
Mathematics People

Avila, Morel, and Payne Named Clay Research Fellows

The Clay Mathematics Institute (CMI) has announced the appointment of three Research Fellows: ARTUR AVILA of the Centre Nationale de la Recherche Scientifique (CNRS), SOPHIE MOREL of Université de Paris Sud, and SAM PAYNE of the University of Michigan. They were selected for their research achievements and their potential to make significant future contributions to the field.

Artur Avila, born in 1979, received his Ph.D. in 2001 at the Instituto Nacional de Matemática Pura e Aplicada (IMPA) in Rio de Janeiro, Brazil, under the direction of Wellington de Melo. In his thesis Avila generalized the regular or stochastic dichotomy from the quadratic family to any nontrivial family of real analytic unimodal maps. Since then he has made numerous outstanding contributions to one-dimensional and holomorphic dynamics, spectral theory of the Schrödinger operator, and ergodic theory of interval exchange transformations and the associated Teichmüller flow.

Sophie Morel, born in 1979, is completing her Ph.D. at the Université Paris-Sud, Orsay, under the direction of Gérard Laumon. In her thesis she develops a theory of weight truncation on varieties over finite fields, with which she derives a simple description of the intersection complexes on the Baily-Borel compactifications of certain Shimura varieties over finite fields. From this she obtains a formula for the trace of the Frobenius endomorphism on the Euler characteristic of the intersection cohomology.

Sam Payne, born in 1978, is completing his Ph.D. at the University of Michigan under the direction of William Fulton. His thesis gives a surprising and simple construction of complete toric varieties on which there are no nontrivial equivariant bundles of rank two. In other work, Payne has given counterexamples to conjectures of Fujino and of Hibi (with Mircea Mustata), as well as a complete, elegant description of the equivariant Chow cohomology of toric varieties: it is the ring of integral piecewise linear polynomial functions.

Current Clay Research Fellows include Daniel Biss, Maria Chudnovsky, Ben Green, Sergei Gukov, Bo'az Klartag, Ciprian Manolescu, Maryam Mirzakhani, David Speyer, András Vasy, and Akshay Venkatesh.

—From a CMI announcement

Meckes Receives AIM Five-Year Fellowship

ELIZABETH MECKES of Stanford University has been named the recipient of the 2006 American Institute of Mathematics (AIM) Five-Year Fellowship.

Meckes is completing her Ph.D. thesis at Stanford under the direction of Persi Diaconis. Her research interests include analysis, convex geometry, and probability theory. She has developed a new infinitesimal version of Stein's method of exchangeable pairs, which she has used in studying random matrices and eigenfunctions of the Laplacian on certain Riemannian manifolds. In addition to her thesis work, she has coauthored papers on convex geometry and on Poisson approximation. She earned a B.S. from Case Western Reserve University in 2001 and has been the recipient of a Goldwater Fellowship.

The runners-up for the AIM Fellowship are Alireza Golsefidy (Yale University), Richard Kent (University of Texas, Austin), Abhinav Kumar (Harvard University), and Benjamin Schmidt (University of Michigan, Ann Arbor).

—From an AIM announcement

Barenblatt Receives Timoshenko Medal

GRIGORY I. BARENBLATT of the University of California, Berkeley, has received the Timoshenko Medal of the American Society of Mechanical Engineers (ASME). He was honored "for seminal contributions to nearly every area of solid and fluid mechanics, including fracture mechanics, turbulence, stratified flows, flames, flow in porous media, and the theory and application of intermediate asymptotics."

The Timoshenko Medal was established in 1957 and is conferred in recognition of distinguished contributions to the field of applied mechanics. Instituted by the Applied Mechanics Division of ASME, it honors Stephen P. Timoshenko, world-renowned authority in the field, and it commemorates his contributions as an author and teacher.

—From ASME announcements

National Academy of Engineering Elections

The National Academy of Engineering (NAE) has announced the election of seventy-six new members and nine foreign associates, including six whose work involves the mathematical sciences. Their names, institutions, and the research for which they were elected follow.

EGON BALAS, Carnegie Mellon University, for contributions to integer programming and its applications to the scheduling and planning of industrial facilities; MANUEL BLUM, Carnegie Mellon University, for contributions to abstract complexity theory, inductive inference, cryptographic protocols, and the theory and applications of program checkers; LESLIE GREENGARD, Courant Institute of Mathematical Sciences, New York University, for work on the development of algorithms and software for fast multipole methods; ALVY RAY SMITH of Seattle, a consultant, for the development of digital imaging, compositing, and painting that have led to fundamental changes in the graphic arts and motion picture industries; and VLADIMIR N. VAPNIK, NEC Laboratories, for insights into the fundamental complexities of learning and for inventing practical and widely applied machine-learning algorithms. Elected as a foreign associate was CHARLES ANTHONY RICHARD HOARE, Microsoft Research, Cambridge, United Kingdom, for fundamental contributions to computer science in the areas of algorithms, operating systems, and programming languages.

—From an NAE announcement