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# Mathematics Opportunities

## American Mathematical Society Centennial Fellowship

*Invitation for Applications for Awards for 2014–2015  
Deadline December 1, 2013*

*Description:* The AMS Centennial Research Fellowship Program makes awards annually to outstanding mathematicians to help further their careers in research. The number of fellowships to be awarded is small and depends on the amount of money contributed to the program. The Society supplements contributions as needed. One fellowship will be awarded for the 2014–2015 academic year. A list of previous fellowship winners can be found at <http://www.ams.org/profession/prizes-awards/ams-awards/centennial-fellow>.

*Eligibility:* 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 NSF 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, 2002, and September 1, 2011). 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. 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.

*Deadline:* The deadline for receipt of applications is **December 1, 2013**. The award recipient will be announced in February 2014 or earlier if possible.

*Application information:* Find Centennial information and application form at <http://www.ams.org/ams-fellowships/>. For paper copies of the form, write to the Membership and Programs Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294; [prof-serv@ams.org](mailto:prof-serv@ams.org); 401-455-4105.

—AMS announcement

## AMS Epsilon Fund

The AMS Epsilon Fund awards grants to summer mathematics programs that support and nurture mathematically talented high school students in the United States. The deadline to apply for funding for summer 2014 programs is **December 15, 2013**. Applications are now being taken online at [MathPrograms.org](http://www.mathprograms.org) (<http://www.mathprograms.org>). For more information about the program and updated application information, go to <http://www.ams.org/programs/edu-support/epsilon/emp-epsilon>. For more information contact the AMS Membership and Programs Department by email at [prof-serv@ams.org](mailto:prof-serv@ams.org) or by telephone at 800-321-4267, ext. 4113.

—AMS announcement

## Jefferson Science Fellows Program

The Jefferson Science Fellows (JSF) program at the U.S. Department of State is intended to involve the American academic science, technology, and engineering communities in the formulation and implementation of U.S. foreign policy. Each fellow will spend one year at the U.S. Department of State or the U.S. Agency for International Development (USAID) for an on-site assignment in Washington, D.C., that may also involve extended stays at U.S. foreign embassies and/or missions. Each fellow will receive a stipend of up to US\$50,000. An additional US\$10,000 is awarded for travel associated with assignments at the U.S. Department of State/USAID. Following the fellowship year, the Jefferson Science Fellow will return to his or her academic career but will remain available to the U.S. Department of State for short-term projects over the following five years. The JSF program is administered by the National Academies and is supported through a partnership of the U.S. science, technology, and academic communities, professional scientific societies, and the U.S. Department of State. The deadline for applications is **January 13, 2014**. For further information, email [jsf@nas.edu](mailto:jsf@nas.edu), telephone 202-334-2643, or see the website [http://sites.nationalacademies.org/PGA/Jefferson/PGA\\_046612](http://sites.nationalacademies.org/PGA/Jefferson/PGA_046612).

—From a National Academies announcement

## AMS Congressional Fellowship

The AMS, in conjunction with the American Association for the Advancement of Science (AAAS), will sponsor a Congressional Fellow from September 2014 through August 2015. The fellow will spend the year working on the staff

of a member of Congress or a congressional committee as a special legislative assistant in legislative and policy areas requiring scientific and technical input.

The fellowship is designed to provide a unique public policy learning experience, to demonstrate the value of science-government interaction, and to bring a technical background and external perspective to the decision-making process in Congress.

An AMS Fellowship Committee will select the AMS Congressional Fellow. The fellowship stipend is US\$74,872 for the fellowship period, with allowances for relocation and professional travel and a contribution toward health insurance.

Deadline for applications is **February 15, 2014**. Applicants must have a Ph.D. or an equivalent doctoral-level degree in the mathematical sciences by the application deadline. For further information, please consult the webpage <http://www.ams.org/programs/ams-fellowships/ams-aaas/ams-aaas-congressional-fellowship> or contact the AMS Washington Office at 202-588-1100, email: [amsdc@ams.org](mailto:amsdc@ams.org).

—AMS Washington Office

## Research Opportunities for U.S. Graduate Students in Asia and Australia

The National Science Foundation (NSF) is sponsoring a summer research program in Australia, China, Japan, Korea, Taiwan, New Zealand, and Singapore for U.S. graduate students during the summer of 2014. The East Asia and Pacific Summer Institutes (EAPSI) provide U.S. graduate students in science and engineering with firsthand research experience in the aforementioned countries, an introduction to the science and science policy infrastructure of the respective locations, and orientation to the culture and language. The primary goals of EAPSI are to introduce students to East Asian and Pacific 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 institutes last approximately eight weeks (ten weeks in Japan) from June to August and are administered in the United States by the NSF.

Applicants must be U.S. citizens or permanent residents. They must be enrolled at U.S. institutions in a research-oriented master's or Ph.D. program (including joint degree programs) in fields of science or engineering research and education that are supported by the NSF and that also are represented among the potential host institutions. International travel will be provided, and each awardee will receive a stipend of US\$5,000.

The deadline for full proposals is **November 14, 2013**. Proposers are required to prepare and submit all proposals for this announcement/solicitation through the FastLane system. Further information and detailed instructions are available at <http://www.nsf.gov/pubs/2012/>

[nsf12498/nsf12498.htm?WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click#awd\\_info](http://www.nsf.gov/pubs/2012/nsf12498/nsf12498.htm?WT.mc_id=USNSF_25&WT.mc_ev=click#awd_info) (or <http://tinyurl.com/cqgnexu>).

—From an NSF announcement

## NSF Graduate Research Fellowships

The National Science Foundation's Graduate Research Fellowship Program (GRFP) recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics disciplines who are pursuing research-based master's and doctoral degrees at accredited U.S. institutions. The NSF welcomes applications from all qualified students and strongly encourages underrepresented populations, including women, underrepresented racial and ethnic minorities, and persons with disabilities, to apply for this fellowship.

Fellows benefit from a three-year annual stipend of US\$32,000 along with a US\$12,000 cost-of-education allowance to the institution for tuition and fees, opportunities for international research and professional development, and the freedom to conduct their own research at any accredited U.S. institution of graduate education they choose.

The next deadline to apply for the GRFP is **November 5, 2013**. For further information, visit the website <http://www.nsfgrfp.org/>.

—From NSF announcements

## AAUW Educational Foundation Fellowships and Grants

The American Association of University Women (AAUW) has programs for supporting women students and scholars at various stages of their careers: American Fellowships, Career Development Grants, Community Action Grants, International Fellowships, International Project Grants, and Selected Professions Fellowships. The latter fellowships support women students in areas in which women's participation has traditionally been low, including computer/information sciences and mathematics/statistics.

For further information about the fellowships, application procedures, and deadlines, visit the website <http://www.aauw.org/what-we-do/educational-funding-and-awards/>. Questions by phone or postal mail must be directed to the Iowa City office of the AAUW. Please do not contact the AAUW office in Washington, D.C., or local branches for application information. Please call 319-337-1716, ext. 60; email [aauw@act.org](mailto:aauw@act.org); or write to the customer service center at: AAUW Fellowships and Grants, c/o ACT, Inc., P.O. Box 4030, Iowa City, IA 52243-4030.

—From AAUW website

## NRC-Ford Foundation Fellowships

Through its Fellowship Programs, the Ford Foundation seeks to increase the diversity of the nation's college and university faculties by increasing their ethnic and racial diversity, to maximize the educational benefits of diversity, and to increase the number of professors who can and will use diversity as a resource for enriching the education of all students. The fellowships are administered by the Fellowships Office of the National Research Council.

All citizens or nationals of the United States are eligible regardless of race, national origin, religion, gender, age, disability, or sexual orientation. The fellowships are awarded to individuals who demonstrate superior academic achievement (such as grade-point average, class rank, honors, or other designations) and who are committed to a career in teaching and research at the college or university level.

Sixty Predoctoral Fellowships will be awarded. These fellowships provide three years of support for individuals engaged in graduate study leading to a Doctor of Philosophy (Ph.D.) or Doctor of Science (Sc.D.) degree. The online application deadline is **November 20, 2013**.

Thirty-five Dissertation Fellowships will be awarded. These fellowships provide one year of support for individuals working to complete a dissertation leading to a Ph.D. or Sc.D. degree. The online application deadline is **November 15, 2013**.

Approximately twenty-four Postdoctoral Fellowships will be awarded. These fellowships provide one year of support for individuals engaged in postdoctoral study after the attainment of the Ph.D. or Sc.D. degree. The online application deadline is **November 15, 2013**.

Awards will be announced in April 2014. For further information visit <http://sites.nationalacademies.org/pga/fordfellowships/> or contact: Fellowships Office, Keck 576, National Research Council, 500 Fifth Street, NW, Washington, DC 20001; tel: 202-334-2872; fax: 202-334-3419; email: [infofell@nas.edu](mailto:infofell@nas.edu).

—From the Ford Foundation Fellowships website

## AWM Essay Contest

To increase awareness of women's ongoing contributions to the mathematical sciences, the Association for Women in Mathematics (AWM) and Math for America are cosponsoring an essay contest for biographies of contemporary women mathematicians and statisticians in academic, industrial, and government careers.

Each essay will be based primarily on an interview with a woman currently working in a mathematical sciences career. This contest is open to students in the following categories: Grades 6–8, Grades 9–12, and College Undergraduate. At least one winning submission will be chosen from each category. Winners will receive a prize, and their essays will be published online at the AWM website.

Additionally, a grand prize winner will have his or her submission published in the *AWM Newsletter*.

The deadline for the 2013 AWM Essay Contest is **January 31, 2014**. AWM is also currently seeking women mathematicians to volunteer as the subjects of these essays. For more information or to sign up as a volunteer, contact the contest organizer, Heather Lewis, at [hlewis5@naz.edu](mailto:hlewis5@naz.edu). See <https://sites.google.com/site/awmmath/home> for complete information.

—AWM announcement

## AMS Department Chairs Workshop

The annual workshop for department chairs will be held a day before the start of the Joint Mathematics Meetings in Baltimore, Maryland, on Tuesday, January 14, 2014, from 8:00 a.m. to 6:30 p.m. This one-day session for mathematical sciences department chairs is organized in a workshop format so as to stimulate discussion among attendees. Sharing ideas and experiences with peers creates an environment that enables attending chairs to address departmental challenges from new perspectives.

Workshop leaders will be: William “Bus” Jaco, professor, Department of Mathematics, Oklahoma State University; Alex Smith, professor and chair, Department of Mathematics, University of Wisconsin-Eau Claire; Michel Smith, professor, Department of Mathematics and Statistics, Auburn University; and Judy Walker, professor and chair, Department of Mathematics, University of Nebraska-Lincoln.

Past workshop sessions have focused on a range of issues facing departments, including planning and budgeting, personnel management, assessment, outreach, faculty development, communications, student learning, and departmental leadership.

The workshop registration fee of US\$100 is in addition to and separate from the Joint Meetings registration. An invitation to attend the workshop will be sent to department chairs this fall. Information will also be posted on the AMS website. For further information, please contact the AMS Washington Office at 202-588-1100 or [amsdc@ams.org](mailto:amsdc@ams.org).

—AMS Washington Office

## Mathematics Research Communities 2014

The AMS invites mathematicians just beginning their research careers—those who are close to finishing their doctorates or who have recently finished—to become part of Mathematics Research Communities, a unique and successful program that builds social and collaborative networks through which individuals inspire and sustain each other in their work. Women and underrepresented minorities are especially encouraged to participate. Supported by the National Science Foundation, the structured

program engages and guides all participants as they start their careers.

Those accepted into the program will receive support for the summer conference and will be partially supported for their participation in the Joint Mathematics Meetings that follow in January 2015. The summer conferences of the MRC are held in the breathtaking mountain setting of the Snowbird Resort, Utah, where participants can enjoy the natural beauty and a collegial atmosphere. The program also includes discussion networks by research topic and a longitudinal study of early-career mathematicians.

Four conferences will be held in summer 2014 on the following topics.

*Week 1: June 8–14, 2014: Cluster Algebras.* Organizers: Michael Gekhtman, University of Notre Dame; Mark Gross, University of California, San Diego; Gregg Musiker, University of Minnesota; David Speyer, University of Michigan; Gordana Todorov, Northeastern University.

*Week 2: June 15–21, 2014: Algebraic and Geometric Methods in Applied Discrete Mathematics.* Organizers: Carina Curto, University of Nebraska-Lincoln; Jesús A. DeLoera, University of California, Davis; Christine Heitsch, Georgia Institute of Technology; Michael Orrison, Harvey Mudd College; Francis Edward Su, Harvey Mudd College.

*Week 3a: June 24–30, 2014: Mathematics of Quantum Phases of Matter and Quantum Information.* Organizers: Siu-Hung Ng, Iowa State University; Eric C. Rowell, Texas A&M University; Zhenghan Wang, Microsoft Station Q and University of California Santa Barbara.

*Week 3b: June 24–30, 2014: Network Science.* Organizers: Aaron Clauset, University of Colorado, Boulder; David Kempe, University of Southern California; Mason A. Porter, University of Oxford.

Individuals within one to two years before the receipt of their Ph.D.'s or within one to three years after receipt of their Ph.D.'s are welcome to apply. The MRC program is open to individuals who are U.S. citizens, as well as to those who are affiliated with U.S. institutions. A few international participants may be accepted. Women and underrepresented minorities are especially encouraged to apply. All participants are expected to be active in the full MRC program. Detailed instructions and the online application will be available on **November 1, 2013**.

Situated in a breathtaking mountain setting, Snowbird Resort provides an extraordinary environment for the MRC. The atmosphere is comparable to the collegial gatherings at Oberwolfach and other conferences that combine peaceful natural ambience with stimulating meetings. MRC participants have access to a range of activities, such as a tram ride to the top of the mountain, guided hikes, swimming, mountain bike tours, rock climbing, plus heated outdoor pools. More than a dozen walking and hiking trails head deep into the surrounding mountains. Participants also enjoy the simpler pleasures of convening on the patios at the resort to read, work, and socialize. In the evenings colleagues enjoy informal gatherings to network and continue discussion of the day's sessions over refreshments. Within a half hour of the University of Utah, Snowbird is easily accessible from the Salt Lake

City International Airport. For more information about Snowbird Resort, see <http://www.snowbird.com>.

For further information on Mathematics Research Communities, visit the website <http://www.ams.org/programs/research-communities/mrc-14> or contact Ellen J. Maycock at [ejm@ams.org](mailto:ejm@ams.org).

—AMS announcement

## Free Grant-Writing Workshop Offered

The AMS, in conjunction with the National Science Foundation Directorate for Education and Human Resources (NSF-EHR), is pleased to offer a **FREE** workshop entitled "Writing a Competitive Grant Proposal to NSF-EHR". This grant-writing workshop will be held prior to the start of the Joint Mathematics Meetings on Monday, January 13, 2014, from 3:00 p.m. to 6:00 p.m. at the Marriott Inner Harbor Hotel in Baltimore, Maryland.

*Workshop Goals:*

- To familiarize participants with current direction/priorities in EHR
- To familiarize participants with key EHR education research and development programs
- To consider common issues of competitive proposals
- To prepare participants to write a competitive proposal

Topics covered will include: discussion of key programs in EHR, the merit review process and merit review criteria, discussion of scenarios—short passages drawn from proposals in the EHR portfolio designed to stimulate discussion about strengths and weaknesses of a proposal, opportunity to discuss possible proposal ideas with program officers.

This free workshop is open to all interested participants. The deadline for registration is **December 24, 2013**. To register see the website <http://tinyurl.com/ka4fcdu>.

—AMS Washington Office

## Call for Nominations for the 2014 Alan T. Waterman Award

The National Science Foundation (NSF) is soliciting nominations for the 2014 Alan T. Waterman Award. The award recognizes an outstanding young researcher in any field of science or engineering supported by the NSF. The award consists of a US\$1,000,000 grant over a five-year period for research at the institution of the recipient's choice. The deadline for nominations is **October 25, 2013**. Nominations must be submitted electronically using NSF's FastLane system at <https://www.fastlane.nsf.gov/honawards/index.jsp>. For more details about the award, see <http://www.nsf.gov/od/waterman/waterman.jsp>.

—From an NSF announcement

## News From MSRI

With funding from the National Science Foundation (NSF), and the National Security Agency (NSA), the Mathematical Sciences Research Institute (MSRI) will hold six workshops in Model Theory, Arithmetic Geometry and Number Theory; and Algebraic Topology during the spring of 2014. Established researchers, postdoctoral fellows and graduate students are invited to apply for funding. It is the policy of MSRI to actively seek to achieve diversity in its workshops. Thus, a strong effort is made to remove barriers that hinder equal opportunity, particularly for those groups that have been historically underrepresented in the mathematical sciences. The workshops to be held are as follows:

**January 23–24, 2014:** Connections for Women: Algebraic Topology. <http://www.msri.org/workshops/684>.

**January 27–31, 2014:** Introductory Workshop: Algebraic Topology. <http://www.msri.org/workshops/685>.

**February 3–7, 2014:** Introductory Workshop: Model Theory, Arithmetic Geometry and Number Theory. <http://www.msri.org/workshops/688>.

**February 10–11, 2014:** Connections for Women: Model Theory and Its Interactions with Number Theory and Arithmetic Geometry. <http://www.msri.org/workshops/687>.

**April–11, 2014:** Reimagining the Foundations of Algebraic Topology. <http://www.msri.org/workshops/689>.

**May 12–16, 2014:** Model Theory in Geometry and Arithmetic. <http://www.msri.org/workshops/686>.

—From an MSRI announcement

# Inside the AMS

## From the AMS Public Awareness Office



**Mathematical Moments.** How has math helped us understand communication pathways in the brain? How does mathematics help architects design freeform buildings? Why is it important to understand the properties of bubbles and foam? These are some of the questions answered in recent Mathematical Moments. Hear podcast interviews with Frank Morgan, James Sethian,

Helmut Portmann, Van Wedeen, and others; download and print the PDFs of these and more than one hundred other topics; and see translated versions at <http://www.ams.org/mathmoments/>.

**AMS on Google+.** The AMS joins the mathematical community on Google+ to engage with new and existing Google+ users by sharing research and publication content, membership and program news, meeting updates, and other subjects of interest to the mathematics research community. The AMS invites mathematicians worldwide to add AMS to your circles. Find AMS at +American Mathematical Society.

**Math in the Media.** This monthly online magazine is a centralized site at which to find coverage of mathematics and mathematicians in articles, radio spots, and television segments. Tony Phillips (Stony Brook University) offers his take on articles about mathematics in *Science*, *Nature*, newspapers, and other science journals, and previous AMS-AAAS Mass Media Fellows summarize media coverage of recent mathematics news, math education, mathematics and the arts, and mathematicians. AMS members are

invited to email to [paoffice@ams.org](mailto:paoffice@ams.org) links to media coverage of mathematics, interviews with themselves or other mathematicians, and radio or television programs that highlight mathematics. *Math in the Media* also includes the Reviews section: links to reviews of recent books, plays, and films of general interest. <http://www.ams.org/mathmedia>.

—Annette Emerson and Mike Breen  
AMS Public Awareness Officers  
[paoffice@ams.org](mailto:paoffice@ams.org)

## Deaths of AMS Members

MICHAEL I. AISSSEN, of Santa Cruz, California, died on January 7, 2013. Born on January 16, 1921, he was a member of the Society for 64 years.

Russell G. Bilyeu, of Chico, Texas, died on March 12, 2012. Born on January 22, 1930, he was a member of the Society for 53 years.

Jan Boal, of Atlanta, Georgia, died on January 16, 2013. Born on October 20, 1930, he was a member of the Society for 55 years.

Robert A. Clark, of Cleveland, Ohio, died on December 19, 2012. Born on May 3, 1923, he was a member of the Society for 68 years.

Marc Fontaine, of Houston, Texas, died on January 24, 2013. Born on March 27, 1926, he was a member of the Society for 58 years.

A. Raymond Harvey, of La Jolla, California, died on February 6, 2013. Born on January 12, 1921, he was a member of the Society for 69 years.

John E. Kimber, of Pittsburg, California, died on January 18, 2013. Born on August 5, 1925, he was a member of the Society for 59 years.