
Mathematics Opportunities

Summer Program for Women Undergraduates

The 2010 Summer Program for Women in Mathematics (SPWM2010) will take place at George Washington University in Washington, DC, from June 26 to July 31, 2010. This is a five-week intensive program for mathematically talented undergraduate women who are completing their junior years and may be contemplating graduate study in mathematical sciences. The goals of this program are to communicate an enthusiasm for mathematics, to develop research skills, to cultivate mathematical self-confidence and independence, and to promote success in graduate school.

Applicants must be U.S. citizens or permanent residents studying at a U.S. university or college who are completing their junior years or the equivalent and have mathematical experience beyond the typical first courses in calculus and linear algebra. Sixteen women will be selected. Each will receive a travel allowance, campus room and board, and a stipend of US\$1,750. The deadline for applications is **March 1, 2010**. Early applications are encouraged. Applications are accepted only by mail. For further information, please contact the director, Murli M. Gupta, email: mmg@gwu.edu; telephone: 202-994-4857; or visit the program's website at <http://www.gwu.edu/~spwm/>. Application material is available on the website.

—From an SPWM announcement

NSF Support for Undergraduate Training in Biological and Mathematical Sciences

The National Science Foundation (NSF) offers opportunities for support through its Undergraduate Biology and Mathematics (UBM) program. The goal of the program is

to enhance undergraduate education and training at the intersection of the biological and mathematical sciences and to better prepare undergraduate biology or mathematics students to pursue graduate study and careers in fields that integrate the mathematical and biological sciences.

The program will provide support for jointly conducted long-term research experiences for interdisciplinary teams of at least two undergraduates from departments in the biological and mathematical sciences. Projects should focus on research at the intersection of the mathematical and biological sciences and should provide students exposure to contemporary mathematics and biology addressed with modern research tools and methods. Projects must involve students from both areas in collaborative research experiences and include joint mentorship by faculty in both fields.

Between six and nine awards are expected to be made in 2010. The deadline for full proposals is **February 11, 2010**. For more information, see http://www.nsf.gov/pubs/2008/nsf08510/nsf08510.htm#awd_info. The UBM program is a joint effort of the Education and Human Resources (EHR), Biological Sciences (BIO), and Mathematical and Physical Sciences (MPS) directorates of the NSF.

—From an NSF announcement

Monroe H. Martin Prize

The Institute for Physical Science and Technology at the University of Maryland, College Park, is seeking applications and nominations for the eighth Monroe H. Martin Prize. The prize is awarded for an outstanding paper in applied mathematics (including numerical analysis) by a young researcher who is a resident of North America and who has not reached his or her thirty-sixth birthday by July 31, 2010. Submitted papers must be written by single authors and must have been published or accepted for publication. The work must not have been performed in connection with the completion of requirements for an

academic degree. The candidate must neither be nor have been affiliated with the University of Maryland.

Applications and nominations should include a copy of the paper or contribution with a cover letter. The deadline for submissions is **July 31, 2010**. Submissions should be sent to R. Roy, Director, Institute for Physical Science and Technology, University of Maryland, College Park, Maryland 20742-2431. The award will be announced by November 1, 2010. The recipient will be asked to present his or her work at the Monroe H. Martin Lecture at the University of Maryland in December 2010 and will be awarded a prize of US\$5,000 plus travel expenses.

The Monroe H. Martin Prize was established to commemorate the achievements of the late Monroe H. Martin, former director of the Institute for Fluid Dynamics and Applied Mathematics and chair of the Department of Mathematics at the University of Maryland. Previous prize winners are Neil Berger (1975), Marshall Slemrod (1980), Jonathan Goodman (1985), Marek Rychlik (1990), A. M. Stuart (1995), Z. Xia (1995), R. J. McCann (2000), Y. Grabovsky (2000), C. Sinan Gunturk (2005), and Jared Tanner (2005).

—*Institute for Physical Science and Technology announcement*

Clay Mathematics Institute 2010 Summer School

The 2010 Clay Mathematics Institute (CMI) Summer School on Probability and Statistical Physics in Two (and More) Dimensions will be held in Buzios, Brazil, from July 11 to August 7, 2010.

In the past ten to fifteen years, various areas of probability theory related to rigorous statistical mechanics, disordered systems, and combinatorics have enjoyed an intensive development. A number of these developments deal with two-dimensional random structures. The questions related to critical systems are twofold: understanding large-scale properties of lattice-based models (on a periodic deterministic lattice or in the case where the lattice is itself random) and, on the other hand, being able to construct and manipulate a continuous object that describes directly their scaling limits. In the case of a fixed planar lattice, a number of conjectures originating in the physics literature have now been proved, but many questions remain open. In the case of statistical physics on random planar graphs, sometimes referred to as quantum gravity, many results have been recently understood, and a relation between discrete and continuous structures is now emerging. The aim of the Summer School is to provide a complete picture of the current state of the art in these and related topics.

Organization: During the first two weeks of the school, three foundational courses will be combined with afternoon activities in thematic working groups and evening seminars. Weeks three and four will be dedicated to shorter advanced courses (the fourth week will run in parallel with the Fourteenth Brazilian School of Probability).

Foundational Courses: The foundational courses include “Large random planar maps and their scaling limits” (Jean-Francois LeGall and Gregory Miermont), “SLE and other conformally invariant objects” (Vincent Beffara), and “Noise sensitivity and percolation” (Jeffrey Steif and Christophe Garban).

Minicourses: These courses include “Random geometry and Gaussian free field” (Scott Sheffield), “Conformal invariance of lattice models” (Stanislav Smirnov), “Integrable combinatorics” (Philippe Di Francesco), “Fractal and multifractal properties of SLE” (Gregory Lawler), “The double dimer model” (Rick Kenyon), “Random polymers” (Frank den Hollander), and “Self-avoiding walks” (Gordon Slade). The latter two will be held jointly with the Brazilian School on Probability. Another possible minicourse, “Supersymmetric methods in disordered systems and two-dimensional critical behavior” (John Cardy), is awaiting confirmation. See the website <http://www.claymath.org/summerschool> for updated information.

Financial Support: Graduate students and postdoctoral fellows who are within five years of receipt of the Ph.D. degree can apply for financial support. Support is decided on a competitive basis and may include accommodations plus funds toward the cost of economy travel.

The scientific committee consists of David Alexandre Ellwood, Charles Newman, Vlaslas Sidoravicius, and Wendelin Werner.

The deadline for applications is **March 1, 2010**. More information and online application forms are available at <http://www.claymath.org/summerschool> or by sending email to summerschool@claymath.org.

—*From a CMI announcement*

News from CRM

The Centro di Ricerca Matematica Ennio De Giorgi (CRM) invites applications for four one-year junior visiting positions for the academic year 2010–11. Applicants should be new or recent Ph.D. recipients in mathematics and should have exceptional potential in research. The annual stipend is 25,000 euros (approximately US\$36,800), along with a research allowance of 2,500 euros (approximately US\$3,600) intended for support of other researchers invited to CRM by the junior visitors. Junior visitors will participate in a variety of scientific activities, including intensive research periods, workshops, and seminars, and will interact with prominent scientists who participate in the senior visiting program at CRM.

The application deadline is **January 28, 2010**, and junior visitors are expected to begin their research activities at CRM no later than October 2010. For further information and application details, see the website <http://www.crm.sns.it/hpp/grants.html?year=2010>.

The 2010 scientific program includes the following workshops:

January 25–February 5, 2010: Periodic Approximation in Dynamics

About the Cover

Differential geometry issue

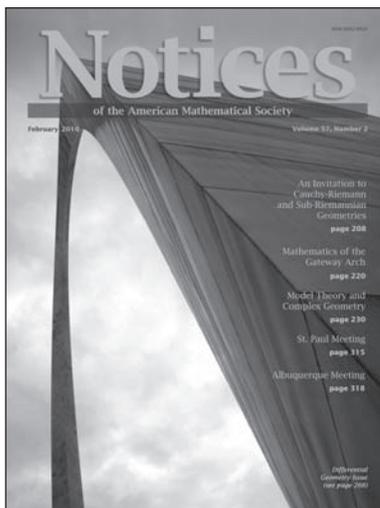
In 2009 geometer Robert Osserman visited St. Louis to observe and to lecture at Washington University on the mathematical properties of the Gateway Arch. An article based on Osserman's lecture is included in this issue. The cover photograph by Geir Arne Hjelle attests to the awesomeness of a marriage between mathematics and architecture on a grand scale.

The cover photograph was taken on November 23, 2008, from the south leg of the St. Louis Arch, looking north and slightly up. For this magnificent wide angle, unusual shot, the photographer used a Canon EOS 40D camera fitted with a Canon EF-S 17-85mm f4-5.6 IS USM lens.

"I was down at the arch," Geir Arne comments, "looking for a cover picture for my St. Louis photo book, and I guess this was one of the candidates." The photographer later favored a different shot. You can see the other shot at <http://www.flickr.com/photos/hjelle/3439055921/>.

The cover image was composed using GIMP (GNU Image Manipulation Program) freeware. Find it at <http://www.gimp.org/>.

—Steven G. Krantz



February 9–12, 2010: Linear and Nonlinear Hyperbolic Equations

March 8–14, 2010: Italy-India Conference on Diophantine and Analytic Number Theory

March 1–April 30, 2010: Euclidean Harmonic Analysis, Nilpotent Lie Groups and PDEs

May 2–June 30, 2010: Configuration Spaces: Geometry, Combinatorics and Topology

September 6–10, 2010: Geometric Evolutions and Minimal Surfaces in Lorentzian Manifolds

September 13–17, 2010: On the Contested Expanding Role of Applied Mathematics from the Renaissance to the Enlightenment

October 12–16, 2010: Optimal Transportation and Applications

For further information see the website <http://www.crm.sns.it>.

—From a CRM announcement

Everett Pitcher Lectures

The next series of Everett Pitcher Lectures will be held March 22–25, 2010, on the campus of Lehigh University in Bethlehem, Pennsylvania. The speaker will be Rick Durrett of Cornell University, who will speak on “Three Faces of Probability”, with three lectures on improbabilities, life on a random graph, and cancer models. Durrett's research focuses on probability problems that come from ecology and genetics. He is a member of the National Academy of Sciences.

The lectures, which are free and open to the public, are held in honor of Everett Pitcher, who was secretary of the AMS from 1967 until 1988. Pitcher served in the mathematics department at Lehigh University from 1938 until 1978, when he retired as Distinguished Professor of Mathematics. He passed away in December 2006 at the age of ninety-four. For further information, contact the Everett Pitcher Lecture Series, Department of Mathematics, Lehigh University, Bethlehem, PA, 18015; telephone 610-758-3731; or see the website <http://www.lehigh.edu/~math/pitcher.html>.

—From a Lehigh University announcement