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# Mathematics Opportunities

## American Mathematical Society Centennial Fellowships

*Invitation for Applications for Awards for  
2004–2005  
Deadline December 1, 2003*

The AMS Centennial Research Fellowship Program makes awards annually to outstanding mathematicians to help further their careers in research. From 1997–2001 the fellowship program was aimed at recent Ph.D.'s. The AMS Council has since approved changes in the rules for the fellowships. The eligibility rules are as follows.

The primary selection criterion for the Centennial Fellowship is the excellence of the candidate's research. Preference will be given to candidates who have not had extensive fellowship support in the past. Recipients may not hold the Centennial Fellowship concurrently with another research fellowship such as a Sloan or National Science Foundation Postdoctoral Fellowship. Under normal circumstances, the fellowship cannot be deferred. A recipient of the fellowship shall have held his or her doctoral degree for at least three years and not more than twelve years at the inception of the award (that is, received between September 1, 1992, and September 1, 2001). Applications will be accepted from those currently holding a tenured, tenure-track, postdoctoral, or comparable (at the discretion of the selection committee) position at an institution in North America.

The stipend for fellowships awarded for 2004–2005 is expected to be approximately \$60,000, with an additional expense allowance of about \$1,700. Acceptance of the fellowship cannot be postponed.

The number of fellowships to be awarded is small and depends on the amount of money contributed to the program. The trustees have arranged a matching program from general funds. At most two fellowships will be awarded

for the 2004–2005 academic year. A list of previous fellowship winners can be found at <http://www.ams.org/prizes/centennial-fellowship.html>.

Applications should include a cogent plan indicating how the fellowship will be used. The plan should include travel to at least one other institution and should demonstrate that the fellowship will be used for more than reduction of teaching at the candidate's home institution. The selection committee will consider the plan in addition to the quality of the candidate's research and will try to award the fellowship to those for whom the award would make a real difference in the development of their research careers. Work in all areas of mathematics, including interdisciplinary work, is eligible.

The deadline for receipt of applications is **December 1, 2003**. Awards will be announced in February 2004 or earlier if possible.

Application forms are available via the Internet at <http://www.ams.org/employment/centflyer.html>. For paper copies of the form, write to the Professional Services Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294; or send electronic mail to [prof-serv@ams.org](mailto:prof-serv@ams.org); or call 401-455-4107.

—AMS announcement

## Call for Nominations for Third World Academy of Sciences Prizes

The Third World Academy of Sciences (TWAS) Prizes will be awarded to individual scientists in developing countries in recognition of outstanding contributions to knowledge in eight fields of science.

This new prize was formed by merging the TWAS Awards in Basic Sciences and the Third World Network of

Scientific Organizations (TWNISO) Prizes in Applied Science. Eight awards are given each year in the fields of mathematics, basic medical sciences, biology, chemistry, physics, agricultural sciences, earth sciences, and engineering sciences. Each award consists of a prize of US\$10,000 and a plaque. Candidates for the awards must be nationals of developing countries and, as a rule, must be living and working in those countries.

Nomination forms should be sent to: Helen Grant, TWAS Prizes, Third World Academy of Sciences (TWAS), c/o The Abdus Salam International Centre for Theoretical Physics (ICTP), 34014 Trieste, Italy; fax: 39 040 224559. Further information is available on the World Wide Web at [http://www.ictp.trieste.it/~twas/twas\\_prizes.html](http://www.ictp.trieste.it/~twas/twas_prizes.html).

—From a TWAS announcement

## Research Opportunities for U.S. Graduate Students in Japan, Korea, and Taiwan

The National Science Foundation (NSF) and the National Institutes of Health (NIH) are cosponsoring summer research programs in Japan, Korea, and Taiwan for U.S. graduate students during the summer of 2004. These summer programs provide U.S. graduate students in science and engineering with firsthand research experience in Japanese, Korean, and Taiwanese research environments, an introduction to the science and science policy infrastructure of the respective countries, and language and cultural training. The primary goals of the programs are to introduce students to Japanese, Korean, and Taiwanese science and engineering in the context of a research laboratory and to initiate personal relationships that will better enable them to collaborate with foreign counterparts in the future. The programs last approximately eight weeks, from mid-June to August, and are administered in the United States by the NSF and the NIH.

Applicants must be U.S. citizens or permanent residents. They must be enrolled at U.S. institutions in science or engineering Ph.D. programs, in M.D. programs with an interest in biomedical research, or in master's degree programs with at least one full academic year completed by the end of the calendar year of application. They must be pursuing studies in fields of science or engineering that are supported by the NSF or the NIH and that also are represented among the potential host institutions.

International travel costs to and from Japan, Korea, or Taiwan; in-country living costs (accommodations, food, and professional travel); and an allowance of \$2,500 for each participant will be provided.

The deadline for application materials to be postmarked is **December 1, 2003**. All application materials (including forms from the applicant and from those recommending him or her) should be sent to the NSF East Asia and Pacific Program (NSF/EAP), Room 935, Division of International Programs, National Science Foundation, 4201 Wilson Boulevard, Arlington, VA 22230. For more information

visit the NSF website, <http://www.nsf.gov/pubs/2002/nsf02007/nsf02007.htm>.

—From an NSF announcement

## AAUW Educational Foundation Fellowships and Grants

The American Association of University Women (AAUW) awards Selected Professions Fellowships to women who intend to pursue a full-time course of study at accredited institutions during the fellowship year in a designated degree program in which women's participation has traditionally been low. All women who are candidates for the master of science (M.S.) degree in mathematics or statistics are eligible to apply.

Applications are now available for Master's and First Professional Awards, which carry cash awards of between \$5,000 and \$12,000. The deadline for applications to be postmarked is **January 10, 2004**. The fellowship year runs from July 1, 2004, to June 30, 2005. For more information see the AAUW's website at <http://www.aauw.org/3000/fdnfelgra/selectprof.html> or contact the AAUW Educational Foundation, 1111 Sixteenth St., N.W., Washington, DC 20036; telephone: 800-326-2289 (AAUW); fax: 202-872-1425; email: [info@aauw.org](mailto:info@aauw.org).

—From an AAUW announcement

## AWM Workshop on Women in Leadership Roles

Pending final funding approval, the Association for Women in Mathematics (AWM) will present a workshop titled *After Tenure: Women Mathematicians Taking a Leadership Role*, to be held March 12-14, 2004, at the University of Maryland, College Park. The purpose of the workshop is to prepare women who have already established careers in the mathematical sciences to become leaders in the profession. The target audience will be women who have been recently tenured at academic institutions or who are at a similar level in an industrial or government position. The workshop will bring together this audience with senior women who are leaders in the profession.

Leadership activities will include panels, informal discussions, and "case studies". The panels and discussions will address issues concerning being a department chair or college administrator, being involved in the professional societies, being a research leader, and being an effective mentor. Mathematical activities will include expository talks.

Applicants must be women mathematicians with a work address in the United States. Preference will be given to women who have been recently tenured or who have an equivalent level of experience in an industrial or governmental position. The applicant's research must be in a field that is supported by the Division of Mathematical

Sciences of the National Science Foundation. For further information and announcement of deadlines, see the AWM website: <http://www.awm-math.org>.

—From an AWM announcement

## News from the MSRI

The Mathematical Sciences Research Institute in Berkeley, California, invites applications for upcoming workshops and academic programs in 2004. Dates, titles, and organizers of each workshop are listed below, along with deadlines for applying for funding.

*February 9–13, 2004:* Genetics of Complex Disease. Organizers: Jun Liu, Mary Sara McPeck, Richard Olshen (chair), David O. Siegmund, Wing Wong. Funding Deadline: **October 20, 2003**.

*February 23–27, 2004:* Topology and Geometry of Real Algebraic Varieties. Organizers: Viatcheslav Kharlamov, Boris Shapiro, Oleg Viro. Funding Deadline: **November 3, 2003**.

*March 15–19, 2004:* Mathematical Neuroscience. Organizers: Paul C. Bressloff, Jack D. Cowan (chair), G. Bard Ermentrout, Mary Pugh, Terry J. Sejnowski. Funding Deadline: **November 24, 2003**.

*March 22–26, 2004:* Symplectic Geometry and Mathematical Physics. Organizers: Denis Auroux, Dan Freed, Helmut Hofer, Francis Kirwan, Gang Tian. Funding Deadline: **December 1, 2003**.

*April 12–16, 2004:* Algorithmic, Combinatorial, and Applicable Real Algebraic Geometry. Organizers: Lalo Gonzalez-Vega, Victoria Powers, Frank Sottile. Funding Deadline: **December 22, 2003**.

Further information is available at <http://www.msri.org>. Registration for these workshops is available online at <http://www.msri.org/applications/applying/>.

MSRI will host the Tenth Annual Conference for African American Researchers in the Mathematical Sciences, to be held June 22, 2004, to June 25, 2004.

The programs for the 2004–2005 academic year are listed below. Applications are invited for these programs.

*August 16–December 17, 2004:* Hyperplane Arrangements and Applications. The study of hyperplane arrangements has developed a rich and extensive theory, drawing techniques and inspiration from diverse fields of mathematics. Arrangements are intrinsically fascinating objects, simple enough in definition to submit to explicit calculations but complicated enough to display interesting and surprising properties. This program will focus on several interrelated aspects of current research, such as: the topology of the complement, commutative and skew commutative algebra, applications to hypergeometric functions, and combinatorics.

*Program Committee:* Michael Falk, Phil Hanlon, Toshiaki Kohno, Peter Orlik, Alexander Varchenko, Sergey Yuzvinsky.

*January 3–May 13, 2005:* Probability, Algorithms, and Statistical Physics. In the past decade, key notions from statistical physics have been applied to a variety of questions

in computational complexity, the analysis of algorithms, and real-world random networks. The interaction of mathematical physicists, probabilists, and computer scientists should lead to further advances both in the development of these techniques and in new applications. The main themes of this semester will be mixing of Markov chains in physics and algorithms, phase transitions in computation and reconstruction, and models of real-world random networks.

*Program Committee:* David Aldous, Claire Kenyon, Harry Kesten, Jon Kleinberg, Fabio Martinelli, Yuval Peres, Alistair Sinclair, Alan Sokal, Peter Winkler, Uri Zwick.

*January 3–May 13, 2005:* Mathematical, Computational, and Statistical Aspects of Image Analysis. Image analysis is one of the newest and most active sources of inspiration for applied mathematics and is one of the most interdisciplinary fields. Present-day mathematical challenges in image analysis span a wide range of territory, including harmonic analysis, statistical learning theory, and the search for new stochastic models. This program is open to all mathematicians, statisticians, engineers, and computer scientists.

*Program Committee:* David Mumford, Jitendra Malik, David Donoho.

For further information, including application procedures and available support, see the website <http://www.msri.org/>. Deadline for applications for support is **November 14, 2003**.

—From an MSRI announcement

## News from the MBI

The Mathematical Biosciences Institute (MBI) at the Ohio State University announces its scientific program for 2003–2004, titled Mathematical Modeling of Cell Processes. The program will run from September 2003 to August 2004. The theme of the year is how cells respond to and influence their environment, with topics ranging from cell growth and death to intercellular and intracellular communication to the behaviors of large populations of cells such as are found in the immune system. Upcoming topics covered in the program are listed below.

### Cell Proliferation

*November 10–14, 2003:* Workshop on Mathematical Models of Cell Proliferation and Cancer Chemotherapy. Organizers: Jessie Au, Marek Kimmel.

*November 17–19, 2003:* Miniworkshop on Mathematical Challenges Arising in Cancer Models. Organizers: Avner Friedman, Marek Kimmel.

### Mathematical Modeling and Signal Transduction

*January 5–9, 2004:* Tutorial on Signal Transduction.

*January 26–30, 2004:* Workshop on Signal Transduction.

I. The Many Roles of Calcium. Organizers: James Sneyd, Mike Sanderson.

*February 16–19, 2004:* Tutorial on Signal Transduction.

*March 8–12, 2004:* Workshop on Signal Transduction.

II. Muscles and Motility. Organizers: James Sneyd, Ed Pate.

### **Immune Models and Host-Pathogen Dynamics**

*May 6-7, 2004:* Tutorial on Immunology and Intracellular Processes. Speakers: Denise Kirschner, Tom Kepler.

*May 10-14, 2004:* Workshop on Immunology Models: Cell Signaling and Immune Dynamics. Organizers: Denise Kirschner, Jennifer Linderman, Sergei Pilyugin.

*June 17-18, 2004:* Tutorial on Pathogens and Host-Pathogen Interaction.

*June 21-25, 2004:* Workshop on Modeling Host-Pathogen Interactions. Organizers: Denise Kirschner, Tom Kepler.

### **Summer Program**

*July 19-August 6, 2004:* The summer program consists of a one-week tutorial and a two-week team project on cell processes and signal transductions. Participants include graduate students and college teachers.

The scientific program for the 2004-2005 academic year will focus on Genomics, Proteomics, and Bioinformatics. Topics include the following: Analysis of Gene Expression Data: Principles and Applications, Regulatory Networks, Computational Proteomics and Mass Spectrometry, Emerging Genomic Technologies and Data Integration Problems, Biomarkers in HIV and Cancer Research, and Evolutional Genomics.

For more information visit the MBI website at <http://mbi.osu.edu>.

—From an MBI announcement

## News from the New Zealand Institute of Mathematics and its Applications

The New Zealand Institute of Mathematics and its Applications (NZIMA) announces a thematic program in Logic and Computation, which will focus on the theories of computability and complexity and the algorithmic study of randomness. Other possible areas are finite and computable model theory and logics of programs, including complexity of decision problems and applications to specification and verification. A workshop will be held in conjunction with this program from January 11-16, 2004. For more information, see the website <http://www.nzima.auckland.ac.nz/>.

The NZIMA offers Maclaurin Fellowships to support full-time research in New Zealand. Further information and application procedures may also be found on the above website.

—From an NZIMA announcement