Mathematics People

Bethuel Receives Mergier-Bourdeix Prize

The Académie des Sciences de Paris has awarded the Prix Mergier-Bourdeix of 45,750 euros (about US$51,000) to FABRICE BETHUEL, professor at the Université Pierre et Marie Curie, for his fundamental discoveries at the interface between analysis, topology, geometry, and physics. His research concerns the study of nonlinear partial differential equations arising in physics, particularly in the theory of liquid crystals and superconductors.

His work on Sobolev maps between manifolds has paved the way for a field that has been in full swing over the past ten years. The new techniques he has introduced are widely used in the analysis of singularities of harmonic maps between manifolds. Bethuel and his collaborators have made spectacular advances on the equation introduced in the 1950s by the physicists Landau and Ginzburg. In turn, the mathematical progress has led to a better understanding of the phenomenon of quantized vorticity observed in superconductors. Fabrice Bethuel is a mathematician who combines a genuine interest in physics with a deep geometric intuition and tremendous skill when confronted with complex computations.

—Académie des Sciences de Paris

Schramm Awarded 2003 Loève Prize

The 2003 Line and Michel Loève International Prize in Probability is awarded to ODED SCHRAMM of Microsoft Research. The prize, which carries a monetary award of $30,000, will be presented at a ceremony in Berkeley on October 20, 2003.

Oded Schramm received his Ph.D. in 1990 under William Thurston at Princeton University, and his early research included deep results in circle packings. His research in probability was sparked by his interest in the conjecture that the limit of two-dimensional critical percolation was conformally invariant.

In trying to understand this limit as well as limits of other models such as the loop-erased walk, Schramm combined classical results in complex variables of C. Loewner with probability theory to invent the process now called the Schramm-Loewner evolution (SLE). This process has proved to be a critical ingredient for understanding conformally invariant limits of planar systems. In collaboration with G. Lawler and W. Werner, Schramm has used SLE to solve a number of open problems, in particular Mandelbrot's conjecture that the outer boundary of planar Brownian motion has dimension 4/3 and the determination of the scaling limit of loop-erased work. Schramm also showed that if the scaling limit of percolation was conformally invariant, then the boundaries between clusters would be given by SLE. That this is true for site percolation on the triangular lattice has been proved by S. Smirnov.

The prize commemorates Michel Loève, who was a professor at the University of California, Berkeley, from 1948 until his untimely death in 1979. The prize was established by his widow, Line Loève, 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

2003 Dirac Medals Awarded

The 2003 Dirac Medals of the Abdus Salam International Centre for Theoretical Physics (ICTP) have been awarded to ROBERT H. KRAICHNAN (Exa Corporation, Lexington, Massachusetts), and VLADIMIR E. ZAKHAROV (Landau Institute for Theoretical Physics, Moscow, Russian Federation) for their contributions to the theory of turbulence, particularly the exact results and the prediction of inverse cascades, and