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# For Your Information

## NSF Keeps Two Existing Institutes and Funds a Third

The Division of Mathematical Sciences (DMS) of the National Science Foundation (NSF) has announced the results of the recompetition of the mathematics institutes it funds. The two existing institutes—the Mathematical Sciences Research Institute (MSRI) in Berkeley and the Institute for Mathematics and its Applications (IMA) at the University of Minnesota—will continue to be funded by the NSF. They will be joined by a new institute, the Institute for Pure and Applied Mathematics (IPAM) at the University of California, Los Angeles.

The National Science Board, the governing body of the NSF, approved the recommendation to renew the funding for MSRI for five years starting July 1, 2000. NSF director Rita Colwell approved the recommendations of the NSF's Division of Mathematical Sciences to renew the funding for IMA and to establish IPAM. At the time of this writing, the actual awards had not been made but were scheduled to be made in the fall after Cooperative Agreements between the NSF and the institutes are drawn up.

MSRI and IMA were launched in the early 1980s and have received continuous funding from the DMS since then. NSF policy stipulated that such projects must be put up for recompetition after fifteen years of funding (this policy has now been changed to require recompetition after ten years). The DMS announced the recompetition in late 1996, and proposals were due in February 1998. The NSF received between ten and twenty proposals in the recompetition. Site visits were conducted during 1998, and the final decisions were made in spring 1999 by the National Science Board.

### **Institute for Pure and Applied Mathematics, UCLA**

The main purpose of IPAM is to encourage cross-fertilization between mathematics and other scientific disciplines and to broaden the range of mathematical techniques used in science. There will be three programs per year, each of which will have a mathematical stream and a complementary stream drawing on one or more scientific areas. Two examples of areas in which programs are being planned are functional genomics (statistics, mathematical biology, computational techniques, etc.) and geometrically based motions (geometric PDEs, threshold dynamics, computer vision, computer-aided design, materials, etc.). The plan is to have present on a long-term basis four senior researchers and about ten researchers in the early stages of their careers (including but not limited to postdoctoral researchers), as well as about twenty other visitors at any one time. The participants will be split approximately equally between the two streams. Each program will end with a culminating conference at the UCLA conference center in the mountains at Lake Arrowhead. In order to encourage the formation of groups that continue to work together, each IPAM program will have two 1-week reunion conferences, held one year and two years after the program ends. IPAM will also have an educational component that will include an undergraduate program modeled on the mathematical modeling "clinic" at Harvey Mudd College. Formally an institute of UCLA, IPAM is independent of the mathematics department and has its own scientific board and board of directors. IPAM will occupy a 13,000-square-foot building on the UCLA campus, adjacent to the mathematics department. It will hold its first programs in the year 2000-01.

### **Institute for Mathematics and its Applications, University of Minnesota**

IMA and MSRI will each maintain its traditional structure and purpose but will make some changes. IMA's purpose is to identify areas of mathematical research related to problems in science and engineering and to provide settings in which work on such problems can fruitfully take place. Each year IMA focuses on a single theme; upcoming themes are Mathematics in Multimedia (2000–01) and Mathematics in the Geosciences (2001–02). About 1,200 people participate annually in IMA programs. IMA has also become well known for its strong interactions with industry, through activities such as the Industrial Problems Seminar, in which industrial scientists present problems from industry that have mathematical content, and through the IMA Industrial Postdoc program, in which young researchers come to the IMA for two years and spend half their time working with a company and half in IMA's general program. Two changes have been made in the regular IMA postdoctoral program: the program will now support researchers for two years and will also provide opportunities for teaching and/or industrial experience in the second year. IMA is exploring the establishment of Industrial Consortia, in which teams of mathematicians will focus on problems arising in a single industry; companies from that industry will provide the financial support. IMA and the Joint Alliance for Minorities in Mathematics will enter into a long-term relationship aimed at increasing involvement of underrepresented groups in IMA programs and in industrial mathematics. Through support from the University of Minnesota, the physical space for IMA activities has nearly doubled.

### **Mathematical Sciences Research Institute, Berkeley**

The basic mode of operation of MSRI is each year to run two to four research programs of varying lengths, each of which is centered on a specific area of the mathematical sciences. For example, MSRI will have three programs spanning the 1999–2000 year: Noncommutative Algebra, Galois Groups and Fundamental Groups, and Numerical and Applied Mathematics. Workshops are held in each program area, as well as on topics outside of the programs. More than 1,000 mathematicians visit MSRI each year for varying periods, and there is a postdoctoral program that brings in 20–30 young researchers each year. MSRI will continue to run programs in both core and applied mathematics topics, as it has from its beginning. MSRI has strengthened its ties to other sciences and to industry through, for example, its Corporate Affiliates program and the establishment of a professorship funded by Hewlett-Packard. Its outreach programs have expanded to include the MSRI Journalist-in-Residence program and sponsorship of the Bay Area Mathematical Olympiad, a mathematical contest for local high school students. The MSRI building is owned by the University of California, Berkeley, but MSRI is not formally a part of the university. UCB has substantially strengthened its commitment to MSRI: MSRI will no longer pay rent for its building, and UCB will provide support for

the equivalent of about 2.75 full-time senior faculty at MSRI.

According to NSF budget documents, the DMS budget request for fiscal year 2000 for the three institutes is \$8.1 million; this amount, which includes an increase to fund the third institute, had not been appropriated at the time of this writing and could change. The steady-state annual NSF funding for the institutes is projected to be \$2.5 million for IPAM, \$2.2 million for IMA, and \$3.4 million for MSRI. When non-NSF funding is included, the total annual budget for IMA is about \$3.5 million and for MSRI is about \$4.5 million. The IPAM directors say they are actively pursuing additional funding for the institute and have secured support from IPAM affiliates in academia, industry, and national laboratories.

What follows is contact information for the three institutes.

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—Allyn Jackson

## **Joint Testimony by Society Presidents**

On April 28, 1999, AMS president Felix Browder, together with three other scientific organization presidents, gave testimony before the subcommittee of the House Appropriations Committee, which oversees the budget of the National Science Foundation (NSF). The testimony called for increased funding for the NSF across all the disciplines the foundation supports.

The testimony was presented before the Subcommittee on Veterans Affairs, Housing and Urban Development, and Independent Agencies. Joining Browder in the presentation were William Brinkley, president of the Federation of American Societies for Experimental Biology; Jerome Friedman, president of the American Physical Society; and Edel Wasserman, president of the American Chemical Society. Friedman began the testimony by explaining that the four organizations had banded together to present joint testimony—for the second year in a row—in order to stress the interdependence of the scientific disciplines. He also introduced the group; and then Wasserman, Browder, and Brinkley spoke, in that order.

In his part of the testimony, Wasserman pointed out that since the NSF was created fifty years ago, the U.S. has become the world leader in science, technology, and engineering. He also pointed to estimates by economists that, in recent years, 70 percent of the economic growth of the U.S. has come from technology and scientific innovation.

Browder's portion of the testimony was as follows: "Among federal agencies, the National Science Foundation is unique, because its portfolio spans all the disciplines: the physical and life sciences, mathematics, engineering, and the social sciences. The activities it supports are key to R&D [research and development] performed and underwritten by all other federal agencies. While the Foundation's share of the FY 1999 federal budget amounts to a little more than 0.2 percent, the agency has had a powerful impact on U.S. science since its inception in 1950. An impressive percentage of American Nobel laureates have been recipients of NSF support: about 50 percent of all laureates in chemistry and physics, 60 percent in economics, and 30 percent in medicine and physiology. NSF has also supported approximately 45 percent of worldwide recipients of the Fields Medal, the mathematical equivalent of the Nobel Prize. Beyond this, the agency has played a major role in the development of the Internet, which generated revenues of about \$7 billion in 1998, with an increase to \$40 billion expected by 2002."

In concluding the testimony, Brinkley emphasized that increased funding is needed not just for the biomedical sciences but also for the other major scientific disciplines. He said that to maximize returns on the nation's investment in biomedical sciences there must also be "robust support for fundamental research in physics, chemistry, mathematics, and engineering."

—Allyn Jackson

## Scholarships Funded from H-1B Visa Fees

The National Science Board approved plans by the National Science Foundation (NSF) to provide some \$21 million to fund 8,000 one-year scholarships of up to \$2,500 each to low-income students who pursue degrees in computer science, engineering, or mathematics. These Computer Science, Engineering, and Mathematics Scholarships

(CSEMS) are authorized by the American Competitiveness and Workforce Improvement Act of 1998.

The \$21 million education fund created during the first year of the program (FY 1999) is derived from a \$500 fee that U.S. employers pay to the federal government for each high technology immigrant employee they employ under terms of an H-1B visa application. Additional funds will be provided in FY 2000 and FY 2001.

Among the eligible institutions to receive and administer the scholarship awards are two-year community colleges, undergraduate and graduate institutions. One hundred institutions will receive the two-year scholarship fund grants in the first year of the program. Each will be able to award a total of eighty scholarships (i.e., forty during each of the two years of the grant).

The program will be managed by NSF's Directorate for Education and Human Resources, and the program awards will be made to institutions that in turn will award scholarships to economically disadvantaged students, as determined by Department of Education criteria used for Pell Grants or Graduate Assistance in Areas of National Need. The first scholarships are expected to be made in January 2000.

Students must be pursuing an accredited associate, bachelor's, or graduate degree in computer science, engineering, mathematics, computer technology, or engineering technology. Students may be supported for up to two years but must recompute annually. Scholarship recipients must be U.S. citizens, U.S. nationals, refugee aliens, or permanent resident aliens.

For further information on this program, contact:  
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—From NSF news release

## Correction to AWM Article

The January 1999 issue of the *Notices* carried our article about the Association for Women in Mathematics (AWM), entitled "AWM in the 1990s". Please note the following correction to the sidebar that appeared on page 34. The Hay Award and the Schafer Prize were indeed first awarded when Jill Mesirov was AWM president, but they were established when Rhonda Hughes was AWM president (1987–89). Also Bettye Anne Case and Anne Leggett have served AWM as meetings coordinator and newsletter editor for nineteen and twenty-two years respectively, rather than the figures given in the article. Finally, the number of members reported was overestimated because over 500 institutionally-nominated student members from the prior year had not been purged from the database.

—Jean Taylor and Sylvia Wiegand

