Mathematics People

Sawin Awarded 2021 SASTRA Ramanujan Prize

Will Sawin

Will Sawin of Columbia University has been chosen the recipient of the 2021 SASTRA Ramanujan Prize, awarded for outstanding contributions by individuals not exceeding the age of thirty-two in areas of mathematics influenced by Ramanujan.

The prize citation and biographical information read as follows.

"The 2021 SASTRA Ramanujan Prize is awarded to Dr. Will Sawin of Columbia University for his many path-breaking contributions at the interface of number theory and algebraic geometry utilizing a variety of powerful methods from different areas of mathematics. The prize recognizes his revolutionary recent joint work with Mark Shusterman, which establishes analogues of the celebrated prime twins and Goldbach conjectures in the function field context, and the proof in a function field setting of the analogue of Chowla's conjecture on the correlations of the Moebius function and Landau's conjecture that there are infinitely many primes of the form $N^2 + 1$. In addition, the prize recognizes his joint paper with Emmanuel Kowalski and Philippe Michel (*Annals of Mathematics*, 2017) on bilinear forms with Kloosterman sums, where a long-standing problem on moments of L-functions is solved by combining techniques from automorphic forms, analytic number theory, and ℓ-adic cohomology. The prize is also for his fundamental joint work with Tim Browning on a geometric version of the Hardy–Littlewood–Ramanujan circle method (*Annals of Mathematics*, 2020), which has vastly increased our understanding of spaces of rational curves of a given degree on a smooth hypersurface and also enabled us to perform enumerative geometry on such surfaces in situations that were beyond the reach of traditional geometric methods. Finally, the prize notes the impact of his work in the resolution of the mixing conjecture of Philippe Michel and Akshay Venkatesh in the function field setting, and in particular his paper in *Inventiones Mathematicae* (2020), where he settled the conjecture in positive characteristic. These

and other contributions of Sawin are having far-reaching consequences in various branches of mathematics.

"Will Sawin was born in Malden, Massachusetts, in October 1993. He was a child prodigy who finished learning the high school mathematics curriculum by the age of eight. The famous mathematician Serge Lang of Yale University came to Sawin's elementary school to meet him, following which Sawin started taking BSc classes at Yale University at the tender age of ten. He was concurrently working on his high school and Yale University curricula, and in 2011, at the age of seventeen, he simultaneously received both his high school diploma and his undergraduate degree from Yale, majoring both in mathematics and economics. He was awarded the George Beckwith undergraduate prize at Yale for proficiency in mathematics or astronomy. He then joined Princeton University and worked under the guidance of Professor Nick Katz for his PhD, which was when he gained mastery over techniques of both number theory and algebraic geometry. Shortly after his PhD, he started making these major advances by studying notoriously hard number theoretic problems in algebraic and geometric settings. After holding a postdoctoral position as Junior Fellow at the Institute for Theoretical Studies at ETH in Zurich (2016–2018), he joined the faculty at Columbia University, where he held the prestigious Clay Research Fellowship until July 2021."

Sawin tells the *Notices*: "I currently live in New York City with my wife and daughter. In fact, I found out about the prize three days after the birth of my daughter (making it the second-best news I got that week). I enjoy playing Dungeons and Dragons and Exalted."

The 2021 SASTRA Ramanujan Prize Committee comprised: Krishnaswami Alladi, Chair, University of Florida; William Duke, University of California, Los Angeles; Dan Goldston, San Jose State University; Alex Lubotzky, Hebrew University, Jerusalem; Ken Ono, University of Virginia; Anne Schilling, University of California, Davis; and Cam Stewart, University of Waterloo.

The previous recipients of the SASTRA Ramanujan Prize are:

- Manjul Bhargava and Kannan Soundararajan (two full prizes), 2005
- Terence Tao, 2006
- Ben Green, 2007

- Akshay Venkatesh, 2008
- Kathrin Bringmann, 2009
- Wei Zhang, 2010
- Roman Holowinsky, 2011
- Zhiwei Yun, 2012
- Peter Scholze, 2013
- James Maynard, 2014
- Jacob Tsimerman, 2015
- Kaisa Matomaki and Maksym Radziwill (shared), 2016
- Maryna Viazovska, 2017
- Yifeng Lui and Jack Thorne, 2018
- Adam Harper, 2019
- Shai Evra, 2020

—SASTRA Ramanujan Prize announcement

2021 Prizes of the CRM

The Centre de Recherches Mathématique (CRM) has awarded several prizes for 2021.

Andrew Granville

The 2021 CRM–Fields–PIMS Prize was awarded to **Andrew Granville** of the University of Montreal by the CRM, the Fields Institute, and the Pacific Institute for the Mathematical Sciences (PIMS). Granville was honored for outstanding achievements in the mathematical sciences. According to the prize citation, his "influence is measured only in part by his important research and mentoring contributions; just as essential are his love for his subject matter, his boundless energy and creativity, and his enthusiasm in communicating the beauty of mathematics to others." His work involves arithmetic geometry, Diophantine approximation, algorithmic and cryptographic aspects, and analytic number theory. Granville received his PhD from Queens University in 1987. He was a postdoctoral fellow at the University of Toronto (1987–1989), a member of the Institute for Advanced Study (1989–1991), and an assistant and associate professor at the University of Georgia (1991–1995), where he held the David C. Barrow Chair of Mathematics (1995–2002). He joined the University of Montreal as a senior Canada Research Chair in 2002. He held a Sloan Fellowship in 1992–1995. He is a recipient of the Ribenboim Prize of the Canadian Number Theory Association (1999) and the Jeffery–Williams Prize of the Canadian Mathematical Society (2006). His honors also include the Hasse Prize (1995), the Lester R. Ford Prize (2007, 2009), and the Chauvenet Prize (2008), all from the Mathematical Association of America. He is a Fellow of the AMS and of the Royal Society of Canada, and he received the Royal Society Wolfson Research Merit Award from the Royal Society of London in 2015. Granville is the coauthor, with Jennifer Granville and Robert Lewis, of a graphic novel, *Prime Suspects: The Anatomy of Integers and Permutations* (Princeton University Press, 2019), based on the mathematical play *MSI: The Anatomy of Integers and Permutations* by Andrew and Jennifer Granville, which has been performed at the Institute for Advanced Study, the Mathematical Sciences Research Institute at Berkeley, and in Montreal. He is also a keen soccer player and cricketer.

Giulio Tiozzo

The André Aisenstadt Prize in Mathematics was awarded to **Giulio Tiozzo** of the University of Toronto and **Tristan C. Collins** of the Massachusetts Institute of Technology. The prize recognizes outstanding research achievement by young Canadian mathematicians and consists of a monetary award and a medal. Tiozzo's work involves the development of the theory of core entropy in complex dynamics, as well as the study of random walks on hyperbolic spaces and Teichmuller space and the discovery of a dictionary between continued fractions and the Mandelbrot set. Tiozzo was born in Turin, Italy, and received his PhD from Harvard University in 2013 under the supervision of Curtis T. McMullen. He was an ICERM Postdoctoral Institute Fellow at Brown University (2013–2014) and Gibbs Assistant Professor at Yale University before joining Toronto. His honors include the Connaught New Researcher Award (2017), the Ontario Early Researcher Award (2019–2024), and an Alfred P. Sloan Fellowship (2018–2020). His field of research is dynamical systems and ergodic theory, with applications to complex analysis, probability, and geometric group theory. He tells the *Notices* that his hobbies include playing the piano, traveling, and drinking (too much) espresso. As part of the award, he presented a talk titled "Entropy along the Mandelbrot set" at the Quebec Mathematical Sciences Colloquium in October 2021.

Tristan C. Collins

Collins received his PhD from Columbia University under the direction of D. H. Phong. He was a Benjamin Peirce Assistant Professor at Harvard University (2014–2018) and is currently assistant professor at MIT. He does research in geometry and analysis. He is particularly interested in geometric flows and applications of algebraic geometry to analysis, and vice versa. Collins grew up hiking, climbing, and skiing around British Columbia. He now lives in Somerville, Massachusetts, where he enjoys biking and gardening. He presented his prize talk, "Exploring

string vacua through geometric transitions," at the Quebec Mathematical Sciences Colloquium in November 2021.
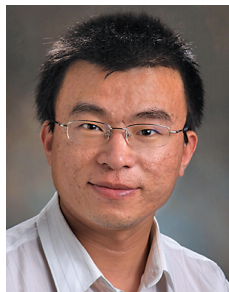
Jiguo Cao

The 2021 CRM–SSC Prize in Statistics of the CRM and the Statistical Society of Canada (SSC) was awarded to **Jiguo Cao** of Simon Fraser University. He was honored for "outstanding developments in modeling and analysis of functional data and dynamic systems; for broad work in numerous applications with special focus on statistical genetics; and for remarkable aptitude for creating and nurturing productive collaborations, particularly involving students and postdoctoral fellows." Cao received his PhD from McGill University under the supervision of James O. Ramsay, then spent a year as a postdoctoral fellow at Yale University. He taught at Simon Fraser University and Western University before returning permanently to Simon Fraser, where he is a full professor. Cao is particularly grateful to his wife, Liangliang Wang, an associate professor at SFU, for extensive collaborations and personal support. He enjoys outdoor activities with his family and friends, such as hiking, skiing, and bicycling.

—*From CRM announcements*

ANZIAM Prizes Awarded

Australia and New Zealand Industrial and Applied Mathematics (ANZIAM), a division of the Australian Mathematical Society, has awarded prizes to the following mathematical scientists for 2021.

Nalini Joshi

Nalini Joshi of the University of Sydney received the 2021 ANZIAM Medal. According to the prize citation, she "is a world leader in the theory and applications of differential equations that form the basis of understanding the effects of random behaviour in fields as diverse as particle physics, quantum mechanics, large prime-number distributions, and wireless communications. She has made unparalleled contributions to applied mathematics in leadership, gender equity, and promotion of mathematics." Joshi received her PhD from Princeton University in 1987 under the direction of Martin Kruskal. She is currently Payne–Scott Professor and Chair of Applied Mathematics at Sydney. Her honors include a Fellowship of the Australian Academy of Sciences (2008), an Australian Research Council (ARC) Laureate Fellowship (2012), a Hardy Fellowship of the London Mathematical Society (2015), the Eureka Prize for Outstanding Mentoring of Young Researchers (2018), a Bragg Membership of the Royal Institution of Australia (2019), the NSW Premier's Prize for Excellence in Mathematics, Chemistry, Physics and Geosciences (2019), and the Szekeres Medal of the Australian Mathematical Society (2020). She is a vice president of the International Mathematical Union (IMU). The ANZIAM Medal is awarded for research achievements, for activities enhancing applied or industrial mathematics or both, and for contributions to ANZIAM.

Lewis Mitchell

Lewis Mitchell of the University of Adelaide was awarded the J. H. Michell Medal for "significant contributions to the emerging field of computational social science and uses [of] mathematical modelling, computational and statistical techniques to assess real-world social phenomena." According to the prize citation, he has "successfully collaborated with a number of groups to investigate 'the geography of happiness,' 'the shapes of stories' in novels in different languages, body image on social media, and monitoring of the wildlife trade." Mitchell received his PhD in 2012 from the University of Sydney. He has been awarded grants from the Australian Research Council to study social networks, from the National Health and Medical Research Council of Australia to study the safety of implantable medical devices, from the Centre for Invasive Species Solutions to study illegal trade in non-native species, and from Data to Decisions CRC for work on predicting disease outbreaks and on predicting civil unrest and election outcomes using Bayesian network models. Mitchell lives in Adelaide with his wife, eight-year-old daughter, and two-year-old son; he tells the *Notices*: "I play very, very amateur jazz piano." The medal is awarded annually by ANZIAM to an outstanding new researcher who has undertaken distinguished research in applied and/or industrial mathematics, in which a significant proportion of the research has been carried out in Australia and/or New Zealand.

—*From ANZIAM announcements*

Szölgyenyi Receives IBC Award

Michaela Szölgyenyi of the University of Klagenfurt, Austria, has been selected the recipient of the 2021 Joseph H. Traub Information-Based Complexity (IBC) Young Researcher Award. Her work involves the modeling of random phenomena. She received her PhD in mathematics in 2015 from Johannes Kepler University.

The Traub Award is given for significant contributions to information-based complexity by a researcher who has not reached his or her thirty-fifth birthday by September 30 the year of the award. The award consists of US$1,000 and a plaque.

—Journal of Complexity announcement

Sabitov Awarded Lobachevsky Medal

Idzhad Sabitov of Moscow State University has received the 2021 Lobachevsky Medal for outstanding achievements in geometry. Sabitov studied at Tajik State University and with N. V. Efimov at Moscow State University at both graduate and postgraduate levels. He completed his doctoral thesis in 1997 and became a full professor in 2005. His work involves Riemann's generalized problem, isometric immersions and regularity of surfaces and metrics, and theories of bending of surfaces and bending polyhedra. His best-known work, Sabitov's theorem, shows that every bending polyhedron in three-dimensional Euclidean space retains its volume in the process of bending. The prize is awarded by Kazan Federal University for outstanding works in fundamental and applied mathematics. It consists of a medal and cash award of US$75,000.

—Elaine Kehoe

Fellows of the AWM

The Association for Women in Mathematics (AWM) has announced its new class of Fellows for 2022. The Fellows program recognizes individuals who have demonstrated a sustained commitment to the support and advancement of women in the mathematical sciences. The new Fellows for 2022 are:

- **M. Carme Calderer**, University of Minnesota
- **Debra Carney**, Colorado School of Mines
- **Daniela Ferrero**, Texas State University, San Marcos
- **Pamela E. Harris**, Williams College
- **Anita Layton**, University of Waterloo
- **Teri Perl**, The Learning Company
- **Jennifer J. Quinn**, University of Washington, Tacoma
- **Beatrice Riviere**, Rice University
- **Lauren L. Rose**, Bard College
- **Mary Beth Ruskai**, University of Vermont
- **Renate Scheidler**, University of Calgary
- **Bianca Viray**, University of Washington
- **Elizabeth (Betsy) Yanik**, Emporia State University

—AWM announcement

Pi Mu Epsilon Awards Announced

Pi Mu Epsilon, the student mathematics honor society, awards outstanding student presentations given at the Pi Mu Epsilon National Conference, held in conjunction with the Mathematical Association of America's (MAA) annual MathFest. In 2021 the conference was held virtually.

The AMS, the American Statistical Association, and the Budapest Semesters in Mathematics for Excellence in Student Exposition or Research funded the Pi Mu Epsilon Speaker Awards. The awardees, along with their institutions and the titles of their presentations, are:

- **Nicholas Adduci**, Youngstown State University, "An investigation into visual and geometric representations of prime numbers"
- **Ben Gobler**, Worcester Polytechnic Institute, "Listing the rationals using continued fractions"
- **Hanna Noelle Griesbach**, Elon University, "When is a polynomial isomorphic to an even polynomial?"
- **Luke Hetzel**, Youngstown State University, "Using agent based modeling in NetLogo to visualize game theory"
- **Jonathan Homan**, Andrews University, "Classifying pretzel links obtained by strong fusion"
- **Bandita Karki**, University of Idaho, "Modeling the therapeutic potential of defective interfering particles"
- **Johnathan Koch**, Youngstown State University, "Defining the cycle within the permutation group"
- **Nathan LeRoy**, St. Norbert College, "Probabilities of the game of Labyrinth"
- **Rebecca Odom**, University of Texas at Tyler, "Identifying self-conjugate partitions"
- **Chase Reiter**, Youngstown State University, "Using trigonometry to make spirographs with parametrizations"
- **Tyler Russell**, University of Texas at Tyler, "Polynominals associated to integer partitions"
- **Hannah Scanlon**, Wake Forest University, "Modeling the spread of infectious diseases on an adaptive network"
- **Ella Wilson**, Kenyon College, "Using circle packings to approximate harmonic measure distribution functions"
- **Katie Yan**, Skidmore College, "Modeling the plague in Eyam"
- **Yifan Zhang**, University of Illinois at Urbana-Champaign, "Subsums of random numbers"

—Pi Mu Epsilon announcement