the ground as possible, and which require the construction of bridges between ideas in interesting ways. I hope that people find my problems inspiring and are encouraged to write their own!

Biographical Sketch

Carl Schildkraut is a second-year PhD student studying mathematics at Stanford University. Originally from near Seattle, he gained his BS in math from MIT. In addition to writing problems for many math contests, both national and international, he has served as the Deputy Leader of the USA team at the International Math Olympiad in 2023 and 2024. Outside of competition math, his research interests lie mainly in extremal combinatorics.

Beckenbach Book Prize

The Beckenbach Book Prize, established in 1986, is the successor to the MAA Book Prize, established in 1982. It is named for the late Edwin Beckenbach, a long-time leader in the publications program of the Association and a well-known professor of mathematics at the University of California at Los Angeles. The prize of $2,500 is intended to recognize the author(s) of a distinguished, innovative book published by the MAA and to encourage the writing of such books. The award is not given on a regularly scheduled basis. To be considered for the Beckenbach Prize, a book must have been published during the five years preceding the award.

Claudi Alsina and Roger B. Nelsen

A Panoply of Polygons (Vol. 58). American Mathematical Society

The opening of chapter 7 in *A Panoply of Polygons* contains a quote from Catherynne M. Valente:

"From such great heights she glimpses the enormous shapes stamped on the earth, the long polygons made by the borders of farms and rivers and mill towns, littoral masses and city walls, a reflection of the celestial mosaic." - Catherynne M. Valente, Palimpsest.

This book stands out as the most innovative choice among this year's offerings. The style is not only delightful and engaging but also thoughtfully constructed to make complex mathematical concepts accessible to a wide range of learners. It strikes an excellent balance, presenting material at a level that is well-suited for undergraduates, whether in a geometry course or for independent study. One notable aspect of this book is its exploration of polygons in various contexts, such as art, architecture, and cultural expressions. This inclusion enriches the learning experience by demonstrating the relevance of mathematics in real-world applications and creative fields. By bridging the gap between abstract concepts and tangible examples, the book encourages students to appreciate the beauty and utility of mathematics in everyday life. Overall, its innovative approach not only enhances comprehension but also inspires a deeper interest in the subject.

The 2025 Beckenbach Prize award committee found Alsina and Nelsen's work to be an enjoyable read. In the preface, the authors emphasize that while the book is not a traditional textbook, it serves as an excellent supplement for high school or college geometry courses. It can be utilized for group projects

or extra-credit assignments. More importantly, the authors believe the book will captivate geometry enthusiasts. The concluding chapter of this book begins with another quote, this time from Paul Erdős: "Why are numbers beautiful? It's like asking why Ludwig van Beethoven's Ninth Symphony is beautiful. If you don't see why, someone can't tell you. I know numbers are beautiful. If they aren't beautiful, nothing is."

Responses

Nelsen: I am humbled and honored to have *A Panoply of Polygons* selected to receive the 2025 Beckenbach Book Prize together with my co-author Claudi Alsina. It was quite a surprise, since the book is not a text, and I am not a geometer. I want to thank the members of the Committee on the Beckenbach Book Award for their kind words in the Citation. Since retiring from teaching sixteen years ago, I have discovered the pleasure of sharing some of what I learned from my Lewis & Clark students about the teaching and learning of mathematics. I have been very fortunate to have a co-author like Claudi, who has been a good friend for close to forty years now. Our shared writing projects are my current learning experiences and make retirement fun and productive!

The Panoply book and several others would not exist without the ongoing support I receive every day at the College from the Mathematical Sciences faculty and students. My thanks to the faculty for ensuring, sixteen years after my retirement, that I still have my attic of Mice! And so, my heartfelt thanks for the best colleagues an emeritus could ever have!

It is my hope that readers of *A Panoply of Polygons* will see that elementary geometry, one of the oldest branches of mathematics, is still a vibrant subject where one can discover new approaches to old problems and theorems.

Alsina: This award is a stimulating recognition of a work done with my friend and colleague, Roger B. Nelsen, on a topic that merits more attention in the teaching and popularization of mathematics. Moreover, I am very proud to receive this award, which is named after my old friend Ed Beckenbach.

Biographical Sketches

Roger B. Nelsen is a professor emeritus of mathematics at Lewis & Clark College in Portland, Oregon, where he taught mathematics and statistics for 40 years. He earned his BA in mathematics at DePauw University and his PhD in mathematics at Duke University. It was at a functional equations symposium in 1986 that he met Claudi Alsina and discovered that the two of them had a shared interest in visualization in mathematics. That chance encounter has led to a variety of coauthored publications, including eight books for the MAA, with *A Panoply of Polygons* being the seventh.

Claudi Alsina (Barcelona, 1952) is a mathematician with a PhD from the University of Barcelona and post-graduate studies at the University of Massachusetts. He has been a professor of mathematics at the Universitat Politècnica de Catalunya · Barcelona Tech. In research, he has worked on Functional Equations, Inequalities, Probabilistic Metric Spaces, Fuzzy Logic, Visualization, Mathematical Education, and Gaudi's Geometry. He has directed 16 doctoral theses, published about 60 books, 200 research articles, and 200 educational papers, and delivered more than 1000 lectures around the world. Together with Roger B. Nelsen, he has published 8 books through the MAA.

Among his appointments and distinctions stand out:

- Founding member of the Open University of Catalonia (1994-1996)
- Delegate of Spain to the IMU and ICMI (12 years) and member of the Program Committee for the ICME'S of 1992, 1996, and 2000.
- Vicens Vives Award for University Teaching Quality from the Government of Catalonia (1999)
- General Director of Universities (2002-2003) and Secretary General of the Interuniversity Council in the Government of Catalonia (2011-2016)
- Gonzalo Sánchez Vázquez Award from the FESPM for teaching quality and human values (2019).
- Sant Jordi Cross of the Generalitat de Catalunya (2024).

He lives in Barcelona.

Chauvenet Prize

The Chauvenet Prize, $1,000 and a certificate, is awarded at MAA MathFest to the author of an outstanding expository article on a mathematical topic. First awarded in 1925, the Prize is named for William Chauvenet, a professor of mathematics at the United States Naval Academy. It was established through a gift in 1925 from J.L. Coolidge, then MAA President. Winners of the Chauvenet Prize are among the most distinguished mathematical expositors.

Jordan S. Ellenberg

Geometry, Inference, Complexity, and Democracy. *Bulletin (New Series) of the American Mathematical Society*, 58(1), 55 – 77, https://doi.org/10.1090/bull/1708.

This paper is an introduction to and summary of recent progress in the study of how democratic polities should be divided into legislative districts in a "fair" way. As Ellenberg notes, this goal is "easy to state, difficult to make precise, and almost impossible to implement in a fully satisfying way". Of course, the paper does not stop with that but rather investigates a number of different ways of measuring fairness, focusing on those which have been developed by mathematicians in the last decade or so. In addition to the mathematical definitions, it explores the advantages and disadvantages of each method, with numerous examples. The focus is on the United States, but Ellenberg also pays attention to similarities and differences between the US and other countries. He is also particularly careful to explain the oddities of the US system to those not familiar with it.

The paper reviews and expands on the content of Ellenberg's lecture in the Current Events Bulletin session of the 2020 Joint Mathematics Meetings. Ellenberg is a well-known number theorist who has recently become interested in mathematical questions related to government. The paper is definitely written from a mathematician's point of view, but does not get bogged down in jargon or confusing (or boring) technical details. Rather, Ellenberg gives the feeling of "we're all learning this together". The paper provides an excellent overview of the field that any mathematician who cares about the wider world would benefit from reading.

Response

I am deeply honored to be the recipient of this year's Chauvenet Award. I was trained as a pure mathematician and most of my research work has been in that area—but I am also a teacher and a math popularizer, and over the years I find myself more and more frequently in contact with the

kind of mathematical questions that have a direct impact on our way of life. I'm very grateful to Moon Duchin for introducing me to the problem of gerrymandering and showing me that it was not only a question of great social importance but one of real mathematical interest as well. I also owe a lot to Elle Najt for helping sharpen my ideas about the underlying mathematics of gerrymandering. One of the things I've tried to emphasize in my own writing on this topic is that we mathematicians have to resist the urge to treat gerrymandering as "just" a math problem; if we try to work on it without really engaging with the law, the politics, and the philosophy involved, we'll get answers that make sense only to us. And in the other direction, any attempts to address the problems *without* doing some math will fail just as badly. I think a lot of really important problems these days are of that nature, and I think the next few decades will really ask us as a community to engage with questions from the real world that have an inextricably mathematical part. I am very grateful to the MAA for awarding me this prize, and to the AMS for scheduling a non-traditional topic like this as part of the Current Events Bulletin.

Biographical Sketch

Jordan Ellenberg is the John D. MacArthur Professor of Mathematics at the University of Wisconsin-Madison. His research centers on number theory, and he has held a Sloan Fellowship, an NSF-CAREER fellowship, and a Guggenheim Fellowship. He is also the author of two best-selling books about mathematics, *How Not To Be Wrong* and *Shape*.

Mary P. Dolciani Award

The Mary P. Dolciani Award recognizes a pure or applied mathematician who is making a distinguished contribution to the mathematical education of K–16 students in the United States or Canada. The recipient will be actively contributing to math education at the time of the selection.

April Ström

Chandler-Gilbert Community College

The MAA Dolciani Award is presented to Dr. April Ström for her immense impact on mathematics instruction at two-year colleges and her tireless and extremely effective work to improve all mathematics instruction of K-16 teachers and students. Dr. Ström earned her BA and her MA in Mathematics from Texas Tech University in Lubbock, Texas, in 1997 and 1998, and her PhD in Curriculum and Instruction with an Emphasis in Mathematics Education from Arizona State University in 2008. For 26 years, she has taught mathematics at the community college level and it is her firm belief that - to quote her nominator – "all students can learn mathematics, provided they have the appropriate healthy encouraging environment in which their thinking is valued, mistakes are leveraged as learning opportunities, and meaningful discourse is incorporated into their learning."

Dr. Ström has 17 publications and two book chapters and has facilitated numerous professional development workshops for K-16 teachers in Arizona and around the U.S. As one of the lead writers and a member of the Project Steering Committee for the influential MAA Instructional Practices Guide, Dr. Ström has had a broad-reaching impact on the experience of undergraduate students learning mathematics. She co-edited the AMS-MAA-CBMS book *Transformational Change Efforts: Student Engagement in Mathematics Through on Institutional Network for Active Learning*, promoting classroom environments that place students at the center of the action.

Dr. Ström has been a national leader guiding changes to mathematics instruction in the U.S. as MAA Vice President (2020-2022), AMATYC Southwest Vice President (2017-2020), and then ArizMATYC President (2017-2019). She was the founding chair of AMATYC's Research Committee, which supports faculty and institutions conducting research on mathematics education at two-year colleges. She served on the National Academies Roundtable on Systematic Change in Undergraduate STEM Education and on the U.S. National Commission on Mathematics Instruction. In this way, Professor Ström has been crucial in propagating a broad and growing community of mathematics teachers and students. At the same time, she has continued both to teach a large

number of her own students and to coordinate all Calculus instruction across the two campuses of Chandler-Gilbert Community College.

From 2012 to 2018, Dr. Ström served as the Principal Investigator and director for the Arizona Mathematics Partnership (AMP), an NSF-funded project focused on professional development for middle school mathematics teachers in seven school districts in Arizona. She has been PI or Co-PI on four NSF-funded Improving Undergraduate STEM Education (IUSE): one for AMATYC's Teaching for Prowess (TfP) program, which focuses on transforming mathematics teaching and learning in community colleges through the implementation of active learning; one on validating measures of quality instruction; one for improving the instruction of algebra at community colleges; and one to convene a meeting of leaders in improving mathematics instruction. She also served as senior personnel on the Student Engagement in Mathematics through an Institutional Network for Active Learning (SEMINAL) project funded by NSF to investigate departmental and institutional transformation towards active learning. Through her leadership and involvement in numerous NSF-funded projects, Dr. Ström has made a lasting impact on improving mathematics education across the entire K-16 spectrum, fostering innovative teaching practices that enhance student engagement and learning outcomes at all levels of education.

As a faculty member at a community college, Dr. Ström brings a perspective that is not well represented amongst researchers in undergraduate mathematics education. For many students, their experience learning mathematics in community colleges is critical to their ability to pursue degrees in STEM fields or even to complete an associate's degree or transfer to a bachelor's degree program. The work that Dr. Ström has done to advance active learning in the classrooms of all mathematics learners is something that perhaps only she could have done. Just as the career of Mary P. Dolciani provided leadership to the mathematical community, Dr. Ström's work serves as an important example of how teachers at all types of institutions can have rich research and service lives with deep and meaningful impact on mathematical education. For her inspiring leadership, her tireless focus on all mathematics learners, and her transformational impact on teachers and students across secondary schools, two-year, and four-year colleges, Dr. Ström is the 2025 recipient of the Mary P. Dolciani Award.

Response

I am deeply honored and humbled to have been selected as the recipient of the MAA Mary P. Dolciani Award. Throughout my career, I have had the privilege of teaching mathematics to community college students, and I am continually inspired by their perseverance, dedication, and unwavering commitment to improving their lives through higher education.

I have also been fortunate to work alongside several extraordinary mathematics educators who have profoundly shaped my perspective on the teaching and learning of mathematics. Together, we have developed and implemented successful professional learning programs for K-14 teachers, some funded by the National Science Foundation, and others by schools and colleges. I am grateful for these opportunities to collaborate with teachers at all levels and to work alongside my frolleagues (colleagues who are friends). I would be remiss if I did not acknowledge the many remarkable colleagues who have been integral to this journey: Scott Adamson, Marilyn Carlson, Ted Coe, Trey Cox, Patrick Kimani, Peter Liljedahl and the BTC Consulting Team, Chris Rasmussen, Jim Vicich, Laura Watkins, and all those in the CGCC Mathematics Division.

A dear friend once told me that "collegiality is a gift" and I have been truly blessed with this gift throughout my career! The work we do with K-14 teachers is incredibly important, especially given the challenges we face in securing educational funding, attracting and retaining talented educators, and supporting teachers inside and outside of the classroom. The craft of teaching mathematics in meaningful and transformative ways is non-trivial, and it is crucial that we continue to elevate the field of mathematics education to help students achieve upward mobility! I am immensely grateful to the MAA for selecting me as the recipient of the Dolciani Award, and I want to express my heartfelt thanks to those who nominated me among a sea of very deserving educators. This award is dedicated to my past, present, and future students, who inspire me every day!

Biographical Sketch

Dr. April Ström is a mathematics professor at Chandler-Gilbert Community College within the Maricopa County Community College District in Arizona, where she has taught for 27 years. April's research background in mathematics education, coupled with her passion for teaching and learning, has prompted her to engage in various leadership roles in national organizations, such as the U.S. National Academies of Sciences, the Mathematical Association of America (MAA), and the American Mathematical Association of Two-Year Colleges (AMATYC). April currently serves as the Principal Investigator for the NSF-funded Teaching for Prowess project, which is focused on implementing active learning in the first two years of college mathematics. April also co-led the writing of the Classroom Practices chapter of the 2017 MAA Instructional Practices Guide and served on the steering committee for the 2018 AMATYC IMPACT guide, both of which aimed to elevate active learning in mathematics in higher education. April received her PhD in Curriculum & Instruction (emphasis in Mathematics Education) from Arizona State University, and she holds MA and BA degrees in Mathematics from Texas Tech University.

Euler Book Prize

The Euler Book Prize is awarded annually to an author or authors of an outstanding book about mathematics. The Prize is intended to recognize authors of exceptionally well-written books with a positive impact on the public's view of mathematics and to encourage the writing of such books. Eligible books include mathematical monographs at the undergraduate level, histories, biographies, works of fiction, poetry; collections of essays, and works on mathematics as it is related to other areas of arts and sciences. To be considered for the Euler Prize, a book must be published during the five years preceding the award and must be in English. The Euler book prize is $2,000. The Euler Book Prize was established in 2005 and first given in 2007, the 300th anniversary of the birth of Leonhard Euler. This award also honors Virginia and Paul Halmo,s whose generosity made the award possible. The award is given every year at a national meeting of the Association.

Ismar Volíc

Making Democracy Count: How Mathematics Improves Voting, Electoral Maps, and Representation, Princeton University Press (2024).

Democracy, so profoundly simple in its conception, can become fiendishly complicated in its execution. *Making Democracy Count* is a compelling journey through these complexities, illustrating brilliantly how mathematics can be used to manipulate social choices and increase justice in the ways that we choose leaders and make collective decisions.

Dr. Volíc's lively and passionate writing makes topics like voting theory, apportionment, gerrymandering, and the Electoral College come alive. Beginning with simple situations taken from day-to-day life, he reveals the mathematical principles that underlie our intuitions. From there, he brings up entangled modern issues that, sometimes startlingly, share the same principles. He describes the implications with clarity and deep insight.

Making Democracy Count emphasizes the mathematical principles behind democratic systems and shows how they profoundly impact political events around the world. Avoiding partisan arguments, he bridges the gap between complex theory and everyday relevance, offering readers a deeper understanding of how democracy functions in practice.

Dr. Volíc's timely book provides us all with an important pathway to enhancing our roles as voters, policymakers, and citizens. It provides the literacy we need to understand how democracy works.

Response

I am honored to receive the Euler Book Prize, and I extend my deepest gratitude to the Mathematical Association of America and to all those who have found *Making Democracy Count* worthy of this award.

When I came to the U.S. in the early 1990s from Bosnia as a high schooler and budding mathematician, I heard about the MAA and immediately joined. It was the first community of mathematicians I ever belonged to, so coming full circle with this prize is meaningful to me in more than one way. My goal in writing this book was to illuminate the power of mathematical thinking in the design and practice of democracy.

Processes like voting, districting, and allocation of legislative seats are quantitative and algorithmic, which means that mathematics can reveal which of them need updating or replacing. Classical mathematical concepts —drawing from probability, algebra, geometry, topology, and even category theory —are finding new applications in the democracy arena. In tandem with new data science and computational tools, mathematics is supplying new avenues for meaningful engagement with democracy through mechanisms like citizen assemblies and participatory budgeting. At the same time, the demand for a quantitative approach to social sciences, and especially political science, is growing.

Driven by student interest, classes with titles like "Mathematics of Democracy" and "Computational Social Choice Theory" are springing up on campuses across the country. Student involvement in research blending mathematics, statistics, computer science, and political science is flourishing. The relevance and interdisciplinarity of the subject are making it one of the most exciting and rapidly developing fields of applied mathematics. All of this comes at a critical moment. As we all know, democracy is at a precarious crossroads. We lack a common foundation from which to try to heal it, but mathematics, with its universality and detachment from politics, can provide precisely that. It can guide us in rebuilding our civic infrastructure, encouraging political participation, elevating a diversity of opinions, and designing systems that better capture our collective preferences. Mathematicians have a role to play in this effort. We must seize this momentum and make ourselves integral to the conversation – and the solution – of strengthening democracy.

Biographical Sketch

Ismar Volic was born in Sarajevo, Bosnia, and came to the U.S. in 1991 to attend his senior year of high school. Soon after his arrival, a war broke out in his country, and he has lived in the U.S. ever since. He now travels to Bosnia frequently through his involvement in various education and research activities, including advising PhD students and working with various agencies to bring quality STEM education to the country.

Trevor Evans Award

The Trevor Evans Award, established by the Board of Governors in 1992 and first awarded in 1996, is made to authors of expository articles accessible to undergraduates and published in Math Horizons. The Award is named for Trevor Evans, a distinguished mathematician, teacher, and writer at Emory University.

Kristen Mazur, Mutiara Sondjaja, Matthew Wright, and Carolyn Yarnall

Illuminating Illustration: Interesting Intersections and Helly's Theorem, *Math Horizons*, 32:(1), 8-11.

This article explains an interesting result about the intersection of convex sets in a way that is accessible to a broad audience while still remaining rigorous in its treatment of the material. The authors' choice to motivate the question using approval voting draws the reader into the material in an engaging way. The proof of Helly's Theorem in two dimensions is very well presented and clear, with just a small case left to give the reader something to do on their own. Overall, the article leads the reader through the exploration of an intriguing mathematical result in an accessible way with nice illustrations and plenty of suggestions for the reader to learn more.

Group Response

We are delighted that our article has been so well received! We thank the MAA and the selection committee for this award. This paper is a culmination of a decade-long collaboration between mathematicians who are passionate about exploring mathematical ideas related to approval voting and making such ideas accessible to undergraduates. We are grateful to the AMS's 2014 Mathematical Research Community: Algebraic and Geometric Methods in Applied Discrete Mathematics for bringing us together. Since then, we have worked continuously on applications of mathematics to approval voting, resulting in two published research papers and this article in *Math Horizons*. Helly's Theorem is a beautiful and accessible result, not covered in usual undergraduate courses, that we think should be more widely known. As far as we can determine, this is the first time that Helly's Theorem has appeared in *Math Horizons*. We hope that this award brings recognition to the theorem and inspires more people to explore geometric intersection problems. We especially wish to thank *Math Horizon*'s editor, Tom Edgar, for his helpful suggestions and for working with us to bring this article to publication.

Thanks also to Paul Zorn and Matt Richey for reviewing a draft of the article and providing comments.

Biographical Sketch

Kristen Mazur earned a BS in mathematics at Lafayette College in 2008 and a PhD in mathematics from the University of Virginia in 2013. She is currently an Associate Professor of Mathematics and Statistics at Elon University in North Carolina. In addition to teaching and learning math, Mazur enjoys hiking, traveling, and spending time with her husband, daughter, and dogs.

Carolyn Yarnall is an associate professor at California State University, Dominguez Hills, where she has worked for the past 8 years. She earned her PhD in Mathematics from the University of Virginia and has previously worked at the University of Kentucky and Wabash College. She is passionate about empowering students to be learners and doers of mathematics and enjoys mentoring undergraduates in research projects inspired by voting theory and math circle activities. Outside of work, she spends her time reading, cooking, sailing, and volunteering through CASA of LA.

Matthew Wright is an associate professor at St. Olaf College in Northfield, MN, where he teaches applied and computational math courses. He especially enjoys making math fun and accessible to students. He earned an undergraduate degree from Messiah University and a PhD in mathematics from the University of Pennsylvania. He was a postdoctoral fellow at the Institute for Mathematics and its Applications. His research is in topological data analysis and computational mathematics. Matthew lives in Minnesota with his wife and two children. In his spare time, he enjoys reading, juggling, and anything constructive. Find him online at mlwright.org.

Tia Sondjaja earned an undergraduate degree in mathematics from Harvey Mudd College and a PhD in operations research from Cornell University. She was an associate clinical professor at New York University, where she taught undergraduate mathematics and quantitative reasoning courses, and mentored students on projects in computational math and optimization. She is now a data scientist at OpenX, an adtech company. She is grateful that she still gets to channel her love for math teaching and research through this collaboration.

Gung and Hu Distinguished Service Award

The Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics is the most prestigious award for service offered by the MAA. The Gung and Hu Award is the endowed successor to the MAA's Award for Distinguished Service to Mathematics, first presented in 1962. It is to be made for service to mathematics, which has been widely recognized as extraordinarily successful. The period of service may be long or short, and the award may be made on the basis of one or several activities. The contribution should be such as to influence the field of mathematics or mathematical education in a significant and positive way on a national scale.

Ximena Catepillán

Millersville University (Professor Emerita)

The Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics recognizes individuals whose work has had a meaningful and lasting impact on the mathematical community. Dr. Ximena Catepillán, Professor Emerita of Mathematics at Millersville University of Pennsylvania, has exemplified such service through her leadership, her contributions to ethnomathematics, and her efforts to build connections within the mathematical community across cultures and disciplines. Dr. Catepillán's service spans decades and reflects a commitment to fostering inclusive and vibrant communities within mathematics. As a leader in the Eastern Pennsylvania and Delaware (EPaDel) section of the Mathematical Association of America (MAA), she took on numerous roles, including Vice Chair, Chair, and Member-At-Large on the Executive Committee. She revitalized the Careers in Mathematics Conference, hosting and organizing the event multiple times. A colleague remarked, "The Careers in Math Conference may have ceased happening if she didn't take the helm." Her work at the section level also included establishing a silent auction to replace a traditional book sale, a fundraising effort that supported the section's activities for years. At the national level, Dr. Catepillán chairs the MAA Special Interest Group on the History of Mathematics and initiated the translation of articles in the *MAA's Convergence* journal into Spanish. Her translations and outreach have expanded access to resources, fostering cross-cultural academic exchange. A recommender noted, "she has personally evolved into an informal emissary of mathematics between the English and Spanish speaking worlds," an effort that has strengthened connections between the MAA and international communities. Dr. Catepillán's work in ethnomathematics exemplifies how scholarship and

service can intersect to benefit broader communities. She developed courses such as "Culture, Science, and Mathematics in the Pre-Columbian Americas," introducing students to mathematical practices rooted in Indigenous cultures. Her leadership extended beyond the classroom, as she delivered workshops and lectures across Latin America, documenting and promoting local mathematical traditions. Throughout her career, Dr. Catepillán has been a mentor and advocate for students, especially those from underrepresented groups. Her courses inspired students to view mathematics as connected to their own identities and cultures. The impact of Dr. Catepillán has been felt internationally as well. She has shared her expertise through collaborations and workshops in countries across Latin America, and her initiatives have inspired others to adopt her teaching methods and materials. One colleague noted their belief that her work on ethnomathematics has "inspired legions of young people in Latin America to consider mathematics as a career." Dr. Catepillán also serves as the representative for the International Members community for the MAA Congress. One MAA member noted, "I've seen Ximena take on every MAA service opportunity that has come her way while making clear she's willing to do even more... She steps in to do whatever is needed in the moment while also carrying out longer-term service in ways that enhance community and make all engaged feel their service is worthwhile and appreciated." The MAA is honored to recognize Dr. Ximena Catepillán with the Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics. Her career exemplifies how service and scholarship can work together to strengthen communities and broaden access to mathematics.

Response

I have immense gratitude to Millersville University for the constant support to travel annually to remote places with a group of archaeologists, which allowed me to gather course content and activities to incorporate in the Ethnomathematics courses I developed. I am also indebted to MAA and EPaDel, who welcomed me with open arms and have trusted me to lead several committees, and I plan to continue working on many more. My inspiration and encouragement came from many brilliant people, including colleagues at Millersville University, my MAA and EPaDel friends, and archaeologists from the Maya Exploration Center and Aztlander. As our student population grows more culturally diverse, the need to offer courses that emphasize the importance of cultural diversity and inclusion in mathematics is of paramount importance. I hope that this award recognition helps me motivate other universities and colleges to develop Ethnomathematics courses. I dedicate this award to my daughter, Paulina, and my son Sebastián.

Biographical Sketch

Ximena Catepillán is a Chilean Professor Emerita of Mathematics at Millersville University of Pennsylvania, where she taught for 29 years. She holds a Magister in Mathematics from Universidad de Santiago, Chile, along with a Master's and PhD in mathematics from the University of Iowa. Ximena's passion is Ethnomathematics; she developed four courses in Ethnomathematics and taught with archaeologists from the Maya Exploration Center for over ten years for Millersville University students at archaeological sites in Mexico, Guatemala, and Belize. She is the Chair of HOM SIGMAA, associate editor of *MAA Convergence*, chair of the T. Christine Stevens Award Committee, and the representative for the International Members community for the MAA Congress. Ximena travels with a group of archaeologists, historians, and mathematicians to indigenous sites to learn about ethnomathematics; she enjoys studying, writing articles, publishing, and giving presentations about Ethnomathematics. Her future plans include co-writing a second Ethnomathematics textbook.

Deborah and Franklin Tepper Haimo Award

In 1991, the Mathematical Association of America instituted the Awards for Distinguished College or University Teaching of Mathematics to honor college or university teachers who have been widely recognized as extraordinarily successful and whose teaching effectiveness has been shown to have had influence beyond their own institutions. In 1993, the MAA Board of Governors renamed the award to honor Deborah and Franklin Tepper Haimo. Each year, at most three college or university teachers are honored with this award.

Monique Chyba

University of Hawai'i at Mānoa

Dr. Monique Chyba is a devoted and distinguished teacher, highlighting community in all that she does. She began teaching at the University of Hawai'i at Mānoa in 2002, and soon began not just revising but revitalizing Math 100. This course serves hundreds of students each year, and Dr. Chyba herself received excellent student evaluations even in the early years, but under Dr. Chyba's direction, the course evolved from a large lecture to a series of place-based activities. The new format was a community effort, developed in collaboration with faculty and Native Hawaiian leaders. The students now explore mathematics through the lens of topics relevant to their area, such as Microbiomes, Hurricanes and Disease, and Climate Change.

A second achievement has been the creation of a Learning Assistant program. This, too, involved several people working together on the creation of a new source of support for students. These positions were designed to be in addition to teaching assistants, and while the creation of new student positions costs more money, Dr. Chyba worked with the administration to help them see the benefits. Those many meetings paid off, and the program was as beneficial as hoped. Indeed, the program was such a success with students that it expanded and is now in place in many departments.

Dr. Chyba's dedication to the community was also important when the pandemic hit. She already had a long history of working with undergraduate students on an array of topics, such as autonomous underwater vehicles, medical imaging, and microbiomes. Starting in 2020, she worked with several students to model the spread of COVID-19 in Hawai'i. This was not just theoretical but a way to work together with the government and media to help keep the public informed.

Dr. Chyba's work with community and mathematical modeling is unabated even as the pandemic has waned: she has recently created materials for "808 Math Island Style: Computational Modeling and Simulation of Epidemic Infectious Diseases," in which middle school students, assisted by undergraduate students, have the opportunity to explore real-life data.

These programs have been but a sample of the work that Dr. Chyba has done. There are math circles and family math nights in schools. Her impact is great: as one former student noted, "Overall, I have gotten to experience Monique Chyba's joy and success of teaching math both first and second-hand. She is able to inspire students and help them unlock their potential like very few teachers I've met, and I will always credit her as the start of my journey into mathematics and teaching."

From middle school students to undergraduates and graduate students, from local leaders to state governments, Dr. Chyba has embedded community into her mathematics, and mathematics into her community. The MAA is honored to present Monique Chyba with the Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics.

Response

Wait... What? Me? No way! Many years ago, when I shared my desire to study mathematics, I was told not to do it—because it was too hard and because I was a woman. But here's the thing: mathematics isn't scary—it's simply misunderstood! Mathematics builds bridges; it shines in its ability to bring us together. At its core, mathematics is not about barriers—it's about breaking them. For the past 22 years, the spirit of Hawai'i—its deep sense of community, resilience, and commitment to learning—has profoundly shaped my teaching and research. Just as the Hawaiian archipelago stands isolated in the vast Pacific, mathematics, as the only exact science, often feels like an island of its own. Yet, both share a striking parallel: complexity in their foundations, richness in their landscapes, and undeniable beauty in their results.

I am deeply honored to receive the Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics from the Mathematical Association of America. This recognition belongs to the incredible students, dedicated colleagues, and community partners who have been part of this journey. Their passion, curiosity, and collaboration have been a constant source of inspiration. None of this would have been possible without the unwavering support of the University of Hawai'i and, in particular, the Department of Mathematics. I am profoundly grateful for the belief they have placed in me and my initiatives, allowing me the freedom to reimagine my approach to mathematical education and even supporting my wackiest ideas.

A special shoutout to Amandin and Mandarine for keeping me on my toes and giving me a real glimpse into what it's like to be a student today. Your fresh perspectives have helped me think outside the box as an instructor. And thank you for patiently reminding me when I invent words or throw in extra "h's" where they don't belong. Mahalo nui loa to the MAA for their steadfast support of the mathematical community, for recognizing the profound value of teaching and outreach, and for their dedication to caring about our youth and their education.

Biographical Sketch

Monique Chyba is a Full Professor in the Department of Mathematics at the University of Hawai'i at Mānoa. She earned her doctorate from the University of Geneva, Switzerland. Her main research area focuses on the development of geometric methods to solve optimal control problems. One of her central objectives is to understand the role of singular extremals in optimal strategies for nonlinear control systems. Passionate about making mathematics accessible and engaging, she has led efforts to revitalize courses such as Math 100 by incorporating place-based, community-driven activities that connect mathematics to real-world issues like climate change, microbiomes, and public health. She is committed to fostering mathematical curiosity and building strong community connections in her teaching and research.

Angie Hodge-Zickerman

Northern Arizona University

Dr. Angie Hodge-Zickerman is an effective and passionate mathematics educator whose work not only impacts students in her classes but also impacts the mathematical community at large. Inside her classroom, she implements active learning and inquiry-based-learning (IBL) methods. She does this in both her undergraduate and graduate courses and has consistent positive reviews of effective teaching and an excellent rapport with students. Dr. Hodge-Zickerman has secured grants from the MAA and the NSF to promote diversity and education access in STEM. This funding has helped her organize conferences to inspire women and other underrepresented groups to succeed in mathematics. She has led more than 10 national workshops on active learning, has been an invited speaker for many events, conducts research in the study and implementation of active learning, and has published her research in various notable peer-reviewed journals.

Since earning a PhD in Curriculum and Instruction at Purdue University, Dr. Hodge-Zickerman has taught mathematics full-time since 2007. She is currently an Associate Professor of Mathematics and Chair of the Department of Educational Specialties at Northern Arizona University (NAU). NAU enrolls approximately 20,000 undergraduate and 3,000 graduate students and is classified as a Hispanic-serving institution. In addition, 63% of the student body identify as women and the university is committed to supporting first-generation college students through scholarships and mentoring programs. Dr. Hodge-Zickerman teaches four to five formal classes each year where her teaching serves the needs of a diverse population of students in the NAUTeach Program, the Based Elementary Education program, and the MS Mathematics program. Dr. Hodge-Zickerman had dedicated her career to helping students of diverse backgrounds understand and appreciate mathematics.

In Dr. Hodge-Zickerman's classes, the teaching methods are rooted in the principles of active learning where an instructional approach that focuses on collaboration, exploration, and critical thinking is applied. Students work in groups and individually while the instructor facilitates the exchange of diverse viewpoints, fostering dynamic discussions, and refining approaches to problem solving. Dr. Hodge-Zickerman teaches pre-service education teachers and encourages the love of mathematics that they can pass on to their future students. Dr. Hodge-Zickerman's contributions to teaching extend well beyond the campus where she teaches.

Dr. Hodge-Zickerman is recognized nationally and internationally for her research and presentations promoting active learning and IBL to educators. She has led more than 10 national workshops where she works with mathematicians and mathematics educators to help them incorporate these ideas into their teaching. Dr. Hodge-Zickerman led sessions at the MIT Electronic Mathematics Education Seminar; at the International Symposium of New Issues in Teacher Education conference in Savelina, Finland; and at the Inquiry Based Learning conference in Denver. Within NAU, Dr. Hodge-Zickerman served as co-PI of the NSF grant, "the NAU Noyce Scholars Program: Educating the STEM Teacher from Recruitment to Induction," that provides support to future math and science teachers. Dr. Hodge-Zickerman also received the MAA Women and Mathematics Grant to help fund the Arizona Women's Symposium in Mathematics (AWSiM).

The MAA recognizes Angie Hodge-Zickerman for the profound impact on her students, for her innovative teaching methods, and for her significant influence on the broader mathematics communities in improving the teaching and learning of mathematics for diverse student populations. The MAA is honored to present her with the Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics.

Response

I am deeply honored and humbled to receive the MAA's Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics. To be recognized among the exceptional educators who have received this award before me is truly a dream come true.

Mathematics is often seen as a subject of rigid rules and known formulas, but I have always believed it is much more than that. It is a way of thinking, of exploring, and of discovering. For years, active learning has been at the heart of my teaching. Active learning can empower students not just to learn mathematics but to do mathematics—to ask questions, to reason, and to see themselves as capable mathematicians. It has been a joy to witness the transformation that happens when students realize their own potential, and I share this award with them, for their curiosity and perseverance that inspire me every day.

This recognition is not mine alone. I am deeply grateful to my mentors, teachers, colleagues, and the incredible community of educators who have supported and challenged me throughout my journey. A special thanks to my students, past and present, who remind me why this work matters. To my family and friends—thank you for your support and encouragement. Ever since I was a child, I dreamed of being a teacher, and your belief in me has been a constant source of strength on this journey.

I also extend my gratitude to the Mathematical Association of America for valuing and celebrating excellence in teaching. Mathematics education is not just about passing down knowledge but about creating opportunities for engagement, growth, and meaningful understanding. I am honored to be a part of that mission and will continue striving to make mathematics a space where all students feel seen, capable, and inspired.

Biographical Sketch

Dr. Angie Hodge-Zickerman is a Professor in the Department of Mathematics and Statistics at Northern Arizona University (teaching courses ranging from graduate courses for mathematics teachers to calculus courses). She is also the Chair of Educational Specialties in the College of Education at NAU. She completed her graduate work at Purdue University, earning a master's degree in mathematics and a PhD in mathematics education. She is a Project NExT 2007 National Fellow and is still actively involved in Project NExT as a Teaching Support Group mentor. She has recently served as the Chair-Elect of the MAA Southwestern Section.

Her research interests in mathematics/mathematics education include active learning, mentoring strategies for pre-service teachers, STEM for all, and the role of artificial intelligence (AI) in active learning. In her free time, she enjoys running long distances, drinking coffee, being involved in Math Teacher's Circles across the country, and traveling anywhere and everywhere.

Yvonne Lai

University of Nebraska-Lincoln

Dr. Yvonne Lai is recognized for her excellence in teaching at the University of Nebraska-Lincoln and her work to improve mathematics teacher education nationally. Dr. Lai has led efforts to reimagine courses at UNL, including courses for preservice secondary mathematics teachers and proof-based courses for mathematics majors. She teaches these courses using active and inclusive pedagogies. One of her students wrote "She makes you feel like your ideas matter and should always be taken into consideration. This is the most welcome I have ever felt in a class in my college career."

Dr. Lai's work engaging students began while still a graduate student at UC Davis, where she was one of the founders of the Davis Math Circle, which brought extracurricular mathematics to students in the Central Valley of Northern California. She also worked with the Algebra Project site in Ypsilanti, Michigan while in a postdoctoral position at the University of Michigan. Since joining the faculty at UNL and until the pandemic, she was active in the Lincoln Math Teachers' Circle. Overall, she has helped underrepresented students, including first-generation, low-income, and ethnic/racially minoritized students, succeed in her mathematics courses.

The impact of Dr. Lai's work is multiplied through her work with preservice mathematics teachers. She is the founding chair of the Special Interest Group of the MAA on Mathematical Knowledge for Teaching (SIGMAA-MKT) and recently served as Chair of the MAA Committee on the Mathematical Education of Teachers (COMET). These leadership roles resulted in work to update the MAA's CUPM Curriculum Guide by placing more emphasis on issues of diversity, equity, and inclusion as well as incorporating recent findings on mathematical knowledge for teaching.

In addition to leading in the development of broad recommendations to the mathematical community and enhancing the preparation of preservice mathematics teachers in her own classrooms, Dr. Lai has influenced the way in which preservice mathematics teachers experience university mathematics nationally through her involvement with the Mathematics of Doing, Understanding, Learning, and Educating for Secondary Schools (MODULE(S2)) project. Specifically, Dr. Lai led the creation of the algebra materials for MODULE(S2). Through Dr. Lai's leadership on the algebra materials and her participation on the leadership team of the project as a whole, preservice secondary math teachers have learned how studying

mathematical content deeply at the university level can make them better teachers, experienced inclusive teaching practices, and understood more deeply the value of inclusive teaching practices.

The MAA recognizes Yvonne Lai for the impact she has had on students directly as a faculty member at the University of Nebraska-Lincoln, through her involvement with outreach efforts, and through her efforts to improve mathematical education of teachers as a founding of SIGMAA-MKT and chair of COMET. The MAA is honored to present her with the Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics.

Response

I am truly honored to receive this award from the MAA. Past Haimo awardees are exemplary leaders, ambassadors, and advocates of mathematics teaching and learning, and I am humbled to be joining them. Teaching is an act of love —for students, community, and mathematics. From this love is born the compassion, curiosity, and disciplined reflection that can nurture our knowledge for teaching. I am grateful for my students' grace as I sought better ways to teach as I wondered —what if?, sometimes stumbling along the way. And I thank my students for sharing journeys to conjectures, failed arguments, complete arguments, and other mathematical adventures as they found their own and each other's mathematical strengths, frustrations, and joys.

Without community, I could not be an educator. I extend thanks especially to the University of Nebraska-Lincoln Department of Mathematics. As the first tenure-track mathematics educator in this math department, I never expected that on the first day on the job, a full-ranked professor would knock on my office door and ask, unsolicited—What is the best way to teach proof? There is often no one "best" way, and there is much still to learn, as we discussed. But one "best" of a mathematical community is when mathematics and education can learn from each other with openness. I am thankful to MODULES, COMET, CUPM, and SIGMAA-MKT for its openness to —what if?, I am grateful to the MAA for the opportunities that it has afforded me, encouragement throughout my career, and for its steadfast belief in community.

Biographical Sketch

Yvonne Lai is an expert in mathematical knowledge for teaching. The first time she talked about math in front of an audience was equal parts nerve-wracking and exhilarating, and she thought she might like to do this for a lifetime. Little did she know at the time that teaching isn't about transmission, but about communication, and within this most of all, listening. She is

the founding chair of the SIGMAA-MKT, past chair of COMET, current member of CUPM, and a current education columnist for the Association for Women in Mathematics. Lai received an SB Mathematics from MIT and PhD Mathematics from the University of California, Davis, advised by Misha Kapovich. She learned to teach from Loren Larson, Philip Keller, the MIT ESG program, Deborah Ball, James Tuttle, and through her students.

Paul R. Halmos - Lester R. Ford Awards

The Paul R. Halmos-Lester R. Ford Awards recognize authors of articles of expository excellence published in *The American Mathematical Monthly.* The awards were established in 1964 as the Ford awards, named for Lester R. Ford, Sr., a distinguished mathematician, editor of *The American Mathematical Monthly*, 1942–1946, and President of the Mathematical Association of America, 1947–1948. In 2012, the Board of Governors designated these awards as the Paul R. Halmos–Lester R. Ford Awards to recognize the support for the awards provided by the Halmos family and to recognize Paul R. Halmos, a distinguished mathematician and editor of the *Monthly*, 1982–1986.

Mario Gómez and Facundo Mémoli

The Four Point Condition: An Elementary Tropicalization of Ptolemy's Inequality, *The American Mathematical Monthly*, 131:(3), 187-203. DOI: 10.1080/00029890.2023.2285695

This rich and enlightening article reveals a geometric connection between Ptolemy's inequality, an ancient inequality on the distances between four points in the Euclidean plane, and the 4-point condition, first proved in 1965, on the distances between four points in a tree-like space. The 4-point condition can be obtained immediately from Ptolemy's inequality by replacing multiplication and addition with addition and maximum – hence the adjective "tropicalization." The geometric link is encoded in a generalized notion of curvature (being a CAT(κ)-space) and a corresponding continuum of inequalities (κ-Ptolemaic inequalities) for any real number κ. Those inequalities, established in this article and generalizing known results in classical spherical and hyperbolic geometry, provide an interpolation of sorts between Ptolemy's inequality, at κ=0, and the 4-point condition, as κ approaches negative infinity. The article features a detailed account of numerous generalizations of Ptolemy's inequality to spaces of positive and negative curvature and excellent explanations of the relevant concepts concerning trees, hyperbolic groups, and CAT(κ) spaces. The unifying aspect of the authors' perspective and results is especially satisfying.

Responses

Mémoli: We were honored and delighted to learn that our paper was selected for the Paul R. Halmos–Lester R. Ford Award. The project originated from our efforts to bound the "size" homology classes in a simplicial complex associated with finite metric spaces. Early in our investigation, we noticed

that the four-point condition can be interpreted as a "tropicalization" of Ptolemy's inequality. This observation led us to conjecture the existence of a one-parameter family of metric inequalities interpolating between these two extremes. Our search for such a family brought us to various formulations of Ptolemy's inequality that had been studied by several mathematicians over the past few decades. It was especially gratifying to uncover a unifying perspective linking two inequalities that arose in different areas of mathematics.

Gómez: We are immensely grateful to receive the Paul R. Halmos-Lester R. Ford award. I grew up watching "Donald in Mathmagic Land" (more times than I can count, as kids often do), dreaming of becoming a member of the Pythagorean Society, and now I feel like Donald Duck shaking the hand of Pythagoras (or rather, Ptolemy). While a full explanation of the result might not be accessible to a general audience, its final step is a limit that calculus students can certainly appreciate, like my classmates in undergrad who asked if they'd ever see one of my theorems in a textbook. The beauty of the paper is how it connects multiple fields and places them within reach of future diligent students. I believe any mathematician would be joyous to prove such a theorem. Having the paper accepted by the *Monthly* already felt like I had succeeded in sharing it with fellow mathematicians, and receiving the Halmos-Ford takes that recognition to another level. It is truly humbling and uplifting.

Biographical Sketches

Facundo Mémoli received a Bachelor's and an M.Sc. in Electrical Engineering from the Universidad de la República, Uruguay, in 2000 and 2001, respectively. He earned a PhD in Electrical Engineering from the University of Minnesota in 2005. From 2005 to 2010, he was a postdoctoral researcher in the Department of Mathematics at Stanford University. He then held a tenure-track Assistant Professorship at the University of Adelaide for two years before joining the Department of Mathematics at The Ohio State University, where he served as a faculty member from 2011 to 2024. He is currently a Professor in the Department of Mathematics at Rutgers University.

Mario Gómez was born in Guatemala. In his second-to-last year of high school, he joined his country's national team for Math Olympiads, looking for friends with whom to share his passion for mathematics. He went on to obtain an undergraduate degree from Universidad del Valle de Guatemala and a PhD from Ohio State University in 2023, working under the supervision of Prof. Facundo Mémoli. In his free time, he enjoys cooking and playing Go.

Donald Teets

Lagrange Points and the James Webb Space Telescope,
The American Mathematical Monthly, 131:(4), 309-318.
DOI: 10.1080/00029890.2023.2298161

Since January 2022, the James Webb Space Telescope has been making a small halo orbit around a point in our solar system, about a million miles from Earth. That point – not some celestial body–is one of five that Joseph-Louis Lagrange determined to be the possible positions maintained by an infinitesimally small mass (the telescope) relative to the positions of two much larger masses (the sun and Earth), assuming the distances between the masses remain constant. In the current article, Donald Teets deftly recasts Lagrange's elementary but intricate solution to the three-body problem by invoking vector and matrix notation while minimizing any other changes. In doing so, he makes Lagrange's timeless work readily accessible to anyone who knows some basic algebra, calculus, and linear algebra. Furthermore, by assiduously detailing which modern equations correspond to which 18th-century equations, Teets invites readers to fully appreciate the calculations as published in 1777, including a typo and a basic algebra error. In fact, by making clear the overarching structure of Lagrange's solution while leaving plenty of room to fill in calculations, readers (including students) can follow in Lagrange's footsteps to figure out for themselves the location of the James Webb Space Telescope.

Response

In the mid-1990s, I stumbled across two conflicting accounts of the history of the method of least squares. One attributed the method to Legendre, while the other claimed it was first used by Gauss. With the help of a colleague, I studied Gauss's work on the subject, which was related to the orbit of the asteroid Ceres. The result was an article in *Mathematics Magazine* that won an Allendoerfer award from the MAA. Much more importantly, it opened the door to nearly three decades of very rewarding, very fruitful study within the intersection of mathematics, history, and astronomy. And what a rich intersection that is! It has led me to study the original writings of Kepler, Newton, Laplace, Lagrange, Gauss, Bessel, and others – exactly the names that I found in the margin notes of the calculus, differential equations, and linear algebra textbooks that I taught out of for many years. It has also led me to write several MAA journal articles and present many short talks at

MAA section meetings, all on subjects within (or close to) this very rich intersection. When reports about the James Webb Space Telescope and its Lagrange point orbit began to appear in the news, I was embarrassed to find that this was a subject falling squarely within my area of expertise, and I knew nothing about it. I read up on the subject from modern textbooks, but I was immediately drawn to the idea that there was no better way to learn about Lagrange points than to read Lagrange's original work. I was surprised to learn that the work consisted almost entirely of basic algebra, a little bit of calculus, and a lot of well-disguised linear algebra (well disguised by the lack of modern matrix notation and terminology). Writing the article was then just a matter of guiding readers through Lagrange's original work and original notation, but with enough modern matrix-vector notation to make it more accessible to *Monthly* readers. Apparently, I succeeded! Publishing the Lagrange point article in any journal would have been good. Publishing it in the *Monthly* was better than "good"; it was extraordinary. And receiving the Halmos-Ford award for this article is nothing short of spectacular!

Biographical Sketch

Donald Teets received his Doctor of Arts (D.A.) in mathematics from Idaho State University in 1988 and taught at the South Dakota School of Mines and Technology from that time until his retirement in 2023. In addition to the Halmos-Ford award to be presented at the 2025 MAA MathFest, he received the Carl B. Allendoerfer writing award from the MAA in 2000 for an article on the astronomical work of Gauss, and the Burton W. Jones Distinguished Teaching award from the Rocky Mountain Section of the MAA in 2004. Another of his articles on Gauss's work was selected for the anthology, *The Best Writing on Mathematics 2020*, after first appearing in an MAA journal. When not doing mathematics, he spends his time bicycling, backpacking, and rock climbing.

Will Traves and David Wehlau

Ten Points on a Cubic, *The American Mathematical Monthly*, 131:(2), 112-130.
DOI: 10.1080/00029890.2023.2274240

There is a classical result in geometry due to Pascal that characterizes when six points lie on a conic using a straightedge construction. In the present paper, the authors develop an analogous straightedge construction to check whether ten points lie on a cubic curve. Along the way, they give a lovely historical tour of constructibility problems and synthetic geometry, from Menelaus of Alexandria in the first century CE to nineteenth-century work by the likes of Cayley and Bacharach and finally to the present day. The author's exposition of their main construction is carefully laid out and illustrated, making accessible and bringing to life modern ideas in algebraic geometry through Euclidean and projective geometry. A closing section of exercises and open research problems invites the reader to see the depth and breadth of ideas presented and serves as a warm and generous welcome to further study.

Combined Response

It is an honour to receive the Halmos-Ford Award, named for two stellar teachers of mathematics. The problem we worked on to devise a straightedge construction that checks whether ten points lie on a cubic curve was originally assigned to us by Bernd Sturmfels at the MSRI workshop on Combinatorial Commutative Algebra and its Applications in 2012, and we are pleased to finally submit our solution. It is really awe-inspiring to work on a problem that Pascal would have understood and possibly even considered. Our initial idea for the solution used the Cayley-Bacharach Theorem, which we learned about from an influential paper by David Eisenbud, Mark Green, and Joe Harris. That idea required us to find the four points of intersection of two conics if we knew two of the intersection points already. But Galois Theory says this is impossible to do with a straightedge! We were able to recover the line joining the two missing points of intersection using a straightedge, but it was not immediately clear how this was helpful. It was a revelation when we realized that the construction needed to use a straightedge, but the proofs did not need to be so restricted. This led us to consider measurements and suggested using Jakob Steiner's Power of a Point Theorem to move unknown points to the intersection of lines and conics that could be computed with a straightedge. Our final proof relied on cross ratios and results from an Arab king, a French military officer who served under Napoleon, and Greek and

Italian mathematicians. It is remarkable that people of different cultures, nationalities, and languages all contributed to our solution, which emphasizes the universal appeal of mathematics. The initial problem generated many new problems that we were happy to advertise in our paper. We were amazed by the connection between our problem and many interesting mathematical objects, including Pascal's Hexagrammum Mysticum, the Hesse line configuration, and Grassmann-Plucker relations among determinants. Following these ideas, after the publication of our paper, we learned of work by Hermann Grassmann from the middle of the nineteenth century that gave a completely different solution to the problem. Look for a follow-up paper on Grassmann's solution in *The American Mathematical Monthly*!

Biographical Sketches

David L. Wehlau graduated from Western University in London, Ontario, Canada, in 1983 with a joint degree in Mathematics and Computer Science. He received his PhD in 1989 from Brandeis University under the supervision of Gerald Schwarz, studying the Invariant Theory of Algebraic Groups. After four years as an Assistant Professor at the University of Toronto, he joined the faculty of the Royal Military College of Canada in Kingston, Ontario, in 1992, where he remains. He has also been cross-appointed to Queen's University in Kingston since 1993. He is doing research in a number of fields, including Invariant Theory, Lie Theory, Quiver Theory, Algebraic Combinatorics, and Geometry over finite fields. He enjoys problem-solving and supervising undergraduates, graduate students, and postdocs. He is delighted to be receiving the Halmos-Ford award with his friend and co-author, Will Traves, who is receiving this award for the third time.

Will Traves graduated from Queen's University as a math major in 1993 and went on to complete his PhD in 1998 at the University of Toronto (UT). While a graduate student, he traveled to the United States, spending semesters at M.I.T. and the University of Michigan (UM), before graduating with two PhD advisors, Karen Smith (UM) and Mark Spivakovsky (UT). He held a short postdoctoral appointment with Bernd Sturmfels at U.C. Berkeley and M.S.R.I. (now SLMath) before joining the faculty of the United States Naval Academy in 1999. As a MAA Project NExT brown dot, he was mentored by Dan Kalman (American University), whose expository accomplishments are a continuing inspiration. Will recently joined the Editorial Board of *The American Mathematical Monthly* and is a lifetime member of the Mathematical Association of America. Will is honored to receive the Halmos-Ford award with his friend and co-author, David Wehlau.

Adrian Rice

"The Riddle of the Ages": James Joseph Sylvester and the Transcendence of π, *The American Mathematical Monthly,* 131:(6), 463-478. DOI:10.1080/00029890.2024.2322944

Adrian Rice's article "'The Riddle of the Ages': James Joseph Sylvester and the Transcendence of π" is the story of a proof of the transcendence of π by James Joseph Sylvester that seemed to be overlooked for a century. Rice weaves an interesting tale starting with the history of transcendental numbers, including the transcendence of *e*, before delving more closely into the transcendence of π and a "proof" published by the well-known and respected algebraist Sylvester.

In Rice's engaging brief history of Sylvester and his accomplishments, the title of the article becomes clear: in an 1884 letter to Cayley, Sylvester called the question of the transcendence of π (which had first been solved in 1882 by Ferdinand von Lindemann) the "Riddle of the Ages." Sylvester proceeded to join the ranks of other well-known mathematicians of the time working on transcendental numbers, and believing he had developed a new proof, he published a paper in 1890 which focused on showing π cannot be the root of a quadratic equation. Rice skillfully explains Sylvester's "proof" and points out two of the multiple errors in Sylvester's 1890 paper.

The article proceeds with a look at Sylvester's subsequent attempt to prove the general case, i.e., that π cannot be the root of a polynomial of any degree. Rice shows how this attempt, which used continued fractions, was also not successful. In the final section of the article, a fascinating overview of reactions to Sylvester's "proof," the reader continues to encounter prominent mathematicians of the late 19th century and to gain a sense for how new mathematical ideas were communicated during this time period. The story concludes with a happy ending as Rice describes how prominent friends of Sylvester, with collegiality and tact, were able to protect the aging, renowned mathematician from public embarrassment while seeing that his hastily published "proof" of the "Riddle of the Ages" faded into obscurity.

Response

I am surprised and delighted to receive this honor from the MAA. Writing this article was a pleasure, but it was also unlike any other writing experience I have ever had. I came to the subject from looking at the various proofs of the transcendence of pi, by the likes of Lindemann, Hilbert, and Weierstrass,

before noticing that a very different proof was contained in the collected works of the British algebraist James Joseph Sylvester. Since his proof was so different in style to those of his contemporaries, I sat down and tried to read and understand what he was doing, and before long, I discovered well, you'll have to read my paper if you want to find out! But I also wanted to make sure I was correct, and before long, I found out that I was far from the first to make this "discovery" and had in fact been beaten to it (more than once) over a hundred years earlier. Unearthing long-forgotten letters between mathematicians as they discussed Sylvester's proof was a real treat, and shed valuable light on mathematical communication (and indeed the mathematical community) in the closing years of the 19th century.

I would like to express my sincere thanks to several people. First of all, I would like to thank Karen Parshall (the world expert on Sylvester and his mathematics) for her knowledge and helpful advice on all things Sylvesterian. Secondly, I thank the MAA for their generosity in choosing this article to receive a Halmos-Ford Award. And finally, I want to thank my wife, Nora, and my son, Daniel, for their patience with me as I was writing the article: they learned more about Sylvester and the transcendence of pi than anyone would ever wish to know!

Biographical Sketch

Adrian Rice is the Dorothy and Muscoe Garnett Professor of Mathematics at Randolph-Macon College in Ashland, Virginia, where his research focuses on nineteenth-century and early twentieth-century mathematics. In addition to papers on various aspects of the history of mathematics, his books include *Mathematics Unbound: The Evolution of an International Mathematical Research Community, 1800--1945* (with Karen Hunger Parshall), *Mathematics in Victorian Britain* (with Raymond Flood and Robin Wilson), and *Ada Lovelace: The Making of a Computer Scientist* (with Christopher Hollings and Ursula Martin). His latest book, co-edited with Karen Attar and Christopher Stray, is *Augustus De Morgan, Polymath: New Perspectives on his Life and Legacy*. In his spare time, he enjoys music, travel, and spending time with his wife and son.

George Pólya Awards

The George Pólya Awards, established in 1976, are given to authors of articles of expository excellence published in *The College Mathematics Journal*. The awards are named for George Pólya, a distinguished mathematician, well-known author, and Stanford University professor.

Tova Brown and Brody Johnson

Pull-Back Cars: Vehicles for the Instruction of Differential Equations, *The College Mathematics Journal*, 55:(3), 192-204. DOI: 10.1080/07468342.2024.2302300

The article "Pull-Back Cars: Vehicles for the Instruction of Differential Equations" by Tova Brown and Brody Johnson provides a compelling and innovative approach to teaching differential equations through real-world applications. Recognizing the importance of engaging students in mathematical modeling, the authors present the motion of toy pull-back cars as an accessible yet rich subject for exploration in undergraduate differential equations courses.

The paper introduces a mathematical framework for modeling the acceleration and deceleration of pull-back cars, beginning with fundamental kinematic principles and advancing through a stepwise refinement of differential equation models. The authors develop elementary models for acceleration, initially assuming constant torque and no slipping, which are then expanded to incorporate mechanical losses and real-world constraints. By considering the dynamics of these simple yet effective teaching tools, they create a pedagogical pathway that extends from the separation of variables and integrating factors to linear systems and the Laplace transform.

A key strength of this work lies in its empirical validation. Through video analysis, the authors extract experimental data, compare it with model predictions, and refine their equations accordingly. This iterative process not only strengthens the reliability of the models but also demonstrates to students the power and necessity of data-driven mathematical refinement. The study highlights a critical aspect of mathematical modeling: the balance between simplifying assumptions and the accuracy of real-world behavior.

Beyond its technical contributions, this paper excels as an expository piece due to its clarity, accessibility, and pedagogical value. The authors skillfully guide the reader through the modeling process while keeping the discussion engaging and insightful. By leveraging an everyday object that students can relate to, they foster a deeper appreciation of how differential equations govern motion and other physical phenomena.

For its outstanding expository quality, its ability to make advanced mathematical concepts accessible, and its potential to enrich undergraduate education in differential equations, Pull-Back Cars: Vehicles for the Instruction of Differential Equations is a deserving recipient of this award.

Responses

Johnson: The first class I attended as a new transfer student at Virginia Tech was Dynamics with Professor William Curtin (now at Brown University). It was a great course, and the subject remains one of my favorites. My fondness for dynamics has provided constant inspiration throughout my career as a mathematician. Over the years, I have introduced class projects that studied carbon dioxide-powered cars, a rocket-powered frisbee, and steam-powered pop-pop boats with varying degrees of success. Along the same lines, my work with pull-back cars started with the modest goal of creating a class project for students in an undergraduate differential equations course. Within a few summer weeks, I completed the project and submitted it to the organization SIMIODE as a potential modeling scenario. At that time, I could never have anticipated the wonderful collaboration that this project would make possible. Luckily for me, Brian Winkel, Founder and Director of SIMIODE, has a better imagination. He put me in contact with another mathematician who shared my interest in pull-back cars, namely, Tova Brown of Wisconsin Lutheran College. Tova had just implemented the pull-back car model in her calculus courses and would soon use the model as a recurring topic in her own differential equations course. She brought fresh ideas that quickly led to a second SIMIODE modeling scenario and as the mathematics of the model gained depth, we began to see the potential for an expository article. As we considered what form such an article might take, Tova came up with the great idea to approach the modeling problem through the lens of an entire differential equations course, rather than focus on the model with the course in the background. This suggestion shaped our work on the article, which represents one of the most satisfying collaborations of my professional career. For this project to culminate in recognition from the MAA through the George Pólya Award is beyond my wildest expectations. I am most grateful.

Brown: I am deeply grateful to Brody for such a fun collaboration. He wrote the first modeling scenario for pull-back cars and then warmly welcomed me into the action. Doing research never felt more like playing than in this project! We each had our own reasons for becoming interested in pull-back cars; I was racing these toys around with my son and thinking about how to get my calculus students in on the fun. Receiving the George Pólya Award is an honor. With sincere thanks to the MAA and *College Mathematics Journal*,

I hope that readers of our paper are inspired to consider settings in their own lives that invite mathematical exploration.

Biographical Sketches

Brody spent the first six years of his academic career in engineering, earning BS and MS degrees in mechanical engineering from Virginia Tech. His interest in signal processing motivated him to pursue a doctorate in mathematics, which he completed at Washington University in St. Louis under the tutelage of Professor Guido L. Weiss, winner of the 1967 Chauvenet Prize. Brody spent the next year at the Georgia Institute of Technology, where he worked as a postdoctoral researcher under the mentorship of Professor Christopher Heil before joining the faculty of Saint Louis University.

Tova is an Associate Professor in the Mathematics Department at Wisconsin Lutheran College in Milwaukee, WI. She earned her BA, double-majoring in Mathematics and Theatre at Bethany Lutheran College in Mankato, MN, and her PhD in Mathematics from the University of Arizona in 2016. The 2006 Marvin G. Meyer Scholarship, a 2010 NSF Graduate Research Fellowship, and mentoring as a 2020 Project NExT fellow were all pivotal supports at different stages in her journey. Outside of work, she loves being a mom and going on adventures with her husband and sons.

Jason Snyder

A Modern Spin on Archimedes' Quadrature of the Parabola, *The College Mathematics Journal*, 55:(2), 134-139. DOI: 10.1080/07468342.2023.227899

In "A Modern Spin on Archimedes' Quadrature of the Parabola," Jason Snyder cleverly reimagines a classic geometry problem through the lens of calculus, making it accessible to first-year students. He begins by introducing the geometric challenge of finding the area of a parabolic segment, referencing Archimedes' original solution, which relied on 24 propositions to show that this area is 4/3 the area of a specific triangle.

Snyder then presents two modern approaches to solving the problem. The first method, rooted in optimization, maintains a connection to Archimedes' reasoning while incorporating an infinite geometric series – a striking illustration of how calculus and geometry intertwine. The second method, much more concise, leverages the Fundamental Theorem of Calculus to give a streamlined solution.

One of the article's most compelling aspects is how it highlights the interplay between calculus and geometry. The problem itself originates in classical geometry, yet both modern solutions rely on core calculus concepts—differentiation in one approach and integration in the other. The contrast between the two methods, one spanning nearly four pages and the other just two paragraphs, underscores the versatility of mathematical thinking and the multiple perspectives calculus offers in solving geometric problems.

Snyder's writing and images make this material engaging and approachable, making the article a valuable resource for students studying optimization and integral calculus. It could easily serve as an independent reading assignment, be used as classroom examples, or turned into a project. Beyond that, the article sparks curiosity, encouraging students to explore Archimedes' original geometric approach and dive deeper into the historical development of mathematical ideas.

Response

I am deeply honored to receive the George Pólya Award for my article "A Modern Spin on Archimedes' Quadrature of the Parabola." I still remember when I first looked through the works of Archimedes in grad school and came across this problem. Archimedes' approach, while demonstrating genius and the beauty of math, is not approachable to new students in the field of mathematics. So, I set out to modify the solution so that a first-year calculus

student could understand the problem and its solution all while maintaining the general ideas set forth by Archimedes. I never imagined that the problem that I have been presenting to my Calculus 1 students since the early 2000s would lead me to winning this award.

Biographical Sketches

Jason Snyder received his PhD in Mathematics from the University of North Texas in 2009. He was an actuarial technician for four years, followed by three years as a high school math teacher. In 2016, he joined the faculty of Collin College, where he is still happily employed.

Daniel Solow Author's Award

This annual award recognizes the author or authors of undergraduate mathematics teaching materials (textbook, lecture notes, computer software, web-based learning materials, video lectures, and others, as approved by the Council on Prizes). The primary criteria for selection will be the material's impact on undergraduate education in mathematics and/or the mathematical sciences (operations research, statistics, computer science, applied mathematics).

David Austin

Understanding Linear Algebra, 2023. https://understandinglinearalgebra.org/home.html

David Austin's *Understanding Linear Algebra* is a freely accessible online textbook. It is one of the books in the list of Open Textbooks of the American Institute of Mathematics. This online textbook is a well-organized, clearly and carefully written book which, according to one of the supporting letters, "offers content for two courses in linear algebra to undergraduate students even in their first year as recommended by the AMS's Linear Algebra Curriculum Study Group 2.0."

As the letters of support indicate, the outstanding feature of the textbook is its exceptional ability to demonstrate how linear algebra is used in everyday life while keeping the students genuinely engaged. *Understanding Linear Algebra,* which has been used in linear algebra courses across institutions, includes several real-world applications that make the material come alive. The carefully chosen and deeply insightful activitie,s such as Google PageRank algorithm, image compression, and Supreme Court case applications discussed in *Understanding Linear Algebra* and the way they are presented are not only applicable to industry but also provide opportunities for students to build fundamental skills which can be used to explore new career possibilities.

The letters of support for the award also highlight that the embodiment of technology through interactive activities with embedded SAGE cells is the other key feature that distinguishes David Austin's *Understanding Linear Algebra* book. This approach gracefully encourages students to code and gives students a chance to explore and practice computational thinking. The SAGE cells are strategically placed throughout the book and demonstrate how useful coding can be in understanding concepts of linear algebra and applying them to real problems. The gentle introduction to SAGE with clear and careful directions offers many opportunities to practice and slowly build up students' confidence in their coding abilities. The fact that, like the textbook, SAGE is

also open source, significantly enhances the accessibility of the textbook.

Students and instructors consistently share the significant positive impact of David Austin's *Understanding Linear Algebra* in the teaching and learning of Linear Algebra. One of the writers of the support letters said, "I recall one student saying (paraphrased) 'I don't understand why all textbooks aren't made this way.'" Another writer said, "the embedded SAGE modules within the textbook were my favorite part of the textbook since, coming from a purer side of mathematics, I, as an instructor, was less prepared to teach the computational aspects of linear algebra." Another one wrote, "this is not your mama's textbook: *Understanding Linear Algebra* is written with an active classroom in mind. This open educational treasure is easy to navigate, well-organized, and highly accessible to undergraduate students. It empowers students to take ownership of their mathematical learning. To have this experience so early in one's academic journey is nothing short of powerful and inspiring." This sentiment is furthered by yet another writer who quoted a student saying, "David Austin's *Understanding Linear Algebra* has a way of making linear algebra appear so integrated into modern life that you start thinking of it as essential; something you would be foolish to ignore. It's everywhere, and the book shows you that quite well."

The MAA is excited to recognize David Austin of Grand Valley State University for his accessible, interactive, well-written, and technologically equipped book, *Understanding Linear Algebra,* which brings new life to teaching and learning Linear Algebra. Congratulations on being the 2025 recipient of the MAA Daniel Solow Award!

Response

I am deeply appreciative of the MAA for recognizing *Understanding Linear Algebra* and of Daniel Solow for proposing and funding this award. This book would not exist without the help of many. Every day, I am grateful to call the math department at Grand Valley State University my professional home. My colleagues have created an environment that encourages and supports efforts like this, and I am mindful that my colleague Ted Sundstrom was the recipient of the inaugural Solow Award. My long-time friend and colleague Matt Boelkins' open textbook *Active Calculus* is clearly an inspiration for *Understanding Linear Algebra*, and Matt's vision for how an open textbook can facilitate excellent pedagogy is one that has become dear to me as well. I also owe a debt of gratitude to my students and thank them for their curiosity, persistence, and patience as I was working on this project. *Understanding Linear Algebra* was created as an open textbook that will always be freely available so that mathematics can be more accessible to more students. What I did not expect was the wonderful community this

work would draw me into. This book is written in PreTeXt and would not otherwise be the same book. Thanks to Rob Beezer for his wild notion to create an authoring system that allows writers to focus more intently on the ideas they mean to express, and thanks to the large group of developers who work, mostly without compensation, to continually improve it. I have learned so much about writing open textbooks by serving on the editorial board of the Open Textbook Initiative, and I am grateful to the American Institute of Mathematics, and especially to David Farmer, for supporting the Initiative for over 15 years. My friends Candice Price and Miloš Savić at 619 Wreath Publishing have been wonderful partners in bringing out a low-cost print edition. Thanks also to my open textbook writing buddies, Mitch Keller and Kathy Yoshiwara, for our many conversations about mathematical writing and for their careful reading and detailed suggestions for improving the text. Finally, writing a textbook means little without people using it, and I appreciate all the instructors who have adopted *Understanding Linear Algebra* and reached out to share the experiences they and their students are having with it. It is deeply satisfying to hear from you all.

Biographical Sketch

David Austin, a professor of mathematics at Grand Valley State University, is committed to making low-cost and accessible educational resources available to all students. He has served on the editorial board of the Open Textbook Initiative since 2010 and as the Director for the past three years. In addition, he is the lead developer of PreFigure, open-source software that helps authors create accessible mathematical diagrams and that is integrated into the PreTeXt authoring system. David is a member of the Choctaw Nation of Oklahoma and belongs to the network of Indigenous Mathematicians**.**

T. Christine Stevens Award for Leadership Development

The MAA's four core values—community, inclusivity, communication, and teaching and learning—clearly explain what's important to us. Named in honor of the co-founder of MAA Project NExT, the MAA T. Christine Stevens Award for Leadership Development is the Association's recognition of the importance of professional development that seeks to build leadership capacity. It is to be awarded annually to a person or persons who has (have) performed significant, sustained work to cultivate and strengthen leadership skills within the mathematical sciences, across the full range of professional activities. The award shall be based on one or several activities that are meant to inspire future or current leaders who are committed to MAA's mission, values, and vision. The contribution should be such as to influence the community and culture of mathematics, statistics, or mathematics education in significant and positive ways on a national scale or have that potential. Rather than being a career or retrospective award, this award celebrates effective leadership efforts and encourages the awardee to sustain their efforts.

David Goldberg

Purdue University

As Professor of Mathematics at Purdue University and the Executive Director of the Math Alliance, Dr. David Goldberg has demonstrated exceptional leadership and commitment to increasing the number of underrepresented and underserved students earning doctoral degrees in mathematics.

Dr. Goldberg earned his PhD at the University of Maryland, College Park, and began his career at Purdue, a highly ranked R1 institution, immediately after graduation. From 2013 to 2019, he served as the Associate Head for Graduate Studies in the Department of Mathematics at Purdue. In this role, he was responsible for all aspects of the graduate program, setting ambitious goals to transform the program's demographic makeup. Without altering admissions standards or academic expectations, Dr. Goldberg succeeded in shifting the program from one that was majority international students to one in which domestic students became the majority. His leadership in this area was marked by a focus on inclusivity, and his efforts resulted in Purdue becoming a Math Alliance Doctoral Program Group. This change had a profound impact on the recruitment, retention, and graduation rates of women and underrepresented minority students in the department.

Dr. Goldberg first became involved with the Math Alliance as a mentor in 2009 and became its Executive Director in 2016. As stated on their website, the Math Alliance is a national mentoring community dedicated to

making sure that "every underrepresented or underserved American student with the talent and the ambition has the opportunity to earn a doctoral degree in quantitative science." His adept administrative, fundraising, and recruitment efforts have helped increase the number of faculty mentors from less than 500 to more than 1,450 across 425 campuses across the country. Over 2,800 students have held the title of Math Alliance Scholar, and at least 340 have earned doctorates. An additional 27 have earned professional degrees such as DDS, DMD, JD, and MD. Only a few of these PhDs precede his directorship, and they now see upward of 40 Math Alliance Scholars earning PhDs annually. There are currently 324 Scholars enrolled in doctoral programs. Dr. Goldberg's leadership has been widely recognized, with the Math Alliance receiving the 2017 American Mathematical Society Programs that Make a Difference Award and a nomination for the 2024 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM). His stewardship has also led to the establishment of the Center for the National Math Sciences Alliance at Purdue. His fruitful efforts in reaching out to the applied sciences and industry led to partnerships with a variety of institutions, professional societies, and corporate partners, further strengthening the Math Alliance's support for underrepresented students.

Dr. Goldberg's philosophy of inclusion and strong leadership has significantly and positively impacted the community and culture of mathematics in line with MAA's vision, core values, and mission. This culture of inclusion will undoubtedly spread as Purdue and Math Alliance alumni become department chairs, central administrators, and leaders in government and industry.

Response

I am deeply honored to receive the MAA's 2025 T. Christine Stevens Award. The work being recognized would not have been possible without the collaborative efforts of many great colleagues at Purdue University, and the almost 1,500 faculty across the country who serve as Math Alliance Mentors. I am particularly honored to receive an award named for T. Christine Stevens—a person whose work has had a profound impact across our profession, someone I so admire, and who has set a high standard of professional service for all of us. Much of the success recognized is a result of being in the right place at the right time. I want to thank the hundreds of Purdue Mathematics graduate students who aspired for our program to be more of a community and who invested in making that happen. I thank them also for trusting in me and for being great partners in our efforts. I would like to similarly thank the thousands of Math Alliance Scholars who have participated in our programs and who are the heart of our

Math Alliance community. Their collective hard work is making a difference in our profession. Purdue University – the Department of Mathematics, the College of Science, and the Provost's Office – was very supportive of bringing the Math Alliance to Purdue, and I appreciate their entrusting me with its administration. Many thanks to the Math Alliance leadership who placed their faith in me to keep advancing the good work and community they had built. My gratitude to all the past and current Math Alliance leadership, who volunteer their time and effort to collaborate with me on a regular basis and have been crucial to our success. Special thanks to Philip Kutzko, our Director Emeritus, who mentored me intensively through the leadership transition, and who continues to volunteer in many ways to help our work progress. I thank my good colleague Rodrigo Bañuelos, who has mentored me so many times and so many ways through the years.

Finally, I want to thank the MAA, the committee responsible for this award, David Allison, for nominating me, and those who supported my nomination. I believe this award recognizes, in a very timely way, the value of shared commitment to inclusivity, and further acknowledges that inclusiveness enhances—rather than hinders—excellence. At this moment, I believe it is critical we reinforce our belief in this value and recommit ourselves to the future.

Biographical Sketch

David Goldberg was born in Boston and grew up in several different locations in the U.S., as well as spending two years abroad. He graduated from public high school, Cambridge Rindge and Latin School, as well as its alternative sub-school, the Cambridge Pilot School. He attended Reed College in Portland, OR, and after taking some time off and working in an automotive brake factory in Boston, received a BA in Mathematics.

After spending two years as a pension actuarial administrator, he decided to pursue a graduate degree. He received his PhD from the University of Maryland in 1991. He joined the faculty of Purdue in 1991 as a postdoctoral appointee, continued at Purdue as an NSF Postdoctoral Fellow, and was appointed as a tenure-track Assistant Professor in 1994. He was awarded an NSF CAREER Grant in 1995, was promoted to Associate Professor in 1997, and to Professor in 2005. Goldberg's research concerns representations of p-adic groups and connections with algebraic number theory.

He was the Graduate Chair in the Purdue Mathematics Department from January 2013 to June 2019, and for even longer has been part of a group of faculty within the department working to address issues of underrepresentation. He has been the author or contributing author of several GAANN grants, awarded by the U.S. Department of Education. Through

some coincidence with his research interests, he became familiar with the National Alliance for Doctoral Studies in the Mathematical Sciences, more commonly known as the Math Alliance. In 2016, he became the Executive Director of the Math Alliance as it relocated its administrative home to Purdue. Under his leadership, the Alliance has grown in size and scope, received the 2017 Programs that Make a Difference Award from the American Mathematical Society, and is a finalist for the 2024 Presidential Award.

Meritorious Service Awards

Certificates of Meritorious Services are presented, on the recommendation of the Sections of the Association, for service at the national level or for service to a Section of the Association. The first such awards were made in 1984. Each year, honorees from several Sections are recognized.

John Bukowski

Juniata College

Dr. John Bukowski has served the Allegheny Mountain Section of the MAA in numerous ways throughout his career. He has been Section Governor (2005-2008), Chair (2009-2011), First Vice Chair (2003-2004), Second Vice Chair (2002-2003), MAA Project NExT Co-Coordinator (2003-2009), and Historian (2012-2024). John has also served on countless section committees and volunteered in other roles as needed, like being the local co-organizer for the 2006 Annual Section Meeting at Juniata College. As Historian, Dr. Bukowski was also instrumental in creating and organizing one of the most extensive MAA section histories in the country. From the initial creation of the Allegheny Mountain Section in 1933 to the establishment of Section NExT in 2000, John was able to find and record a plethora of information in his research. The section is blessed to have a complete list of every single past meeting location and elected officer due to his efforts. This is vital information that will help future officers plan meeting sites, recruit volunteers, and recognize special achievements. For example, due to John's efforts, the section knows it is about to celebrate its 100th meeting even though it has not been chartered for
100 years.

Dr. Bukowski has also done important service for the broader MAA community. He served on the Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching of Mathematics Committee (2016-2020) and as Secretary/Treasurer for the Quantitative Literacy SIGMAA (2003-2007). John also served as a reviewer for *The College Mathematics Journal* and as a judge for Undergraduate Student Poster Sessions at various Joint Meetings.

The Allegheny Mountain Section previously recognized Dr. John Bukowski with its Service Award in 2011, and we are thrilled to be able to acknowledge his dedication to the MAA once more with the Certificate of Meritorious Service.

Response

I am delighted and honored to receive the MAA Certificate of Meritorious Service, and I thank my colleagues in the Allegheny Mountain Section for nominating me for this award. It has been a great pleasure to serve my Section and the larger MAA community for over twenty years. The MAA is where I was first welcomed and became connected in the broader mathematical community, first in MAA Project NExT in 1998 (silver dot!) and soon afterwards in the Allegheny Mountain Section. I was happy to become involved in various leadership roles in my Section, working with the other fantastic and dedicated officers. I have long said that the best part of the MAA is the people, and my Section certainly exemplifies this!

I am thankful for being able to spend twelve years as our Section Historian, especially because these years included the centennial celebrations of the MAA. It was so much fun to research our Section's history in the summer of 2014 and to compile a narrative and several lists. I am grateful for the previous work of the late Albert Rabenstein, whose historical records made my job easier. It is very satisfying to know that my Section values this history so highly.

The MAA is a wonderful organization, and my involvement in the MAA has been an enjoyable and important part of my mathematical career.

Biographical Sketch

John Bukowski is a native of Pittsburgh, Pennsylvania, and he earned BS degrees in mathematics and physics from Carnegie Mellon University in 1991. He then received a PhD in applied mathematics from Brown University in 1997. John joined the faculty at Juniata College in Huntingdon, Pennsylvania, later that year. He has taught mathematics at Juniata for 28 years and served as department chair for 16 of those years.

John developed an interest in the history of mathematics in the early 2000s, focusing on the 17th century and the work of Christiaan Huygens in particular. In 2012, he was a visiting scholar at Universiteit Leiden, Netherlands. There he worked with Huygens' manuscripts and notebooks, and he taught the History of Mathematics.

He was an officer of the Allegheny Mountain Section of the MAA for 22 years and is proud to have published in *The College Mathematics Journal* and *Math Horizons*.

John is also the conductor of the Juniata College Concert Choir and the piano accompanist of the State College Choral Society.

Karen Clark

The College of New Jersey

Dr. Karen Clark is an Associate Professor of Mathematics and Statistics at the Department of Mathematics and Statistics at The College of New Jersey. Her service to the Association and the New Jersey Section of the Mathematical Association of America (MAA-NJ) over the past two decades is outstanding.

For the Association, Dr. Clark has served as the Inaugural Chair of the MAA's Committee on Section Meetings since 2023 and previously served as a member of the Committee on Sections from 2018 to 2023. Dr. Clark served as the MAA-NJ Congress Representative from 2021-2024. She has also served as a judge for the MAA's Undergraduate Research Poster Session at the Joint Mathematics Meetings.

For the New Jersey section of the MAA, Dr. Clark has served as the section's Chair Elect, Chair, and Past Chair from 2014 through 2018. She served three terms as Treasurer from 2002-15. Dr. Clark has also played a significant role in planning and organizing thirty-two MAA-NJ sectional meetings, coordinating meeting exhibitors and publicity from 2004-2015, and serving on the hosting committee for two MAA-NJ meetings at The College of New Jersey. Dr. Clark has also served for eleven years on the Organizing Committee for the Garden State Undergraduate Mathematics Conference (GSUMC) as treasurer from 2004-2014 and as a judge for the GSUMC student poster competition.

Dr. Clark has also played an important role in training the next generation of mathematics faculty. She has served as a mentor for two NJ-NExT faculty and on a NJ-NExT panel. At The College of New Jersey, she served as a co-PI on the NSF Advance grant "Female Faculty Through Effective Career Development" from 2009-13 to help implement Organizational Change for Gender Equity in STEM.

Throughout her career, Dr. Clark has been a leader in improving mathematics education at every level. She served as a co-PI on two NSF/DUE grants from 2002-2007 to integrate software tools into the teaching of Linear Algebra. She is also the organizer and co-organizer of the 2011 and 2012 Sonya Kovalevsky High School Mathematics Days at The College of New Jersey. These NSF/AWM sponsored conferences brought together over one hundred female high school students each year for a day of mathematics activities.

In 2019, the New Jersey section of the MAA recognized her service with its 2019 Sr. Stephanie Sloyan Award for Distinguished Service. And in 2014,

MAA-NJ recognized her classroom pedagogy accomplishments with its Distinguished Teaching Award.

Dr. Clark earned her PhD in Mathematics from New York University in 1992. Following positions at The University of Michigan and Stevens Institute of Technology, she has taught since 1994 at The College of New Jersey. She is a member of the Mathematical Association of America, the American Mathematical Society, the Association for Women in Mathematics, and the Society for Industrial and Applied Mathematics. The section is very appreciative and grateful to Dr. Karen Clark for her many contributions.

Response

I am honored and humbled to receive this award. I became involved in the MAA at the very beginning of my career when my colleagues at the institution where I had just started a tenure-track job encouraged me to accompany them to attend the Fall MAA-NJ Section meeting. That first meeting was transformative for me! It introduced me to the larger community of mathematicians in the state, and opened up a world where I could see wonderful talks, discuss pedagogy with faculty from around the region, and benefit from regular professional development opportunities. Soon after that first meeting, I became a part of the MAA-NJ Section executive board and have enjoyed many, many Section meetings since.

I would like to thank the MAA-NJ Section for nominating me for this award and for their many years of collaboration, friendship, and support. It has been a privilege to serve the organization, and I am grateful for the ways in which the MAA has enriched my professional career.

Biographical Sketch

Karen Clark is an Associate Professor at The College of New Jersey, where she has taught since 1994. She grew up in New York City and received her BS, MS, and PhD degrees from New York University. After many years serving on the MAA-NJ executive board she currently chairs the MAA Committee on Section Meetings. Her mathematical interests include linear algebra, and she has been working on a text for a second undergraduate course. She raised four children with her husband Juan (also a mathematician) in suburban New Jersey. When not teaching math, she enjoys hiking, reading, and travel, including long-distance train travel to national mathematics meetings.

Minah Oh

James Madison University

The nominating committee enthusiastically recommends Dr. Minah Oh (JMU) for the Certificate for Meritorious Service. Our recipient's many contributions to the profession and the MAA—at her institution, in our section, and beyond—make her a natural choice for this award.

At her institution, Minah has demonstrated excellence in encouraging women in mathematics. Here are a few of her roles in this area:

- Founder and faculty advisor for JMU's Association for Women in Mathematics (AWM) Student Chapter
- Workshop leader for Expanding Your Horizons (EYH), a national STEM event for girls
- Creator of Girls' Math and Coding Day, an NSF-funded event where 20 local female high school students came to campus and learn mathematics and its programming applications
- Volunteer math tutor at a local homeless shelter.

Minah has also worked tirelessly in service to the MAA, both nationally and in our section. At the national level, she has served as a member of the Committee on the Participation of Women and as a panel member (multiple times) for the MAA Tensor Women and Mathematics Grant program.

At the section level, Minah has also served in many ways. These include serving a term as an At- large Executive Committee Member and then serving a term as Program Chair. Minah planned and executed excellent meetings which featured nationally-known invited speakers and special events. She facilitated AWM activities at section meetings, including a special workshop for students by invited speaker Alissa Crans and an AWM lunch table for students and faculty. Minah also recruited existing AWM chapters to bring students to our section meetings and encouraged colleagues at other institutions to start new AWM student chapters.

Minah went on to serve as our Section Chair, mostly during the pandemic, keeping the lines of communication open within the executive committee and to the section membership despite the obvious challenges the pandemic presented. Under her leadership, our section held its first-ever virtual meeting in fall 2020, and the use of technology was both innovative and impressive. When we were finally able to meet in person at Salisbury University in fall

2021, our recipient also delivered the final invited address of the meeting, *Linear Algebra and its Amazing Applications.*

One of her colleagues said the following of Minah: "Minah has gone above and beyond in all her positions of section leadership and has done it with good humor and grace. I am personally grateful to Minah for her unselfish, unstinting service to our profession, especially to our MAA Section."

Dr. Minah Oh was recognized by our section as the recipient of the 2022 Sister Helen Christensen Service Award and the nominating committee strongly support her for the Certificate for Meritorious Service as well.

Response

Thank you for giving me such a big award for simply doing something that I enjoy and truly care about. Serving the Maryland-District of Columbia-Virginia Section of the MAA has always been rewarding to me, and it has been an honor to work with such dedicated mathematicians and educators in the community. Getting involved in helping young girls and women to be successful in their education and career in mathematics happened quite naturally over the years. My college students from the JMU AWM Student Chapter have consistently been amazing. I see so many intelligent and hard-working high school students from the AVID (Advancement via Individual Determination) program that come to my Girls' Math and Coding Day at JMU. Every day, I see my own middle school daughter and her friends that are incredibly strong inside and out and have unlimited potential. These are daily reminders for me that it is our duty to take care of them and to never stop working to make the kind of world that they deserve.

Biographical Sketch

Dr. Minah Oh did her undergraduate studies at Yonsei University in South Korea and at St. Olaf College and received her PhD from University of Florida. She is a numerical analyst and a computational scientist that has a passion for involving undergraduate students in mathematical research projects as well as providing quality education to them. She is involved at the local and national level in helping young girls and women to be successful in their education and career in mathematics and has a passion for popularizing mathematics to the general public and kids. She is currently a Professor at James Madison University and enjoys running with her husky and gardening as well as watching her kids' soccer games.

Ronald (Ron) G. Smith

Harding University

The Oklahoma-Arkansas Section nominates Dr. Ron Smith for the Certificate of Meritorious Service. Dr. Smith has been part of our Section for fifteen years. He has served as Section Chair twice, in addition to filling in when others have been unable to fulfill their responsibilities on the Executive Committee. Dr. Smith has also served one term as the OK-AR Representative to the MAA Congress, and he has been part of our Section's Nominating Committee for over a decade. Harding University, where Dr. Smith has been Department Chair for nearly twelve years, hosted our Spring Section Meeting in 2014, and he was instrumental in executing the logistics for the conference as our local coordinator. Dr. Smith's secondary school experience has also equipped him well to serve for several years on our K-12 Teacher Award Committee. Dr. Smith has been an excellent mentor to many of our Section members when they take on (or consider taking on) new positions within the Section. He demonstrates keen leadership and wise counsel on the Executive Committee and helps our Section stay well-informed on Section and national MAA issues.

Response

When I joined the faculty at Harding University, I did not know any math faculty at other institutions in our region. The chair of our department recommended that I join the MAA. That was excellent advice! Since that time, I have had the pleasure of meeting faculty members from institutions throughout our section. These faculty members have served as mentors, coworkers, and friends of mine for the past 15-plus years. I have enjoyed being able to work with truly amazing mathematicians. If I need help with anything in my career, I can think of several MAA members who I can call that would be more than happy to help me.

One of the things that I really enjoy about being an MAA member is the conferences. It feels like a reunion every year at our section meeting. I get to catch up with friends that I rarely get to see in person any other time. It is enjoyable to catch up on old times, talk about what new things are happening in our lives and institutions and to talk about math. I enjoy being a member of the MAA so much that I encourage my young new faculty members to join and to participate in Section NExT. I hope to introduce a new generation of

mathematicians and math faculty to the MAA. I just hope that they can enjoy the MAA Community as much as I have been able to enjoy it.

Biographical Sketch

Ronald Smith grew up in Ohio but has lived in Arkansas for the last 20 years. He received an undergraduate degree and a master's degree from Harding University in Searcy, AR. He received his doctorate from the University of Tennessee in Knoxville. In 1990-1991 he taught high school in Arkansas for a year before taking a position with the Department of Defense schools in Incirlik, Turkey. In 1993, he returned from Turkey to teach high school math in Cabot, AR. In 1998, he was offered a position with the engineering firm ABB. He worked as an instructor, systems engineer, and did optimization work during his time as an engineer. In 2003, he went back to teaching and started a doctoral program so that he could teach at the university level.

In 2005, he went to work for Harding University as a Math Specialist, where he worked with the Arkansas Department of Education and many school districts. After 2 years in that position, he had completed his coursework for his doctorate and was asked to join the Mathematics Department. In 2013, he was asked to serve as the mathematics department chair. His wife is an elementary special education teacher. His daughter is a kindergarten teacher in Ohio. His son taught high school math for 4 years and now works in Data Science for a software development company in Nashville, TN.

Violeta Vasilevska

Utah Valley University

With great pleasure, the Intermountain Section of the Mathematical Association of America nominates Professor Violeta Vasilevska for the 2025 MAA Meritorious Service Award.

Violeta Vasilevska has been an exceptionally active member of the MAA for many years and is well known for her service to the organization at both the section and national levels. She has contributed to the Intermountain Section in various roles, including Congress Representative, Section Chair, Section First Vice-Chair, Chair of the Planning Committee for the Section Meeting, Co-founder and Organizer of the Section Virtual Speaker Program, and member of the Section Bylaws Committee, Section Teaching Award Committee, and Section Nomination Committee.

Additionally, she has participated in national MAA committees. She served as Chair of the MAA Teaching and Learning Committee, member of the MAA Trevor Evans Award Committee, member of the MAA James R.C. Leitzel Committee, Chair and member of the MAA Committee on Undergraduate Students, Chair and Secretary/Treasurer of the MAA SIGMAA UR (Undergraduate Research), member of the MAA Council on Communities, and member of the MAA Morgan Prize Committee.

Violeta is dependable and effective in all that she does, both at the Intermountain Section and national level. If she is asked to do something, she will do it and do it well. She is also proactive in identifying and eagerly tackling tasks that need to be addressed. We are grateful for her numerous contributions to the Intermountain Section, the MAA, and the broader mathematical community. It is an honor to have her among us.

The Intermountain Section is delighted to nominate Violeta Vasilevska for the Meritorious Service Award and deeply appreciates her many years of invaluable service.

Response

I am truly humbled and honored to receive a 2025 MAA Meritorious Service Award.

I have been involved with our MAA Intermountain Section for over 15 years. Throughout the journey that led to this moment, I have had the privilege to work with an amazing group of colleagues that I am honored to call my friends. I am incredibly grateful for their support and encouragement as well as their mentorship over the years.

Working with these compassionate colleagues to create opportunities for our students and our section community, especially during our section meetings, has been an incredible experience. They make every challenge easier, every task fun and enjoyable, and build a deep sense of community. Their willingness to engage in meaningful, impactful work has been an ongoing source of inspiration for me. The insightful conversations we've shared and the collaborations we've built over the years have enriched my professional life and shaped my approach to both teaching and learning.

I have been met with the same feeling of community, collaborative spirit, and compassion through my involvement with MAA on a national level. I was incredibly lucky to become a MAA Project NExT fellow in 2005 and have benefited tremendously from this program. Since then, I have also benefited from other opportunities that MAA offers, helping me to grow in ways that have extended beyond the mathematical community and into my personal life. Some of my MAA colleagues are my closest friends, that I can reach out to for guidance and support anytime. Moreover, I have been blessed to be able to give back to this community through my service and work with these wonderful colleagues to help others benefit from these opportunities the way I have benefited from them.

Together, all of us are creating a safe and welcoming space for mathematics to flourish, and I am honored to be part of that effort.

I want to express my deepest thanks to the MAA in general, and especially to the MAA Intermountain Section for this remarkable recognition. Sincere gratitude to my colleagues on the nomination committee who chose me out of all the incredible people in our section. This is why this recognition means so much to me: I owe it not to my own efforts alone, but to all of those colleagues I have had the privilege to work alongside during this journey. Thank you!

Biographical Sketch

Dr. Violeta Vasilevska was born and raised in Bitola, Republic of North Macedonia and received her doctorate degree from the University of Tennessee, Knoxville. She moved to Utah in 2010 to join the Department of Mathematics at Utah Valley University (UVU), where she is currently a professor of mathematics.

She is passionate about teaching and enjoys implementing various active learning and student-centered approaches in her classes. Dr. Vasilevska has received several awards recognizing her teaching excellence, among them the Intermountain MAA Outstanding Teaching Award (2017). Dr. Vasilevska is a 2005 MAA Project NExT fellow and currently serves as the Chair of the MAA Committee on Lectures on Teaching & Learning.

Since 2013, when she received one of the Center for Undergraduate Research in Mathematics grants, she has engaged many students in research in diverse areas ranging from topics in pure mathematics, such as geometric group theory and graph theory, to topics in math education. In addition, she was the chair of the MAA Committee on Undergraduate Students and currently serves as the chair of the SIGMAA-UR.

Furthermore, she has led outreach programs for high school students since 2007. Through these programs, she has been mentoring undergraduate students, especially female students, in math education research. She has received several awards recognizing these outreach efforts.

Dr. Vasilevska has also been actively involved in the Intermountain MAA Section since 2010. She has served in many section officer roles, including the chair of this Section (2014-16) and Congress Representative (2016-19). Since 2021, she has been organizing and running the Virtual Section Speaker Program.

Among her hobbies are her love for Origami, reading, yoga, and traveling to learn about different cultures.

MAA
MATHEMATICAL ASSOCIATION OF AMERICA

NOMINATIONS OPEN FOR AWARDS AND PRIZES

Nominations due by August 1

Deborah and Franklin Tepper Haimo Award

Nominations due by October 1

Teaching, Service, and Research Awards

Henry Alder Award
JPBM Communications Award
Meritorious Service Award
Mary P. Dolciani Award
Morgan Prize
Gung & Hu Award
Selden Prize
Inclusivity Award
Sliffe Awards
T. Christine Stevens Award for Leadership Development
Azarian Scholar Award

Suggestions Welcome Year-Round

Writing Awards

Allendoefer Award
Halmos-Ford Award
Beckenbach Book Prize
Hasse Prize
Chauvenet Prize
Pólya Award
Euler Book Prize
Robbins Prize
Evans Award
Daniel Solow Author's Award

Info on each award and nomination forms can be found at

maa.org/awards.