

Mathematics People

Nguyen and Camassa Receive SIAM Prizes



Toan T. Nguyen



Roberto Camassa

The Society for Industrial and Applied Mathematics (SIAM) awarded two prizes at the 2022 SIAM Conference on Nonlinear Waves and Coherent Structures. **Toan T. Nguyen** of Pennsylvania State University was awarded the 2022 T. Brooke Benjamin Prize. **Roberto Camassa** of the University of North Carolina at Chapel Hill was chosen the 2022 Martin Kruskal Lecturer. According to the prize citation, Nguyen was honored “in recognition of his extensive and deep contributions to the mathematical theory of the dynamics of gas and fluids. In particular, the award recognizes his original contributions to the understanding of the stability of shear flows and Prandtl layers. In the 2016 paper cited in the nominations for the prize, Nguyen introduced innovative and

deep techniques to put on a rigorous footing the surprising phenomenon known as viscous destabilization, which had been observed experimentally but not understood mathematically. His contributions extend beyond this to a wide range of problems in the field and are fully deserving of the highest recognition.” Nguyen was born in Vietnam and received his PhD from Indiana University in 2009 under the direction of Kevin Zumbrun. He did postdoctoral work at the University of Pierre and Marie Curie and held an assistant professorship at Brown University before joining Penn State in 2013. He was awarded the 2018 AMS Centennial Fellowship. He received a Simons Fellowship in 2019. The T. Brooke Benjamin Prize is given every two years to one midcareer established researcher for recent outstanding work on a topic in nonlinear waves, as evidenced by a body of work with at least one significant publication in English in a peer-reviewed journal within the four calendar years preceding the award year.

Camassa was recognized for work in mathematical modeling of wave propagation in fluids and fluid mechanics in general. His lecture, given at the conference, was titled “Fluid-boundary interaction: Confinement effects, stratification and transport.” Camassa received his PhD from the California Institute of Technology in 1990, advised by Ted Wu. He held a postdoctoral fellowship at Los Alamos National Laboratory and continued as a staff member in the Theoretical Division, Mathematical Modeling and Analysis Group before joining the faculty at North Carolina, where he is Kenan Distinguished Professor. Together with Rich McLaughlin, Camassa has built a state-of-the-art fluids laboratory at UNC Chapel Hill, joint with the department of marine sciences, where numerous new phenomena in waves, turbulent mixing in stratified fluids, and air-liquid pumping in lung airway geometries have been discovered and explained mathematically. He tells the *Notices*: “I grew up near mountains, and climbing, trekking and skiing have been a part of my life since I was a kid. Soon after I got a job at Los Alamos National Laboratory in New Mexico, I joined the local ski school and worked my way up the certification process of PSIA (Professional Ski Instructor of America), Rocky Mountain Division. After some grueling exams (far harder than any math ones) necessary to pass each certification level, I finally got my Full Certification (Level 3) back in 2001.” The Martin Kruskal Lecture is awarded every two years to one individual for a notable body of mathematics and contributions in the field of nonlinear waves and coherent structures.

—From SIAM announcements

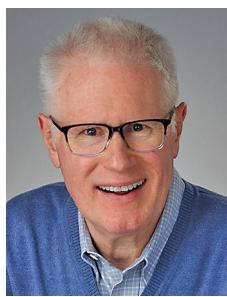
Prizes of the Canadian Mathematical Society

The Canadian Mathematical Society (CMS) has recognized a pair of mathematical scientists for 2022. **John Mighton** of JUMP Math has been named the recipient of the Adrien Pouliot Award in recognition of his contributions to mathematics education. According to the prize citation, Mighton “is an award-winning mathematician, playwright and best-selling author, who founded JUMP Math as a charity in 2002. He is internationally recognized for his



John Mighton

groundbreaking work building children's confidence, skills, and success in math." After earning his PhD in mathematics from the University of Toronto, Mighton was awarded a Natural Sciences and Engineering Research Council (NSERC) Fellowship for postdoctoral research in knot and graph theory. He is currently a Fellow of the Fields Institute for Research in Mathematical Sciences and has taught mathematics at the University of Toronto. He developed the Junior Undiscovered Math Prodigies (JUMP) program "to address academic and social inequities created by low expectations for students in math and to dispel the myth that only some people are naturally gifted at math while others are destined to struggle." He is the author of the books *The Myth of Ability*, *The End of Ignorance*, and *All Things Being Equal*, which explicate his belief that anyone can learn mathematics. Among other awards and honors, Mighton received the Fields Institute's Sinclair Memorial Award in 2022. He has given many talks and training sessions at various universities, as well as at the New York Academy of Sciences and the 2015 World Economic Forum. Mighton is also a playwright who appreciates the connections between the arts and sciences. His play "Possible Worlds" was made into a feature film. The Pouliot Award recognizes individuals who have made significant and sustained contributions to mathematics education in Canada.



David Oakden

David Oakden, formerly of the Office of the Superintendent of Financial Institutions, was named the recipient of the 2022 Graham Wright Award for Distinguished Service. He is a retired insurance and actuarial professional who has served as treasurer of CMS since 2013, as well as on the Board of Directors and numerous committees. He holds a PhD in mathematics from the University of Toronto. He currently serves on the board of the Property and Casualty Insurance Compensation Corporation and is Chairman of the Board of Commissioners for the Financial Services Commission of the Turks and Caicos Islands. He has been president of the Canadian Institute of Actuaries, a member of the Board of the Casualty Actuarial Society, and a member of the Canadian Actuarial Standards Board. The Graham Wright Award for Distinguished Service is presented annually to an individual who has made sustained and significant contributions to the Canadian mathematics community, particularly through his or her involvement with the CMS.

—From CMS announcements

Stokey Awarded CME Group–MSRI Prize



Nancy L. Stokey

Nancy L. Stokey of the University of Chicago has been named the recipient of the 2021 CME Group–Mathematical Sciences Research Institute (MSRI) Prize in Innovative Quantitative Applications. The prize is awarded to an individual or a group to recognize originality and innovation in the use of mathematical, statistical, or computational methods for the study of the behavior

of markets and, more broadly, of economics. The prize citation reads in part: "Stokey is coauthor of the influential monograph *Recursive Methods in Economic Dynamics* (1989), which has provided the mathematical basis for much of modern macroeconomics. She is also codeveloper of a model of dynamic taxation and debt policy that has served as the foundation for much subsequent work in that area, and she is author of *The Economics of Inaction* (2009), which treats models that involve fixed costs of adjustment. Stokey has also contributed to various areas of microeconomics, with the first rigorous proof of the famous Coase conjecture, and as codeveloper of the No-Trade theorem, a result that presents a fundamental puzzle about information, stock market prices, and the volume of trading. Stokey's recent work has focused on economic growth and development, especially on the role of trade and technology transfers in accelerating growth in middle-income countries." Stokey received her PhD in economics in 1978 from Harvard University. She held positions at Northwestern University from 1978 to 1990, advancing to the post of Harold L. Stuart Professor of Managerial Economics before joining the faculty at Chicago in 1990, where she is currently Distinguished Service Professor. She has also held visiting positions at Harvard University and the University of Minnesota and was a visiting scholar at the Federal Reserve Bank of Minneapolis. She is a Fellow of the Econometric Society and a member of the American Academy of Arts and Sciences and the National Academy of Sciences. She was coeditor of *Econometrica* from 1996 to 2000 and editor of the *Journal of Political Economy* from 2003 to 2007. She was named a Distinguished Fellow of the American Economic Association in 2018.

—From a CME Group–MSRI announcement

Weber Receives 2021 von Kaven Award



Moritz Weber

Moritz Weber of Saarland University was named the 2021 recipient of the von Kaven Award of the German Research Foundation (DFG) for his achievements in the field of quantum groups and symmetries. His work mainly involves fundamental mathematical research at the interface between analysis, algebra, and combinatorics.

According to the prize citation, Weber's research "has contributed significantly to the field of compact quantum groups, with links to free probability theory, combinatorics and operator algebras. Weber made a name for himself in particular with his complete classification of the simple quantum groups, which he was able to achieve by describing algebraic, analytical and representation-theoretical properties using combinatorics. Using computer algebra, he also succeeded in providing fresh impetus for the general classification problem of quantum groups. His findings have been applied in quantum information theory, as well as in other mathematical fields."

Weber received his PhD in 2011 from the University of Münster. He took a postdoctoral position at Saarland University in 2010 and in 2015 became a junior professor. During his postdoctoral period he visited the Fields Institute, the Institute of Mathematical Sciences in Chennai, India, and the University of Glasgow. He has been Heisenberg Professor at Saarland University since March 2021. In 2016, he received the Saarland state government Higher Education Award for his voluntary commitment in providing mathematics refresher courses for refugees wishing to take a university degree. He taught mathematics to Syrian refugees and authored the first German–Arabic textbook for undergraduates transitioning from high school to university. Weber tells the *Notices* that music is one of his passions; he has songs on Spotify, including "some gipsy jazz and some electronic funk," under the name "Moovelane."

The von Kaven Award carries a cash value of 10,000 euros (approximately US\$10,000) and generally goes to early-career mathematicians involved in the DFG's Heisenberg and Emmy Noether programs in recognition of outstanding achievements.

—From a DFG announcement

Davidson Fellows Announced

The Davidson Institute for Talent Development has announced its Fellows for 2022. **Luke Robitaille** of the Massachusetts Institute of Technology was awarded a US\$10,000 scholarship for his project "Topological entropy of simple braids." Robitaille describes his project as "about mathematical objects called braids, which are formed from strands (like pieces of string or yarn) that intertwine. Certain braids called 'simple braids' are, in some sense, building blocks for all braids, somewhat similarly to how prime numbers are building blocks for all positive integers." Robitaille was home schooled and participated in university math circles and audited advanced math classes in his precollege years. He is a four-time gold medalist at the International Mathematical Olympiad. He received an award of US\$40,000 at the 2022 Regeneron Science Talent Search for his work on braids. He was also the champion in the 2020 AMS Who Wants to Be a Mathematician contest.

An honorable mention in mathematics was awarded to **Ikuya Kaneko** of Pasadena, California.

—Elaine Kehoe from a Davidson Institute announcement

Prizes of the Mathematical Society of Japan



Neal Bez

Neal Bez of Saitama University was awarded the Spring Prize of the Mathematical Society of Japan (MSJ) "for his outstanding contributions to the study of inequalities in geometric analysis and partial differential equations." Bez received his PhD from the University of Edinburgh in 2007 and was associated with the University of Glasgow and the University of Birmingham before joining Saitama University. He received the MSJ Takebe Katahiro Prize in 2014. Bez was born and raised in the United Kingdom and has enjoyed living and working in Japan since 2014. The Spring Prize and the Autumn Prize are the most prestigious prizes awarded by the MSJ to its members. The Spring Prize is awarded to those under forty years of age who have obtained outstanding mathematical results.

The 2022 Algebra Prizes were awarded to **Osamu Fujino** of Kyoto University for work on a generalization of the Kodaira vanishing theorem and its application to birational geometry; to **Masaaki Furusawa** of Osaka City University for research on special values and periods of automorphic

L-functions; and to **Izuru Mori** of Shizuoka University for work on classification of Artin–Schelter regular algebras and their application to representation theory.

The 2021 Prizes for Excellent Young Applied Mathematicians were awarded to the following: **Kengo Nakai** of Tokyo University of Marine Science and Technology for work on dynamical system analysis of machine-learning models and its application to the prediction of statistical properties of fluid mechanics; **Yikan Liu** of Hokkaido University for research on the uniqueness of a parameter inverse problem for time-fractional diffusion equations by inexact data; and **Kazuyuki Wada** of the National Institute of Technology, Hachinohe College, for research on the Witten index for one-dimensional split-step quantum walks.

The 2022 Outstanding Paper Prize was awarded to **Tomoyuki Arakawa**, Kyoto University; **Hiromichi Yamada**, Hitotsubashi University; and **Hiroshi Yamauchi**, Tokyo Woman's Christian University, for their paper “ Z_k -code vertex operator algebras,” *Journal of the Mathematical Society of Japan* 73 (2021), no. 1.

—From *MSJ announcements*

Hui Awarded Heyde Medal



Francis Hui

Francis Hui of Australian National University was chosen the recipient of the 2022 Christopher Heyde Medal of the Australian Academy of Science for his work on understanding ecosystems with mathematics. The prize citation states, “Francis Hui’s research focuses on the development of innovative, fast approaches for the statistical analysis of big data, particularly when many correlated variables are collected in space and/or time to produce richly correlated data. He has made substantial contributions to the literature on efficient approximate methods for fitting multilevel models, techniques for data visualisation of many variables and scalable tools for flexibly fitting nonlinear models and for selecting which predictors to include in complex correlated data settings. Dr. Hui works at the interface between methodological and applied statistics, ensuring that his research has an immediate and substantial impact on the wider scientific community.” Hui received his PhD in 2015 from the University of New South Wales. He joined Australian National University as a postdoctoral fellow in 2015 and advanced to lecturer in statistics in 2017 and to senior lecturer in statistics in 2020. He tells the *Notices*: “I am an avid Japanese anime fan, probably knowing more than I do about actual mathematics and statistics. I am

a keen amateur badminton player—no talent but lots of enthusiasm!”

—From an Australian Academy of Science announcement

Project NExT Fellows Chosen

Project NExT (New Experiences in Teaching) of the Mathematical Association of America (MAA) offers new or recent PhDs in the mathematical sciences year-long fellowships to allow them to connect with master teachers and leaders in the mathematics community and address the three main aspects of an academic career: teaching, research, and service. The AMS sponsors a number of these fellowships each year. Following are the names and affiliations of the 2021 AMS-sponsored fellows:

- **Ayomikun C. Adeniran**, Pomona College
- **Konrad Aguilar**, Pomona College
- **Hannah Chang Alpert**, Auburn University
- **Enahoro Amos Iboi**, Spelman College
- **John H. Johnson**, Ohio State University
- **Rachel Kirsch**, George Mason University

—From an MAA announcement

International Mathematical Olympiad

The 2022 International Mathematical Olympiad (IMO) was held in Oslo, Norway, from July 6 through July 16, 2022. The team from the People’s Republic of China finished in first place with four gold medals. The team from the Republic of Korea took second place with three gold and three silver medals. The team from the United States finished third, with four gold medals, a silver, and a bronze. The US team consisted of:

- **Kevin Cong**, gold medal
- **Derek Liu**, gold medal
- **Luke Robitaille**, gold medal
- **Eric Shen**, gold medal
- **Andrew Gu**, silver medal
- **Ram Goel**, bronze medal

The leader of the US team was Po-Shen Loh. Oleksandr Rudenko was deputy leader. The IMO is held each year in a different country. The 2023 IMO will be held in Chiba, Japan, July 2–13.

—From IMO announcements

Bhatt Earns 2022 Nemmers Prize in Mathematics

AMS Fellow Bhargav Bhatt received the 2022 Frederic Esser Nemmers Prize in Mathematics for his “revolutionary contributions to algebraic geometry in mixed characteristic through a new synthesis of ideas in topology, algebra, and arithmetic.”

The Nemmers Prizes are named for the family of Erwin Nemmers, a former faculty member in the Kellogg School of Management at Northwestern University. Collectively, the Nemmers Prizes recognize works of lasting significance in various disciplines.

Bhatt is the Gehring Professor of Mathematics at the University of Michigan and the Fernholz Professor of Mathematics jointly with the Institute for Advanced Study and Princeton University. The prize includes an award of \$200,000; Bhatt will interact with Northwestern faculty and students through lectures, conferences, and/or seminars.

An algebraic geometer, Bhatt is interested in algebraic geometry’s connection to number theory, commutative

algebra, and algebraic topology. He specifically has made notable contributions to the subject of p-adic Hodge theory, including foundational results on derived de Rham cohomology, the discovery of prismatic cohomology, and the construction of Riemann-Hilbert functors for p-adic perverse sheaves. A recent application is Bhatt’s mixed characteristic analogue of the classical Kodaira vanishing theorem. His work led to the solution to longstanding questions in commutative algebra, spurring progress in birational geometry in mixed characteristic.

For further details, see <https://news.northwestern.edu/stories/2022/07/northwestern-announces-2022-nemmers-prize-winners/>.

—Adapted from a Northwestern University press release

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