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# Mathematics Opportunities

## Travel Grants for ICM 98, Berlin

The AMS has applied to several funding agencies for funds to permit partial travel support for U.S. mathematicians attending the 1998 International Congress of Mathematicians (ICM 98) August 18–27, 1998, in Berlin, Germany. In anticipation of the availability of funds, the Society is preparing to administer the selection process, which would be similar to previous programs funded in 1990 and 1994.

Applications for support will be printed in the September issue of the *Notices*, and downloadable forms will be available on e-MATH (at <http://www.ams.org/profession/icm98.html>) beginning August 1. All completed application forms must be mailed to the AMS by **October 31, 1997**. This travel grants program, if funded, will be administered by the Professional Programs Department, AMS, P.O. Box 6248, Providence, RI 02940; e-mail [icm98@ams.org](mailto:icm98@ams.org); telephone 401-455-4105.

This program is open to U.S. mathematicians (those who are currently affiliated with a U.S. institution). Junior mathematicians (those within six years of the doctorate), women, and members of U.S. minority groups are especially encouraged to apply.

Applications will be evaluated by a panel of mathematical scientists under the terms of a proposal submitted to the National Science Foundation (NSF) by the Society.

Should the proposal to the NSF be funded, the following conditions will apply: mathematicians accepting grants for partial support of the travel to ICM 98 may not supplement them with any other NSF funds. Currently, it is the intention of the NSF's Division of Mathematical Sciences to provide no additional funds on its other regular research grants for travel to ICM in 1998. However, an individual mathematician who does not receive a travel grant may use regular NSF grant funds, subject to the usual restrictions and prior approval requirements.

All information currently available about the ICM 98 program, organization, and registration procedure is located on the ICM 98 Web site at <http://elib.zib.de/icm98/>.

—AMS Announcement

## Deadlines and Target Dates at NSF

The Division of Mathematical Sciences (DMS) at the National Science Foundation has a number of programs in support of mathematical sciences research and education. Listed below are the names of programs having deadlines or target dates coming up in the next several months.

*August 1:* (deadline) Interdisciplinary Grants in the Mathematical Sciences.

*September 15:* (deadline) Research Experiences for Undergraduates Sites. Inquiries: [reu.dms@nsf.gov](mailto:reu.dms@nsf.gov).

*October 10:* (target date) Algebra & Number Theory Program.

*October 10:* (target date) Analysis Program (formerly Classical and Modern Analysis).

*October 17:* (deadline) Mathematical Sciences Postdoctoral Research Fellowships. Inquiries: [msprf@nsf.gov](mailto:msprf@nsf.gov).

*November 7:* (target date) Applied Mathematics Program (excluding Mathematical Biology).

*November 7:* (target date) Geometric Analysis.

*November 7:* (target date) Statistics & Probability.

*November 7:* (target date) Topology & Foundations.

*November 13:* (deadline) University-Industry Cooperative Research Programs in the Mathematical Sciences.

*December 4:* (target date) Computational Mathematics Program.

*December 4:* (target date) Mathematical Biology Program.

*December 19:* (deadline) Scientific Computing Research Environments for the Mathematical Sciences.

*February 2, 1998:* (deadline) Mathematical Sciences Research Institutes.

*February 2, 1998:* (target date) Research Planning Grants for Minorities, and Career Advancement Awards for Minorities.

Note: Proposals for workshops and special years may be submitted to the Statistics & Probability Program or to the Topology & Foundations Program at any time. However, proposals for workshops and special years for all other DMS programs (Analysis, Algebra & Number Theory, Applied Mathematics, Computational Mathematics, and Geometric Analysis) must be submitted according to the target dates for those programs.

For further information, consult the DMS Web site at <http://www.nsf.gov/mps/dms/>. The mailing address is Division of Mathematical Science, National Science Foundation, Room 1025, 4201 Wilson Boulevard, Arlington, VA 22230. The telephone number is 703-306-1870.

—DMS

## News from MSRI

The Mathematical Sciences Research Institute (MSRI) in Berkeley, California, is holding three programs during the 1998–99 year.

*Foundations of Computational Mathematics (Fall 1998):* This half-year program is organized around four topics: complexity of numerical computations, homotopy methods, optimization and interior point methods, and differential equations. The main emphasis is on the relationships among these topics.

The program committee consists of Felipe Cucker (co-chair), Arieh Iserles (co-chair), Tien Yien Li, Jim Renegar, Mike Shub (co-chair), and Steve Smale.

*Symbolic Computation in Geometry and Analysis (Fall 1998):* This program will focus on computational algebraic geometry and algebraic properties of differential equations and their solutions. In geometry some of the topics emphasized are: Gröbner bases, resultants and residues, enumerative and toric geometry, and real algebraic geometry. In analysis some of the emphasized topics are: linear difference and differential equations, systems of differential equations, first integrals, symmetry, and equivalence methods.

The program committee consists of Marie-Francoise Roy, Michael Singer (chair), and Bernd Sturmfels.

*Random Matrix Models and Their Applications (Spring 1999):* The purpose of this half-year program is to discuss and thereby to foster the development of challenging new problems and ideas which have recently arisen in the theory of random matrices. The main topics of the program will be:

1. random matrices and completely integrable systems of both the Painlevé and the KP types along with the Riemann-Hilbert and the Virasoro algebra approaches;

2. the relation to algebraic geometry and to topological field theories;

3. the universalities in matrix models, quantum chaos, and the GUE conjectures for zeros of zeta functions;

4. the relation to exactly solvable statistical mechanics models and to quantum affine algebras;

5. applications to mesoscopic systems; and

6. numerical aspects of the theory.

The program committee consists of Pavel Bleher (co-chair), Alan Edelman, Alexander Its (co-chair), Craig Tracy, and Harold Widom.

Further information is available at MSRI's Web site, <http://www.msri.org/>. The mailing address is MSRI, 1000 Centennial Drive, Berkeley, CA 94720-5070; telephone 510-642-0143; fax 510-642-8609.

—MSRI Announcement

## AWM Workshop for Graduate Students and Postdocs

Over the past nine years the Association for Women in Mathematics (AWM) has held a series of workshops for women graduate students and recent doctorates in conjunction with major mathematics meetings. The next AWM Workshop will be held in conjunction with the annual Joint Mathematics Meetings in Baltimore, Maryland, January 6–10, 1998 (pending renewal of funds). The workshop will be held on Saturday, January 10, 1998, with an introductory dinner for participants tentatively scheduled for Thursday evening, January 8, 1998.

Each participating graduate student is invited to present a poster on her thesis problem and each postdoc to present a talk on her research. AWM will offer funding for travel and two days' subsistence for up to twenty participants. Participants will have the opportunity to present and discuss their research and to meet with other women mathematicians at all stages of their careers. The workshop will also include a panel discussion on issues of career development, a luncheon, and a dinner with a discussion period. All mathematicians (female and male) are invited to attend the Saturday program even though funding is provided only for twenty women graduate students and postdocs. Departments are urged to help graduate students and postdocs obtain some institutional support to attend the workshop and the associated meetings.

The AWM is seeking volunteers to lead discussion groups and to act as mentors for workshop participants. If you are interested in volunteering, please contact the AWM office.

To be eligible for funding, graduate students should have made substantial progress toward their theses. Preference

will be given to graduate students who are in their final year. A postdoc must have received her Ph.D. within approximately the last five years, whether or not she currently holds a postdoctoral or other academic position. All non-U.S. citizens must have a current U.S. address. All applications should include a curriculum vitae, a concise description of research (2–3 pages), and a title of the proposed talk/poster. All applications should also include at least one letter of recommendation; in particular, graduate students should include a letter of recommendation from their thesis advisors. Nominations by other mathematicians (along with the information described above) are also welcome.

Send *five* complete copies of the application materials (including the cover letter) to: Workshop Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, Maryland 20742-2461. Applications by e-mail or fax are not acceptable. For further information, contact the AWM at 301-405-7892 or [awm@math.umd.edu](mailto:awm@math.umd.edu). The application deadline is **September 1, 1997**.

—AWM Announcement

## Ferran Sunyer i Balaguer Prize

Each year the Institut d'Estudis Catalans awards the Ferran Sunyer i Balaguer Prize. This prize honors the memory of Ferran Sunyer i Balaguer (1912–1967), a self-taught Catalan mathematician who, in spite of a serious physical disability, was very active in research in classical analysis and acquired international recognition.

The Ferran Sunyer i Balaguer Prize is awarded to a mathematical monograph of an expository nature presenting the latest developments in an active area of research in mathematics in which the author(s) has (have) made important contributions. The prize of 1,800,000 pesetas (approximately \$12,400) is provided by the Ferran Sunyer i Balaguer Foundation. Authors are invited to submit their manuscripts for consideration for the prize.

The manuscript must be original, written in English, and of at least 150 pages. In exceptional cases, manuscripts in other languages may be considered. The winning monograph will be published in Birkhäuser's Progress in Mathematics series, subject to the usual regulations concerning copyright and author's rights.

The winner of the prize will be proposed by the Scientific Committee, consisting of: Friedrich Hirzebruch, Max-Planck-Institut; Paul Malliavin, Université de Paris VI; Joseph Oesterlé, Université de Paris VI; Joan Solà Morales, Universitat Politècnica de Catalunya; and Alan Weinstein, University of California, Berkeley.

Manuscripts should be typeset in  $\text{\TeX}$ . Authors should send a hard copy and two disks with .dvi and PostScript files together with a submission letter to: Institut d'Estudis Catalans, Apartat 50, 08193 Bellaterra, Spain; e-mail [crm@crm.es](mailto:crm@crm.es). This material should be sent before **December 5, 1997**. The name of the prizewinner will be announced in Barcelona in April 1998. For further informa-

tion on the Ferran Sunyer i Balaguer Foundation, consult the Web site <http://crm.es/info/ffsb.htm>.

Note: An announcement of this year's winner of the Ferran Sunyer i Balaguer Prize appears in the "Mathematics People" section in this issue of the *Notices*.

—from Institut d'Estudis Catalans announcement

## NSF Adopts New Review Criteria

The National Science Board (NSB) has approved new criteria for evaluating funding proposals submitted to the National Science Foundation (NSF). The Board, which is the governing body of the NSF, took the action at its March 28 meeting. The approval culminates several months of discussion with the research and education community and analysis by a special task force, chaired by NSB member Warren Washington of the National Center for Atmospheric Research. This is the first time the criteria have been changed since 1981. NSF expects to implement the new criteria beginning October 1, 1997.

The need to reexamine the current criteria was prompted by an evolution in NSF programs since 1981 to include a stronger focus on broad educational initiatives, the integration of research and education, and partnered research activities. It was also prompted by the adoption in 1994 of a new NSF strategic plan. After publishing draft criteria late last year, the NSF collected comments from the science and engineering community during an eight-week comment period. Hundreds of scientists, engineers, and educators offered both support and critique as well as specific suggestions.

Currently the agency asks reviewers to comment on four aspects of a proposal: (1) researcher performance competence, (2) intrinsic merit of the research, (3) utility or relevance of the research, and (4) effect on the infrastructure of science and engineering.

The new criteria appear below, accompanied by the supporting questions.

### 1. What is the intellectual merit of the proposed activity?

The following are suggested questions to consider in assessing how well the proposal meets this criterion: How important is the proposed activity to advancing knowledge and understanding within its own field and across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, please comment on the quality of prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

### 2. What are the broader impacts of the proposed activity?

The following are suggested questions to consider in assessing how well the proposal meets this criterion: How well does the activity advance discovery and understanding

while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

— from NSF news release

## NSF Program for Women

The National Science Foundation (NSF) has formed a new program entitled Professional Opportunities for Women in Research and Education (POWRE). A number of NSF programs—Visiting Professorships for Women, Faculty Awards for Women, Research Planning Grants for Women, and Career Advancement Awards for Women—have been integrated and incorporated into the POWRE program.

The following activities will be supported under POWRE:

*Visiting Professor:* Supports activities at a host academic institution for the conduct of research projects and/or for engaging in innovative educational activities that have promise beyond the home institution's traditional educational approaches.

*Visiting Researcher:* Supports activities for academically employed women to conduct research and development projects at industrial or nonfederal organizations.

*Research/Educational Enhancement:* Supports opportunities to enhance research and/or educational activities at one's home institution or at an external site through (1) access to and utilization of new or special facilities, skills, or methodologies; or (2) exploratory or pilot work to determine feasibility of a new line of inquiry or educational activity.

*Supplements:* Support additional research and/or educational activities for women principal investigators or co-principal investigators to (1) take advantage of a special opportunity in research or education or (2) to provide extra support at a critical career stage.

For fiscal year 1997, proposals and supplement requests must be received at the NSF no later than **July 1, 1997**. For fiscal year 1998, the deadlines are **December 9, 1997**, for proposals and **February 17, 1997**, for supplements. For further information on this program, consult the program announcement on the World Wide Web at <http://www.nsf.gov/cgi-bin/getpub?nsf9791/>. The mathematics representative on the POWRE Coordinating Committee at the NSF is Denise Caldwell, 703-306-1807, [dcaldwel@nsf.gov](mailto:dcaldwel@nsf.gov). The mailing address for the NSF is National Science Foundation, 4201 Wilson Boulevard, Arlington, VA 22230.

—from NSF announcement