
Mathematics People

Lovász Receives Bolyai Prize

On September 30, 2007, LÁSZLÓ LOVÁSZ was awarded the Bolyai Prize, one of the highest honors in Hungarian scientific life. The prize carries a cash award of €50,000 (approximately US\$71,000). The purpose of the Bolyai Prize is to draw public attention to the importance of science.

László Lovász was born in Budapest in 1948. He received the Dr.Rher.Nat. degree from Eötvös Loránd University (1971) and the Candidate of Math. Sci. (1970) and Dr.Math.Sci. (1977) degrees from the Hungarian Academy of Sciences. After holding positions at Eötvös Loránd University and József Attila University in Hungary, he moved to Yale University in 1993. He was a senior researcher at Microsoft Research from 1999 until 2006, when he took up his present position as director of the Mathematical Institute at Eötvös Loránd University. His research centers on combinatorial optimization, algorithms, complexity, graph theory, and random walks. His honors include the Fulkerson Prize of the AMS and the Mathematical Programming Society (1982) and the Wolf Prize (1999).

During the Bolyai Prize presentation at the Hungarian Academy of Sciences, a brief laudatio for Lovász was delivered by Gábor Szabó, president of the board of trustees of the Bolyai Award Foundation. Szabó is professor of physics at the University of Szeged and a corresponding member of the academy. He kindly provided for the *Notices* an English version of the laudatio, together with explanatory footnotes. The laudatio follows.

“Ladies and Gentlemen!

“The task with which I stand before you makes me feel honored, but the task is impossible. It is obviously impossible to introduce in a very limited time frame one of the most eminent contemporary mathematicians of the world. To make the situation even more complicated, Dr. Lovász has a rather broad scientific interest—as we have seen in the previous video presentation—and his lifework is based on very abstract results, such as the LLL base reduction algorithm or the Lovász local lemma. As these can hardly be explained briefly, instead I will try to demonstrate to you the exceptional talent of the new Bolyai laureate.

“During his high school years László Lovász won three times the International Student Olympics. Later, as a university student—yes, it is no mistake—he earned the candidate of science title with his paper submitted to the National Scientific Competition for Students.¹ And at the age of thirty-one he became a member of the Hungarian Academy of Sciences.² The comet-like start was followed by an even brighter scientific career. The fact that Dr. Lovász has achieved really lasting results is also proven by his numerous scientific honors, out of which I want to cite only two: the Wolf Prize, which is considered by many as the Nobel of mathematics, and the presidency of the International Mathematical Union, a position he took up in 2007.

“A group of eminent Hungarian-born scientists—the legendary Martians³—has played a pivotal role in twentieth century U.S. science. László Lovász is commensurable with them. There is, however, a very important difference. After an exceptional scientific career abroad, in 2006 he returned to Hungary.”

—Allyn Jackson

¹At that time in Hungary the Candidate of Science (C.Sc.) title awarded by the Hungarian Academy of Sciences was higher than the doctor (Ph.D.) degree awarded by the universities. Due to formal university regulations one was not allowed to apply for the Ph.D. with results achieved during undergraduate years. No such rules existed in the academy, because apparently nobody ever considered it possible that a student could achieve results that would entitle him to apply for the C.Sc. title.

²László Lovász was by far the youngest member ever of the Hungarian Academy of Sciences.

³There are different versions of the “Martian” story. The best known, perhaps, is that of the Nobel-prize winning physicist Leon Lederman. In his 1993 book *The God Particle*, Lederman wrote, “The production of scientists and mathematicians in the early 20th century was so prolific that many otherwise calm observers believe Budapest was settled by Martians in a plan to infiltrate and take over the planet Earth.” The group of “alien” scientists referred to contained such names as Leo Szilard, Eugene Wigner, Theodore von Kármán, John von Neumann, Dennis Gabor, Edward Teller, and others.

Kedlaya Receives PECASE Award

KIRAN KEDLAYA of the Massachusetts Institute of Technology has been chosen to receive a 2006 Presidential Early Career Award for Scientists and Engineers (PECASE) for his work in the mathematical sciences. He was one of fifty-eight young researchers to receive the award, the highest honor bestowed by the U.S. government on outstanding young scientists, mathematicians, and engineers who are in the early stages of establishing their independent research.

The recipients were selected from nominations made by eight participating federal agencies. Each awardee receives a five-year grant ranging from US\$400,000 to nearly US\$1 million to further his or her research and educational efforts.

—From an NSF announcement

Khare Wins Fermat Prize

CHANDRASHEKHAR KHARE of the University of Utah has been awarded the 2007 Fermat Prize for his proof, in collaboration with Jean-Pierre Wintenberger, of Serre's modularity conjecture in number theory.

The Fermat Prize, given every two years, recognizes outstanding research in the fields in which Pierre de Fermat made significant contributions: statements of variational principles, foundations of probability and analytical geometry, and number theory.

The prize carries a cash award of €20,000 (approximately US\$29,300).

—From a Université Paul Sabatier announcement

Kutyniok Receives 2007 von Kaven Prize

GITTA KUTYNIOK of Princeton University has been selected to receive the 2007 von Kaven Prize in Mathematics for her outstanding work in the field of applied harmonic analysis. This prize is awarded by the von Kaven Foundation, which is administered by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation). Kutyniok, who was born in 1972 and is currently funded in the DFG's Heisenberg Program, received the prize at the Gauss Lecture, held by the Deutsche Mathematiker-Vereinigung (German Mathematical Society) in Marburg in November 2007. This is the third time the von Kaven Prize has been given. The prize includes a cash award of €10,000 (approximately US\$14,000).

This year's winner of the von Kaven Prize is working on wavelets, curvelets, and something she herself developed called shearlets, which are systems of functions that can be useful in signal analysis. Her research has very tangible applications. For instance, the shearlets Kutyniok

developed assist in the analysis of vast amounts of data. In particular, they can be used to detect the geometric properties of data volumes, for instance the direction of edges in images. This makes these functions useful for purposes such as analyzing data generated by tomography and other medical imaging techniques and for data compression of image formats such as JPEG. Working together with Canadian researchers, Kutyniok hopes to use shearlets to identify stable and efficient algorithms for the analysis of seismic signals generated by studies of the Earth's crust. She is also investigating the fundamental properties of function systems, as well as the mathematical modeling of sensor networks using the theory of fusion frames.

—From a DFG announcement

Lauret Awarded ICTP/IMU Ramanujan Prize

JORGE LAURET, professor of differential geometry at the Universidad Nacional de Córdoba, Argentina, has been awarded the 2007 Srinivasa Ramanujan Prize "in recognition of his outstanding contributions to differential geometry and group representation."

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 comes from the Niels Henrik Abel Memorial Fund through the participation of the International Mathematical Union.

—Allyn Jackson

Dani Receives TWAS Prize in Mathematics

TWAS, the Academy of Sciences for the Developing World, has announced the winners of the TWAS Prizes for 2007. Each winner will receive a US\$10,000 check and be invited to lecture about his or her research at the academy's Silver Jubilee anniversary celebration, scheduled to take place in Mexico City November 10–13, 2008.

SHRIKRISHNA DANI, senior professor, School of Mathematics, Tata Institute of Fundamental Research, Mumbai, has been named the winner of the 2007 TWAS Prize in mathematics for his fundamental contributions to the study of unipotent flows on homogenous spaces of Lie groups. He has also made significant contributions to probability measures on Lie groups. Dani is also well known for his work on the behavior of orbits on homogenous space concerning, for example, closure, distribution,

recurrence, boundedness, and divergence, and for relating these factors to questions in Diophantine approximation. His results on uniform recurrence of trajectories of unipotent flows played an important role in Ratner's proof of the Raghunathan conjecture. With G. A. Margulis, Dani has made notable improvements to Ratner's uniform distribution theorem and deduced a quantitative version of the Oppenheim conjecture.

—From a TWAS announcement

Châu Awarded Oberwolfach Prize

NGÔ BAO CHÂU of the Université de Paris-Sud, Orsay, has been awarded the 2007 Oberwolfach Prize for achievement in algebra and number theory. He was born in Hanoi, Vietnam, in 1972. As a high school student, he won two gold medals in the 29th and 30th International Mathematical Olympiads (IMO). He received his Ph.D. in 1997 from the Université de Paris-Sud, Orsay. In 2004, along with Gérard Laumon, he received the Clay Research Award, the first Vietnamese mathematician to be so honored.

The prize carries a cash award of €5,000 (approximately US\$7,300). The prize is funded by the Oberwolfach Foundation and is awarded approximately every three years in cooperation with the Mathematisches Forschungsinstitut Oberwolfach to young European mathematicians.

—From an Oberwolfach Foundation announcement

Neuenkirch Receives 2007 Information-Based Complexity Young Researcher Award

ANDREAS NEUENKIRCH of the University of Frankfurt has been awarded the Information-Based Complexity Award for Young Researchers for 2007. 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\$3,000 and a plaque.

The award committee this year consisted of Josef Dick, University of New South Wales; Jakob Creutzig, TU Darmstadt; Christiane Lemieux, University of Waterloo; Dirk Nuyens, Katholieke Universiteit; Friedrich Pillichshammer, University of Linz; Joseph F. Traub, Columbia University; and Henryk Wozniakowski, Columbia University and University of Warsaw.

—Joseph F. Traub, Columbia University

Solymosi and Taylor Awarded Aisenstadt Prize

The Centre de Recherches Mathématiques (CRM) in Montreal has announced that JOZSEF SOLYMOSSI of the University of British Columbia and JONATHAN TAYLOR of the Université de Montréal are the recipients of the 2008 André-Aisenstadt Mathematics Prize. The prize, consisting of C\$3,000 (approximately US\$3,100) and a medal, recognizes achievements in research by young Canadian mathematicians. The selection committee consisted of the members of the CRM Scientific Advisory Panel: Jim Berger, Jerry Bona, Jean-Pierre Bourguignon, Jean-Louis Colliot-Thélène, Mark Goresky, Alice Guionnet, François Lalonde (CRM director), Thomas Salisbury, Catherine Sulem, Mary F. Wheeler, and Jean-Christoph Yoccoz.

Concerning the works realized by Solymosi, each member of the selection committee was struck by the extraordinary efficiency and elegance of his results at the cutting edge of a new field, additive combinatorics (sometimes called arithmetic combinatorics), that combines combinatorics, harmonic analysis, number theory, and probability. They appreciated the simplicity and deep insight in each of his works.

In Taylor's work, the committee was impressed by the exceptional breadth of expertise in probability, geometry, and statistics and their impact in so many fields of research. Although the committee only took into consideration the mathematical aspects of his works, this was already enough to award the prize to Taylor with enthusiasm.

—From a CRM announcement

NSF CAREER Awards Made

The Division of Mathematical Sciences (DMS) of the National Science Foundation (NSF) has honored sixteen mathematicians in fiscal year 2007 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 US\$150,000 to US\$400,000 each. The 2007 CAREER grant awardees and the titles of their grant projects follow.

HAO-MIN ZHOU, Georgia Tech Research Corporation, Georgia Institute of Technology: Computing Information in Image Processing and Stochastic Differential Equations; HUIBIN ZHOU, Yale University: Asymptotic Statistical Decision Theory and Its Applications; HAO ZHANG, North Carolina State University: Nonparametric Models Building, Estimation, and Selection with Applications to High-Dimensional Data Mining; DONGBIN XIU, Purdue University: High-Performance Computational Method for Stochastic Design Problems; ZHIQIANG TAN, Rutgers University: Nonparametric Likelihood, Estimating Functions, and Causal Inference; SCOTT R. SHEFFIELD, New York University:

Random Surfaces and Conformal Probability; BRIAN C. RIDER, University of Colorado, Boulder: Random Matrices, Random Schrödinger, and Communication; PETER J. MUCHA, University of North Carolina, Chapel Hill: Model Fluid-Solid Interactions, Networks REUs, and BioCalculus; JIASHUN JIN, Purdue University: Inferences on Large-Scale Multiple Comparisons: The Temptation of the Fourier Kingdom; ANIL N. HIRANI, University of Illinois, Urbana-Champaign: Algebraic Topology and Exterior Calculus in Numerical Analysis; SERKAN GUGERCIN, Virginia Polytechnic Institute and State University: Reduced-Order Modeling and Controller Design for Large-Scale Dynamical Systems via Rational Krylov Methods; CARLOS GARCIA-CERVERA, University of California, Santa Barbara: Multilevel Physics in the Study of Solids: Modeling, Analysis, and Simulations; ALEXANDER GAMBURD, University of California, Santa Cruz: Expander Graphs: Interactions between Arithmetic, Group Theory, and Combinatorics; DAVID M. FISHER, Indiana University: New Analytic Techniques in Group Theory; PATRICK CHERIDITO, Princeton University: Quantification of Risk; INDIRA L. CHATTERJI, Ohio State University Research Foundation: Tripodal Geometry and Applications.

—*Elaine Kehoe*

AAAS Fellows Chosen

Five mathematicians have been elected as new fellows to the Section on Mathematics of the American Association for the Advancement of Science (AAAS). The new fellows are: CARLOS CASTILLO-CHAVEZ, Arizona State University; TONY F. CHAN, National Science Foundation; BRUNO NACHTERGAELE, University of California, Davis; LAWRENCE SIROVICH, Mount Sinai School of Medicine; and ROBERT J. ZIMMER, University of Chicago.

—*From an AAAS announcement*

Beth Samuels (1975–2007)

The mathematics community suffered the loss of a promising recent Ph.D. on January 5, 2007, when Beth Sharon Samuels passed away after a two-and-a-half year battle with breast cancer. Beth was a National Science Foundation Research Training Group Postdoctoral Fellow and visiting assistant professor at the University of California, Berkeley. She is survived by her husband, physicist Ari Tuchman, and their two daughters, Danelle Sophia, 4, and Natalia Meshi, 2.

Beth was born on March 24, 1975, in Los Angeles. After high school she spent a year focused on Jewish studies in Jerusalem, Israel, and earned her B.A. in mathematics from Columbia University in 1997. According to Patrick Gallagher, Beth energized the undergraduate program there by restoring the senior thesis, an initiative she took almost entirely on her own. The senior thesis survives as a major component of Columbia's undergraduate curriculum. After two years teaching Jewish studies, Beth

returned to mathematics, earning her Ph.D. from Yale in 2005 under Ilya Piatetski-Shapiro.

Beth was highly regarded by all who knew her for her dedication to mathematics and her exceptional personality. This was unfortunately taken to another level after it was discovered in September 2004 that she had breast cancer (while six months pregnant). In the next six months she went through cancer treatment and delivered a healthy baby. During this time she also wrote her Ph.D. thesis, applied for jobs, and continued her research. Beth was recognized by the American Institute of Mathematics as one of five finalists for its five-year fellowship in 2005.

—*Stephen Miller, Rutgers University*

Correction

The November 2007 issue of the *Notices* carried a news item “U.S. High School Girls Compete at China Girls’ Math Olympiad” (pages 1347–1348). The item should have supplied the complete list of the sponsors of the project to send the U.S. teams to the competition: IBM Almaden Research Center, Akamai Foundation, Mathematical Sciences Research Institute, Mathematical Association of America, Shiing-Shen Chern Foundation for Mathematical Research, and Sunlin and Priscilla Chou Foundation.

—*Allyn Jackson*