Mathematics People

Guionnet Awarded 2009 Loève Prize

ALICE GUIONNET of the École Normale Supérieure de Lyon has been awarded the 2009 Line and Michel Loève International Prize in Probability. The prize, which carries a monetary award of US$30,000, was presented at a ceremony in Berkeley in October 2009.

Alice Guionnet received her Ph.D. in 1995 from Université Paris-Sud, advised by Gerard Ben Arous. Her thesis dealt with Langevin dynamics in the Sherrington–Kirkpatrick model of spin glasses via a large deviations approach. The study of dynamics for complex systems (spin systems, particle approximations to the nonlinear filtering equations and spin glasses, where logarithmic Sobolev inequalities in particular and concentration of measure methods in general are very relevant), and more specifically the study of aging phenomena, continue to be a component of her research to this day, with important collaborations with Boguslaw Zegarlinsky, Gerard Ben Arous, Amir Dembo, and Carlo Mazza. Maybe more important, it also naturally led her to what would become her main area of research and best-known work, namely the study of large random matrices. Starting with a proof of the large deviations principle for the spectral measure of Wigner matrices (with Ben Arous), which helped bring to the attention of probabilists the concept of noncommutative entropy coined by Voiculescu, she quickly realized that dynamics and concentration techniques can be adapted to this context and yield a systematic approach to many open questions. Results include the full large deviation principle for the spectral measure of generalized Gaussian matrices and concentration of the spectral measure in more general models (with Ofer Zeitouni) and later applications to the study of random matrix models, which had long been studied nonrigorously in mathematical physics. She has found rigorous arguments and elucidated connections with other mathematical fields in topics such as first- and second-order expansions of free energy and the connection with maps enumeration; stochastic analysis for random matrices and Dyson's Brownian motion; connections with "free probability"; and, most recently, the study of planar algebras. A partial list of collaborators includes B. Collins, V. Jones, D. Shlyakhtenko, and her students M. Maida and E. Maurel-Segala. This has been an extremely active field over the period, with many workers pursuing many partly overlapping techniques and problem domains. Her lecture notes from courses in 2003 and 2006, together with a forthcoming monograph (with Anderson and Zeitouni), have helped bring welcome clarity to the field.

The Loève Prize commemorates Michel Loève, professor at the University of California, Berkeley, from 1948 until his untimely death in 1979. The prize was established by his widow, Line, shortly before her death in 1992. Awarded every two years, it is intended to recognize outstanding contributions by researchers in probability who are under forty-five years old.

—David Aldous, University of California, Berkeley

Car and Parrinello Awarded 2009 Dirac Medal

ROBERTO CAR of Princeton University and MICHELE PARRINELLO of the Swiss Federal Institute of Technology (ETH Zürich) have been jointly awarded the 2009 Dirac Medal by the Abdus Salam International Centre for Theoretical Physics (ICTP). They were honored for their "revolutionary 'molecular dynamics' numerical simulation method for condensed matter". Their work, known as the Car–Parrinello method, combines quantitative electronic energy calculation, via a theory known as density functional theory (DFT), with Newtonian molecular dynamics simulation of the mechanical motion of atoms and molecules in real time. That method has provided an all-important quantitative understanding of the properties of matter,

while also allowing scientists and laymen alike to visualize atoms in motion during physical and chemical processes.

The ICTP awarded its first Dirac Medal in 1985. Given in honor of P. A. M. Dirac, the medal is awarded annually on Dirac's birthday, August 8, to an individual or individuals who have made significant contributions to theoretical physics and mathematics. The medalists also receive a prize of US$5,000. An international committee of distinguished scientists selects the winners from a list of nominated candidates. The Dirac Medal is not awarded to Nobel Laureates, Fields Medalists, or Wolf Foundation Prize winners.

—From an ICTP announcement

MAA Awards Presented

The Mathematical Association of America (MAA) presented several awards for excellence in expository writing, teaching, and service at its Summer MathFest in Portland, Oregon, August 5–8, 2009.

The Carl B. Allendoerfer Awards are given for articles of expository excellence published in *Mathematics Magazine*. They carry a cash award of US$500. The awardees for 2009 are VESNA STOJANOSKA, Northwestern University, and ORLIN STOYTCHEV, American University in Bulgaria, for "Touching the Z_2 in three-dimensional rotations", *Mathematics Magazine*, December 2008; and JEFF SUZUKI, Brooklyn College, for "A brief history of impossibility", *Mathematics Magazine*, February 2008.

The Trevor Evans Awards are presented to authors of exceptional articles that are accessible to undergraduates and published in *Math Horizons*. The amount of the cash award is US$250. The awardees for 2009 are RICHARD A. GUYER, a medical student at the University of Virginia, for "Radiology paging a good mathematician: Why math can contribute more to medicine than you might think", *Math Horizons*, April 2008; and RANDY K. SCHWARTZ, Schoolcraft College, for "The birth of the meter", *Math Horizons*, September 2008.

The Lester R. Ford Awards are given for articles of expository excellence published in *The American Mathematical Monthly*. The award consists of US$500. The 2009 recipients are MICHEL BALINSKI, École Polytechnique, for "Fair majority voting (or how to eliminate gerrymandering)", *American Mathematical Monthly*, February 2008; ANDREW BASHELOR, United States Navy, AMY KSIR, United States Naval Academy, and WILL TRAVES, United States Naval Academy, for their joint paper, "Enumerative algebraic geometry of conics", *American Mathematical Monthly*, October 2008; ANDREW GRANVILLE, University of Montreal, for "Prime number patterns", *American Mathematical Monthly*, April 2008; DAN KALMAN, American University, for "An elementary proof of Marden's theorem", *American Mathematical Monthly*, April 2008; and MEHRDAD KHOSRAVI, De Anza College, and MICHAEL D. TAYLOR, University of Central Florida, for their joint paper, "The wedge product and analytic geometry", *American Mathematical Monthly*, August/September 2008.

The Merten M. Hasse Prize is given for a noteworthy expository paper appearing in an MAA publication, at least one of whose authors is a younger mathematician (usually defined as under the age of forty). It carries a cash award of US$1,000. The 2009 honorees are ANDREW BASHELOR, AMY KSIR, and WILL TRAVES for their joint article "Enumerative algebraic geometry of conics", *American Mathematical Monthly*, October 2008.

The George Pólya Award is given for articles of expository excellence published in the *College Mathematics Journal*. It carries a cash award of US$500. The 2009 honorees are LAWRENCE BRENTON, Wayne State University, for "Remainder wheels and group theory", *College Mathematics Journal*, March 2008; and GREG N. FREDERICKSON, Purdue University, for "Designing a table both swinging and stable", *College Mathematics Journal*, September 2008.

The George Pólya Lectureship honors exposition of a particularly high quality. JUDY WALKER, University of Nebraska–Lincoln, was awarded the lectureship for 2009–2010 and 2010–2011.

The Henry L. Alder Award for Distinguished Teaching by a Beginning College or University Mathematics Faculty Member honors beginning college or university faculty members whose teaching has been extraordinarily successful and whose effectiveness in teaching undergraduate mathematics is shown to have had influence beyond their own classrooms.The prize carries a cash award of US$1,000. The prizes for 2009 were awarded to SCOTT ANNIN, California State University at Fullerton; SOMMER GENTRY, United States Naval Academy; and JENNIFER MCLOUD-MANN, University of Texas at Tyler.

—From an MAA announcement

Kutzko Receives Presidential Award

PHILIP KUTZKO of the University of Iowa has been awarded a Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring. He will be honored at the White House and receive a cash award of US$10,000.

The Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring is awarded each year to individuals or organizations and recognizes the crucial role that mentoring plays in the academic and personal development of students studying science or engineering and who belong to minority groups that are underrepresented in those fields. By offering their time, encouragement, and expertise to these students, mentors help ensure that the next generation of scientists and engineers will better reflect the diversity of the United States. The mentoring can involve students at any grade level from elementary through graduate school.

—From a White House announcement

2009 Ford Foundation Diversity Fellowships Awarded

The Ford Foundation has named the recipients of its Diversity Fellowships for 2009. The Ford Foundation's predoctoral, dissertation, and postdoctoral fellowship programs seek to increase the presence of underrepresented minorities on college faculties. Awardees later serve as role models and mentors for a new generation of scholars. Two awardees in the mathematical sciences have received Predoctoral Fellowships of US$20,000 a year for up to three years. CARLOS E. ARRECHE of the University of Chicago is a student in algebra. ASHLEY CRUMP of Princeton University is student in applications of mathematics. In addition, a Dissertation Fellowship of US$21,000 for one year was awarded to BIANCA VIRAY of the University of California, Berkeley, a student in algebra.

—From a Ford Foundation announcement

2009 International Mathematical Olympiad

The fiftieth International Mathematical Olympiad (IMO) was held in Bremen, Germany, July 10–22, 2009. The IMO is the preeminent mathematical competition for high-school-age students from around the world. This year 565 young mathematicians from 104 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 221 points; each team member earned a gold medal. Japan finished second, with 212 points, followed by Russia (203), South Korea (188), and North Korea (183). The team from the United States finished sixth with 182 points and two gold medals.

The U.S. team consisted of JOHN BERMAN (John T. Hoggard High School, Wilmington, North Carolina); WENYU CAO (Phillips Academy, Andover, Massachusetts), ERIC LARSON (South Eugene High School, Eugene, Oregon), DELONG MENG (Baton Rouge Magnet High School, Baton Rouge, Louisiana), EVAN O'DORNEY (Berkeley Math Circle, Berkeley, California), and QINXUAN PAN (Thomas Sprigg Wootton High School, Rockville, Maryland). Berman and Larson won gold medals; O'Dorney, Pan, Meng, and Cao won 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.

—Elaine Kehoe

Brousseau Awarded Felix Klein Medal

GUY BROUSSEAU of the University Institute for Teacher Education (IUFM), Aquitaine, and the University of Montreal has been awarded the first Felix Klein Medal of the International Commission on Mathematical Instruction (ICMI) for his essential contributions "to the development of mathematics education as a scientific field of research, through his theoretical and experimental work over four decades, and to the sustained effort he has made throughout his professional life to apply the fruits of his research to the mathematics education of both students and teachers." The ICMI is a commission of the International Mathematical Union (IMU). Its aim is to facilitate the transmission of information on all aspects of the theory and practice of contemporary mathematical education from an international perspective.

—From an ICMI announcement