

Mathematics People

Nunes Receives Freudenthal Award



Terezinha Nunes

TEREZINHA NUNES of the University of Oxford has been chosen the recipient of the 2017 Hans Freudenthal Award for her “outstanding contribution to our understanding of mathematical thinking, its origins and development.” Her research studies children’s mathematical learning in different settings. According to the prize citation, “the results of her numerous, exemplarily designed studies combine into

an insightful, consistent, and comprehensive story of the emergence and evolution of mathematical thinking. This constantly developing account has been inspiring the work of mathematics education researchers and informing mathematics teachers’ practices all over the world. It has had a major impact on both what we know about children’s learning of mathematics and how we know and think about it.” Trained as a psychologist, Nunes “has studied children’s logical reasoning and its role in the learning of mathematics, as well as problem solving and the way mathematics is being used in science.” She has consistently used her research to improve the teaching of mathematics. Nunes tells the *Notices*: “I feel extremely privileged to have always had support from gifted colleagues in research and my family and friends. This has allowed me to carry on with an academic career and to be a mother, grandmother, and housewife, enjoying playing with children, cooking, sewing, and having fun with friends. I’m just an ordinary person who works very hard.”

The Freudenthal Award, given by the International Commission on Mathematical Instruction (ICMI), acknowledges the outstanding contributions of scholars who have initiated new research programs and brought them to fruition over the preceding ten years.

—From an ICMI announcement

Ball Receives Felix Klein Award



Deborah Loewenberg Ball

DEBORAH LOEWENBERG BALL of the University of Michigan has been named the 2017 recipient of the Felix Klein Prize “in recognition of her outstanding contributions and her leadership role in deepening our understanding of the complexities of teaching mathematics and in improving the practice of teaching and of teacher education.” Her research on improving ways in which mathematics teachers support their students’ learning has combined

research with the practice of teaching through development of innovative teacher preparation programs. Her work led her to develop the theory of MKT, mathematical knowledge for teaching. The theory has been used to develop an instrument for measuring teachers’ knowledge of mathematics for teaching. She also established TeachingWorks at the University of Michigan, a national organization to improve the preparation of teachers. Ball began her career as an elementary school teacher and received her PhD in mathematics education from Michigan State University (1988), which she then joined as a faculty member. In 1996 she moved to the University of Michigan, where she developed the mathematics education group, and has remained there, serving for more than ten years as dean of the School of Education. She is a member of the American Academy of Arts and Sciences and a Fellow of the AMS.

Ball tells the *Notices*: “I majored in French as an undergraduate. I decorated wedding and birthday cakes for a living at one point. I was also a good cocktail waitress in college, [which] did involve a lot of mathematical reasoning.”

The Felix Klein Award is given by the International Commission on Mathematical Instruction (ICMI) for lifetime achievement in mathematics education research, especially introducing new ideas, perspectives, and critical reflections.

—From a ICMI announcement

Prizes of the Mathematical Society of Japan



Tomoyuki Arakawa

The Mathematical Society of Japan (MSJ) has announced its Autumn Prize and several other prizes for 2017.

TOMOYUKI ARAKAWA of Kyoto University has been awarded the 2017 Autumn Prize for his outstanding contributions to representation theory of W -algebras. The Spring Prize and the Autumn Prize are the most prestigious prizes awarded by the MSJ to its members.

The 2017 Analysis Prizes have been awarded to the following: TETSUTARO SHIBATA (Hiroshima University) for work on the asymptotic analysis of eigenvalue problems for nonlinear elliptic equations and analysis of inverse bifurcation problems; MASAYOSHI TAKEDA (Tohoku University) for work on stochastic analysis of symmetric Markov processes and its applications; and YOSHITSUGU TAKEI (Doshisha University) for work on asymptotic analysis of linear and nonlinear differential equations with exact WKB analysis.

The 2017 Geometry Prizes were awarded to OSAMU KOBAYASHI (Osaka University) for various far-seeing contributions in differential geometry and to MAKOTO SAKUMA (Hiroshima University) for a series of works on knots and hyperbolic geometry.

The 2017 Takebe Katahiro Prizes were awarded to the following: TSUKASA IWABUCHI (Tohoku University) for work on the well-posedness for nonlinear evolution equations by the method of real analysis; SEIICHIRO KUSUOKA (Okayama University) for new developments of study on fundamental solutions via stochastic calculus; HARUYA MIZUTANI (Osaka University) for work on Strichartz estimates for Schrödinger equations; and TAKAYUKI OKUDA (Hiroshima University) for work on discontinuous groups and combinatorics of homogeneous spaces. The Takebe Katahiro Prize is awarded to young researchers who have obtained outstanding results.

The Takebe Katahiro Prizes for Encouragement of Young Researchers were awarded to the following: YUKI ARANO (Kyoto University) for studies on operator algebraic quantum groups; MASATO HOSHINO (Waseda University) for studies on ill-posed stochastic partial differential equations; SACHIKO ISHIDA (Chiba University) for studies on quasilinear degenerate Keller-Segel systems; AKIHIRO KANEMITSU (University of Tokyo) for contributions to Campana-Peternell conjecture and Mukai's problem on Fano manifolds; TATSUYA MIURA (University of Tokyo) for mathematical analysis on effects of bending, adhesion and tension energy to shapes; and TAKAMICHI SANO (Osaka City University) for studies on the equivariant Tamagawa number conjecture and Euler systems, especially Rubin-Stark elements. The Prizes are intended for young math-

ematicians who are deemed to have begun promising careers in research by obtaining significant results.

—Elaine Kehoe

Prizes of the New Zealand Math Society



Igor Klep

The New Zealand Mathematical Society (NZMS) has announced several awards for 2017.

IGOR KLEP of the University of Auckland is the recipient of the Research Award “for deep and fundamental advances in real algebraic geometry and its application to diverse fields, including operator theory, optimization, free analysis, convexity, and von Neumann algebras.” The prize is awarded for mathematical research by a mathematician in New Zealand that has been published in books or journals within the previous five calendar years.

BRENDAN CREUTZ of the University of Canterbury received the Early Career Research Award “for his outstanding work on local-global questions on diophantine equations, in particular his resolution of a 50-year-old question of Casseles and the development of novel computational techniques to study the arithmetic of algebraic curves and surfaces.” The prize is given for excellent research carried out by early-career New Zealand mathematicians within seven years of receipt of the PhD.



Brendan Creutz



Lisa Orloff Clark

LISA ORLOFF CLARK was named the recipient of the Kalman Prize for Best Paper for Jonathan H. Brown, Lisa Orloff Clark, Cynthia Farthing, and Aidan Sims, “Simplicity of algebras associated to étale groupoids,” *Semigroup Forum* **88** (2014). Clark tells the *Notices*: “I love to dance. I have taken classes in numerous styles over the past twenty-five years and enjoy every opportunity to ‘cut a rug.’ My current outlet is Cuban salsa, which is a lot of fun.”

The Kalman Prize is given for an outstanding and innovative piece of research in the mathematical sciences published by a member or members of the NZMS.

—From an NZMS announcement

Wallenberg Fellowships Awarded



Dan Petersen

Two mathematical scientists have been awarded fellowships by the Wallenberg Academy. DAN PETERSEN of the University of Copenhagen was honored for his work in algebraic geometry, particularly in his specialty, the theory of moduli space, which links to number theory and string theory. Petersen will use his fellowship to work at Stockholm University. He tells the *Notices*: “I am currently on paternity leave with my second child. In my rapidly shrinking free time I enjoy cooking and reading comic books.” KARIM ADIPRASITO of Hebrew University of Jerusalem and Leipzig University was selected as a fellow for his work that “unites three important areas” of mathematics: combinatorics, geometry, and algebra. He has been studying new mathematical methods to study the ways that discrete objects behave as continuous. According to

the citation, “a breakthrough for these new methods was his solution of a more than 200-year-old problem in which he, in a discrete context, used partial differential equations that usually describe continuous processes.” Adiprasito received the European Prize in Combinatorics in 2015. He will use his fellowship to work at KTH Royal Institute of Technology in Stockholm. He tells the *Notices*: “I am part Indonesian, and my last name is a mix of Sanskrit and Javanese. I planned to be a chef after high school.”

Wallenberg Fellows receive five-year grants of 1 to 2 million Swedish krona (approximately US\$119,000–238,000) per year, depending on the field. The program was established by the Knut and Alice Wallenberg Foundation in close cooperation with five learned academies and sixteen Swedish universities to give the most promising young researchers a work situation that enables them to focus on their projects and address difficult research questions over an extended period of time.

—From a Wallenberg Academy announcement

AAAS Fellows

The American Association for the Advancement of Science (AAAS) has elected its new fellows for 2017.

The new Fellows of the Section on Mathematics are:

- EDWARD F. ABOUFADEL, Grand Valley State University
- QIANG DU, Columbia University
- JOCELINE LEGA, University of Arizona
- W. JAMES (JIM) LEWIS, University of Nebraska—Lincoln and National Science Foundation
- PETER MARCH, Rutgers, The State University of New Jersey
- PANATIOTIS E. SOUGANIDIS, University of Chicago

The new Fellows of the Section on Statistics are:

- ERIC D. KOLACZYK, Boston University
- HONGZHE LI, University of Pennsylvania Perelman School of Medicine
- RUNZE LI, Pennsylvania State University
- BHRAMAR MUKHERJEE, University of Michigan
- DOUGLAS G. SIMPSON, University of Illinois at Urbana—Champaign
- ROCHELLE E. TRACTENBERG, Georgetown University

—From an AAAS announcement

Rhodes Scholars Announced

The Rhodes Trust has announced the names of thirty-two American scholars chosen as Rhodes Scholars for 2018. Following are the names and brief biographies of the scholars whose work involves the mathematical sciences.

NATHAN R. BERMEL of Chestnut Hill, Massachusetts, is a senior at the United States Naval Academy, where he majors in quantitative economics and political science. He ranks first in the Academic Order of Merit and second in the Military Order of Merit among 1,088 of his fellow midshipmen. He has interned for the Bureau of Energy Resources at the State Department, where he conducted analyses of the oil market in Iraq and Syria for the department’s counter-ISIL team. In the summer of 2017, he traveled to the Kwajalein Atoll to research the effects of climate change on the Republic of the Marshall Islands. He was a member of the Naval Academy’s two-time National Championship Club Lacrosse team. At Oxford, he will read for an MPP.

NOAH V. BARBIERI of Belden, Mississippi, is a senior and Truman Scholar at Millsaps College, where he is pursuing a BSc in economics, mathematics, and philosophy. He has completed an honors thesis in philosophy and another in economics. His research has probed the antecedents of income inequality and explored the factors that affect labor force participation among prime age males. He also serves as the student body president and was awarded the Student Body Leader of the Year Award in 2017 as voted on by his peers. He aspires to a career in public service. At Oxford, he will read for an MPhil in economics.

HAROLD XAVIER GONZALEZ of Houston, Texas, is a senior concentrating in mathematics at Harvard College. His research has focused on the unexpected connection, ultimately provided by techniques from theoretical physics, between modular forms and finite symmetry groups. Gonzalez is a four-year varsity tennis player. He presented a paper at the Annual Undergraduate Shakespeare Conference, is a peer advising fellow, and volunteered at a homeless shelter. At Cambridge University he took courses in Shakespeare and also in gravitational waves. His professional goals are to promote the public interest in math and to use math and its methods to promote the public interest. He will do the MSc by research in mathematics at Oxford.

SEAN P. REILLY of San Jose, California, graduated from Santa Clara University in 2016 with a BSc in environmental science and biology. He wrote his honors thesis on the influence of the Santa Cruz Mountains on precipitation from a landfalling atmospheric river. The president of the SCU Green Club and cofounder of Fossil Free SCU, he successfully collaborated with university administrators to set up a sustainable investment fund. He was awarded a Fulbright Scholarship in 2017 to lead a community-based participatory research project with the Mandingalbay Yidinji aboriginal people to manage the pond apple, a formidable bioinvader valued by the community as a food source. He is also a rock climber, pianist, guitar player, and a gold-medal winner in the North American Roller Hockey Championship. At Oxford, he will read for the MSc in mathematical modeling and scientific computing.

—From a Rhodes Trust announcement

Tsitsiklis Receives IEEE Award

JOHN N. TSITSIKLIS of the Massachusetts Institute of Technology has received the IEEE Award in Control Systems “for contributions to the theory and application of optimization in large dynamic and distributed systems.” He received a BS in mathematics in 1980 and his PhD in electrical engineering in 1984, both from MIT.

—From an IEEE announcement

AMS Members Elected Fellows of ACM

Four members of the AMS have been elected Fellows of the Association for Computing Machinery: CLIFFORD LYNCH of the Coalition for Networked Information; BALAJI PRABHAKAR of Stanford University; MICHAEL SIPSER of the Massachusetts Institute of Technology; and ALEXANDER VARDY of the University of California San Diego.

Sipser is also a Fellow of the AMS. The ACM Fellows Program recognizes exceptional contributions of leading members in the computer field.

—From an ACM announcement

Joyce R. McLaughlin



Joyce R. McLaughlin

JOYCE R. McLAUGHLIN, Ford Foundation Professor of Mathematical Sciences at Rensselaer Polytechnic Institute (RPI), passed away on October 23, 2017. She was also the founding director of the Inverse Problems Center at RPI (IPRPI).

Her main area of research interest was in nonlinear analysis as applied to parameter identification in inverse problems. Applications of her research included medical imaging, ocean acoustics, and inverse problems in vibrating systems. She gave an invited lecture at the International Congress of Mathematicians in 1994 and a CBMS lecture series in 2001. She was also known for her work in biomechanical imaging of tissue.

She received her PhD in applied mathematics from the University of California Riverside. She was named an inaugural fellow of the AMS in 2012. She was an inaugural fellow of the Society for Industrial and Applied Mathematics (SIAM) and was awarded the Kovalevsky Lectureship and Prize of SIAM and the Association for Women in Mathematics in 2004. She was the first woman chaired professor at RPI and was also an airplane pilot.

—Elaine Kehoe

Photo Credits

Photo of Terezinha Nunes courtesy of Terezinha Nunes.

Photo of Deborah Loewenberg Ball courtesy of Deborah Loewenberg Ball.

Photo of Tomoyuki Arakawa courtesy of Tomoyuki Arakawa.

Photo of Igor Klep courtesy of Brian Donovan, The University of Auckland.

Photo of Brendan Creutz by Nika Creutz.

Photo of Lisa Orloff Clark courtesy of Archives of the Mathematisches Forschungsinstitut Oberwolfach.

Photo of Dan Petersen by Markus Marcetic, © Knut och Alice Wallenbergs Stiftelse Kungl. Vetenskapsakademien.

Photo of Karim Adiprasito courtesy of Archives of the Mathematisches Forschungsinstitut Oberwolfach.

Photo of Joyce R. McLaughlin courtesy of Rensselaer Polytechnic Institute.