
Mathematics People

Srinivas Receives TWAS Prize in Mathematics

VASUDEVAN SRINIVAS of the Tata Institute of Fundamental Research, Mumbai, has been named the winner of the 2008 TWAS Prize in Mathematics, awarded by the Academy of Sciences for the Developing World (TWAS). He was honored “for his basic contributions to algebraic geometry that have helped deepen our understanding of cycles, motives, and K-theory.” Srinivas will receive a cash prize of US\$15,000 and will deliver a lecture at the academy’s twentieth general meeting, to be held in South Africa in September 2009.

—From a TWAS announcement

Pujals Awarded ICTP/IMU Ramanujan Prize

ENRIQUE R. PUJALS, associate researcher at the Instituto Nacional de Matemática Pura e Aplicada (IMPA), Brazil, has been awarded the 2008 Srinivasa Ramanujan Prize in recognition of “his outstanding contributions to dynamical systems, especially the characterization of robust dynamics for flows and transformations and the development of a theory of generic systems.”

The prize is awarded annually by the Abdus Salam International Centre for Theoretical Physics (ICTP), and the prizewinner is selected by ICTP through a committee of five eminent mathematicians appointed in conjunction with the International Mathematical Union (IMU). The prize recognizes a researcher from a developing country who is less than forty-five years of age on December 31 of the year of the award and who has conducted outstanding research in a developing country. Funding for the US\$10,000 cash award is provided by the Niels Henrik Abel Memorial Fund through the participation of the International Mathematical Union.

—From an ICTP announcement

Strassen Awarded ACM Knuth Prize

VOLKER STRASSEN of the University of Konstanz has been awarded the 2008 Knuth Prize of the Association for Computing Machinery (ACM) Special Interest Group on Algorithms and Computation Theory (SIGACT). He was honored for his contributions to the theory and practice of algorithm design. The award carries a cash prize of US\$5,000.

According to the prize citation, “Strassen’s innovations enabled fast and efficient computer algorithms, the sequence of instructions that tells a computer how to solve a particular problem. His discoveries resulted in some of the most important algorithms used today on millions if not billions of computers around the world and fundamentally altered the field of cryptography, which uses secret codes to protect data from theft or alteration.”

His algorithms include fast matrix multiplication, integer multiplication, and a test for the primality of integers. His discovery of provably fast algorithms to determine whether a number is prime or composite “profoundly changed the cryptography field.” Strassen has also proved fundamental theorems in statistics, including “Strassen’s law of the iterated logarithm” and the principle of strong invariance. He is considered the founding father of algebraic complexity theory with his work on the degree bound connecting complexity to algebraic geometry. He also introduced fundamental notions and results in bilinear complexity and tensor rank.

The Knuth Prize is given at one-and-a-half-year intervals by ACM SIGACT and the Institute of Electrical and Electronics Engineers (IEEE) Technical Committee on the Mathematical Foundations of Computer Science. It is presented in honor of Donald Knuth, professor emeritus at Stanford University, who has played a critical role in establishing and defining computer science as a rigorous intellectual discipline.

—From an ACM announcement

Ozawa Receives Operator Algebra Prize

NARUTAKA OZAWA of the University of Tokyo has been awarded the third Operator Algebra Prize for his outstanding contributions to the structure theory of type II_1 von Neumann algebras related to the theory of discrete groups and thus to the advancement of operator algebra theory. The prize consists of a cash award of about US\$3,000, a prize certificate, and a medal.

Ozawa has given a series of stunning results on the structure of operator algebras in connection with discrete groups. He first gave a characterization of exactness of discrete groups, which showed groups claimed by Gromov are not exact, thus solving a long-standing open problem. He has further introduced the notion of a solid von Neumann algebra, which means that the relative commutant of any diffuse subalgebra is injective, and has shown that various group von Neumann algebras are solid. This is a far-reaching generalization of a famous theorem of Ge and other related results and has been used by many other people, who have combined this technique with Popa's to get many very strong results on tensor product decompositions of factors and Cartan subalgebras in factors. Ozawa also has other well-known results on injective operator spaces, state spaces of C^* -algebras, and nonexistence of a separable universal II_1 factor.

The Operator Algebra Prize was established in 1999 by initiatives and contributions from some senior Japanese researchers in operator algebra theory and related fields to encourage young researchers in these fields. The prize is awarded every four years for outstanding contributions to operator algebra theory and related areas to a person under forty years of age either of Japanese nationality or principally based in a Japanese institution.

—Fumio Hiai, Chair, Operator Algebra Prize Committee

Saaty Receives INFORMS Award

THOMAS L. SAATY of the University of Pittsburgh has been awarded the 2008 Impact Prize of the Institute for Operations Research and the Management Sciences (INFORMS). The prize consists of a plaque and a cash award of US\$1,000.

Saaty was honored for his work in creating the analytic hierarchy process (AHP), a methodology for helping decision makers to make complex, multicriteria decisions. He developed the process based on his work at the U.S. State Department's Arms Control and Disarmament Agency during the Kennedy and Johnson administrations. He recognized that then-current techniques for resolving complex decision problems were deficient in both mathematical rigor and relevance to real-world decision making. He developed key mathematical theories that paired comparisons with ratio-scale weights to prioritize decision criteria

and alternatives. In AHP-based decisions, final weights allow alternatives to be compared and ranked.

The INFORMS Impact Prize, awarded once every two years, recognizes contributions that have had a broad practical impact on operations research and related fields, such as the decision sciences.

—From an INFORMS announcement

Vybiral Receives 2008 Information-Based Complexity Young Researcher Award

JAN VYBIRAL of the University of Jena, Germany, has been awarded the Information-Based Complexity Award for 2008. The award is given every year for significant contributions to information-based complexity by a young researcher who has not reached his or her thirty-fifth birthday by September 30 of the year of the award. The prize consists of US\$1,000 and a plaque.

The award committee this year consisted of Jakob Creutzig, TU Darmstadt; Dirk Nuyens, Katholieke Universiteit, Leuven; Andreas Neuenkirch, University of Frankfurt; Friedrich Pillichshammer, University of Linz; Joseph F. Traub, Columbia University; and Henryk Wozniakowski, Columbia University and University of Warsaw.

—Joseph Traub, Columbia University

DMV Media Prizes

In November 2008 the Deutsche Mathematiker Vereinigung (DMV, German Mathematical Society) awarded its media prizes in the Leibniz Room of the Berlin-Brandenburg Academy.

The DMV Media Prize went to CHRISTOPH DRÖSSER, science journalist and editor for the weekly newspaper *Die Zeit*.

The DMV Journalist Prize was awarded to director and author AGNES HANDWERK for the radio feature "Geometrie und Revolte" about Alexander Grothendieck. Receiving the Cartoon Prize for the Year of Mathematics, celebrated in Germany in 2008, was the cartoonist known as "kittihawk" (<http://www.kittihawk.de>).

—Allyn Jackson

NSF CAREER Awards Made

The Division of Mathematical Sciences (DMS) of the National Science Foundation (NSF) has honored twenty-three mathematicians in fiscal year 2008 with Faculty Early Career Development (CAREER) awards. The NSF established the awards to support promising scientists, mathematicians, and engineers who are committed to the integration of research and education. The grants provide funding

of at least US\$400,000 over a five-year period. The 2008 CAREER grant awardees in the mathematical sciences and the titles of their grant projects follow.

YURI BAKHTIN, Georgia Tech Research Corporation, Georgia Institute of Technology: Ergodicity and Random Media; SCOTT BALDRIDGE, Louisiana State University and Agricultural and Mechanical College: The Topology of Smooth and Symplectic 4-Manifolds; JOZSEF BALOG, University of Illinois, Urbana-Champaign: Methods and Outreach in Modern Combinatorics; ALINA COJOCARU, University of Illinois, Chicago: Analytic Problems in Arithmetic Geometry; LAURA DEMARCO, University of Illinois, Chicago: Algebraic Structures in Complex Dynamics; MATTHIAS DRTON, University of Chicago, Statistical Inference in Algebraic Models with Singularities; SELIM ESEDOGLU, University of Michigan, Ann Arbor: Analysis and Modeling for Image Processing Problems; DAN GEBA, University of Rochester: Topics in Nonlinear Wave Equations; DAVID GLICKENSTEIN, University of Arizona: Discrete and Generalized Riemannian Geometry and Curvature Flows; SHELLY HARVEY, Rice University: Algebraic Methods in Low-Dimensional Topology; DEMETRIO LABATE, North Carolina State University: Sparse Directional Multiscale Representations: Theory, Implementation, and Applications; MELVIN LEOK, Purdue University: Computational Geometric Mechanics: Foundations, Computation, and Applications; YUFENG LIU, University of North Carolina, Chapel Hill: Flexible Statistical Learning for Complex Data; PER-GUNNAR MARTINSSON, University of Colorado, Boulder: Fast Direct Solvers for Differential and Integral Equations; GOVIND MENON, Brown University: Scaling and Self-similarity in Nonlinear Science Education and Research; LUKE OLSON, University of Illinois, Urbana-Champaign: Multilevel Discontinuous Least-Squares Finite Element Methods; MARTIN OLSSON, University of California, Berkeley: Stacks, Moduli Spaces, and Log Geometry; JOHAN PAULSSON, Harvard University: Fluctuations and Fitness—Fundamental Limits and Selection Conflicts; FIRAS RASSOUL-AGHA, University of Utah: Random Walk in Random Environment; BENJAMIN SUDAKOV, University of California, Los Angeles: Methods and Challenges in Discrete Mathematics; MIN YANG, University of Missouri, Columbia: Optimal Design of Experiments for Generalized Linear Models; WOTAO YIN, Rice University: Optimizations for Sparse Solutions and Applications; JI ZHU, University of Michigan, Ann Arbor: Statistical Learning from Data with Graph/Network Structures.

—Elaine Kehoe

Royal Society of London Elections

The Royal Society of London has elected forty-four new fellows and foreign associates for 2008. Among them are six whose work involves the mathematical sciences. They are: DAVID E. DEUTSCH of Oxford University for his work in quantum theory of computation, including the discovery of the first quantum algorithms and the theory of quantum

logic gates and quantum computational networks; MARK KISIN of the University of Chicago for his contributions to algebraic number theory; MICHAEL C. PAYNE of the University of Cambridge for his work in computational physics; EVGENY K. SKLYANIN of the University of York for his contributions to the development of quantum inverse scattering techniques and his discoveries concerning the algebraic structure of integrable systems; ULRIKE L. TILLMANN of Oxford University for her leadership in the study of the moduli space of algebraic curves; and DAVID MUMFORD, emeritus professor at Brown University, who was elected as a foreign member for his fundamental contributions to algebraic geometry, notably his creation of geometric invariant theory and his work on moduli spaces.

—From a Royal Society announcement

Kenneth M. Hoffman (1930–2008)

Kenneth Myron Hoffman, professor emeritus of mathematics at the Massachusetts Institute of Technology, died on September 29, 2008, following a heart attack. He was seventy-seven. He was first appointed instructor at MIT in 1956 and C. L. E. Moore Instructor the following year. He joined the mathematics faculty as assistant professor in 1959 (professor in 1964) and retired in 1996 after forty years of service.

Hoffman's primary area of research specialization was functional analysis. Along with Richard Arens and Isadore Singer, he made fundamental contributions to both complex and abstract analysis. Some of these appeared in a joint paper with Singer answering many of the questions on commutative Banach algebras raised by I. M. Gelfand.

Among his several books was an undergraduate linear algebra textbook, which he wrote jointly with Ray Kunze and which was published in 1961. The book was widely used for many decades and became a classic in the field.

As head of the MIT mathematics department, Hoffman oversaw crucial faculty appointments and developed the undergraduate faculty chair position. He crafted an affirmative action plan that was modeled elsewhere.

In 1980 Hoffman moved to Washington, D.C., where over the next ten years he worked to raise understanding of the central role of mathematics in science. Among other leadership positions, he served as executive director of the Committee on Resources for the Mathematical Sciences of the National Research Council (1981–84). The committee's 1984 report, nicknamed the "David Report", highlighted the imbalance between research support for the mathematical sciences and related disciplines in science and engineering. During the same period, Hoffman chaired the Committee on Science Policy of the AMS and in 1984–85 chaired the Advisory Committee for Science and Engineering Education at the National Science Foundation. From 1984 to 1989 he headed the Office of Governmental and Public Affairs of the Joint Policy Board for Mathematics, which successfully worked to implement the recommendations of the David Report.

For his extensive service and leadership, Hoffman was selected as the inaugural recipient of two national service awards in mathematics: the Public Service Award of the Joint Policy Board for Mathematics (1986) and the first AMS Award for Distinguished Public Service (1990). The citation for the latter award reads in part: "Through his efforts, the awareness of the importance of mathematics and the support of mathematical research has been significantly heightened in the general public, among makers of science policy in the government, and among university administrators."

Born in Long Beach, California, Hoffman earned a bachelor's degree in mathematics from Occidental College in 1952. He received an M.A. (1954) and Ph.D. (1956) in mathematics from the University of California, Los Angeles.

—From an MIT news release

Marcia P. Sward (1939–2008)

Marcia Peterson Sward died on September 21, 2008, from kidney cancer that was diagnosed just weeks before her death.

Sward served as the first associate executive director of the Mathematical Association of America (MAA) between 1980 and 1985. She returned to the MAA as executive director in 1989. Between her two periods at the MAA, she served as the executive director of the Mathematical Sciences Education Board (MSEB) at the National Research Council (NRC) of the National Academy of Sciences.

"You face all sorts of problems in a large association like the MAA, brought to you by all sorts of people," said AMS executive director John Ewing. "Marcia was the consummate professional in dealing with both problems and people—always gracious and thoughtful. It was always a pleasure working alongside her when the AMS and MAA worked together." Because the AMS Washington Office is right next door to the MAA, Washington Office director Samuel M. Rankin III got to know Sward well. "I remember Marcia as being very focused on improving mathematics education and being a dedicated leader of MAA," he remarked.

Marcia Sward graduated summa cum laude and first in her class at Vassar College with a degree in mathematics. Under the direction of Edward Scott, she was awarded her Ph.D. in 1967 for her dissertation "The Mixed Boundary Value Problem along the Line of Parabolicity for a Certain Class of Hyperbolic Partial Differential Equations".

After graduation she spent a year at Catholic University in Washington, D.C., before beginning her academic career at Trinity College, also in Washington, D.C. After a one-year visiting appointment at the National Highway Traffic Safety Administration, she accepted a newly created position as associate executive director of the MAA. The position included, among other tasks, directing publication of the organization's three journals and creating a newsletter to serve members' needs. In March 1981 she

brought out the first issue of the *FOCUS* newsletter. She served as editor of *FOCUS* until September 1985, when she left the MAA.

She then became executive director of the MSEB, which was established by the NRC in response to the "David Report", *Renewing U.S. Mathematics: Critical Resource for the Future*. She convened a stellar advisory board and raised sufficient funds to see the MSEB grow enormously in influence. The board's seminal report, *Everybody Counts: A Report to the Nation on the Future of Mathematics Education*, remains to this day a key resource for K-12 mathematics education.

Sward returned to lead the MAA in 1989 on the occasion of the retirement of Alfred Willcox. Under her leadership, the MAA increased its membership, programs, and revenue. She was instrumental in initiating new programs, including the highly successful Project NExT and SUMMA (Supporting Undergraduate Minority Mathematics Achievement). She retired from the MAA in 1999 but continued her association with the MAA, regularly participating in the winter meetings, special events at the Carriage House, and MAA study tours.

—Based on an article in MAA *FOCUS* by Linda P. Rosen

Correction

The January 2009 issue of the *Notices* carried an article about the retirement of AMS executive director John Ewing. Accompanying the article was a sidebar by Jonathan Borwein, the byline of which mistakenly gave Borwein's affiliation as the University of British Columbia. He has been on the faculty of Dalhousie University since 2004; prior to that he was at Simon Fraser University in Vancouver. The *Notices* regrets the error.

—Allyn Jackson