

Mathematics People

Mann Receives Duszenko Award



Kathryn Mann

Kathryn Mann of Cornell University has been awarded the 2019 Kamil Duszenko Award for her work in topology, geometry, geometric group theory, dynamics, and other areas of mathematics. Her work involves actions of infinite groups on manifolds and the moduli spaces of such actions: character varieties, spaces of flat bundles or foliations, and spaces of left-invariant orders on groups.

Some of her work involves the relationship between the algebraic and topological structure of diffeomorphism and homeomorphism groups, the large-scale geometry of such groups (e.g. subgroup distortion and dynamical consequences of this), and rigidity phenomena for group actions, often arising from some geometric structure. Mann received her PhD from the University of Chicago in 2014 under the supervision of Benson Farb. She has held positions at the University of California, Berkeley, the Mathematical Sciences Research Institute (MSRI), and Brown University, and a visiting position at the Institut de Mathématiques de Jussieu. Her honors include the Mary Ellen Rudin Young Researcher Award (2017), an NSF Postdoctoral Research Fellowship (2016–2019), an Alfred P. Sloan Fellowship (2019), an NSF Career Award (2019), and the AWM Birman Research Prize in Topology and Geometry (2019). She enjoys spending time outdoors, particularly hiking, biking, and rowing.

The Duszenko Award is given by the Wrocław Mathematicians Foundation (WMF) for outstanding work or research that has significantly contributed to the deepening of knowledge and further progress in the field of mathematics. It was founded in honor of Kamil Duszenko, a young mathematician who died of acute lymphoblastic leukemia at the age of twenty-eight. It is given at least every two years in the fields of mathematics and hematology.

—From a WMF announcement

Speh Awarded Noether Lectureship



Birgit Speh

Birgit Speh of Cornell University has been named the 2020 Noether Lecturer by the Association for Women in Mathematics (AWM) and the AMS. She will deliver the prize lectures at the 2020 Joint Mathematics Meetings.

Speh is known for her work on the representation theory of reductive Lie groups and its relationship to automorphic forms and the cohomology of arithmetic groups. Her research has explored connections between unitary representations, automorphic forms, and the geometry of locally symmetric spaces. In recent work Speh has studied restrictions of representations of reductive groups to noncompact reductive subgroups. This work on “symmetry breaking” has led, in joint work with Kobayashi, to proofs of conjectures of Gross–Prasad for some pairs of orthogonal groups.

Speh received her PhD from the Massachusetts Institute of Technology in 1977 under the supervision of Bertram Kostant. In her thesis she classified the unitary representations of low-dimensional general linear groups and then introduced, in her early work, a special class of unitary representations of general linear groups over the real numbers that now bears her name. She held postdoctoral positions at the University of Chicago and the University of Wuppertal before joining the faculty at Cornell University in 1980. In 1983 she became the first woman to earn tenure in the Cornell University Department of Mathematics. She is currently the Goldwin Smith Professor of Mathematics at Cornell. Her honors include a Sloan Fellowship (1981) and a Humboldt Research Award (1996). She has been an invited speaker at the International Congress of Mathematicians in Madrid (2006). She was a member of the inaugural class of Fellows of the AMS (2013).

The AWM established the Emmy Noether Lectures in 1980 to honor women who have made fundamental and sustained contributions to the mathematical sciences.

—From an AWM announcement

Sarnak Awarded Sylvester Medal



Peter Sarnak

Peter Sarnak of the Institute for Advanced Study has been awarded the 2019 Sylvester Medal of the Royal Society for “transformational contributions across number theory, combinatorics, analysis and geometry.” According to the citation, Sarnak “is widely recognized internationally as one of the leading analytic number theorists of his generation. His early work on the existence of cusp forms

led to the disproof of a conjecture of Selberg. He has obtained the strongest known bounds towards the Ramanujan conjectures for sparse graphs, and he was one of the first to exploit connections between certain questions of theoretical physics and analytic number theory. There are fundamental contributions to arithmetical quantum chaos, a term which he introduced, and to the relationship between random matrix theory and the zeros of L -functions. His work on subconvexity for Rankin–Selberg L -functions led to the resolution of Hilbert’s eleventh problem.”

Sarnak received his PhD from Stanford University in 1980. He has been associated with the Courant Institute of Mathematics of New York University, Stanford University, and Princeton University. His honors and awards include the SIAM Pólya Prize (1998), the Ostrowski Prize (2001), the AMS Levi L. Conant Prize (2003), the AMS Frank Nelson Cole Prize (2005), the MAA Lester Ford Prize (2012), and the Wolf Prize in Mathematics (2014). He is a member of the American Academy of Arts and Sciences, the National Academy of Sciences of the USA, and the American Philosophical Society. He is a Fellow of the Royal Society.

The Sylvester Medal is awarded annually for an outstanding researcher in the field of mathematics and carries a cash award of £2,000 (approximately US\$2,400).

—From a Royal Society announcement

Sly Awarded Loève Prize



Allan Sly

Allan Sly of Princeton University has been awarded the Loève Prize for his research in discrete probability theory and its applications to problems from statistical physics, theoretical computer science, and theoretical statistics. He is best known for the use of deep probabilistic methods to solve long-standing problems at the

interface of probability, the theory of algorithms, and statistical physics. He has made major advances in the fields of the stochastic block model, formalizations of the one-step replica symmetry-breaking heuristic, and sharp analysis of Glauber dynamics. Sly received his PhD in statistics from the University of California, Berkeley, in 2009 under the supervision of Elchanan Mossel. He was a postdoctoral fellow at Microsoft Research (2009–2011) and a member of the Berkeley statistics department (2011–2016). He has been on the faculty at Princeton since 2016. He received a Sloan Research Fellowship in 2012 and a MacArthur Fellowship in 2018. The Loève Prize is awarded every two years to recognize outstanding contributions by researchers in probability who are under forty-five years of age. It carries a cash award of US\$30,000.

—David Aldous

Caspers Awarded Zemánek Prize



Martijn Caspers

Martijn Caspers of Delft University of Technology has been awarded the second Jaroslav and Barbara Zemánek Prize for his achievements in functional analysis, with special emphasis on operator theory. He received his PhD in 2012 at the Radboud University Nijmegen under Erik Koelink. His research interests are in quantum groups, operator algebras, operator spaces and their

approximation properties, noncommutative L_p -spaces, and harmonic analysis on noncommutative spaces. When he’s not working on mathematics, Caspers enjoys playing chamber music on the French horn.

The Zemánek Prize was founded by the Institute of Mathematics of the Polish Academy of Sciences (IMPAN) to encourage research in functional analysis, operator theory, and related topics. The prize recognizes the work of mathematicians under thirty-five years of age who have made important contributions to the field. The monetary amount of the prize is 13,000 PLN (approximately US\$3,300). More information about the prize is available at <https://www.impan.pl/en/events/awards/b-and-j-zemane-prize>.

—From an IMPAN announcement

2019 AIM Alexanderson Award

Paul Bruillard of Expedia Group, **Siu-Hung Ng** of Louisiana State University, **Eric Rowell** of Texas A&M University, and **Zhenghan Wang** of the University of California, Santa Barbara, have been awarded the 2019 Gerald Alexanderson Award of the American Institute of Mathematics (AIM) for their paper “Rank-finiteness for modular categories,” *Journal of the American Mathematical Society* 29 (2016), no. 3. The work began at an AIM workshop “Classifying Fusion Categories” in 2012. The award recognizes outstanding research articles arising from AIM research activities that have been published within the past three years.

—From an AIM announcement

Prizes of the Canadian Mathematical Society

The Canadian Mathematical Society (CMS) has awarded a number of prizes for 2019.

Tiina Hohn of MacEwan University has been awarded the 2019 Adrien Pouliot Award for her outstanding contributions to mathematics education. According to the award citation, “her love of teaching and passion for mathematics have been her principal drives since 1983. In addition to teaching undergraduate courses at MacEwan, she has also been involved with many outreach activities in local schools.” The award recognizes individuals who have made significant and sustained contributions to mathematics education in Canada.



Karl Dilcher

Karl Dilcher of Dalhousie University has been named the recipient of the 2019 Graham Wright Award for Distinguished Service. He has been a dedicated member of a variety of committees and editorial boards of CMS and has served on its board of directors. He has been a member of various committees and panels at Dalhousie, is involved with the Fibonacci Association and *The Fibonacci Quarterly*, and is a Fellow of

the CMS. He has developed a special recycling program for the reuse of mathematics books. The award is presented to individuals who have made sustained and significant contributions to the Canadian mathematics community, particularly through their involvement with CMS.

Lars Louder of University College London and **Henry Wilton** of the University of Cambridge are the 2019 re-

ipients of the G. de B. Robinson Award for outstanding contributions to the *Canadian Journal of Mathematics* or the *Canadian Mathematical Bulletin*. They were honored for their paper “Stackings and the W -cycles Conjecture,” *Canadian Mathematical Bulletin* 60 (2017), no. 3.



Mikhail Karpukhin

Mikhail Karpukhin of the University of California, Irvine, has been awarded the 2019 Doctoral Prize. He works in the area of geometric spectral theory. According to the citation, “His thesis consists of a series of striking results among which [are] an isoperimetric inequality for the first Laplace eigenvalue on non-orientable surfaces extending celebrated results of Yang-Yau and Li-Yau from the 80’s, new upper bounds

on the Steklov eigenvalues of a manifold—best known result to date in the case of a surface of given genus and boundary components, and explicit upper bounds on all eigenvalues of the Dirichlet–Neumann map for differential forms on a manifold of arbitrary dimension.”

—From CMS announcements

MAA Awards Presented

The Mathematical Association of America (MAA) awarded prizes for the best mathematics writing published in MAA journals at its MathFest meeting in August 2019 in Cincinnati, Ohio.

The Carl B. Allendoerfer Awards for excellent mathematical writing published in *Mathematics Magazine* were presented to **William Dunham**, Bryn Mawr College, for “The Early (and Peculiar) History of the Möbius Function” and to **Jordan Bell**, University of Toronto, and **Viktor Blåsjö**, Utrecht University, for their joint paper “Pietro Mengoli’s 1650 Proof That the Harmonic Series Diverges.”

The Trevor Evans Award for excellent writing for an undergraduate audience published in *Math Horizons* was given to **Stan Wagon** of Macalester College for his article “Resolving the Fuel Economy Singularity.”

The Paul R. Halmos–Lester R. Ford Award recognizes exceptional writing published in the *American Mathematical Monthly*. The recipients are **Adrian Rice**, Randolph-Macon College, “Partnership, Partition, and Proof: The Path to the Hardy–Ramanujan Partition Formula”; **Jonathan M. Borwein**, University of Newcastle, and **Robert M. Corless**, Western University, “Gamma and Factorial in the Monthly”; **Andrew Granville**, Université de Montréal, “Using Dynamical Systems to Construct Infinitely Many Primes”; and **Kenneth S. Williams**, Carleton University,

“Everything You Wanted to Know about $ax^2+by^2+cz^2+dt^2$ but Were Afraid to Ask.”

The George Pólya Awards recognize exceptional papers published in the *College Mathematics Journal*. The recipients are **Stanley R. Huddy**, Fairleigh Dickinson University, and **Michael A. Jones**, *Mathematical Reviews*, “The Calculus Behind Generic Drug Equivalence”; and **Peter McGrath**, University of Pennsylvania, “Newton’s Shell Theorem via Archimedes’ Hat Box and Single-Variable Calculus.”

The Merten M. Hasse Prize honors authors for a noteworthy expository paper appearing in an Association publication, at least one of whose authors is a younger mathematician, generally under the age of forty. **David Treeby** of Monash University was honored for “Further Thoughts on a Paradoxical Tower” in the *American Mathematical Monthly*.

In addition, the MAA awarded prizes for teaching and service. The newly formed MAA Award for Inclusivity recognizes a person who has performed significant, sustained work to broaden access to mathematics. **Sylvia Trimble Bozeman** of Spelman College received the inaugural award for her four decades of teaching, supervising, and mentoring countless students. She has shown an unwavering commitment to bringing more African Americans—as well as women and individuals from other underrepresented groups—into the field of mathematics.

The Henry L. Alder Awards honor beginning college or university faculty members whose teaching has been highly effective and successful in undergraduate mathematics. The awardees for 2019 are **P. J. Couch**, Lamar University; **Pamela Harris**, Williams College; and **Alicia Prieto Langarica**, Youngstown University.

The Mary P. Dolciani Award honors the combination of excellence in both mathematical research and mathematics education. This year’s awardee is **Joseph Gallian** of the University of Minnesota Duluth.

The Daniel Solow Author’s Award recognizes authors of undergraduate mathematics teaching materials. **Tim Chartier** of Davidson College is honored for his ability to engage readers through his enthusiasm for mathematics and his writings that demonstrate his extraordinary ability to reach a wide range of audiences.

The Certificate of Meritorious Service is presented for service at the national level or for service to a section of the Association. This year’s honorees are **John Thoo**, Yuba College; **Richard Alan (Rick) Gillman**, Valparaiso University; **John Travis**, Mississippi College; **Martha Abell**, Georgia Southern University; **Dave Skoug**, University of Nebraska–Lincoln; **Muriel Skoug**, Nebraska Wesleyan University; and **Christopher Swanson**, Ashland University.

—From MAA announcements

SIAM Prizes Awarded

The Society for Industrial and Applied Mathematics (SIAM) has awarded a number of prizes for 2019.

Andrea L. Bertozzi of the University of California, Los Angeles, has been awarded the Ralph E. Kleinman Prize for her “groundbreaking research in partial differential equations, image processing, numerical analysis, scientific computing, mathematical data science, and the application of mathematics to problems in the physical, life, and social sciences.” Bertozzi received her PhD from Princeton University and was on the faculty at Duke University before joining UCLA. She received the AWM-SIAM Sonia Kovalevsky Lecture Prize in 2009. She is an elected member of the American Academy of Arts and Sciences and of the National Academy of Sciences of the United States. She is a Fellow of the AMS, the American Physical Society, and SIAM.

Weinan E of Princeton University was awarded the 2019 Peter Henrici Prize for “breakthrough contributions in various fields of applied mathematics and scientific computing, particularly nonlinear stochastic (partial) differential equations (PDEs), computational fluid dynamics, computational chemistry, and machine learning.” He received his PhD from the University of California, Los Angeles, and has held positions at New York University, the Institute for Advanced Study, and the Courant Institute for Mathematical Sciences. His honors include the Collatz Prize (2003), the Ralph E. Kleinman Prize (2009), and the Theodore von Kármán Prize (2014). He is a Fellow of the Institute of Physics, SIAM, and the AMS.

Maria J. Esteban of Université Paris–Dauphine received the SIAM Prize for Distinguished Service to the Profession. She was honored for her “outstanding contributions to bringing together the mathematics communities in France, Europe, and the rest of the world and helping to bridge the gaps between theoretical mathematics and applications, including applications in industry.” She received her PhD from Université Pierre et Marie Curie in 1981 and is senior researcher at Centre National de Recherche Scientifique along with her position at Université Paris–Dauphine. She has served as an associate editor of the *SIAM Journal on Mathematical Analysis* and is a Fellow of SIAM.

Steven Strogatz of Cornell University has been awarded the George Pólya Prize for Mathematical Exposition for his “extensive and brilliant works conveying the fascination and the impact of mathematics to the general public through numerous books, newspaper and magazine articles, and radio, television, web, and video appearances, and for his important and influential textbook on nonlinear dynamics and chaos.” Strogatz has blogged about math for *The New Yorker* and *The New York Times* and has often guested on radio shows. He is the author of several books, including *Infinite Powers: How Calculus Reveals the Secrets of the Universe*.

Houman Owhadi of the California Institute of Technology was awarded the Germund Dahlquist Prize for his “varied, original, and deep work in areas of computational mathematics that include homogenization, stochastic differential equations, game theoretic approaches to numerical analysis, stochastic variational integrators, and uncertainty quantification.” His work has had great impact in such fields as scientific computing, practical numerical methods, and machine learning. Owhadi received his PhD from the École Polytechnique Fédérale de Lausanne in 2001. After doing postdoctoral work at Technion-Israel Institute of Technology, he joined CNRS. In 2004 he joined the faculty at Cal Tech. He is an associate editor of a number of journals, including the *SIAM Journal on Numerical Analysis*.

Elina Robeva of the Massachusetts Institute of Technology was awarded the SIAM Activity Group on Algebraic Geometry Early Career Prize for her “highly innovative contributions to the analysis of tensors, especially for major advances in the theory of orthogonally decomposable tensors.” She received her PhD from the University of California, Berkeley, under Bernd Sturmfels. Her research is focused on studying statistical models that depict complex interactions between random variables and uses tools from algebraic geometry and combinatorics to answer statistical and optimization questions such as inference, model selection, model equivalence, and nonparametric density estimation.

Thomas Bothner of King’s College London received the Gábor Szegő Prize for his “truly brilliant contributions to the recent advances in Riemann–Hilbert techniques at the boundary between the theory of special functions and applications to mathematical physics.” The prize recognizes an early-career mathematician “for outstanding research contributions in the area of orthogonal polynomials and special functions.” Bothner received his PhD from Purdue University in 2013. He joined King’s College as a lecturer in analysis in 2018.

The 2019 SIAM Student Paper Prizes were awarded to the following individuals. **Joseph L. Hart** of Sandia National Laboratories was honored for his paper “Efficient Computation of Sobol’ Indices for Stochastic Models,” coauthored with Alen Alexanderian and Pierre A. Gremaud, published in the *SIAM Journal on Scientific Computing* in 2017. **Michael Lindsey** of the Courant Institute of Mathematical Sciences was honored for his paper “Optimal Transport via a Monge–Ampère Optimization Problem,” coauthored with Yanir A. Rubinstein, published in the *SIAM Journal on Mathematical Analysis* in 2017. **Daniel Massatt** of the University of Chicago was honored for his paper “Electronic Density of States for Incommensurate Layers,” coauthored with Mitchell Luskin and Christoph Ortner, published in *Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal* in 2017.

US Team Ties for First in International Mathematical Olympiad



Photo (left to right): Edward Wan, Daniel Zhu, Brandon Wang, Colin Tang, Luke Robitaille, and Vincent Huang.

The US team tied for first place with the team from China at the 60th International Mathematical Olympiad (IMO), held in Bath, United Kingdom, July 11–22, 2019. The team members were **Vincent Huang**, **Luke Robitaille**, **Colin Tang**, **Edward Wan**, **Brandon Wang**, and **Daniel Zhu**. All six members received gold medals for their individual high scores. Huang is a returning team member from 2017 and 2018. The team leader was Po-Shen Loh, associate professor of mathematics at Carnegie Mellon University; the deputy team leader was Yang Liu, a graduate student at Stanford University. The winning US team score was 227 out of a possible 252 points.

This year 643 students competed in the IMO, which brings together the top math students from more than 110 countries and territories.

—From an MAA announcement

NSF Postdoctoral Research Fellowships Awarded

The Mathematical Sciences Postdoctoral Research Fellowship Program of the Division of Mathematical Sciences (DMS) of the National Science Foundation (NSF) awards fellowships each year for postdoctoral research in pure mathematics, applied mathematics and operations research, and statistics. Following are the names of the fellowship recipients for 2019, together with their PhD institutions (in parentheses) and the institutions at which they will use their fellowships.

- **Noah Arbesfeld** (Columbia University), Imperial College
- **Ana Balibanu** (University of Chicago), Harvard University
- **Erik Bates** (Stanford University), University of California, Berkeley
- **Daniel Bragg** (University of Washington, Seattle), University of California, Berkeley
- **Stephen Cameron** (University of Chicago), Courant Institute, New York University
- **Joshua Cape** (Johns Hopkins University), University of Michigan
- **Iain Carmichael** (University of North Carolina, Chapel Hill), University of Washington
- **Irving Dai** (Princeton University), Massachusetts Institute of Technology
- **James Farre** (University of Utah), Yale University
- **Tony Feng** (Stanford University), Massachusetts Institute of Technology
- **Benjamin Filippenko** (University of California, Berkeley), Stanford University
- **Nir Gadish** (University of Chicago), Massachusetts Institute of Technology
- **Gabriel Goldberg** (Harvard University), University of California, Berkeley
- **Kira Goldner** (University of Washington), Columbia University
- **Felix Gotti** (University of California, Berkeley), University of Florida
- **Winston Leslie** (Boston College), Duke University
- **Ethan Levien** (University of Utah), Harvard University
- **Zane Li** (University of California, Los Angeles), Indiana University, Bloomington
- **Michael Lindsey** (University of California, Berkeley), Courant Institute, New York University
- **Marissa Loving** (University of Illinois, Urbana-Champaign), Georgia Institute of Technology
- **Ruth Luo** (University of Illinois, Urbana-Champaign), University of California, San Diego
- **Nicholas Marshall** (Yale University), Princeton University
- **Taylor McAdam** (University of California, San Diego), Yale University
- **Allison Miller** (University of Texas, Austin), Rice University
- **Lucia Mocz** (Princeton University), University of Chicago
- **Takumi Murayama** (University of Michigan), Princeton University
- **Alice Nadeau** (University of Minnesota), University of Auckland
- **Sarah Peluse** (Stanford University), University of Oxford
- **Lisa Piccirillo** (University of Texas at Austin), Brandeis University
- **Guillaume Remy** (École Normale Supérieure–Paris), Columbia University
- **Marino Romero** (University of California, San Diego), University of Pennsylvania
- **Samuel Rudy** (University of Washington), Massachusetts Institute of Technology
- **Benjamin Seeger** (University of Chicago), Collège de France
- **Philip Tosteson** (University of Michigan), University of Chicago
- **Saraswathi Venkatesh** (Columbia University), Stanford University
- **Isabel Vogt** (Massachusetts Institute of Technology), Stanford University
- **Robert Walker** (University of Michigan), University of Wisconsin–Madison
- **Jasper Weinburd** (University of Minnesota, Twin Cities), Harvey Mudd College
- **Dylan Wilson** (Northwestern University), Harvard University
- **Lynnelle Ye** (Harvard University), Stanford University
- **Zihui Zhao** (University of Washington), University of Chicago

—NSF announcement

Credits

Photo of Kathryn Mann is courtesy of J. Paleczny.
 Photo of Peter Śarnak is courtesy of the Institute for Advanced Study/Andrea Kane.
 Photo of Allan Sly is courtesy of the John D. and Catherine T. MacArthur Foundation.
 Photo of Martijn Caspers is courtesy of Tim Dikland.
 Photo of Karl Dilcher is courtesy of Nick Pearce, Dalhousie University.
 Photo of the US Mathematical Olympiad team is courtesy of the Mathematical Association of America.