
From the AMS Secretary

Reports from the Fall 2003 AMS Policy Committee Meetings

There are five AMS policy committees which report to the AMS Council. Each of them has one face-to-face meeting annually. Two of them meet in the spring; three in the fall. This is a report on the fall 2003 meetings of the Committee on the Profession, held in Chicago on September 13, 2003; the Committee on Publications, held in Chicago on September 19–20, 2003; and the Committee on Education, held in Washington, DC, on October 24–25, 2003.

Committee on the Profession Highlights

The Committee on the Profession (CoProf) considered a recommendation of the Centennial Fellowship Selection Committee to change the eligibility period from its current time of between three and twelve years since receipt of Ph.D. to between five and twelve years. CoProf reviewed a history of eligibility criteria for the Centennial Fellowship, data on contribution levels to the Centennial Fellowship Fund, and a profile of the Ph.D. age of the most recent applicant pool. After discussion, action on this item was tabled, to be revisited in two years at the 2005 CoProf meeting.

The committee approved recommending to the Council the expansion of eligibility for life membership and the modification of the dues levels for life membership, assuming approval of the bylaws changes on the 2003 AMS Election ballot. It was noted that the bylaws change would provide the flexibility for the AMS to make future changes to the specific requirements and dues levels associated with life membership.

CoProf reviewed background material on the Focused Planning effort in the area of membership as well as a preliminary set of recommendations. Committee members

discussed those recommendations and provided feedback on the document for the Staff Steering Committee.

CoProf reviewed alternate phrasing for a proposed prize for outstanding achievement by a mathematics department drafted by President Eisenbud. A subcommittee was formed to refine the proposal. The refined version, which will emphasize innovation and copy-ability, was to be distributed and reviewed by CoProf via email, with the expectation that a final version would be recommended to the November 2003 Executive Committee/Board of Trustees (ECBT) meeting and the January 2004 Council meeting.

The committee discussed a 2002 CoProf subcommittee suggestion to recommend to the AMS Council that the charge to the Committee on Human Rights of Mathematicians be broadened to include issues of human rights of foreign mathematicians and the U.S. government. CoProf formed a subcommittee to review the Charge to the Committee on Human Rights and to assess whether it makes sense to include a portion on the rights of foreign mathematicians who experience difficulties during U.S. travel. The recommendations of the subcommittee will be reviewed by CoProf, and any approved changes in the charge will be forwarded to the Council for consideration.

CoProf reviewed a draft paragraph on plagiarism which the Committee on Professional Ethics (COPE) recommended appending to the current AMS Ethical Guidelines. CoProf formed a subcommittee to review and revise, if necessary, the current AMS Ethical Guidelines. Recommendations of the subcommittee will be reviewed by CoProf, and any approved changes in the charge will be forwarded to the Council for consideration.

The committee selected employment opportunities, a subject last reviewed in 1995, as the topic of the coming annual review. Employment issues affecting Ph.D.'s and bachelor's recipients may also be examined. A subcommittee will be formed to conduct the review.

CoProf reviewed a report provided by Christine Stevens of the MAA-supported Project NExT. The profile of the program and a listing of the AMS-sponsored recipients and their affiliations were discussed. The committee agreed without hesitation to recommend to the November 2003

ECBT the continued support of Project NExT at its current level of \$15,000 per year.

CoProf formed a joint organizing committee with the Committee on Science Policy to plan for a panel presentation in Phoenix dealing with aspects of pipeline issues in mathematics. Committee members discussed the possible goals and conceptual framework of the panel and suggested potential panelists and perspectives which could be represented.

Committee on Publications Highlights

As part of the regular review cycle of the Society's publishing program, the Committee on Publications (CPub) reviewed the AMS book program. The review considered the scientific quality of the program and its underlying editorial policies, but it also extended to aspects of the program not normally considered by the committee. This was largely because many changes have been made to the book program in the past two years, and the committee was asked to comment on the overall effect of those changes. CPub endorsed the goal of expanding the scope of some existing book series to include a broader range of mathematics. As part of the review, the committee also considered whether to combine editorial boards for some existing book series. No conclusions were drawn about the advisability of doing this.

The committee undertook a review of the existing copyright policy and its implementation in light of the recent changes in scholarly publishing. CPub agreed that the current AMS policy is fundamentally sound. It recognized the existence of some minor problems, however, and discussed recommendations for fixing them. There was consensus to adopt the "moderate approach" as presented by the publisher. CPub formed a subcommittee to draft a revised statement of policy that would (i) maintain all the rights given to authors as specified in the existing copyright statement, (ii) slightly expand the rights licensed to the Society when authors hold the copyright, and (iii) make it possible for authors to dedicate their work to the public domain twenty-eight years after publication if they choose to do so. A revised statement is to be forwarded to the ECBT and Council for approval.

The committee also passed a resolution about policy and process in dealing with copyright in the future:

The Committee on Publications (along with the Council and Board) will have full responsibility for determining the copyright policies of the AMS and will exercise that responsibility by creating clear policies and reviewing them periodically. Staff will have responsibility for implementing those policies by designing a consent agreement, updating it and occasionally modifying it to conform to changes in the environment (or the law).

The AMS is regularly approached with proposals to publish new journals, and CPub was asked to comment on whether the AMS should provide help to other organizations to start them. In many cases, those who propose new journals already have the ability to produce the journals and merely lack the ability to distribute them, either in print or electronic form. As a result, the Society has established a model for providing help with the distribution of new journals at minimal or no cost to the AMS. This provides an important service to the mathematical community, especially in the developing world. AMS provides mostly advertising, stability, and distribution, and is not involved in editorial work. The committee voted to review the policies for AMS distribution of new journals as part of the regular four-year cycle of reviews presently conducted by CPub.

The AMS was asked about endorsing a Probability Digital Library project by Jim Pitman (Berkeley). The project has requested funding from the National Science Foundation and has received nonfinancial support from various organizations. CPub endorsed the concept of the proposal but did not recommend official endorsement of the specific proposal. The AMS executive director was asked to write a letter of encouragement for this project.

The length of time to make decisions and the pressure to process manuscripts for AMS journals has increased in recent years. It is hoped that ultimately centralized manuscript tracking will solve the problem; in the meantime, other steps need to be taken. One of these is a proposed new set of Guidelines for New Editors of AMS Journals, with suggestions for a basic protocol to handle manuscripts submitted to the Society's journals. The committee recommended adoption of the guidelines and requested that they be sent to all editors, current and new.

The Digital Mathematics Library, a project meant to coordinate digitization of the printed mathematics literature from the past, is moving forward slowly. Progress has been made, and there are a number of digitization projects already under way. Two groups met in May: the NSF-sponsored project through Cornell University and the Committee on Electronic Information and Communication of the IMU. Minutes of the CEIC meeting and the recent article in the *Notices* on the Digital Mathematics Library were submitted to the committee for information and discussion.

The committee received reports on *Mathematical Reviews*, *Bulletin*, *Notices*, and the journal backlog. CPub selected AMS member journals (*Bulletin*, *Notices*, and *Abstracts*) as the review topic for 2004.

Committee on Education Highlights

The Committee on Education (CoE) discussed a number of issues related to mathematics education, including expanded learning and professional development for pre-service and in-service teachers; graduate education in

mathematics; the new SAT test; new projects at the NSF; and several programs, partnerships, and initiatives which focus on improving mathematics education. Guests of the committee included representatives from the NSF, Achieve, the College Board and the U.S. Department of Education, and several mathematicians involved in educational projects. The meeting attracted forty-nine participants, including chairs of doctorate-granting departments of mathematics from across the country.

Presentation on Preparing Materials and Structuring Mathematics Courses for Preservice Teachers

Jim Milgram (Stanford University) presented the case for significant improvement in the K-12 education system in this country. He discussed how standard interventions have failed children, and he called for increasing preservice requirements to address the problem, citing the state of California with its written standards and the University of Georgia with its increase in content requirements for preservice mathematics teachers as examples. These measures are moving the system towards successful mathematics education, but there is much more work to be done. Milgram discussed the measures he believes necessary to get back on track, including giving states standards, changing K-8 teacher certification requirements, and giving teachers in-service support in mathematics.

Milgram is currently part of a project funded by the Funds for the Improvement of Education (FIE) focused on analyzing the mathematical issues required for effective instruction of preservice and in-service teachers. A committee assembled to work on the project has the objectives of creating course construction guides for development of core college-level courses for preservice K-8 teachers and developing guides for creating effective in-service math institutes for K-8 teachers. A rough draft of the committee's recommendations is due by the end of December 2003.

The New SAT Mathematics Test

Robin O'Callaghan of The College Board discussed the state of the SAT test in mathematics. She gave background information on the test—including its configuration, content areas, and question types—gave several examples of the types of questions on the current SAT test, and distributed copies of the SAT test preparation booklet. Changes that were made to the test in 1994 were also discussed, including allowing calculators, and adding topics and student-produced response questions.

O'Callaghan then presented the changes to the SAT mathematics test that will take place in 2005. The new SAT will eliminate quantitative comparison questions; there will be some content changes, a new configuration, and a further alignment with curricula. There will be significant change in the algebra and functions portions of the test, as well as changes in other areas, including geometry and measurement. The SAT advisory committee also made other broad recommendations, including multiple-solution strategies, estimation, and multiple representations. Other policy changes recommended by the advisory committee

included figures being drawn to scale, continuing to give formulae, and allowing scientific-level calculators. In addition to changes in the mathematics portion of the test, there will also be changes in the reading and writing portion. The first administration of the new SAT test will be in March 2005.

Achieve's Mathematics Achievement Partnership

Laura McGiffert of Achieve discussed the organization's Mathematics Achievement Partnership (MAP) program. She began by giving some background on Achieve and then outlined Achieve's MAP initiative, which was started in 1999 following the Third International Mathematics and Science Study (TIMSS). TIMSS compared U.S. students' performance to that of students from around the world and found that there were serious problems in mathematics education in this country, particularly by the time students reach middle school. The MAP initiative is working to help address these problems.

Achieve partnered with ten states to embark on the MAP initiative with the goal of improving middle school mathematics achievement by raising expectations and improving teaching. The MAP initiative utilized a panel of university mathematicians, mathematics educators, and state and local supervisors of mathematics education to develop "Foundations for Success", which outlines student knowledge expectations at the end of eighth grade. Initially the MAP initiative sought to develop a common assessment of student knowledge to be used across the states, but it had to make a strategic shift following the institution of the "No Child Left Behind" legislation, since the climate under this new legislation is less supportive of a common assessment.

MAP is currently working with a New England consortium in addition to its ten partner states. The states want to collaborate on improving their own assessments, improving the quality of the data that drives decision making, and perhaps collaborating on a set of standards for teacher knowledge at the elementary and secondary levels. Achieve is working to develop guidelines to help states achieve the level of success outlined in "Foundations for Success" and is doing this by "backmapping"—looking backward to see what steps are necessary to achieve the outlined goals. Achieve is planning to have a consultation draft of the K-8 benchmarks published in March 2004 and will ask the CoE for a formal review prior to publication.

U.S. Department of Education Mathematics and Science Partnerships (MSP) Program and the Mathematics and Science Initiative (MSI)

Patricia O'Connell Ross gave a description of the "No Child Left Behind" program and then described the Title II program, which is a \$3 billion program that funnels money to the states to address the need of improving teacher quality. Within Title II there are mathematics partnership programs. Initially the bulk of the funds for the mathematics partnership went to the National Science Foundation (NSF), but now there are two programs, one at the NSF and one at the Department of Education (DOE).

The DOE Mathematics and Science Partnerships (MSP) program gives formula-funded dollars to states with the intent of increasing the academic achievement of students in mathematics and science by providing for the professional development of teachers with a focus on content knowledge and related teaching skills. The core partners of the program must be arts and science faculty in higher education and high-need school districts, although other partners are also allowed. It is a discretionary grant program administered by the states, with annual evaluation reports submitted to the secretary of education. The size of the grants ranges from \$500,000 to \$15 million and mostly involves multiyear partnerships. The 2003 total funding amount for this program is \$100 million.

The DOE Mathematics and Science Initiative (MSI), which was launched this year, focuses on achieving three goals: conducting a broad-based public engagement campaign that draws attention to the need for better mathematics and science education in U.S. schools; initiating a major campaign to recruit, prepare, train, and retain teachers with strong backgrounds in math and science; and developing a major academic research base to improve our knowledge of what boosts student learning in mathematics and science in the classroom.

Ross also reported that the DOE will hold a Summit on Science on March 16, 2004, during "Excellence in Science, Technology and Math Education (ESTME) Week", March 15-20, 2004.

National Science Foundation Math and Science Partnership (MSP) Program

Diane Spresser, senior program coordinator of the MSP Program at the National Science Foundation Directorate for Education and Human Resources (NSF-EHR), outlined the MSP Program. It is a research and development effort designed to improve K-12 student achievement in mathematics and science. In 2002-03 the MSP Program supported twelve awards for Comprehensive Partnerships which implemented change in mathematics and/or science educational practices, resulting in improved student achievement across the entire K-12 spectrum. It made twenty-three awards for Targeted Partnerships in mathematics and/or science with a focus on narrower grade bands in K-12. It also provided one prototype award for an Institute Partnership in the areas of content and leadership.

For 2004 the NSF seeks to support three types of MSP projects: Targeted Partnerships for the secondary grade levels; Institute Partnerships; and Research, Evaluation and Technical Assistance (RETA) in support of the Institute Partnerships. The 2004 Institute Partnerships will be focused on the development of school-based intellectual leaders and master teachers, and teachers of mathematics or the sciences in the secondary grades and elementary specialists. Participants will be experienced teachers who want to deepen content knowledge and build leadership skills. The institutes will be multiyear programs of coherent study within a particular discipline. The 2004 RETA proposals must support the work of the Institute Partnerships through research on the characteristics that

define and contribute to the development of teacher intellectual leadership; development of assessments on teacher growth in content knowledge, leadership and/or reflective practice; or research on the attributes of challenging mathematics/science content.

National Science Foundation Mathematics Education Portfolio Review

Janice Earle, senior program director of the Division of Elementary, Secondary, and Informal Education (ESIE), a division of the NSF-EHR, provided an update of the Mathematics Education Portfolio Review. This portfolio review gives the NSF a means by which to critique its mathematics education programs across divisions in order to determine their value to the mathematics education system. The criteria used to judge the portfolio includes determining the relevance of the portfolio, its quality and performance. The data reviewed by expert panels includes EHR program solicitations and "Dear Colleague" letters from 1994-2002, a random sampling of projects, "profile" cases on projects that have had a significant impact, analysis of responses by external resource groups (some twenty mathematics and general education organizations were invited to participate), and presentations from their first expert panel meeting which looked at the mathematics education system as a whole.

During this review process the expert panel also raised some issues including the appropriateness and centrality of mathematics content in programs; NSF infrastructure, processes, and procedures; long-term impact and sustainability of programs; and the size, scope, and duration of awards. The panel will meet again in January 2004 to formulate a plan for the future based on these issues. The final report on the Mathematics Education Portfolio Review is due in February 2004.

National Science Foundation New Pipeline Projects

John Conway (University of Tennessee), program director for the Division of Mathematical Sciences (DMS) at the NSF, gave an overview of some new pipeline programs at the DMS. These programs fall under the project name "Enhancing the Mathematical Sciences Workforce in the 21st Century" and consist of three parts: Vertical Integration of Research and Education (VIGRE), Mentoring through Critical Transition Points (MCTP), and Research Training Groups (RTG). The last two are new.

The goal of RTG is to provide groups of researchers having related research goals in the mathematical sciences with funds to foster research-based training and education. There is \$4 million available for this project with possibly nine awards up to \$500,000 per year for five years. The MCTP will provide a system of mentoring devoted to points of transition in a mathematical sciences career path that are critical for success, from undergraduate studies to the early years in a tenure-track position. There is \$4.5 million available for this project, with possibly six awards up to \$500,000 per year for five years. Another project is Interdisciplinary Training for Undergraduates in Biological and Mathematical Sciences (UBM). UBM was

started on a trial basis this year with award amounts that will range up to a total of \$100,000 for up to two years.

Professional Development Programs for Vermont Teachers

Ken Gross (University of Vermont and Lesley University), the director of the Vermont Mathematics Initiative (VMI), gave an overview of the VMI and the Vermont Mathematics Partnership (VMP). The VMI began five years ago and is a comprehensive, professional development master's degree program for training K-6 mathematics teacher leaders—a three-year program at the University of Vermont. There are approximately 150 teachers in the program, representing 60 percent of Vermont's school districts, and the goal is to put a mathematics teacher leader in every elementary school in the state. The VMP is one year old and is funded jointly by the NSF through the MSP Initiative and by the U.S. Department of Education and builds upon the VMI by expanding from K-6 to middle level, high school, and into the preservice area as well.

The principle on which these programs are built is that the teacher makes the difference in effective mathematics education. These programs strive to arm teachers with the knowledge and skills they need to become leaders in their classrooms, schools, and districts.

Status Report on the MAA CUPM Curriculum Guide 2004

Michael Pearson, director of Programs & Services for the Mathematical Association of America (MAA), gave a status report on their Committee on Undergraduate Programs in Mathematics (CUPM) project. The 2004 publication will be the sixth set of guidelines over the past fifty years that makes recommendations to guide mathematics departments in designing curricula for their undergraduate students. Many recommendations in this new guide echo those in previous reports, but the biggest difference between the 2004 guide and previous editions is that it will address the entire college-level mathematics curriculum; earlier reports focused on undergraduate programs for mathematics majors only.

The prepublication draft of the new report was completed in September 2003, and the expected publication date of the final report is late January 2004. The Calculus Reform and the First Two Years (CRAFTY) Curriculum Foundation's reports will be bundled together with the CUPM guidelines and sent to all U.S. mathematics departments.

Review of AMS Educational Activities

Roger Howe, CoE Committee chairman, reminded the committee that at last year's meeting the CoE set up a five-year cycle of reviews of AMS education activities; a review of the Young Scholars Program is this year's charge. In 2004 CoE is to look at graduate education. A subcommittee will be formed to conduct this review process.

Report on the AMS Young Scholars Program

Bob Devaney (Boston University) presented a review report on the AMS Young Scholars Program by the CoE subcommittee consisting of Devaney, Bill McCallum, and Louise

Raphael. Overall, the subcommittee found the Young Scholars Program to be well received in the mathematics community with very positive effects. It recommended continuing the program and possibly enhancing it by seeking outside support, perhaps through industry and/or through foundations. The CoE endorsed the subcommittee's report and recommended it to the AMS Executive Committee and Council.

Graduate Education and the Carnegie Foundation Initiative on the Doctorate (CID)

Hyman Bass (University of Michigan), John D'Angelo (University of Illinois at Urbana-Champaign), and John Ewing (AMS) led a panel discussion on the Carnegie Foundation Initiative on the Doctorate (CID), a multiyear research project aimed at improving the doctorate in American universities. There are eight partner mathematics departments (Duke University; Ohio State University; SUNY at Stony Brook; University of Chicago; University of Illinois at Urbana-Champaign; University of Michigan, Ann Arbor; University of Nebraska-Lincoln; and University of Southern California) participating in the initiative, which is examining six fields of study. Discussion focused on the stewardship of the profession and the best way to improve it.

CoE Activities at Phoenix, AZ, Joint Mathematics Meetings, January 2004

Roger Howe reported that CoE would sponsor a panel discussion entitled "The Evolution of State Mathematics Standards: How Can Mathematicians Contribute?"