

Mathematics People

2007–2008 AMS Centennial Fellowship Awarded

The AMS has awarded a Centennial Fellowship for 2007–2008 to MARTIN KASSABOV of Cornell University. The fellowship carries a stipend of US\$66,000, an expense allowance of US\$3,500, and a complimentary Society membership for one year.



Martin Kassabov

Martin Kassabov received his Ph.D. in 2003 from Yale University under the supervision of Efim Zelmanov. He was a postdoctoral fellow at the University of Alberta (2003–2004) and an H. C. Wang Assistant Professor at Cornell University (2004–2006). He is currently an assistant professor at Cornell University.

Kassabov's main interests are in combinatorial algebra and its applications to group theory. A big part of his work involves studying representation theory of finite groups and constructions of expander

graphs. His work also has applications to geometric group theory.

Kassabov plans to use the fellowship to visit his collaborators at Imperial College London, Hebrew University Jerusalem, and Alfréd Rényi Mathematics Institute in Budapest.

Please note: Information about the competition for the 2008–2009 AMS Centennial Fellowships will be published in the “Mathematics Opportunities” section of an upcoming issue of the *Notices*.

—Allyn Jackson

Allen Receives ACM Turing Award

FRANCES E. ALLEN, fellow emerita of the T. J. Watson Research Center, has been named the recipient of the 2006 A. M. Turing Award, given by the Association for Computing Machinery (ACM). She was honored for “contributions

that fundamentally improved the performance of computer programs in solving problems, and accelerated the use of high performance computing.”

According to the prize citation, Allen has “made fundamental contributions to the theory and practice of program optimization, which translates the users’ problem-solving language statements into more efficient sequences of computer instructions. Her contributions also greatly extended earlier work in automatic program parallelization, which enables programs to use multiple processors simultaneously in order to obtain faster results. These techniques have made it possible to achieve high performance from computers while programming them in languages suitable to applications. They have contributed to advances in the use of high-performance computers for solving problems such as weather forecasting, DNA matching, and national security functions.”

Allen is the first woman to be honored with the Turing Award, named for British mathematician Alan M. Turing. The award is considered the “Nobel Prize in Computing”. It carries a US\$100,000 prize, with financial support provided by Intel Corporation.

—From an ACM news release

Ferran Sunyer i Balaguer Prize Awarded

The Ferran Sunyer i Balaguer Foundation has awarded the Ferran Sunyer i Balaguer Prize for 2007 to ROSA M. MIRÓ-ROIG of the University of Barcelona for her monograph *Lectures on Determinantal Ideals*. According to the prize citation, the monograph “solves three central problems in the theory of determinantal ideals: the determination of the CI-liaison class and G-liaison determinantal ideals, the conjecture of multiplicity for determinantal ideals, and the non-obstruction and dimension of families of determinantal ideals.”

The Ferran Sunyer i Balaguer Foundation (<http://www.crm.es/FerranSunyerBalaguer/ffsb.htm>) of the Institut d'Estudis Catalans awards this international prize every year to honor the memory of Ferran Sunyer i Balaguer (1912–1967), a self-taught Catalan mathematician who gained international recognition for his research in mathematical analysis despite the serious physical disabilities with which he was born. The prize carries a cash

award of €12,000 (approximately US\$16,300). The winning monographs are published by Birkhäuser-Verlag.

—*From a Ferran Sunyer i Balaguer Foundation announcement*

Phùng Awarded von Kaven Prize

HÔ HAI PHÙNG of the University of Duisburg-Essen has been awarded the von Kaven Prize in Mathematics “in recognition of his outstanding work on quantum groups.” The prize carries a cash award of €10,000 (approximately US\$13,600). The von Kaven Foundation was founded in 2004 by Herbert von Kaven and the German Research Foundation (DFG).

—*From a DFG news release*

Polchinski and Maldacena Awarded Heineman Prize

JOSEPH POLCHINSKI of the University of California, Santa Barbara, and JUAN MALDACENA of the Institute for Advanced Study have been awarded the 2007 Dannie Heineman Prize for Mathematical Physics “for profound developments in mathematical physics that have illuminated interconnections and launched major research areas in quantum field theory, string theory, and gravity.”

The prize carries a cash award of US\$7,500 and is presented in recognition of outstanding publications in the field of mathematical physics. The prize was established in 1959 by the Heineman Foundation for Research, Educational, Charitable, and Scientific Purposes, Inc., and is administered jointly by the American Institute of Physics (AIP) and the American Physical Society (APS). The prize is presented annually.

—*From an APS announcement*

Shu Receives Computational Science and Engineering Award

CHI WANG SHU of Brown University has been named the recipient of the 2007 SIAM/ACM Prize in Computational Science and Engineering. According to the prize citation, Shu was honored “for the development of numerical methods that have had a great impact on scientific computing, including TVD temporal discretizations, ENO and WENO finite difference schemes, discontinuous Galerkin methods, and spectral methods.”

The prize is awarded every two years by the Society for Industrial and Applied Mathematics (SIAM) and the Association for Computing Machinery (ACM) in recognition

of outstanding research contributions to the development and use of mathematical and computational tools and methods for the solution of science and engineering problems. The prize consists of a hand-calligraphed certificate with the citation and a cash prize of US\$5,000.

On the selection committee were John B. Bell (chair), Anthony Ralston, and Mary F. Wheeler.

—*From a SIAM/ACM announcement*

2006 John von Neumann Theory Prize Awarded

The 2006 John von Neumann Theory Prize, the highest prize given in the field of operations research and management science, has been awarded to MARTIN GRÖTSCHEL of the Technical University of Berlin, LÁSZLÓ LOVÁSZ of Eötvös Loránd University (Budapest), and ALEXANDER SCHRIJVER of the University of Amsterdam and CWI, the national mathematics and computer science institute in the Netherlands, “for their fundamental path-breaking work in combinatorial optimization.” The award, which is presented by the Institute for Operations Research and the Management Sciences (INFORMS), carries a cash award of US\$5,000.

The prize citation reads in part: “jointly and individually, they have made basic contributions to the analysis and solution of hard discrete optimization problems. In particular, their joint work on geometric algorithms based on the ellipsoid method of Yudin-Nemirovski and Shor showed the great power of cutting-plane approaches to such problems and provided a theoretical justification for the very active field of polyhedral combinatorics.”

—*From an INFORMS announcement*

Lynch Awarded ACM Knuth Prize

NANCY LYNCH of the Massachusetts Institute of Technology (MIT) has been awarded the Knuth Prize by the Association for Computing Machinery (ACM) Special Interest Group on Algorithms and Computation Theory (SIGACT). Lynch was selected “for her influential contributions to the theory of distributed systems, which solve problems using multiple processes or computers connected through a shared memory or network” and for her “seminal impact on the reliability of distributed computing systems, which are used to power traditional wired networks, modern mobile communications systems, and systems with embedded computers, including factory machinery, vehicles, robots, and other real-world devices.” She is the first woman to receive the award.

The Knuth Prize is named in honor of Donald Knuth, professor emeritus at Stanford University, who is best known for his ongoing multivolume series *The Art of Computer Programming*, which played a critical role in establishing and defining computer science as a rigorous

intellectual discipline. The prize carries a cash award of US\$5,000 and is given by ACM SIGACT and the Institute of Electrical and Electronics Engineers (IEEE) Technical Committee on the Mathematical Foundations of Computer Science.

—*From an ACM announcement*

Avila and Petermichl Awarded Salem Prize

ARTUR AVILA of Centre National de la Recherche Scientifique/Instituto Nacional de Matemática Pura e Aplicada (CNRS/IMPA) and STEPHANIE PETERMICHL of the University of Texas, Austin, have been awarded the Salem Prize for 2006.

Avila was selected “for his work on Lyapounov exponents and quasiperiodic behavior in unimodal maps, Schrödinger-like cocycles, interval exchange maps, and Teichmüller flows.” Petermichl was honored “for her work on several crucial impacts to the theory of vector valued singular operators.” The prize committee for the 2006 prize consisted of J. Bourgain, C. Fefferman, P. Jones, N. Nikolski, P. Sarnak, and J.-C. Yoccoz.

The Salem Prize is awarded every year to a young mathematician judged to have done outstanding work in the field of interest of Raphael Salem, primarily the theory of Fourier series.

—*Jean Bourgain, Institute for Advanced Study, Princeton*

Van der Hofstad Awarded Rollo Davidson Prize

REMCO VAN DER HOFSTAD of the Eindhoven University of Technology has been awarded the 2007 Rollo Davidson Prize. Van der Hofstad was honored for his work in probability and statistical mechanics. The Rollo Davidson Trust was founded in 1975 and awards an annual prize to young mathematicians working in the field of probability.

—*From a Rollo Davidson Trust announcement*

Maggioni Awarded Popov Prize

MAURO MAGGIONI of Duke University has been awarded the fifth Vasil Popov Prize “for his contributions to harmonic analysis on graphs, in particular for his work on diffusion geometry and the construction of multiscale analysis and wavelets based on diffusion processes on graphs.” According to the prize citation, he “has introduced novel ideas and powerful new techniques which allow him to seamlessly integrate empirical applied mathematics with the deepest theoretical tools in pure mathematics. His work has already had a seminal impact in the fields of

information organization, machine learning, spectral graph theory, image analysis, and medical diagnostics.”

The Popov Prize honors the memory of Vasil A. Popov (1942–1990), the Bulgarian analyst best known for his work in nonlinear approximation. The prize is awarded every three years to a young mathematician who has made outstanding research contributions in approximation theory and/or related areas.

—*From a Popov Prize Committee announcement*

2007 Clay Research Awards Announced

The Clay Mathematics Institute (CMI) has announced the recipients of the 2007 Clay Research Awards.

ALEX ESKIN of the University of Chicago was honored “for his work on rational billiards and geometric group theory, in particular, his crucial contribution to joint work with David Fisher and Kevin Whyte establishing the quasi-isometric rigidity of Sol.” CHRISTOPHER HACON of the University of Utah and JAMES MCKERNAN of the University of California, Santa Barbara, were chosen “for their work in advancing our understanding of the birational geometry of algebraic varieties in dimension greater than three, in particular, for their inductive proof of the existence of flips.” MICHAEL HARRIS of the Université de Paris VII and RICHARD TAYLOR of Harvard University were selected “for their work on local and global Galois representation...culminating in the solution of the Sato-Tate conjecture for elliptic curves with non-integral j -invariants.”

—*From a CMI announcement*

2007 CMS Prizes Awarded

The Canadian Mathematical Society (CMS) has announced the awarding of several major prizes, all to members of the University of British Columbia.

MARTIN BARLOW has been awarded the 2008 Jeffery-Williams Prize, which recognizes mathematicians who have made outstanding contributions to mathematical research. According to the citation, “Barlow is the leading international expert in the study of diffusions on fractals and other disordered media. He has made a number of profound contributions to a variety of fields, including probabilistic methods in partial differential equations, stochastic differential equations, filtration enlargement, local times, measure-valued diffusions and mathematical finance.”

IZABELLA LABA has been awarded the 2008 Krieger-Nelson Prize, which recognizes outstanding research by a woman mathematician. According to the citation, she has “established a position as one of Canada’s leading harmonic analysts. She has made major contributions to the Keakeya problem and to the study of translational tilings and distance sets.”

VINAYAK VASTAL has been named the recipient of the 2007 Coxeter-James Prize, which recognizes young mathematicians who have made outstanding contributions to mathematical research. According to the citation, he “has made fundamental contributions to the Iwasawa theory of elliptic curves, introducing profound techniques from ergodic theory into the subject and obtaining startling theorems on the non-vanishing of p -adic L -functions and μ -invariants that had previously been unobtainable by more orthodox analytic methods.”

—From a CMS announcement

Minasyan Awarded Emil Artin Junior Prize

ASHOT MINASYAN of the University of Geneva, Switzerland, has been awarded the 2007 Emil Artin Junior Prize in Mathematics. Minasyan was chosen for his paper “Separable subsets of GFERF negatively curved groups”, published in the *Journal of Algebra* **304** (2006), 1090–1100.

Established in 2001, the Emil Artin Junior Prize in Mathematics carries a cash award of US\$500 and is presented usually every year to a student or former student of an Armenian university who is under the age of thirty-five for outstanding contributions to algebra, geometry, topology, and number theory—the fields in which Emil Artin made major contributions. Previous awardees were V. Mikaelian (2001), A. Barkhudaryan (2002), G. Asatryan (2004), and M. Papikian (2005). The prize committee consisted of A. Basmajian, Y. Movsisyan, and V. Pambuccian.

—Artin Prize Committee announcement

Sloan Fellows Announced

The Alfred P. Sloan Foundation has announced the names of the recipients of the 2007 Sloan Research Fellowships. Each year the foundation awards 118 fellowships in the fields of mathematics, chemistry, computational and evolutionary molecular biology, computer science, economics, neuroscience, and physics. Grants of US\$45,000 for a two-year period are administered by each fellow’s institution. Once chosen, fellows are free to pursue whatever lines of inquiry most interest them, and they are permitted to employ fellowship funds in a wide variety of ways to further their research aims.

Following are the names and institutions of the 2007 awardees in mathematics: MARK BEHRENS, Massachusetts Institute of Technology; SOURAV CHATTERJEE, University of California, Berkeley; SELIM ESEDOGLU, University of Michigan; ALEXANDER GAMBURD, University of California, Santa Cruz; BENJAMIN HOWARD, Boston College; XIANTAO LI, Pennsylvania State University; CHIU-CHIU MELISSA LIU, Columbia University; DAVID NADLER, Northwestern University; JACOB A. RASMUSSEN, Princeton University; WEIQING REN, New York University; OVIDIU SAVIN, Columbia University; SCOTT SHEFFIELD, New York University; JUAN SOUTO, University of Chicago;

JARED W. TANNER, University of Utah; EUGUENI TEVELEV, University of Massachusetts, Amherst; JACQUES VERSTRAETE, McGill University; AKSHAY VENKATESH, New York University; SIMONE WARZEL, Princeton University; KATRIN WEHRHEIM, Massachusetts Institute of Technology; and LEXING YING, University of Texas, Austin.

The mathematicians on the Sloan Fellowship program committee are Ingrid Daubechies of Princeton University, Benedict Gross of Harvard University, and Dusa McDuff of Stony Brook University.

—From a Sloan Foundation announcement

NSF Graduate Research Fellowships Announced

The National Science Foundation (NSF) has awarded its Graduate Research Fellowships for fiscal year 2007. This program supports students pursuing doctoral study in all areas of science and engineering and provides a stipend of US\$30,000 per year for a maximum of three years of full-time graduate study. Following are the names of the awardees in the mathematical sciences for 2007, followed by their undergraduate institutions (in parentheses) and the institutions at which they plan to pursue graduate work.

TAMARA BRODERICK (Princeton University), Carnegie-Mellon University; MELODY CHAN (Yale University), Princeton University; ATOSHI CHOWDHURY (Princeton University), Harvard University; YAIM COOPER (Massachusetts Institute of Technology), Princeton University; MARIEL FINUCANE (Smith College), Harvard University; WUSHI GOLDRING (University of California, Los Angeles), Harvard University; LUIS GUERRERO (University of California, San Diego), University of California, Berkeley; HEATHER HARRINGTON (University of Massachusetts, Amherst), Imperial College, London; BENJAMIN HARRIS (Brown University), Massachusetts Institute of Technology; JACK W. HUIZENGA (University of Chicago), Massachusetts Institute of Technology; YUNJIANG JIANG (University of Georgia), Harvard University; DANIEL KANE (Massachusetts Institute of Technology), Princeton University; NATHAN KAPLAN (Princeton University), University of Chicago; GEORGE A. KHACHATRYAN (University of Chicago), Princeton University; THOMAS M. KOBERDA (University of Chicago), Harvard University; IAN T. LE (Harvard University), Massachusetts Institute of Technology; ALEXANDER LEVIN (Harvard University), Massachusetts Institute of Technology; TIANHUI LI (Princeton University), Cambridge University; PO-RU LOH (California Institute of Technology), Harvard University; MICHAEL J. MCCOURT (Illinois Institute of Technology), Brown University; STEFAN T. PATRIKIS (Harvard University), Princeton University; GEORGE J. SCHAEFFER (Carnegie-Mellon University), University of California, Berkeley; ZACHARY L. SCHERR (Cornell University), Massachusetts Institute of Technology; GWEN M. SPENCER (Harvey Mudd College), Cornell University; ETHAN J. STREET (University of Michigan, Ann Arbor), Stanford University; DANIEL B. WALTON (Harvey Mudd College), University of California, Berkeley; SHERRY X. WU (Cornell University), Princeton

University; JAMES Y. ZOU (Duke University), Massachusetts Institute of Technology.

—*From an NSF announcement*

Guggenheim Fellowships Awarded

The John Simon Guggenheim Memorial Foundation has announced the names of 189 United States and Canadian artists, scholars, and scientists who were selected as Guggenheim Fellows for 2007. Guggenheim Fellows are appointed on the basis of distinguished achievement in the past and exceptional promise for future accomplishment.

Following are the names of the awardees in the mathematical sciences, together with their affiliations and areas of research interest: JEFFREY F. BROCK, Brown University: models, bounds, and effective rigidity in hyperbolic geometry; MICHEL X. GOEMANS, Massachusetts Institute of Technology: the traveling salesman problem; MICHAEL GOLDSTEIN, University of Toronto: Anderson localization of eigenfunctions; ERIC URBAN, Columbia University: p -adic automorphic forms and p -adic L -functions; and SALIL VADHAN, Harvard University: the complexity of zero-knowledge proofs.

—*From a Guggenheim Foundation news release*

Fulbright Awards Announced

The J. William Fulbright Foundation and the United States Department of State, Bureau of Educational and Cultural Affairs, have announced the names of the recipients of the Fulbright Foreign Scholarships for 2006–2007. Following are the U.S. scholars in the mathematical sciences who have been awarded Fulbright scholarships to lecture or conduct research, together with their home institutions and the countries in which they plan to use the awards.

WAYNE W. BARRETT (Brigham Young University), Israel; THOMAS E. GILSDORF (University of North Dakota, Grand Forks), Mexico; ALBERT J. MILANI (University of Wisconsin, Milwaukee), Chile; RUPA MITRA (Minnesota State University, Moorhead), Bangladesh; TIMOTHY E. O'BRIEN (Loyola University, Chicago), Thailand; and CAROL A. SHUBIN (California State University, Northridge), Rwanda.

—*From a Fulbright Awards announcement*

Putnam Prizes Awarded

The winners of the sixty-seventh William Lowell Putnam Mathematical Competition have been announced. The Putnam Competition is administered by the Mathematical Association of America and consists of an examination containing mathematical problems that are designed to test both originality and technical competence. Prizes are awarded to both individuals and teams.

The five highest ranking individuals, listed in alphabetical order, were: HANSHENG DIAO, Massachusetts Institute of Technology; DANIEL M. KANE, Massachusetts Institute of Technology; TIANKAI LIU, Harvard University; PO-RU LOH, California Institute of Technology; and YUFEI ZHAO, Massachusetts Institute of Technology.

Institutions with at least three registered participants obtain a team ranking in the competition based on the rankings of three designated individual participants. The five top-ranked teams (with team members listed in alphabetical order) were: Princeton University (Ana Caraiani, Andrei Negut, Aaron C. Pixton); Harvard University (Tiankai Liu, Alison B. Miller, Tong Zhang); Massachusetts Institute of Technology (Oleg Golberg, Daniel M. Kane, Kuat T. Yes-senov); University of Toronto (Tianyi David Han, János Kramár, Viktoriya Krakovna); and University of Chicago (David Coley, Junehyuk Jung, Zhiwei Calvin Lin).

The top five individuals in the competition received cash awards of US\$2,500. The first-place team was awarded US\$25,000, with each member receiving US\$1,000. The team awards for second place were US\$20,000 and US\$800; for third place, US\$15,000 and US\$600; for fourth place, US\$10,000 and US\$400; and for fifth place, US\$5,000 and US\$200.

The Elizabeth Lowell Putnam Prize is awarded periodically to a woman whose participation in the Putnam Competition is deemed particularly meritorious. This prize was awarded to ALISON B. MILLER of Harvard University for the second year in a row. The prize carries a cash award of US\$1,000.

—*Elaine Kehoe*

Intel Science Talent Search Winners Announced

Three high school students working in mathematics have been awarded Intel Science Talent Search Scholarships for 2007. JOHN PARDON, a seventeen-year-old student at Durham Academy in Chapel Hill, North Carolina, was awarded second place and a US\$75,000 scholarship for a project that solved a classical open problem in differential geometry, showing that a finite-length closed curve in the plane can be made convex in a continuous manner without bringing any two points of the curve closer together. DMITRY VAINTROB, an eighteen-year-old student at South Eugene High School in Eugene, Oregon, won third place and a US\$50,000 scholarship for his investigation of ways to associate algebraic structures to topological spaces, proving that loop homology and Hochschild cohomology coincide for an important class of spaces. GREGORY BROCKMAN, an eighteen-year-old student at Red River High School in Grand Forks, North Dakota, received the sixth-place scholarship of US\$25,000 for his mathematics project that provided a thorough analysis of Ducci sequences, also known as the “four number game”.

—*From an Intel Corporation announcement*