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# Mathematics People

## Palis and Seshadri Awarded 2006 Trieste Science Prize

JACOB PALIS of the Instituto de Matemática Pura e Aplicada (IMPA), Rio de Janeiro, Brazil, and C. S. SESHADRI of the Chennai Mathematical Institute have been awarded the Trieste Science Prize for Mathematics for 2006. Two medical researchers were also honored with the Trieste Science Prize in Medicine, and the four researchers will share the cash award of US\$100,000.

Palis was honored for his distinguished work in multi-variable dynamical systems, a field of mathematics that tries to understand how nonlinear complex phenomena behave over the long term. Such studies have helped enhance understanding of population growth patterns, global climate change, and even fluctuations in the stock market. Palis has also been a driving force behind efforts to strengthen the study of mathematics in Latin America. As director of IMPA, he helped to transform the institute into a world-class center for mathematical research and Latin America's foremost institution for the training of young mathematicians.

Seshadri was honored for his role in shaping the field of algebraic geometry, one of the dominant fields in twenty-first century mathematics. He has made outstanding contributions to the theory of vector bundles and quotient and compact homogenous spaces and is the creator of the standard monomial theory and Seshadri constant, which have found important applications both in mathematics and physics. He has also been the leading force in the creation of the Chennai Mathematical Institute.

The Trieste Science Prize is administered by the Academy of Sciences for the Developing World (TWAS) and provides international recognition to outstanding scientists living and working in the developing world.

—From a TWAS announcement

## Gunturk and Tanner Receive Monroe Martin Prize

The seventh Monroe H. Martin Prize presentation was held on May 12, 2006, at the University of Maryland, College Park. The prize has been awarded every five years by the

Institute for Physical Science and Technology to honor outstanding sole-authored papers by junior mathematicians. The winners, each receiving US\$5,000, are C. SINAN GUNTURK and JARED TANNER.

C. Sinan Gunturk of the Courant Institute of Mathematical Sciences, New York University, was awarded the prize for his paper “One-bit sigma-delta quantization with exponential accuracy”, which appeared in *Communications on Pure and Applied Mathematics* 56 (2003), 1608–30. In this paper, Gunturk introduces a new family of one-bit sigma-delta quantization methods to reconstruct band-limited signals. By carefully analyzing the optimality of the so-called feasible filter pairs, Gunturk constructs new quantizers that retain the robustness of the finitely accurate quantizers studied earlier in the literature, yet they gain exponential accuracy.

Jared Tanner of the Department of Mathematics at the University of Utah and the Statistics Department at Stanford University was awarded the prize for his paper “Optimal filter and mollifier for piecewise smooth spectral data”, which appeared in *Mathematics of Computation* 75 (2006), 767–90. In this paper Tanner revisits the issue of highly accurate reconstruction of piecewise smooth data from its (pseudo-)spectral information. Using the known time-frequency localization properties of certain truncated Hermite expansions, Tanner introduces optimal filters that retain the robustness of the finitely accurate local filters, yet they gain exponential accuracy in recovering piecewise-analytic data.

The Monroe H. Martin Prize was established to honor the outstanding contributions of Monroe H. Martin, professor emeritus at the University of Maryland, College Park. He was chair of the Department of Mathematics from 1942 until 1954 and the founding director of the Institute for Fluid Dynamics and Applied Mathematics (a forerunner of the Institute for Physical Science and Technology) from 1952 until 1968. Previous prizewinners are Neil Berger (1975), Marshall Slemrod (1980), Jonathan Goodman (1985), Marek Rychlik (1990), Andrew Stuart (1995), Zhihong Xia (1995), Yury Grabovsky (2000), and Robert McCann (2000).

—Frank W. J. Olver, Chair  
Monroe H. Martin Prize Committee

## SIAM Prizes Awarded

The Society for Industrial and Applied Mathematics (SIAM) awarded a number of prizes at its annual meeting, held in Boston, Massachusetts, in July 2006.

ÉVA TARDOS of Cornell University was awarded the George B. Dantzig Prize for her contributions to mathematical programming. The prize, awarded jointly with the Mathematical Programming Society (MPS), is given for original research that by its originality, breadth, and scope is having a major impact on the field of mathematical programming.

XINWEI YU of the University of California, Los Angeles, was awarded the Richard C. DiPrima Prize. This prize is awarded to a young scientist who has done outstanding research in applied mathematics.

GREGORY F. LAWLER of Cornell University, ODED SCHRAMM of Microsoft Corporation, and WENDELIN WERNER of the Université de Paris-Sud in Orsay were awarded the George Pólya Prize. They received the prize for their groundbreaking work on the development and application of stochastic Loewner evolution (SLE). Of particular note is the rigorous establishment of the existence and conformal invariance of critical scaling limits of a number of 2-dimensional lattice models arising in statistical physics.

PETER KLOEDEN of the J. W. Goethe Universität, Germany, received the W. T. and Idalia Reid Prize in Mathematics, which is awarded for research in or other contributions to the broadly defined areas of differential equations and control theory. He delivered a prize lecture titled "Random attractors and the preservation of synchronization in the presence of noise".

PETER LAX of the Courant Institute of Mathematical Sciences, New York University, was awarded the SIAM Prize for Distinguished Service to the Profession. The prize is awarded to an applied mathematician who has made distinguished contributions to the furtherance of applied mathematics on the national level.

GEORGE C. PAPANICOLAOU of Stanford University was awarded the John von Neumann Lectureship, which is given for outstanding and distinguished contributions to the field of applied mathematical sciences and for the effective communication of these ideas to the community. He gave a lecture on imaging in random media.

SIMON LEVIN of Princeton University delivered the I. E. Block Community Lecture. His talk was titled "Individual choices, cooperation and the global commons: Mathematical challenges in uniting ecology and socioeconomics for a sustainable environment".

MICHAEL J. SHELLEY of the Courant Institute of Mathematical Sciences, New York University, gave the Julian Cole Lecture, titled "Bodies interacting with and through fluids". The lectureship is awarded for an outstanding contribution to the mathematical characterization and solution of a challenging problem in the physical or biological sciences or in engineering, or for the development of mathematical methods for the solution of such problems.

IRENE FONSECA of Carnegie Mellon University delivered the AWM-SIAM Sonia Kovalevsky Lecture, titled "New chal-

lenges in the calculus of variations". The lectureship is intended to highlight significant contributions of women to applied or computational mathematics.

FRANÇOIS GOLSE of the Université de Paris 7-Denis Diderot presented the SIAM Activity Group on Analysis of Partial Differential Equations Prize Lecture, titled "From the Boltzmann equation to incompressible hydrodynamic models". This lectureship is awarded to the author or authors of an outstanding paper on a topic in partial differential equations published in English in a peer-reviewed journal.

The Lagrange Prize in Continuous Optimization, awarded jointly with MPS, was awarded to ROGER FLETCHER of the University of Dundee, SVEN LEYFFER of Argonne National Laboratory, and PHILIPPE TOINT of the University of Namur, Belgium. The prize is awarded for outstanding works in the area of continuous optimization.

The SIAM Award in the Mathematical Contest in Modeling went to two teams: BRIAN CAMLEY, PASCAL GETREUER, and BRADLEY KLINGENBERG of the University of Colorado at Boulder and BENJAMIN CONLEE, NEAL GUPTA, and CHRISTOPHER YETTER of Harvard University.

Three Outstanding Paper Prizes were presented for articles published in SIAM journals. The winners are: GIRISH N. NAIR and ROBIN J. EVANS of the University of Melbourne, Australia, for their article "Stabilizability of stochastic linear systems with finite feedback data rates", *SIAM Journal on Control and Optimization* 43, no. 2, 2004; JEAN-MICHEL CORON and EMMANUEL TRELAT of the Université Paris-Sud for their article "Global steady-state controllability of one-dimensional semilinear heat equations", *SIAM Journal on Control and Optimization* 43, no. 2, 2004; and MICHAEL HINTERMUELLER and KARL KUNISCH of the University of Graz, Austria, and KAZUFUMI ITO of North Carolina State University for their article "The primal-dual active set strategy as a semismooth Newton method", *SIAM Journal on Optimization* 13, no. 3, 2003.

The Student Paper Prizes were awarded to LAURENT DEMANET of the California Institute of Technology, EMANUELE VIOLA of Harvard University, and HONGCHAO ZHANG of the University of Florida.

—From a SIAM announcement

## Jefferson Science Fellowships Awarded

PAUL DAVIS of Worcester Polytechnic Institute (WPI) is one of six scientists to be awarded Jefferson Science Fellowships for the year 2006–2007. Davis received his Ph.D. in applied mathematics from Rensselaer Polytechnic Institute in 1970. He is currently dean of Interdisciplinary and Global Studies at WPI, a program that places student teams around the world to solve open-ended technical and social problems. He has written textbooks and developed software to support student-centered learning in mathematical modeling. His major research interest is in operation and control and measurement problems for electric power networks. He has served as secretary of the

Society for Industrial and Applied Mathematics (SIAM) and as editor in chief of the *SIAM Review*.

Davis will spend one year at the U.S. Department of State in an on-site assignment in Washington, D.C., and will receive a stipend of US\$50,000. The Jefferson Science Fellowships program is a three-year pilot program administered by the National Academies and supported through a partnership among the MacArthur Foundation; the Carnegie Corporation; the U.S. science, technology, and engineering academic communities; professional scientific societies; and the U.S. Department of State.

—*Elaine Kehoe*

## Swinnerton-Dyer Receives Sylvester Medal

The 2006 Sylvester Medal has been awarded to Sir Peter Swinnerton-Dyer FRS for “his fundamental work in arithmetic geometry and his many contributions to the theory of ordinary differential equations.” Swinnerton-Dyer is a professor emeritus in the Department of Pure Mathematics and Mathematical Statistics at the University of Cambridge.

The Sylvester Medal is awarded triennially by the Royal Society, London, for the encouragement of mathematical research. The bronze medal is accompanied by a gift of £1000 (approximately US\$1,500). It is named after James Joseph Sylvester (1814–1897), who was Savilian Professor of Geometry, Oxford, in the 1880s.

—*Allyn Jackson*

## LMS Prizes Awarded

The London Mathematical Society (LMS) has awarded a number of prizes for 2006.

SIR HENRY PETER FRANCIS SWINNERTON-DYER of the University of Cambridge has been awarded the Pólya Prize for his leadership in the field of diophantine number theory and for his pioneering work in practical computer science. The prize is given in recognition of outstanding creativity in, imaginative exposition of, or distinguished contribution to mathematics within the United Kingdom.

MILES REID of the University of Warwick has been awarded the Senior Berwick Prize for his paper, coauthored with Alessio Corti and Alexander Pukhlikov, titled “Fano 3-fold hypersurfaces”, which was published in *Explicit Birational Geometry of 3-Folds* (LMS Lecture Notes Series 281). The paper represented a great advance in the study of 3-dimensional algebraic varieties. The prize is awarded in recognition of an outstanding piece of mathematical research published by the LMS.

MICHAEL WEISS of the University of Aberdeen has been awarded the Fröhlich Prize for his use of algebraic topological methods to solve a number of different geometric problems. The prize recognizes original and extremely

innovative work in any branch of mathematics by a mathematician less than fifty years of age and normally a resident in the United Kingdom.

Four Whitehead Prizes were awarded. RAPHAEL ROUQUIER of the University of Leeds was honored for his contributions to representation theory. JONATHAN SHERRATT of Heriot-Watt University was recognized for his contribution to mathematical biology and, in particular, to the development and analysis of new mathematical models for complex biological processes. AGATA SMOKTUNOWICZ of the University of Edinburgh was honored for her contributions to non-commutative algebra. PAUL SUTCLIFFE of the University of Kent was chosen for his contributions to the study of topological solitons and their dynamics. The Whitehead Prizes are awarded to mathematicians under the age of forty years who were mainly educated in the United Kingdom and who are not already Fellows of the Royal Society. They cover all fields of mathematics, including applied mathematics, mathematical physics, and mathematical aspects of computer science.

—*From an LMS announcement*

## Paul Erdős Award Recipients Announced

The 2006 recipients of the Paul Erdős Awards have been announced. They are SIMON CHUA, Philippines; ALI REJALI, Iran; and ALEXANDER SOIFER, University of Colorado.

Chua, the principal of Zamboanga Chong Hua High School, Zamboanga City, Mindanao, the Philippines, pioneered the Mathematics Trainers' Guild in the Philippines. Rejali is the cofounder of the Iranian national mathematics competitions and has contributed to the institution of a national mathematics syllabus in mathematics and statistics. Soifer is chair and founder of the Colorado Mathematical Olympiad and was a member of the USA Mathematics Olympiad Subcommittee (1996–2005) and the USSR National Mathematical Olympiad (1970–1973).

The Paul Erdős National Award is given by the World Federation of National Mathematics Competitions in recognition of mathematicians who have contributed to the development of mathematical challenges at the national level and to the enrichment of mathematics learning.

—*From an Australian Mathematics Trust announcement*

## 2006 d'Alembert and Decerf Prizes Announced

Every two years the Société Mathématique de France (SMF) presents the d'Alembert Prize. Established in 1984, the prize is intended to encourage mathematical works in the French language and the exposition of mathematics for the general public. The prize recognizes an article, book, radio or television broadcast, film, or other project that is

designed to improve understanding of mathematics and its recent developments. The d'Alembert Prize for 2006 has been awarded to PHILIPPE BOULANGER, editor in chief, *Pour la Science*.

In addition, the SMF has awarded the Anatole Decerf Prize to Centre Sciences, Orleans. The Decerf Prize was established to promote the pedagogy of mathematics.

—From an SMF announcement

## 2006 International Mathematical Olympiad

The 47th International Mathematical Olympiad (IMO) was held in Ljubljana, Slovenia, July 12–13, 2006. The IMO is the preeminent mathematical competition for high-school-age students from around the world. This year 498 young mathematicians from 90 countries competed. The IMO consists of solving six extremely challenging mathematical problems in a nine-hour competition administered over two days.

The team from China finished first, with a total of 214 points and six gold medals, followed by Russia (174 points), Korea (170 points), and Germany (157 points). The United States finished fifth, with 154 points and two gold medals.

The U.S. team consisted of ZACHARY ABEL of Dallas, Texas; ZARATHUSTRA BRADY of Van Nuys, California; RYAN KO of Allendale, New Jersey; YI SUN of Saratoga, California; ARNAV TRIPATHY of Chapel Hill, North Carolina; and ALEX ZHAI of Champaign, Illinois. Brady and Tripathy received gold medals; Abel, Ko, Sun, and Zhai received silver medals.

The Mathematical Association of America sponsors the U.S. team through its American Mathematics Competitions program, with travel support provided by a grant from the Army Research Office. Training for the team at the University of Nebraska-Lincoln is aided by a grant from the Akamai Foundation. Additional support for the team is provided by the National Council of Teachers of Mathematics.

More information about the 47th International Mathematical Olympiad is available at <http://imo2006.dmfa.si>.

—Steven R. Dunbar  
MAA American Mathematics Competitions

## Royal Society of Canada Elections

Three mathematical scientists have been elected to the Royal Society of Canada. They are ANDREW GRANVILLE of the University of Montreal, and MING LI and MARY E. THOMPSON, both of the University of Waterloo.

—From a Royal Society of Canada announcement

### About the Cover

This month's cover has been assembled from pen and watercolor drawings taken from the sketchbooks of the mathematician Karl Heinrich Hofmann. The view of St. Peter's Street on Jackson Square in the French Quarter of New Orleans dates from last New Year's Eve. New Orleans, Louisiana, is the site of the Joint Mathematics Meetings, January 5–8, 2007.

Karl Hofmann is a longtime member of the Mathematics Department of Tulane University in New Orleans and also a member of the faculty of the University of Technology in Darmstadt, Germany. Some other artwork of his is mentioned on his homepage [http://www.mathematik.tu-darmstadt.de:8080/ags/ag5/mitglieder/professoren/hofmann\\_en.html](http://www.mathematik.tu-darmstadt.de:8080/ags/ag5/mitglieder/professoren/hofmann_en.html)

—Bill Casselman, Graphics Editor  
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