Mathematics People

Hacon Awarded Feltrinelli Prize

CHRISTOPHER HACON of the University of Utah has been awarded the Antonio Feltrinelli Prize in Mathematics, Mechanics and Applications by Italy's Accademia Nazionale dei Lincei, or National Lincean Academy, for his work in algebraic geometry. His work involves two major topics. The first is the classification of higher-dimensional "complex projective varieties", which are geometric objects that are described by one or more polynomial equations in many variables and that typically exist in more than three dimensions. In contrast, a simple geometric object such as a sphere can be described by just one polynomial equation in three variables and therefore is an object in three-dimensional space. His second major interest is in questions arising from the "minimal model program", which is an effort to understand the properties of complex projective varieties. The origins of this field date to Italian algebraic geometers in the early twentieth century.

Hacon was born in Manchester, United Kingdom. He received his B.A. in mathematics from the University of Pisa and his master's and Ph.D. degrees in mathematics from the University of California Los Angeles. He has taught at the University of California Riverside in addition to the University of Utah. He was awarded an AMS Centennial Research Fellowship in 2006 and shared a Clay Research Award with James McKernan in 2007. Hacon and McKernan also received the 2009 AMS Frank Nelson Cole Prize in Algebra for their groundbreaking work on the minimal model program in algebraic geometry.

The Feltrinelli Prizes are considered Italy's highest scientific and cultural honors. The prize carries a cash award of 65,000 euros, or about US$93,000.

—From a University of Utah announcement

De Bie Awarded First Clifford Prize

The International Conference on Clifford Algebras and Their Applications in Mathematical Physics (ICCA) has instituted the W. K. Clifford Prize for excellence in research in theoretical and applied Clifford algebras and their analysis and geometry. HENDRIK DE BIE of Ghent University has been selected as the recipient of the first Clifford Prize for his outstanding mathematical research achievements in the fields of harmonic and Clifford analysis with applications in theoretical physics. He received his Ph.D. from Ghent University with a thesis titled "Harmonic and Clifford analysis in superspace". According to the prize citation, he has "a beautiful and remarkable publishing record with papers published in both mathematics and in theoretical physics journals. Cooperating with mathematics centers of excellence around the world, he is a real ambassador for mathematics through Clifford algebra and Clifford analysis with special emphasis on applications in theoretical physics." His chief contribution is an extensive theory of harmonic and Clifford analysis in superspaces involving special functions and group representation theory. Superspaces are, roughly speaking, spaces characterized by commuting and anticommuting variables appearing in supersymmetry, supergravity, superstrings, random matrices, and so forth. He has also worked on Dunkl operators and the Fourier transform, important tools in the engineering sciences. The prize is intended for young researchers up to age thirty-five and carries a cash award of 1,000 euros (approximately US$1,450).

Hendrik De Bie

The ICCA international conferences, organized alternatively in Europe and the Americas, are intended to bring together the leading scientists and young researchers in the field of Clifford algebras and their various applications in mathematics, physics, engineering, and other applied sciences. The English mathematician and philosopher W. K. Clifford is best remembered for what is now termed geometric algebra, a special case of the Clifford algebras named in his honor, but he also contributed significantly to other branches of mathematics, especially geometry.

The international W. K. Clifford Prize Committee included: R. Ablamowicz (United States), P. Anglès (France), F. Brackx (Belgium), K. Gürlebeck (Germany), D. Hildenbrand (Germany), J. Lasenby (United Kingdom), T. Qian (China), W. A. Rodrigues Jr. (Brazil), V. Soucek (Czech Republic), and E. Hitzer (Japan, nonvoting secretary).

—Eckhard Hitzer, University of Fukui, Japan
Photograph courtesy of Eckhard Hitzer

Prizes of the Royal Society

ANGELA MCLEAN of the University of Oxford has been awarded the 2011 Gabor Medal of the Royal Society of London for her "pivotal work on the mathematical population biology of immunity." The Gabor Medal is awarded for acknowledged distinction of interdisciplinary work between the life sciences with other disciplines and carries a cash award of £1,000 (approximately US$1,600).

CELIA HOYLES of the University of London has been awarded the 2010 Kavli Education Medal "in recognition of her outstanding contribution to research in mathematics

education." She presented a lecture titled "Tackling the mathematics: Potential and challenges". The Kavli Education Medal is awarded biennially in odd years to an individual who has made a significant impact on science or mathematics education within the United Kingdom. The award is supported by the Kavli Foundation and is accompanied by a cash award of £500 (approximately US$800).

—From a Royal Society announcement

Prizes Awarded at the ICIAM

The International Congress on Industrial and Applied Mathematics (ICIAM) was held in Vancouver, Canada, July 18–22, 2011. A number of prizes were awarded.

Emmanuel Candès of Stanford University and the California Institute of Technology was awarded the ICIAM Collatz Prize "in recognition of his outstanding contributions to numerical solution of wave propagation problems and compressive sensing, as well as anisotropic extensions of wavelets." The prize recognizes individual scientists under forty-two years of age for outstanding work on industrial and applied mathematics and carries a cash award of US$1,000.

Alexandre J. Chorin of the University of California Berkeley has been awarded the Lagrange Prize "in recognition of his fundamental and original contributions to applied mathematics, fluid mechanics, statistical mechanics, and turbulence modeling. His methods for the numerical solution of Navier-Stokes equations stand at the basis of the most popular codes in computational fluid mechanics." The prize recognizes individual mathematicians who have made an exceptional contribution to applied mathematics throughout their careers. It carries a cash award of US$3,000.

Vladimir Rokhlin of Yale University has been awarded the Maxwell Prize for his work on fast multipole methods that have revolutionized such fields as numerical electromagnetism for radar and molecular dynamics for chemistry. The prize recognizes a mathematician who has demonstrated originality in applied mathematics. It carries a cash award of US$1,000.

James A. Sethian of the University of California Berkeley has been awarded the ICIAM Pioneer Prize "for his fundamental methods and algorithms which have had a large impact in applications such as in imaging and shape recovery in medicine, geophysics and tomography and drop dynamics in inkjets." The Pioneer Prize was established for pioneering work introducing applied mathematical methods and scientific computing techniques to an industrial problem area or a new scientific field of applications. It carries a cash award of US$1,000.

Edward Lungu of the University of Botswana has been awarded the Su Buchin Prize for his mathematical modeling of problems related to Africa and his fundamental contribution to developing teaching, research, and organizational structures for applied mathematics in southern Africa. The prize was established to recognize an outstanding contribution by an individual in the application of mathematics to emerging economies and human development, in particular at the economic and cultural levels in developing countries. It carries a cash award of US$1,000.

—From an ICIAM announcement

SIAM Prizes Awarded

The Society for Industrial and Applied Mathematics (SIAM) has awarded several prizes for 2011.

Susanne C. Brenner of Louisiana State University has been named the AWM-SIAM Sonia Kovalevsky Lecturer for 2011. The lecture is intended to highlight significant contributions of women to applied or computational mathematics.

Ingrid Daubechies of Princeton University was named the 2011 John von Neumann Lecturer. The lecture is awarded for outstanding and distinguished contributions to the field of applied mathematical sciences and for the effective communication of these ideas to the community. It carries a cash award of US$5,000.

Gunther Uhlmann of the University of California Irvine was awarded the Ralph E. Kleinman Prize. The prize is awarded every two years to one individual for outstanding research or other contributions that bridge the gap between mathematics and applications. Work that uses high-level mathematics and/or invents new mathematical tools to solve applied problems from engineering, science, and technology is particularly appropriate. The prize carries a cash award of approximately US$5,000.

David E. Keyes of Columbia University and King Abdullah University of Science and Technology, Saudi Arabia, has been awarded the SIAM Prize for Distinguished Service to the Profession. The award is given to an applied mathematician who has made distinguished contributions to the furtherance of applied mathematics on the national level.

The SIAM Outstanding Paper Prizes were awarded to the following researchers: Justin Brickell, Inderjit Dhillon, Suvrit Sra, all of the University of Texas, and Joel A. Tropp, University of Michigan, for "The metric nearness problem", in the *SIAM Journal on Matrix Analysis and Applications*, vol. 30, issue 1 (2008), pp. 375–396; Constantinos Daskalakis, University of California Berkeley, Paul W. Goldberg, University of Liverpool, and Christos H. Papadimitriou, University of California Berkeley, for "The complexity of computing a Nash equilibrium" in the *SIAM Journal on Computing*, vol. 39, issue 1 (2009), pp. 195–259; Iftach Haitner, Microsoft Research, Minh-Huyen Nguyen, Harvard University, Shien Jin Ong, Harvard University, Omer Reingold, Weizmann Institute of Science, and Salil Vadhan, Harvard University, for "Statistically hiding commitments and statistical zero-knowledge arguments from any one-way function" in the *SIAM Journal on Computing*, vol. 39, issue 3 (2009), pp. 1153–1218.

J. Tinsley Oden of the University of Texas, Austin, was awarded the SIAM/ACM Prize in Computational Science and Engineering by SIAM and the Association for Computing Machinery (ACM) in the area of computational science

in recognition of outstanding contributions to the development and use of mathematical and computational tools and methods for the solution of science and engineering problems.

BJORN ENGQUIST of the University of Texas, Austin, was awarded the Peter Henrici Prize jointly by SIAM and Eidgenössische Technische Hochschule-Zürich (ETH Zurich). The prize is awarded for original contributions to applied analysis and numerical analysis and/or for exposition appropriate for applied mathematics and scientific computing. It carries a cash award of approximately US$5,000.

The SIAM Awards in the Mathematical Contest in Modeling were awarded to teams from Tsinghua University, People's Republic of China, and Harvey Mudd College. Each student member of the winning team receives a cash award of US$300.

The SIAM Student Paper Prizes were awarded to the following students: NECDET SERHAT AYBAT, Columbia University, "Unified approach for minimizing composite norms"; SUNGWOO PARK, University of Maryland, College Park, "Portfolio selection using Tikhonov filtering to estimate the covariance matrix"; and XIANGXIONG ZHANG, Brown University, "On maximum-principle-satisfying high order schemes for scalar conservation laws". A cash prize of US$1,000 is awarded for each paper.

—From a SIAM announcement

Prizes of the London Mathematical Society

The London Mathematical Society (LMS) has awarded several prizes for 2011.

E. BRIAN DAVIES of King's College London has been awarded the Pólya Prize "for his remarkable work in spectral theory, including the powerful heat kernel methods that he developed and his work on nonself-adjoint operators."

JONATHAN PILA of the University of Oxford received the Senior Whitehead Prize in recognition of his "startling recent work on the Andre-Oort and Manin-Mumford conjectures. The approach he and his collaborators have developed, which combines analytic ideas with model theory, is entirely new and shows great promise for further applications."

J. BRYCE MCLEOD of the University of Oxford has been awarded the Naylor Prize and Lectureship in Applied Mathematics "in recognition of his important and versatile achievements in analysis of nonlinear differential equations arising in applications to mechanics, physics, and biology."

Several Whitehead Prizes were awarded. JONATHAN BENNETT of the University of Birmingham was honored for his foundational work on multilinear inequalities in harmonic and geometric analysis and for a number of major results in the theory of oscillatory integrals. ALEXANDER GORODNIK of the University of Bristol was recognized for his work on homogeneous dynamics, with particular emphasis on his deep applications to diophantine problems. BARBARA NIETHAMMER of the University of Oxford was honored for her deep and rigorous contributions to material science, especially on the Lifshitz-Slyozov-Wagner and Becker-Doering equations. ALEXANDER PUSHNITSKI of King's College London was recognized for his contributions to spectral theory of partial differential operators and, in particular, to the study of the properties of the discrete and continuous spectrum of Schrödinger operators.

—From an LMS announcement

Prizes of the Canadian Mathematical Society

The Canadian Mathematical Society (CMS) has made several awards for 2011.

ROBERT WOODROW of the University of Calgary was honored with the Graham Wright Award for Distinguished Service. According to the prize citation, he "is deeply committed to mathematics education initiatives and has assisted with mathematical competitions, the Shad Valley Enrichment Program, and training students for the Canadian and International Math Olympiads" and since 1980 has also organized and cotaught the Wednesday Mathematics Evenings at the University of Calgary, a weekly enrichment program for high school students, who challenge themselves with advanced mathematical puzzles and learn from a group of like-minded peers. He is a lifetime member of the CMS and has been actively involved with the society for more than thirty years, including serving on the Board of Directors, the Education Committee, and the Advancement of Mathematics Committee. The Graham Wright Award recognizes individuals who have made sustained and significant contributions to the Canadian mathematical community and in particular to the CMS.

MIROSLAV LOVRIC of McMaster University was honored with the Adrien Pouliot Award "for his outstanding contributions to the teaching and learning of mathematics in Canada." The prize citation reads in part: "Miroslav is an innovator, all the way from his development of a course which trained and mentored undergraduate tutors for his large applied calculus course, to his more recent concentration on literacy at the undergraduate level and the design of textbooks. His involvements in mathematics education range from the development of curricula and teaching resources to current collaborative research." The Pouliot Award is for individuals or teams of individuals who have made significant and sustained contributions to mathematics education in Canada.

YVAN SAINT-AUBIN of the Université de Montréal received the Excellence in Teaching Award. According to the citation, "he has distinguished himself by his outstanding teaching skills and attentiveness toward students as well as by playing a pivotal role in both the overall mathematical life of students and his department's efforts to revitalize the delivery of several courses and to refresh and modernize its programs." The CMS Excellence in Teaching Award focuses on the recipient's proven excellence as a teacher at the undergraduate level as exemplified by

unusual effectiveness in the classroom and/or commitment and dedication to teaching and to students.

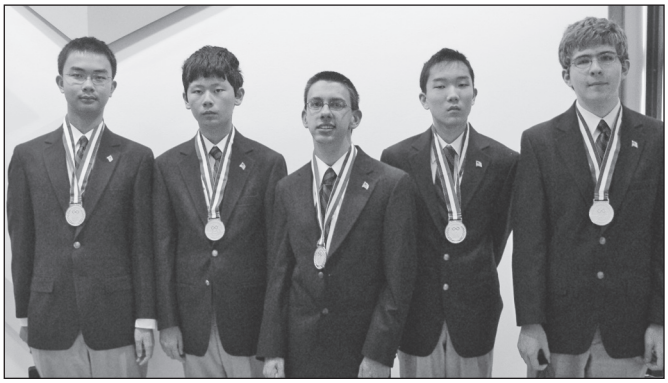
ANDREW TOMS of Purdue University and WILHELM WINTER of the University of Nottingham are the recipients of the 2010 G. de B. Robinson Award for their paper "Z-stable ASH algebras", published in the *Canadian Journal of Mathematics*, vol. 60, no. 3 (2008), pp. 703–720. The award recognizes the publication of excellent papers in the *Canadian Journal of Mathematics* and the *Canadian Mathematical Bulletin*.

—From a CMS announcement

2011 International Mathematical Olympiad

Young mathematicians from more than one hundred countries competed in the fifty-second International Mathematical Olympiad (IMO), held in Amsterdam, The Netherlands, July 16–24, 2011. The IMO is the preeminent mathematical competition for high school-age students from around the world. The IMO consists of solving six extremely challenging mathematical problems in a nine-hour competition administered over two days.

For the fourth straight year the team from China finished first, with 189 points out of a possible 252. Each team member received a gold medal. The U.S. team finished second, with a total of 184 points, and again each team member received a gold medal. Singapore finished third, followed by Russia and Thailand. The six members of the U.S. team were: WENYU CAO, Phillips Academy, Andover, Massachusetts; BENJAMIN GUNBY, Georgetown Day School, Washington, D.C.; XIAOYU HE, Acton-Boxborough Regional High School, Acton, Massachusetts; MITCHELL LEE, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia; EVAN O'DORNEY, Berkeley Math Circle; and DAVID YANG, Phillips Exeter Academy, Exeter, New Hampshire. David Yang tied for the fourth best score among all individuals competing in the contest. Lisa Sauermann of Germany was the highest scorer at the IMO, earning a perfect score of 42. Next year's IMO will take place July 4–16 in Mar del Plata, Argentina.



IMO winners, left to right: Xiaoyu He, David Yang, Evan O'Dorney, Mitchell Lee, and Ben Gunby. Not pictured is Wenyu Cao.

—Elaine Kehoe
Photograph by Steve Dunbar

Mathematics Opportunities

Travel Grants for ICME

Applications for travel grants are now available to attend the Twelfth International Congress on Mathematical Education (ICME-12), which will be held in Seoul, Korea, July 8–15, 2012. (See `www.icme12.org/.`) Contingent on the funding of a proposal pending at the National Science Foundation, grants will be available and awarded by the beginning of 2012. These grants will support expenses related to attending ICME-12, including hotel accommodations, meal costs, and conference registration. They also can be used toward air transportation (on U.S. carriers only). Travel grant awardees under this program may not use funds from other NSF-funded programs to supplement their international travel (airfare to Korea or subsistence at ICME-12) without special permission.

The International Congresses are held every four years and offer a unique opportunity for mathematics educators from the United States to discuss issues in mathematics education with leaders in the field from around the world. Grants will enable participants to listen to world-renowned scholars in mathematics and mathematics education as they share insights from research and best practice and to take part in small, focused study groups on a wide range of topics, including mathematics education for second-language learners, the relationship between research and practice in mathematics education, the professional development of mathematics teachers, assessment and testing in mathematics education, socioeconomic influence on students' achievement, and analysis of uses of technology in mathematics teaching and learning.

The National Science Foundation grants are available only to U.S. citizens and permanent resident aliens and will support travel expenses to ICME-12 for pre-K–12 mathematics teachers, mathematicians, graduate students, and mathematics teacher educators from the United States.

A selection committee will review applications and award the grants for ICME-12 travel. The committee will include representatives from the National Council of Teachers of Mathematics, the Mathematical Association of America, the American Mathematical Association of Two-Year Colleges, the American Mathematical Society, and the U. S. National Commission on Mathematics Instruction.