

# Mathematics People

## Lindenstrauss and Soundararajan Awarded 2003 Salem Prize

The Salem Prizes for the year 2003 have been awarded to ELON LINDENSTRAUSS of the Clay Mathematics Institute and the Courant Institute of Mathematical Sciences and to KANNAN SOUNDARARAJAN of the University of Michigan. Lindenstrauss was honored for his contributions to ergodic theory, particularly the proof of the quantum unique ergodicity conjecture for arithmetic hyperbolic surfaces. Soundararajan was recognized for contributions to the area of Dirichlet  $L$ -functions and related character sums.

Previous recipients of the Salem Prize include: N. Varopoulos (1968), R. Hunt (1969), Y. Meyer (1970), C. Fefferman (1971), T. Körner (1972), E. M. Nikishin (1973), H. Montgomery (1974), W. Beckner (1975), M. R. Herman (1976), S. B. Bochkarev (1977), B. E. Dahlberg (1978), G. Pisier (1979), S. Pichorides (1980), P. Jones (1981), A. B. Aleksandrov (1982), J. Bourgain (1983), C. Kenig (1984), T. Wolff (1985), N. G. Makarov (1986), G. David (1987), J. L. Journé (1987), A. L. Volberg (1988), J.-C. Yoccoz (1988), S. V. Konyagin (1990), C. McMullen (1991), M. Shishikura (1992), S. Treil (1993), K. Astala (1994), H. Eliasson (1995), M. Lacey (1996), C. Thiele (1996), T. Wooley (1998), F. Nazarov (1999), T. Tao (2000), O. Schramm (2001), S. Smirnov (2001), and X. Tolsa (2002).

The prize, established in memory of Raphaël Salem, is awarded yearly to young researchers for outstanding contributions in the field of analysis. The 2003 prize committee consisted of J. Bourgain, C. Fefferman, P. Jones, N. Nikolski, P. Sarnak, and J.-C. Yoccoz.

—Jean Bourgain, *Institute for Advanced Study*

## Prizes of the Mathematical Society of Japan

The Mathematical Society of Japan (MSJ) has awarded a number of prizes for 2003.

SUSUMU ARIKI of the Research Institute for Mathematical Sciences, Kyoto, received the Autumn Prize for his

contributions to the modular representation theory of Hecke algebras and quantum algebras. The Autumn Prize is awarded to an individual who has made outstanding contributions to mathematics within the previous five years.

KENGO HIRACHI of the University of Tokyo and SHIGENORI MATSUMOTO of Nihon University were awarded the Geometry Prizes. Hirachi was recognized for his contributions to parabolic invariant theory of the Bergman kernel of strongly pseudoconvex domains. Matsumoto was honored for his research at the intersection of dynamical systems and the theory of foliations on low-dimensional manifolds.

MASAKI IZUMI of Kyoto University, MASATOSHI FUKUSHIMA of Kansai University, and KIMIO MIYAJIMA of Kagoshima University were awarded the Analysis Prizes. Izumi received the award for work on subalgebras and group actions for operator algebras. Fukushima was honored for study of Dirichlet forms and Markov processes, and Miyajima was recognized for research on the deformation theory of strongly pseudoconvex CR structures and isolated singularities.

The Takebe Prize for outstanding research was established to encourage young mathematicians in their research. The Takebe Senior Prize is awarded to recipients chosen from nominations by members of the Mathematical Society of Japan. The Takebe Junior Prize is awarded to self-nominated applicants. The Takebe Prizes for 2003 were awarded as follows.

The Takebe Senior Prizes were awarded to OSAMU FUJINO of Nagoya University for research on the logarithmic abundance theorem and its applications; to AKIKO SHIMA of Tokai University for the study of 2-knots using projection diagrams and quandle cohomologies; and to MINORU ITOH of Kyoto University for the study of Capelli identities. The Takebe Junior Prizes were awarded to SONG LIANG of Nagoya University for research on the precise estimates of the large deviation principle; to REIKA FUKUIZUMI of Tohoku University for research in stability and instability of standing waves for nonlinear dispersive equations; to REI INOUE of Tokyo University for research on discrete integrable systems by algebraic analytical methods; to TOMOMI KAWAMURA of Aoyama Gakuin University for research on unknotting numbers based on four-dimensional geometry and links of divides; and to KENICHI BANNAI of Nagoya University for work on  $p$ -adic polylogarithms.

—From an MSJ announcement

## Kuo Wins Information-Based Complexity Young Researcher Award

FRANCES KUO of the University of New South Wales, Sydney, Australia, has been awarded the first Information-Based Complexity Young Researcher Award. The award recognizes significant contributions to information-based complexity by a researcher who has not reached his or her thirty-fifth birthday by September 30 of the year the award is given.

The prize consists of \$1,000 and a plaque. The award committee comprised Stefan Heinrich, University of Kaiserslautern; Joseph F. Traub, Columbia University; Greg Wasilkowski, University of Kentucky; Arthur G. Werschulz, Fordham University; and Henryk Wozniakowski, Columbia University and University of Warsaw.

—Joseph F. Traub, Columbia University

## NSF CAREER Awards for 2002 and 2003

The Division of Mathematical Sciences (DMS) of the National Science Foundation (NSF) has honored twenty mathematicians in fiscal year 2002 and nineteen in fiscal year 2003 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 run from four to five years and range from \$200,000 to \$500,000 each.

For 2002 the CAREER grant awardees and the titles of their grant projects are: SCOTT AHLGREN, University of Illinois at Urbana-Champaign: Number Theory Research and Outreach; LUCA CAPOGNA, University of Arkansas: Integration of Research and Education in the Study of Analysis and Partial Differential Equations in Carnot-Carathéodory Spaces; ROBERT GHRIST, Georgia Institute of Technology: Topological Methods in Applied Mathematics; TILMANN GNEITING, University of Washington: Self-Similarity: Roadblock or Breakthrough?; BRENDAN HASSETT, Rice University: Algebraic Geometry of Moduli Spaces; JAN HESTHAVEN, Brown University: Towards Robust and Efficient High-Order Adaptive Computational Methods for Conservation Laws in Complex Geometries—Analysis, Implementation, and Applications; ZHEZHEN JIN, Columbia University: Semiparametric Regression Models for Censored Data; ALEXANDER KISELEV, University of Chicago: Solutions, Spectrum, and Dynamics of Schrödinger Operators; DORON LEVY, Stanford University: Partial Differential Equation-Based Image Processing with Applications to Radiation Oncology; YI LIN, University of Wisconsin: Research and Education of Flexible Methods for Statistical Modeling and Prediction; YURI LVOV, Rensselaer Polytechnic Institute: Development and Applications of Weak Turbulence Theory;

IGOR MINEYEV, University of South Alabama: Homology and Geometry of Groups; BROOKE SHIPLEY, Purdue University: Realizing Derived Equivalences; GREGORY SMITH, College of William and Mary: The Dynamics of IP3-Sensitive Calcium Release Sites; FRANK SOTTILE, University of Massachusetts at Amherst: Computation, Combinatorics, and Reality in Algebraic Geometry with Applications; SHANKAR VENKATARAMANI, University of Chicago: Singularities and Microstructure—Multiple Scale Analysis for Nonlinear Partial Differential Equations, Geometric Problems, and the Physical Sciences; JAN VERSCHelde, University of Illinois: NLapack: Software for Numerical Algebraic Geometry; ANTHONY YEZZI, Georgia Institute of Technology: Unifying Segmentation and Other Image Processing Problems via Variational Partial Differential Equations; and YIJUN ZUO, Arizona State University: Statistical Depth Functions and Their Applications.

For 2003 the CAREER grant awardees and the titles of their grant projects are: GUILLAUME BAL, Columbia University: Time Reversal and Inverse Problems in Wave and Particle Propagation; DONATELLA DANIELI, Purdue University: Analytic and Geometric Aspects of Partial Differential Equations; JOHN ETNYRE, University of Pennsylvania: Knot Theory and Dynamics in Contact Geometry; MOHAMMAD GHOMI, Georgia Institute of Technology: Classical Problems in Differential Geometry, Topology, and Convexity; KO HONDA, University of Southern California: Contact Structures and Low Dimensional Topology; DMITRY KLEINBOCK, Brandeis University: Dynamical Systems on Homogeneous Spaces and Applications to Number Theory; SERGEY LOTOTSKY, University of Southern California: Stochastic Partial Differential Equations and Applications; RANJAN MAITRA, University of Maryland, Baltimore County: Methodology for Statistical Computing in Massive Datasets: Parallel Approaches to Cluster and MCMC Estimation; MADHU NAYAKKANKUPPAM, University of Maryland, Baltimore County: Large-Scale Semidefinite Programming; RAMANI PILLA, Case Western Reserve University: New Directions in Mixture Models and Their Applications; CHIARA SABATTI, University of California at Los Angeles: Statistical and Computational Tools for the Analysis of High Dimensional Genetic Data; SYLVIA SERFATY, New York University: Statics and Dynamics of Singularities in Some Models from Material Science; KONSTANTINA TRIVISA, University of Maryland at College Park: Systems of Conservation Laws and Related Models in Applied Sciences—Math Awareness and Outreach; RAVI VAKIL, Stanford University: Intersection Theory on Moduli Spaces; ERIC VANDEN EIJNDEN, New York University: Transition Pathways in Complex Systems: Theory and Numerical Methods; VAN VU, University of California at San Diego: Sharp Concentration and Probabilistic Methods; THOMAS WITELSKI, Duke University: Mathematical Modeling of Microfluidic Dynamics and Transport; and CHONGCHUN ZENG, University of Virginia: Perturbation Problems in PDE Dynamics.

—From an NSF announcement



## Trjitzinsky Memorial Awards Presented

The AMS has made awards to eight undergraduate students through the Waldemar J. Trjitzinsky Memorial Fund. The fund is made possible by a bequest from the estate of Waldemar J., Barbara G., and Juliette Trjitzinsky. The will of Barbara Trjitzinsky stipulates that the income from the bequest should be used to establish a fund in honor of the memory of her husband to assist needy students in mathematics.

For the 2003 awards the AMS chose seven geographically distributed schools to receive one-time awards of \$4,000 each. The mathematics departments at those schools then chose students to receive the funds to assist them in pursuit of careers in mathematics. The schools are selected in a random drawing from the pool of AMS institutional members.

Waldemar J. Trjitzinsky was born in Russia in 1901 and received his doctorate from the University of California Berkeley in 1926. He taught at a number of institutions before taking a position at the University of Illinois, Urbana-Champaign, where he remained for the rest of his professional life. He showed particular concern for students of mathematics and in some cases made personal efforts to ensure that financial considerations would not hinder their studies. Trjitzinsky was the author of about sixty mathematics papers, primarily on quasi-analytic functions and partial differential equations. A member of the AMS for forty-six years, he died in 1973.

Following are the names of the selected schools for 2003, the names of the students receiving Trjitzinsky awards, and brief biographical sketches of the students.

**Bryn Mawr College:** THIDA S. AYE. Aye was born in Yangon, Myanmar, and graduated from high school at the age of fourteen. She was awarded a scholarship to study at the Cambridge Center for Sixth Form Studies in Cambridge, England, and completed a general certificate of education in both ordinary and advanced levels. At Bryn Mawr she majors in mathematics and physics and minors in economics. She has participated in undergraduate research programs at Bryn Mawr, studying computer modeling and nonlinear dynamics, and at Princeton University, studying Monte Carlo simulations of critical parameters of polymers. She is currently doing research on the wavelet analysis of financial derivatives. She plans to attend graduate school to study applied mathematics.

**Minnesota State University at Mankato:** ANDREW RICHARD TACKMANN. Tackmann majors in mathematics and minors in statistics and economics and is a member of the Honors Program. He works as a resident advisor on campus and was inducted into the National Residence Hall Honorary. He is also a volunteer tutor for the School Age Literacy Program. He enjoys intramural sports and plans to pursue a career in actuarial science.

**University of Maryland at Baltimore County:** MARIA CHRISTIN LLEWELLYN. Llewellyn grew up in West Virginia before moving to Maryland. After high school she received an appointment to the United States Naval Academy, but

after a brief attendance there decided to pursue her interest in the intelligence field outside of the military. She majors in mathematics and computer science, works full time, and maintains a high A average. She enjoys swimming, running, and traveling, and plans to attend graduate school to study pure mathematics.

**Colorado College:** RAHBAR VIRK. Virk was born and raised in India. He came to the United States in 2001 to study physics but decided to pursue mathematics after becoming interested in number theory. His interests include philosophy, physics, computer science, playing 8-ball pool, reading, and chess. He plans to attend graduate school in mathematics.

**California State University, Hayward:** SARAH DEIWERT and ANGELA MARTINHO. Deiwert has maintained a 3.96 average while raising two sons and working part time as an artist. She is "outstanding—intelligent, hard working, and motivated," said Russell Merris of the Department of Mathematics. She enjoys reading, writing, and collecting teddy bears. She hopes to work in the scientific community and plans to teach algebra to other adults. Martinho is a first-generation college student who plans to teach high school and eventually obtain a master's degree in mathematics. She is an accomplished swimmer and received an All-American Honorable Mention in two swimming events this year. After undergoing two shoulder surgeries, she improved her swimming performance and was named the most inspirational swimmer on her team.

**Lehigh University:** TIMOTHY P. LEWIS. Lewis is a mathematics major and plans to pursue a second degree in computer science or electrical engineering. As a student at Owen J. Roberts High School in Pottstown, Pennsylvania, he was selected for the Lehigh Valley American Regions Math League team and attended the Hampshire College Summer Studies in Mathematics program in Amherst, Massachusetts. In his freshman year at Lehigh he maintained a 4.0 average in mathematics and a 3.9 overall average. He was the high scorer for the university on the Putnam examination. He plays rugby and is a competitive weightlifter and "diehard Eagles fan."

**State University of New York at Potsdam:** BISHAL THAPA. Thapa was born and raised in Nepal, where he placed in the top ten in a nationwide examination. He came to New York to study computer science, then fell in love with mathematics. As a freshman he won awards as the top student in two calculus classes. He is now taking graduate mathematics classes as a junior. He tutors many students who appreciate his ability to explain clearly and his enthusiasm for mathematics.

For further information about the Trjitzinsky Memorial Fund, contact the AMS Development Office, 201 Charles Street, Providence, RI, 02904-2294; email: [development@ams.org](mailto:development@ams.org); telephone: 401-455-4111.

—Elaine Kehoe