FOCUS

CINCINNATI

Cincinnati's Taft Museum houses one of the finest private art collections in the nation. Built in the early 1820's, the museum is one of the many historic homes in a city known for its landmarks.

AMS-MAA JOINT MEETINGS

CINCINNATI, OHIO

JANUARY 12-15, 1994

The weather may be cool, but the welcome is sure to be warm at the Joint Mathematics Meetings in Cincinnati, Ohio, on January 12-15, 1994, the 77th Annual Meeting of the MAA and the 100th Annual Meeting of the AMS.

The AMS-MAA invited address, by Kenneth Ribet, Berkeley, California, on the recent solution of Fermat's Last Theorem is sure to be a highlight, as are the other three joint addresses, which all deal with the history or development of mathematics: Georgia M. Benkart, Madison, Wisconsin, will speak on *A Tale of Two Groups*; Subrahmanyan Chandrasekhar, Chicago, will talk about *Some Propositions from Newton's Principia*; and László Lovász, from Eötvös Loránd, will give a talk titled *Random Walks and Volume*.

The ever-popular social for first-time attendees will once again take place, this year including a 20-to 30-minute magic show by MAA Governor-at-Large, Brent Morris.

And, for graduate student attendees, there will be Mathchats, an evening of informal conversation with a number of well-known mathematicians. The evening includes a trolley tour of Cincinnati and a buffet supper.

The Mississippi Queen Riverboat cruises past her home port of Cincinnati, and its Riverfront Stadium.

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Fermat's Last Theorem

In the last issue of FOCUS, the article by Gouvea, Granville, and myself on the proof of Fermat's Last Theorem was accompanied by a promise of a follow-up piece giving some details of the proof. At my request, Fernando Gouvea wrote such a piece. The result exceeded my wildest dreams, making it far too substantial for publication in FOCUS, which is, after all, a newsletter, not a journal. John Ewing kindly offered to publish the article in the American Mathematical Monthly, which he edits. Look out for Gouvea's account in a forthcoming issue.

USA Team Wins Six Medals in International Mathematical Olympiad

Competing against teams representing a record 72 countries, a team of six American high school students placed seventh in the 34th International Mathematical Olympiad (IMO), held from July 13-24 in Istanbul. All six students won medals: two gold, two silver, and two bronze.

The top ten teams were China, Germany, Bulgaria, Russia, Taiwan, Iran, USA, Hungary, Viet Nam, and the Czech Republic, respectively. Andrew Dittmer of Vienna, VA, and Lenhard Ng of Chapel Hill, NC, received gold medals. Ng also won a gold medal at last year's competition. Wei-Hwa Huang of North Potomac, MD, and Stephen Wang of St. Charles, IL, won silver medals. Jeremy Bem of Ithaca, NY, and Tim Chklovski of Minneapolis, MN, were awarded bronze medals.

Prior to the competition, the U.S. students participated in a month long training session held at the U.S. Military Academy at West Point, NY, directed by Professor Cecil Rousseau of Memphis State University. Accompanying the team to Istanbul were Professor Rousseau, Walter E. Mientka, Executive Director of the American Mathematics Competitions and also of the University of Nebraska, Anne Hudson of Armstrong State College in Savannah, GA and Titu Andreoscu, a mathematics teacher at the Illinois Mathematics and Science Academy.

The U.S. team was chosen on the basis of performance in the Twenty-second Annual United States of America Mathematical Olympiad (USAMO), held in April.

The Mathematical Olympiad activities are sponsored by eight national associations in the mathematical sciences with arrangements made by The Mathematical Association of America. Financial support is provided by Microsoft Corporation, IBM, the Army Research Office, the Office of Naval Research, and the Matilda R. Wilson Fund.

IMO team members:

1. **Jeremy Bem, Ithaca High School, Ithaca, NY**

2. **Tim Chklovski, The Blake School, Minneapolis, MN**

3. **Andrew Dittmer, Jefferson High School for Science and Technology, Alexandria, VA**

4. **Wei-Hwa Huang, Montgomery Blair High School, North Potomac, MD**

5. **Lenhard Ng, Chapel Hill High School, Chapel Hill, NC**

6. **Stephen Wang, St. Charles, IL**

American Mathematics Competitions are sponsored by:

The American Mathematical Association of Two-Year Colleges, The American Mathematical Society, The American Statistical Association, The Casualty Actuarial Society, The Mathematical Association of America, Mu Alpha Theta, The National Council of Teachers of Mathematics, and The Society of Actuaries.

Nominations for Distinguished Service Awards Welcome

Each year a member of the Association is given the Yueh-Gin Gung & Dr. Charles Y. Hu Award for Distinguished Service to Mathematics for outstanding service to mathematics. The period of service may be long or short, and the award may be made on the basis of one of several activities. The contribution should be such as to influence significantly the field of mathematics or mathematical education on a national scale. The winners of this award for 1990-1993 were Leon Henkin, Shirley Hill, Lynn Arthur Steen, and Henry O. Pollak. The 1994 award will be announced at the January meeting in Cincinnati. Nominations for the 1995 award should be sent to the committee chair by December 1, 1993. The committee members in 1993 are: Lida K. Barrett, R. Creighton Buck, Leon Henkin, Mary Ellen Rudin, and Kenneth A. Ross (chair).

Meeting the Challenge: Calculus Renewal—A Live Video Workshop

For undergraduates, calculus is the gateway to careers in mathematics, science, and engineering. How can calculus instruction be restructured and reformed? Answers to that question be offered place in a live video workshop, sponsored by the National Science Foundation, on Wednesday, October 13, 1993.

The workshop will offer practical insights into alternative curricular approaches and strategies for implementation. Participants in this workshop will hear from faculty members developing innovative instructional materials at colleges and universities including Duke, Harvard, New Mexico State, Oregon State, and Seattle Community College. These curriculum projects have been supported by grants from the National Science Foundation. Listen to the reactions of students and mathematics and science faculty to these approaches.

How can your institution participate in this video workshop? All you need is access to a C-band or Ku-Band satellite down link on the day of the program. In addition, you must have a room with a video monitor or projector and a telephone. The telephone will allow you to ask questions of the participants in the video workshop via an 800 telephone number. You are encouraged to invite other concerned organizations and schools from your area to join in viewing and participating in the workshop.

The registration fee is $50. Upon receipt of your registration form and fee, your site will be sent: A facilitator's guide with technical information on down linking, camera-ready copy for local advertising, and a "master's" viewers guide (to copy for all participants), which includes an agenda, instructional objectives, presenter biographies, background notes, department-based audit of undergraduate instruction; and publisher's information for ordering any of the curriculum materials.

For registration forms, please call, or fax, Francis P. Collea at (310) 985-2826, or (310) 985-2829 (FAX).

Networks in FOCUS

E-Mail Systems on Campus

The Key to Unencumbered Communications

The ideal academic messaging system is capable of managing intra-campus communications and data transfer.

As computers have changed the face of American colleges, so has electronic mail changed the way students, faculty, and administrators interact.

Computers have been a part of campus life since well before the PC revolution. Initially, though, they were generally large, complex mainframes that required specialized skills to operate. Today, most students and faculty are learning to harness the power of the personal computer. For many, that's where electronic mail comes in. E-mail, loosely defined, refers to any digitally based messaging system accessed by several users in a single workgroup. This ranges from a passive pay-per-use service, like MCI, to a complicated document management system, such as Lotus Notes. The ideal academic system is somewhere in between, managing all aspects of intra-campus communications and data-transfer needs. As an e-mail system helps to move information around campus, it must also connect to a variety of on-line databases and information sources.

As e-mail becomes an increasingly important part of campus life, it must blend into a variety of existing environments. This goes beyond the typical "how people work" structure to which every good e-mail system must adapt. Most colleges have been less than cohesive in the acquisition of computing equipment, resulting in a computing "Tower of Babel."

Listen to the Experts—The Users

Robin Ricchetti, network administrator, Mississippi State University College of Veterinary Medicine, suggests that you need to stay consistent within one group of soft-

ware. "Decide who will offer the best products, service, and support, and stick with them. The number one thing is planning," says Ricchetti.

Rosemary Barrett, analyst and programmer, Information Resource Center, University of New Mexico, Albuquerque, recommends making sure there is adequate training. "We produce one-page 'cheat sheets' which list all the essential commands," says Barrett. "You need to break this down to a simple format, so users don't have to look things up. And you must have ongoing support in the form of personnel. We don't feel that a department is serious about incorporating e-mail unless they assign one person as a full-time network administrator."

In fact, the benefits of e-mail are legion. "It speeds up the process of getting things done," says George Kelso, acting director of computing services for Montgomery College in Rockville, Md. "Before e-mail, the usual paper shuffling between our campuses could take two or three days."

Says Greg Scott, computing services manager for the College of Business at Oregon State University in Eugene, "E-mail tends to flatten out the organizational hierarchy and strip away the status associated with rank."

A good e-mail system does more than forward messages and return receipts. It has the ability to transmit formatted documents, proprietary files, and graphics. Furthermore, it should cut down on paperwork and allow the distribution of electronic forms and other administrative details. Says Steve Relyea, vice chancellor for business affairs for the University of California, San Diego, "We have entire projects where the only piece of paper involved is the final report." The people at UC San Diego, however, may be slightly ahead of the times. Says Barrett: "There are still a lot of people who need to hold that memo, that piece of paper, in their hands."

Ricchetti says that his department originally

looked at e-mail as a way of communicating with students. Adding it as an administrative tool was secondary. This is the reverse of many other campuses, where the faculty or department uses e-mail as a way to build a better memo. Also, as a medical school, the University of Mississippi mandates that students purchase a computer in order to attend the college, something that the average publicly supported institution cannot require.

Some schools have taken e-mail to the limit, offering classes by computer and access to large databases. This method enables students and teachers to "attend classes" and receive credit without leaving the house. If this seems impersonal and isolating, consider that e-mail exchange between a teacher and a student represents one-on-one communication, something which doesn't happen in a large classroom.

"More so than any other technological process, e-mail has revolutionized how people work," Scott says. "Extended conversations take place, but it's not required that anyone actually be on the other end. Faculty members can collaborate on books and research papers with colleagues, and with the nature of this communication all scheduling conflicts disappear. Students can pose questions when they are fresh, and get a direct answer from the professor."

Adding E-mail to an Existing Environment

Barrett estimates that hooking up a PC to the network costs about $700 per station. In fact, budgeting for computer equipment and e-mail systems adds one more dimension to the process every department head loves to hate.

"There are a lot of different de-facto standards of mail out there, and some of them are proprietary," says Jeff Webb, network

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FOCUS ON SECTIONS

This summary of the activities in the Sections in the past year has been gleaned from the Annual Reports and Newsletters of the Sections. It not only amply illustrates the myriad of activities in the Sections, but also gives some ideas for your own Section. We urge you to share information by having your secretary include it in the Annual Report.

— John D. Neff, Interim Chair, Committee on Sections
Editor, FOCUS on Sections

TRISECTION Special mention should be given to the joint meeting of the Indiana, Illinois and Michigan sections, held on April 23-24 at Saint Mary's College in Notre Dame, Indiana. This repeated the first joint meeting of the three sections in the spring of 1943 at the University of Notre Dame. This first joint meeting report was rediscovered during research into the history of the Indiana Section, and the three sections agreed to repeat the alliance on the fiftieth anniversary. Professors Ivan Niven, P.M. Pepper, Robert Thrall and W.R. Utz were at the 1943 meeting and were among the honored guests at the 1993 meeting. The 1993 featured speakers were MAA Executive Director Marcia Sward, Hugh Montgomery, Bruce Reznick and Robin Wilson of The Open University, England. See the three individual sections for further details.

ALLEGHENY MOUNTAIN The annual meeting was held on April 16-17 at The Behrend College, Pennsylvania State University in Erie. The invited speakers were President Deborah T. Haimo, Pólya Lecturer John Ewing of Indiana University, and Crispin Nash-Williams. The banquet speakers were Richard McDermot and Frank Demana, who also conducted a minicourse on the use of calculators. There were four sections of contributed faculty papers and three on contributed student papers. The ninth annual Section Summer Short Course was conducted on June 21-25 at Allegheny College by Ralph Grimaldi of Rose-Hulman Institute.

EASTERN PENNSYLVANIA AND DELAWARE The fall meeting was held on November 16 at Muhlenberg College and the spring meeting was held on April 3 at Villanova University. The fall meeting featured invited speakers President Donald L. Kreider, William Dunham, and John Horton Conway of Princeton University, as well as a Student Paper Session and a panel discussion on "Encouraging Participation Among Underrepresented Groups." Two summer short courses were offered in June. The proceeds of a "blind" auction of books displayed at the meeting were given to the section to help defray meeting expenses.

FLORIDA The section had four regional meetings in addition to the annual spring meeting at the University of Central Florida in Orlando. The annual meeting featured invited speakers Secretary Gerald Alexanderson, Joan Hutchinson, Peter Hilton and Jean Pederson, as well as Mark Johnson and Huseyin Kocak from within Florida. The meetings of at least three other organizations coincided with this annual meeting. Students are given a stipend from the Section to encourage them to attend the national meetings.

ILLINOIS The 50th anniversary Trisection meeting on April 23-24 was described as a tremendous success and the concept should be explored further by other geographically contiguous sections. The Section has a strong secondary school lectureship program. Section governance has been improved with a newly-designed finance committee. The Section has created two levels of participation of Institutional Sponsors.

INDIANA The fall meeting was held at Indiana University East in Richmond, IN, and featured speakers on control charts, earliest sunrises, discrete mathematics and geometry. The spring meeting was the Tri-section meeting, described as a great opportunity to have very interesting speakers and many student activities. A speakers list for student chapters is maintained by the Section.

INTERMOUNTAIN The annual spring meeting was held on April 9-10 at the University of Utah. The featured speakers were Pólya Lecturer Patricia Rogers, Associate Secretary Kenneth Ross, and Lida Barrett. A short course, "Classical Geometry for Undergraduates," was given by James Carlson. The meeting also featured a panel discussion on the success of the "Lean and Lively" calculus courses in the Section.

IOWA The annual meeting was held April 16-17 at Luther College in Decorah, IA, in collaboration with the Iowa Mathematics Association of Two-Year Colleges. The featured speaker was FOCUS Editor Keith Devlin, who gave two talks. There were three faculty paper sections as well as a student paper section. Florence Fasanelli held a workshop on materials developed by SUMMA. A new feature this year was a student mini-modeling competition, which provided a record student attendance, as well as an increase in the number of faculty attending the meeting. There was a sharing session called "The State of Technology in the Iowa Section".

KANSAS The meeting was held on March 12-13 at Emporia State University, in collaboration with the Kansas Association of Two-Year Colleges and the Kansas Association of Teachers of Mathematics. The featured speakers were Ronald Graham of AT&T Bell Labs, who gave two talks, and Melvin C. Thornton. Workshops and contributed paper sessions were also on the program. Two student awards were given, one for the best undergraduate paper presented and one for the best graduate paper. Lunch and registration for the first 20 registered students was free of charge.

KENTUCKY The annual meeting was held on April 16-17 at Centre College in Danville. The featured speakers were Pólya

Lecturer John Ewing and Laszlo Babai of the University of Chicago. A short course on Operations Research was presented, and a panel discussion on recent grants for improvement of undergraduate mathematics instruction in Kentucky was held. There was increased student and two-year college faculty participation.

LOUISIANA-MISSISSIPPI The annual meeting was held on March 5-6 at the Grand Hotel Biloxi in Biloxi. The featured speaker was President Donald L. Kreider, who gave two addresses. The program included 20 contributed faculty papers and 14 student papers. Two short courses were offered on Friday morning, one called "Introduction on Wavelet Theory and Its Applications" and the other called "Use of the Graphing Calculator." Mississippi State University won first place in the Student Competition, and four prizes were awarded in the Student Papers judging. There were three panel discussions on the program, including a student career panel.

MARYLAND-DISTRICT OF COLUMBIA-VIRGINIA The fall meeting was held at Coppin State College in Baltimore on November 13-14 and the spring meeting was held on April 16-17 at Christopher Newport College in Newport News. At the spring meeting, the featured speakers were Peter Hilton of the State University of New York at Binghamton and S. Brent Morris of the National Security Agency, who claims to be the only person in the world with a Ph.D. in card shuffling. Dr. Hilton spoke at the Friday evening banquet and Dr. Morris at the Saturday luncheon. Both meal functions were prepared "by a real French chef at very modest prices." There were six contributed paper sessions and a mathematical modeling contest.

METROPOLITAN NEW YORK The fifty-second annual meeting was held on May 1, at York College in Jamaica. There were sessions for contributed faculty papers and student papers on the program. The Section collaborates in the sponsorship of the Metropolitan New York Math Fair, to be held on March 7 and March 21, 1994.

MICHIGAN The annual meeting was part of the Trisection meeting discussed earlier. This joint meeting worked very well and other sections are encouraged to consider such a venture. The Section Distinguished Service Award was given to

Don R. Lick of Eastern Michigan University and the Section Distinguished Teaching Award was given to Douglas W. Nance of Central Michigan University. The Section efforts resulted in a proclamation of Mathematics Awareness Week by the Governor of Michigan. The Section has a very active High School Visiting Lecture Program. The dues structure includes a "Contributing Member" category as well as "Institution Member."

MISSOURI The annual spring meeting was held on April 2-3 at Westminster College in Fulton. The invited speakers were Secretary Gerald L. Alexanderson, two talks by Robert McKelvey of the University of Montana, and Tony Starfield of the University of Minnesota. The program included two sessions for contributed papers, two panel discussions, a workshop on the TI-81 calculator, and a Friday evening banquet, as well as a breakfast for Department Chairs and MAA representatives. The Missouri Mathematics Association for the Advancement of Teacher Training ((MAT)2) conducted a business meeting and presented a speaker. Invited speakers were co-sponsored by a private foundation, the hosting college and the Section. A student reception was co-sponsored by the Westminster College chapter of Pi Mu Epsilon.

NEBRASKA-SOUTHEAST SOUTH DAKOTA The annual meeting was held at the University of South Dakota in Vermillion on April 16-17. The featured speaker was James Leitzel of the University of Nebraska. The program included a panel discussion on "Calculators in the Classroom," as well as the contributed faculty papers.

NEW JERSEY The fall meeting was held on Saturday, November 14, at Drew University. The featured speakers were Fern Y. Hunt, Fan R.K. Chung, Doris Schattschneider, Cathleen S. Morawetz, and Thea Pignataro. The spring joint meeting of the Section and MATYCNJ was held at Middlesex County College on Saturday March 20. The program's featured speakers were Pólya Lecturer Patricia K. Rogers, Paul Halmos, Henry Pollak, Joseph Gallian, John L. Baldan, and Luz J. Pinzon. Each meeting was followed by a dinner. There has been increased attendance by students, thanks in part to an Exxon grant. Financial support to authors by their publishers has also increased attendance.

NORTH CENTRAL The fall meeting was held on October 23-24 at Moorhead State University. The featured speaker was John Holte of Gustavus Adolphus College and a workshop on student research projects was conducted by Douglas Kurtz of New Mexico State University. The spring joint meeting with MinnMATYC was held in Monticello, MN on April 30-May 1. The speakers at the general sessions were President Donald L. Kreider, Joseph Gallian, M.B. Rao, and Gail Nelson. This meeting at a resort/conference center featured multiple presentations at each time slot and gave time for the exchange of ideas and materials. The Section Summer Seminar in July 1994 will feature Carl Pomerance of the University of Georgia.

NORTHEASTERN The Section had two meetings this year. The fall meeting at Trinity College in Hartford featured speakers James Leitzel, Peter Hilton, and B.A. Fusaro, and a spring meeting at the University of Massachusetts-Dartmouth featured Pólya Lecturer John Ewing, Thomas Banchoff, and H.S.M. Coxeter. A minicourse, "Great Theorems from Mathematical Analysis: 1689-1881" was given by William Dunham of Muhlenberg College. Following the previous year's success, three more regional dinner meetings were held, consisting of a dinner, discussion, and a mathematical talk. A Calculus Reform Workshop was held in June at the University of Maine, co-sponsored by the University, the Section, and NSF. The Section will sponsor a Mathematical Sciences Career Conference at Bentley College in October, 1993.

NORTHERN CALIFORNIA The annual meeting was held on February 20 at the University of California at Berkeley. The meeting format of having only invited speakers has worked very well for this Section. This year's speakers were Irving Kaplansky, Vaughan Jones, Paul Halmos, Jane Sangwine-Yager and Roland Lamberson. The Section Distinguished Teaching Award was presented to G.D. Chakerian of the University of California at Davis. The Section noted the passing of one of its founders, Harold M. Bacon of Stanford University.

OHIO The fall meeting was held at Xavier University in Cincinnati on October 30-31 and featured talks by David S. Moore of Purdue University and Jim Albert of Bowling Green State University, as well as a panel

discussion "The Course for Prospective Elementary School Teachers." The spring meeting was held on April 16-17 at Kent State University, with an address by outgoing Section president Al Stickney and an invited talk by Treasurer Gerald Porter, as well as a student microcourse/workshop "Fractals" and a panel discussion "Professional Recognition and Rewards."

OKLAHOMA-ARKANSAS The annual meeting was held March 26-27 at Oral Roberts University in Tulsa. There were 66 contributed talks, a faculty workshop "Technology in the Classroom," led by Jerry Johnson and Benny Evans of Oklahoma State University, and a student workshop "Introduction to Cryptology," led by Tommy Leavelle of Mississippi College. The invited speakers were MAA Executive Director Marcia P. Sward and Pólya Lecturer John Ewing, who was also designated the N.A. Court Lecturer. There was a Friday evening banquet and two Saturday luncheons, one for Department Heads and the other for Student Chapters and Faculty Sponsors.

PACIFIC NORTHWEST The annual meeting was held on March 6 at the University of Puget Sound. Ben Fusaro of Salisbury State University discussed the history and development of the Annual Mathematical Contest on Modeling. The luncheon speaker was Frank Morgan of Williams College. Two workshops called "The Geometry of Multivariable Calculus" will be given in June at Spokane and in September at Seattle. The Section has had increasing success involving students in the annual meetings. The Section paid the expenses of the University of Alaska's winning modeling team who discussed their experiences. The size (area) of the Section is the topic of recent discussions at the meetings.

ROCKY MOUNTAIN The annual meeting was held at the Colorado School of Mines in Golden on April 2-3. John Kenelly of Clemson University was the banquet speaker on Friday and also gave the keynote address on Saturday. There was a special session honoring Section Governor John Hodges.

SEAWAY The fall meeting was held on November 13-14 at Cornell University. The Invited Lecture in Mathematics Education was given by Wiliam E. Boyce of Rensselaer Polytechnic Institute. The spring meeting was held at the State University of New York

at Binghamton on April 23-24. The invited speakers were Peter Hilton, Frank Giordano and Pólya Lecturer John Ewing. The Harry M. Gehman Lecture was given by Douglas Ravenel of the University of Rochester. Both meetings had sessions for contributed papers by faculty and by students. The Invited Lecture in Mathematics Education will be renamed the John F. Randolph Lecture, honoring a colleague who spent more than 40 years in the Section until his death in 1988.

SOUTHERN CALIFORNIA The fall meeting was held on November 7 at the University of Southern California, Los Angeles, in conjunction with a meeting of the American Mathematical Society. The program was invited addresses only, with the MAA invited addresses given by FOCUS Editor Keith Devlin, W.A.J. Luxemburg, Jerrold E. Marsden, and Harris S. Shultz, the Section's 1992 Distinguished Teacher Award winner. The spring meeting was held on March 6 at California State University, San Marcos. The program included invited addresses by Pólya Lecturer Patricia Rogers, Dan Kalman, Richard Wilson, and also two panel discussions. This spring meeting at San Marcos marked the first meeting of a scholarly organization on the campus of the first new university in the State University System in 25 years.

SOUTHEASTERN The annual meeting was held at the University of South Carolina, Coastal Carolina College, Conway, on April 2-3. The three invited speakers were FOCUS Editor Keith Devlin, and the Section's Distinguished Teaching Award winners Anne Hudson (1992) and Robert Bryant (1993). Three short courses "HP-48 with Applications to Calculus Topics," "Preparing a Successful Grant Proposal," and "Number Theory" by newly-named Pólya Lecturer Carl Pomerance, were offered. Two popular events for students and advisors were a pizza lunch, and the ever-popular "T.A. Rush," where students could obtain information about graduate schools. There were two joint NAM-MAA panel discussions on Minority Participation and on Women and Mathematics.

SOUTHWESTERN The annual meeting was held at New Mexico Institute of Mining and Technology in Socorro on April 16-17. The Friday program included a SUMMA workshop in the morning, contributed pa-

pers in the afternoon and a banquet in the evening, honoring the Section's first Newsletter Editor, Edward Gaughan, and the winner of the Section's Distinguished Teaching Award, David Pengelley. On Saturday, more papers were presented and David Lovelock presented a workshop "Enhancing Mathematics Education Using Technology." The meeting location in Socorro was described as a real treat: a beautiful university in a historic setting.

TEXAS The annual meeting was held on April 1-3 at Abilene Christian University in Abilene. The meeting attracted 274 participants, including 97 students, and featured a short course by James C. Bradford and David K. Hughes, "MAPLE, A Computer Algebra System"; four invited addresses, 29 contributed papers, 22 student papers and a student workshop on MAPLE. The invited addresses were given by Executive Director Marcia Sward, Section Distinguished Teaching Award winner (1992) Robert S. Doran, Ed Dubinsky and Linda J.S. Allen. In addition, department heads, institutional representatives, two-year college faculty members and MAA student chapter advisors met in special sessions. The initial fear that conflicting activities in a short time frame would hurt participation was unfounded and, in fact, the more activities, the better the chances of enticing attendees.

WISCONSIN The annual meeting was held on April 16-17 at the University of Wisconsin Center-Fox Valley at Menasha. The Section Distinguished Teaching Award was given to Phillip D. Straffin, Jr., and the Section Meritorious Service Award went to Norbert J. Kuenzl. The banquet speaker was *Mathematics Magazine* Editor Martha J. Siegel of Towson State University. Other invited addresses were given by Lowell Beineke, Joel W. Robbin, and Richard A. Brualdi. The program included 42 contributed papers and a panel discussion on current calculus reform projects.

Get ready,
MATH HORIZONS
is
COMING.
See page 11.

1993 Section Winners for Disti

George E. Andrews
*Pennsylvania State University*
Allegheny Mountain Section

James R. Boone
Texas A&M University
Texas Section

Robert Brigham
University of Central Florida
Florida Section

Robert Bryant
Duke University
Southeastern Section
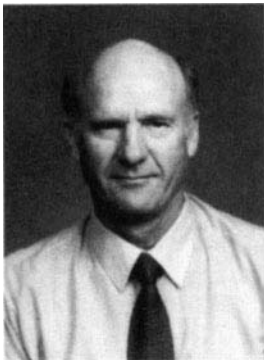
Kay William Dundas
Hutchinson Community College
Kansas Section

Paul R. Halmos *
Santa Clara University
Northern California Section

I. Martin Isaacs
University of Wisconsin
Wisconsin Section

Genevieve Knight
Coppin State University
Maryland-DC-Virginia Section

Eileen L. Poiani
St. Peter's College
New Jersey Section
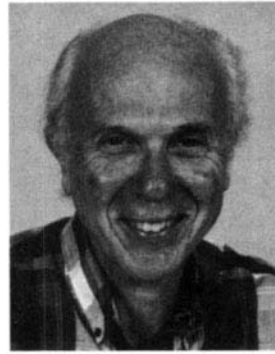
J. J. Price *
Purdue University
Indiana Section
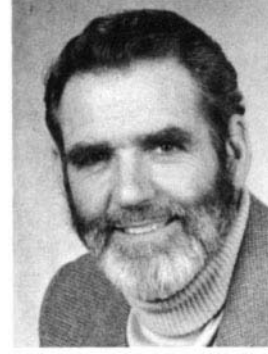
Jack M. Robertson
Washington State University
Pacific Northwest Section
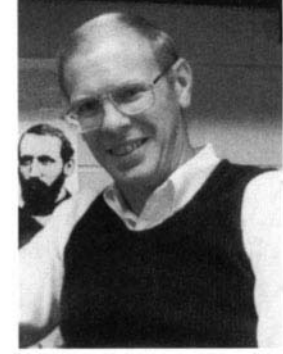
David Sprows
Villanova University
Eastern Pennsylvania and
Delaware Section

We are so proud of our outstanding teachers that we are running their pictures again!

The highlight of most section meetings this spring was the presentation of their Awards for Distinguished College or University Teaching of Mathematics.

During the national meeting in Vancouver, the MAA Board of Governors approved the nomination of Paul R. Halmos, Santa Clara University; Justin J. Price, Purdue University; and Alan Tucker, SUNY-Stony Brook as the 1993 national awardees (indicated by*). These three awardees will be honored

and make presentations at the Annual Meeting in January 1994 in Cincinnati. For the names of the recipients of the first national awards, together with their pictures, please see the April 1993 FOCUS, pp. 6-7.

On September 25, 1993, Section Secretaries were sent information on the nominations for the third (1994) Section Awards. The guidelines are essentially the same as for the 1993 Awards. The nomination form is un-

;uished Mathematics Teaching

James N. Cannon
Brigham Young University
Intermountain Section

Allan Cochran
University of Arkansas
Oklahoma-Arkansas Section
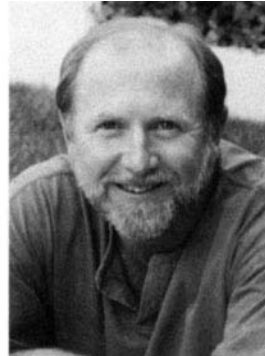
David Cohen
University of California-Los Angeles
Southern California Section

Gerald Diaz
United States Air Force Academy
Rocky Mountain Section

Thomas Moore
Bridgewater State College
Northeastern Section

Dale Mugler
University of Akron
Ohio Section

Doug Nance
Central Michigan University
Michigan Section
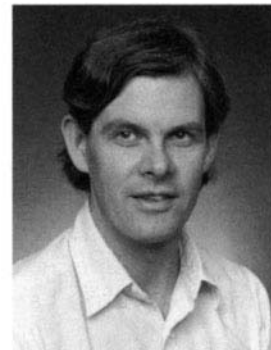
David Pengelley
New Mexico State University
Southwestern Section

Mel Thornton
University of Nebraska
Nebraska Section

Alan Tucker *
SUNY - Stony Brook
Metropolitan New York Section

Martha Watson
Georgetown College
Kentucky Section

Stephen West
SUNY - Geneseo
Seaway Section

changed. Watch for details in your section newsletter.

Some sections have been concerned that, while the candidates who were nominated were outstanding, the number of nominations has been smaller than they would have liked. They therefore have devised strategies to increase the number of nominations. For example, the Northeastern Section sent out a flyer in March urging any member of the section to "send a one page letter in support of an outstanding teacher and the Section Committee will ask the candidate's department chair to complete the nomination form."

The national committee urges all members of the Association to think of worthy candidates for these awards and nominate them to the appropriate section committee. Even if your candidate should not be selected as a recipient of the award, remember that the nomination by itself is a distinct honor and also that the candidate can be nominated again if not selected the first time.

The more outstanding candidates that are nominated, the easier it will be to maintain the high quality of the awards, which was so successfully established by the first two sets of winners.

Be sure to send nominations to your section secretaries!!

Editorial

The resolution passed by the MAA's Board of Governors at the January Joint Meetings in San Antonio, to move the January 1995 Joint Meetings from Denver, Colorado, to San Francisco, California, was bound to be controversial.

As reported in the February FOCUS, the decision was not lightly arrived at; indeed, for the first time ever, the MAA governors and the AMS Council met together in a joint session to debate the matter. That debate was long, thoughtful, and well informed, and both governing bodies deserve immense credit for the responsible manner in which they took on such a difficult issue. The electoral decision in Colorado to remove certain statutory restrictions on discrimination against homosexuals, which is what led to the

debate and the final decision to move, had the potential to provoke an acrimonious exchange, but this did not occur.

The views expressed at the joint session indicated a clear sentiment in favor of moving the meetings, and the final votes were very decisive. But there were voices raised against moving, and it was clear that among the memberships at large, not everyone would agree with the final outcome. Some might feel that the MAA, as an organization of mathematicians, has no business even debating the matter, let alone coming to the decision it did. But, as was expressed during the joint discussion in San Antonio, once the Colorado electors had cast their votes the way they did, not to have such a debate would also have been unacceptable to many members; so

either way, the Association would be the loser.

FOCUS has received six letters protesting the decision. The three published in this issue are representative of the views expressed in those letters. (One writer asked that his letter be published without his name. This I cannot do.) It is the nature of such situations that only the protesting side takes pen to paper, so the letters I received cannot be assumed to indicate a majority view. Indeed, to go by the Governors' January vote, they express a minority view. But it is a view that, I feel, deserves to be heard.

The above are the opinions of the FOCUS editor, and do not necessarily represent the official view of the MAA.

Opinion

To the Editor,

I am writing to express my disappointment with a resolution passed by the governing boards of the AMS and the MAA regarding a possible change in venue for the 1995 annual meetings. First, let me say that after discussing the issue with Michael Artin, Marcia P. Sward, and others at the San Antonio meetings, I understand the decision to try to move the meetings, and I am not opposed to such a change.

My disappointment in the matter stems from the wording of the resolution. The resolution states that the actions taken by the voters in Colorado were "wrong." Whether or not we agree with this statement, the AMS and the MAA have no business taking a political stand in a non-mathematical issue, especially an issue as volatile as this one. In my opinion, this resolution clearly steps outside the bounds of propriety. Such a political statement is unnecessary; the meetings can be moved without taking an official stand that has the potential to alienate a significant

number of individuals within the mathematical community. Politicization of the AMS and the MAA should be avoided at all costs if the two organizations are to keep their focus on their true mathematical missions.

Although it may be too late to change the wording of this resolution, I hope that any other public statements by the organizations regarding this issue can be made in a politically neutral manner. I also hope that in the future, more care will be taken regarding such issues.

Sincerely,

Bryan Dawson

Assistant Professor of Mathematics

Emporia State University

Dear Professor Devlin,

I was disappointed to learn in the June issue of FOCUS that the Joint Meetings Committee succumbed to "political correctness" and moved the 1995 meeting scheduled for Denver. I was looking forward to being once again in the beautiful state of Colorado. Don't look for me in San Francisco, I won't be there. This will be my way of stating to the MAA that we should be in the "mathematics business," and not get distracted by issues which, although important in their own right, are not the business of the MAA.

Sincerely,

John Watson

Arkansas Tech University

Opinion

Dear Dr. Devlin,

I am writing in response to the two articles in FOCUS that deal with the MAA/AMS vote to move the Winter 1995 meeting out of Denver, Colorado.

The decision to move the joint MAA/AMS meeting from Denver to, subsequently, San Francisco, was made because the voters of the state of Colorado allegedly chose to discriminate against homosexuals in the passage of their Amendment 2. I believe the action by the MAA Board of Governors was both hastily done and totally inappropriate.

If homosexuals were suddenly denied their civil rights by the passage of Amendment 2, then the MAA's action might have been appropriate. This question was asked of Ignacio Rodrigues, a former member of the Colorado Civil Rights Commission. His answer, which must be credible, is as follows, "The United States Constitution guaranteed civil rights to all citizens. Amendment 2 in no way compromises that." So, if civil rights accorded to all citizens is still guaranteed for homosexuals, then the question of the sudden increase of discrimination is untrue. For this reason the MAA has no ground for making any statement against the state of Colorado.

Many of the national wire services reported a dramatic increase in crimes against homosexuals after passage of Amendment 2. If the number of crimes against homosexuals actually did increase then the MAA might have been justified in making a public statement of some type. However, as pointed out in the Rocky Mountain News, Denver's largest newspaper and a strong opponent of Amendment 2, "the reported incidents [of increased crimes against homosexuals] are not by a disinterested outside agency or organization, but rather by gay leaders, and their sense of besiegement does not correspond with the impressions of other close observers such as the police and the Denver mayor's office." This quote simply states that the reports of increased crimes against homosexuals were generated by the homosexuals themselves and not by actual events

which generate police reports. For this reason the MAA had no business making any statements against the state of Colorado.

Another point to be considered is whether the citizens of Colorado actually hate homosexuals. I think not for several reasons. One reason is the lack of anti-sodomy laws in the state. Another reason is that the voters in Colorado have a clear idea of exactly what the phrase "homosexual rights" means. This understanding came out in a poll released January 8, 1993, by the *Denver Post* which showed that fifty-four percent (54%) of the respondents agreed with the statement, "When homosexuals talk about gay rights what they are really saying is that they want special treatment." The actions of homosexual groups as reported in various news accounts certainly gives credence to this viewpoint. So, if the phrase "homosexual rights" really means "special treatment," then the action of the MAA means that it is official MAA policy to support and promote "special treatment" for an individual who happens to be a homosexual. If so, then a direct policy statement saying so should come from the Board of Governors. If not, then the MAA had no basis making any statement against the state of Colorado.

I have now dealt with the haste in which the MAA has acted, now I will give reasons why the action was inappropriate. First of all, I believe the decision on meeting sites is well within the purview of the Board of Governors to decide. However, I do not believe it is within the jurisdiction of the Board of Governors to set policy on social issues without consulting the membership. This is what the Board has done. The MAA has a credible record in its attempts to recruit women into mathematics, and this latter decision was not made by an ivory tower elite, but by consultation from its members. But now the Board of Governors has taken upon itself to be the conscience of the MAA, and that is just wrong.

Second, what does a professional association have to do with matters outside the

profession? After all, the purpose of the association is to benefit its members. There seems no real reason for meddling in political or social issues when such meddling cannot help the association and the benefits to the association are so nebulous. This action by the Board of Governors will neither help the MAA nor will the members receive professional benefits.

I believe that the action taken by the MAA Board of Governors against the state of Colorado by moving the 1995 meeting out of Denver was wrong. It was wrong because it was ill-conceived. It was wrong because it lacked proper investigation. It was wrong because it says that all members of the MAA are for "homosexual rights". It was wrong because it defamed the credibility of mathematics and mathematicians. It was wrong because it made mathematicians appear as busy-bodies with nothing better to do than interfere with other people's lives. It was wrong because it made mathematicians appear to be uninterested in the things that are essential to the profession: good mathematics and good teaching.

I think the MAA is now standing with egg on its face, and should be ashamed of the actions of its Board of Governors. I think the MAA ought to apologize to the voters of the state of Colorado for its actions, and do what is necessary to regain their goodwill.

Sincerely,

Stephen Hennagin

Arkadelphia, Arkansas

The New Job Diary

Edward Aboufadel

Those of you who followed his regular "Job Search Diary" last year, written as Ed struggled to find his first academic position after completing his PhD at Rutgers, will know that he finally managed to secure a tenure-track position at Southern Connecticut State University. Soon after he took up his new appointment, FOCUS asked Ed if he would keep another diary, recording his experiences and impressions during his first year as an assistant professor of mathematics. The result makes fascinating reading, as you will discover for yourself over the coming months, as FOCUS publishes his diary in serial form.

—Keith Devlin, FOCUS editor

October 6, 1992: The first installment of my "Job Search Diary" was published last week in FOCUS. A number of people thought that it would be a good idea if I begin a second diary, my "New Faculty Diary", to relate to the world my experiences in my new position. I only wish that I or someone else had thought of this sooner.

I have been working at Southern Connecticut State University since August 24. These first six weeks have been rather trying, as I have gotten accustomed to my new apartment, to New Haven, and to my job. Here are some of the issues that I have had to deal with in my job so far:

1. What should I wear every day? It may seem strange to start with this, but the first three weeks here it really bothered me. I noticed that some of the male professors in my department wear a suit and tie everyday, some wear a tie but no jacket, and everyone seems to wear a dress shirt, although perhaps not impeccably pressed. I started off wearing a dress shirt, nice pants (ones that need to be dry cleaned), and a tie. However, when you teach twelve hours a week, you get a lot of chalk on you. I soon abandoned the nice pants for less expensive ones (but not jeans), purchased some sportier ties (on credit, of course, since it took a while before I was paid), and tried to go for the flashy young professor look. So far, so good.

2. Worrying about tenure. Tenure is on a lot of people's minds. The first week here, I told a member of the Computer Science Depart-

ment that I was just going to try to be myself and do the best job possible, and if they don't like me here, then I'll get another position somewhere else. (If you read my Job Search Diary, you realize what a cocky statement that is.) However, I have been self-conscious about how I relate to other faculty in my department. "Am I getting on her bad side?" "How many of these committees should I volunteer for?"

As far as committees go, I have volunteered for the Department Curriculum Committee, for the Department Student Affairs Committee, and for a subcommittee of the DCC which is designing a new, interdisciplinary major. I also almost ended up on the Department Sabbatical Committee after I tied for fourth in the election for that committee.

3. When am I going to do research? I have found it hard so far to do anything even related to research. I spent one morning at the libraries at Yale, but I have been busy between teaching and buying (i.e., charging) things for my apartment. I have yet to find a good role model at Southern in this regard. Many faculty here are not active researchers. Some are, however. Do they do their research during the summer?

4. Am I teaching my courses at the right level? Last year at Rutgers, I taught Honors Calculus in the fall and Numerical Analysis in the spring. This fall I am teaching two sections of Calculus II and a section of Precalculus. So far, the results on examinations have been mediocre. I wonder if the exams are too hard, the students aren't that good, or if I just haven't been teaching well. My colleagues have described my exams as "a bit on the hard side". Maybe I should look at this Fall Semester as an opportunity to establish a reputation as a Difficult Professor, and then mellow out.

5. Computers have been a big issue for me. During my last two years at Rutgers, I got closely attached to my computer account, using it to write my dissertation, to write the Job Search Diary, to send and receive e-mail, and for other amusements such as the Usenet Bulletin Board. It was a UNIX system. I arrived here and got a VAX account. There are also a number of PCs in the department and it appears that word processing is done on them. I wanted my UNIX back. And I got it. The Computer Science Department had a UNIX lab that I was able to get an account on. It then took a couple days to customize

that account to get it to feel like my familiar Rutgers account. I still haven't got a good idea, though, about printing files around here. The VAX and the UNIX have separate printers, and neither of them are in the building that my office is in.

I also continue to learn that a lot of teaching involves counseling and psychology. Some of my students suffer from a real lack of confidence about their mathematical ability. In my first six weeks here, I think half of the time that I've spent in office hours with students involved hand-holding and cheerleading rather than going over an obscure point in the text. Is Mathematics some sort of Rorschach test, bringing students' emotions into sharp relief?

October 16, 1992: An academic position is supposed to be a quiet one, so why do I have to keep dealing with salesmen? In the past two weeks, I have had four or five textbook salespeople knock on my door wanting to talk for a while. Each one is interested in which courses I am teaching in the spring and whether or not I have decided on which books I want to use. (Here at Southern, we don't have a textbook committee.)

Amazingly, they send me free of charge any book that I want.

I wonder what background you need to be a textbook salesperson. It is clear that a knowledge of mathematics is not necessary. Many of these people have somewhat of a script to read from, and they struggle with many of the terms of our profession.

Given the concern about the cost of textbooks, I've started asking how much their products cost students. The salespeople seemed surprised by my question. One person, somewhat defensively, I thought, said at first that it didn't matter since all the books on this subject (Finite Mathematics) cost about the same. She then admitted that the text would cost a student $40. I was shocked

to learn that the student's version of Derive costs $50. Perhaps I was shocked that the price didn't seem to bother the salesperson at all.

So, what do I do with all these sample texts I receive? Well, there have been textbook buyers soliciting me too, and they are more aggressive than the textbook sellers. The first week I was here, the first of these buyers started studying my bookshelf and offered me $15 for Munkres' *Topology*. I said, "No, thank you." Last week three textbook buyers knocked on my door. These buyers buy books to sell to bookstores wholesale as used books.

I've had a few discussions with faculty here about the ethics of this situation. For instance, I could conceivably ask each of the textbook sellers to send me three or four books, and then turn around and sell these books to a textbook buyer. I could make a lot of money this way! But it doesn't seem right. At Southern, many of the professors, if they sell some of these desk copy books, put the money in a department fund that helps pay for a student picnic. I can feel good about that.

I'm still waiting for the salesperson from Texas Instruments to come back. She lent me a nice graphing calculator and said she would return in three weeks to get it back. That was in August.

October 26, 1992: An interesting responsibility of mine at Southern is to give midterm grades to my students. These grades are not official, but they do give students a clear sense of how they are doing in their courses. I had to come up with grades for my students before October 23.

As a result, I believe that every professor at Southern gave either an examination or quiz last week just as I did, which meant that other than examining my students, I did not get too much accomplished in my class this week.

Since my position is primarily a teaching position, and since I was hired in part because of my experience at Rutgers, I have spent a lot of time involved with my courses and have invested a lot of emotions in teaching. This week was a bit depressing for me. In my two sections of Calculus, the students did not do very well on a quiz I gave which covered integration techniques. My Precalculus section did a good job on the exam that I gave, but I have been having a problem

dealing with the complaints of one of my students, which has also been troubling me.

I had a similar experience when I taught a section of Intermediate Algebra at Rutgers. The students did not do impressive work, and I felt responsible. While at Rutgers, I learned to adjust my expectations of myself. I think I am starting over here at Southern.

I guess one thing that also weighs on me is when I am evaluated by the evaluation committee next semester. I want the committee to approve of the work I am doing in the classroom. I am feeling a little insecure about that work right now.

On the other hand, a member of my department last week asked me how my classes were going. He asked me if anyone had dropped out of any of my courses yet. I told him that some people had, and that some others that remained were going to get a midterm grade of "F". He told me that that was good — if no one was dropping any of my courses, then they'd start wondering about the job I was doing.

November 1: The ever-present tension between research and teaching has been on my mind lately.

First, a confession: I haven't done any research since I finished my dissertation five months ago. I did spend a little time this summer working on a paper in mathematics education with Gerald Goldin of Rutgers University, but that's it. I spent the rest of the summer working for a Young Scholar's Program, travelling, and moving to Connecticut.

Nor have I found any time to do research during my first two months at Southern. I have spent a little time looking at a few journals, studying their criteria for submitted papers, but currently my research program is in limbo.

I think there are a lot of reasons for this. For one, it has taken me a little time to adjust to my new surroundings. Not only is this a new job for me, it is a new life.

Being a faculty member requires a different focus than being a graduate student. A major part of that focus, at least at Southern, is teaching and curriculum. I am beginning to recognize now the questions asked of me during my interview here in April have led me to devote most of my time and energy to the classroom and to committee work. It is my understanding that this sort of work is

primarily what is wanted from Southern faculty, and, from all appearances, this is what my colleagues in the mathematics department do with their time. They are on university-wide committees, they are experimenting with computers and graphing calculators in their classrooms, and they like to talk about these things. If someone in the department is applying for an NSF grant this fall, I don't know about it. If someone is about to have a paper published in, say, the Bulletin of the AMS, then I don't know about that either.

This connects to another reason my research is stagnant: motivation. As a graduate student, I had a clear goal: earn that Ph.D., and certain people (particularly my thesis advisor) were there to assist me and to push me towards that goal. Now things are not so clear. If I want to stay at Southern and get tenure, it is not necessary for me to have an impressive research record as long as I demonstrate creative research activity in some other way (e.g. redesign a course).

Nor is my environment particularly suited for doing research. The Southern library is not a research library, while the Yale library is not as convenient as I would like. I am not satisfied with the computer support here, either.

Nor have I even come close to deciding whether I want to stay at Southern.

Ideally, three years or so from now, I'll make that decision. Developing my research credentials is VERY important if I want to have any choices in a few years (while hoping for a better job market). It would be wise if I follow Dr. Goldin's advice to "set up a certain time to do research and make that time inviolate. Don't even come into the office."

Underlying all of this, though, is the question: "Do I want to do research?" Certainly I stated that I did on all my application letters last winter. The perfectionist in me says that if I cannot answer that question with an unconditional "Yes!" then the answer must be "No." (Much like "Do I love you?")

Despite the anxiety, I enjoyed working on my dissertation, and I really believe that I would enjoy doing more research.

I remember once in a psychology course a lecture about extrinsic motivation versus intrinsic motivation. As a person matures,

Video Conference to Stimulate Mathematical Education Reform

Creating a Climate for Change — Math Leads the Way is a six-hour interactive videoconference to be held on October 2, 1993 at 150 sites across the nation. Developed by Math Connection in collaboration with the Mathematical Sciences Education Board, WQED (a Pittsburgh PBS station), and the Public Agenda Foundation, it seeks to promote change in mathematics education in local communities through the use of live presentations, on-site group work, panel discussions, and question-and-answer sessions. Selected community and business leaders will join representatives of the Math Connection as participants in the video conference.

This day-long video conference is intended to provide participants with training which will enable them to help others in their respective schools and communities to get involved in local education reform. The program will include: a discussion about reforming both classroom practice and attitudes about mathematics; a presentation of successful reform efforts by local schools and a university which trains teachers to be effective in meeting the NCTM *Standards*; and specific training for participants to become "change agents" in their own communities by conducting workshops and giving presentations.

The participating organizations agree that education cannot progress without change and that resistance to change must be dealt with by those who have the power to make change happen at the policy level and in the classroom. MAA members have that power.

As the educational reform of mathematics takes hold in the K-12 classrooms, future students of mathematics entering higher education will have different expectations from students today. They will be experiencing working in small groups, applying mathematics to real life problems, using manipulatives and the latest technology as tools, and connecting mathematics to other disciplines. Higher education classes in mathematics must change to meet the needs of those students, providing them with the interactive environment to which they have grown accustomed.

The mathematics departments and the education departments need to collaborate. Faculty from both departments must become aware of the new standards for teaching and prepare their students appropriately. They should incorporate the latest research in mathematics and learning into their teaching.

The 190 representatives from the MAA who have been selected to attend the videoconference have an important role to play in these reform efforts in mathematics education. At the Joint Meetings in January 1994, they will hold a workshop to train other MAA members how to work effectively with their communities to create change in their schools.

The Math Connection is a partnership of the following organizations: The American Association of Colleges for Teachers of Education; The American Association of School Administrators; The Mathematical Association of America; The National Association of Elementary School Principals; The National Association of Secondary School Principals; The National Association of State Boards of Education; The National Council of Teachers of Mathematics; and The National School Boards Association.

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he or she is influenced less by others and more by what is within himself or herself. Perhaps, when it comes to doing research, that is what I am struggling with right now.

November 17: So, after analyzing myself at the beginning of the month, I got to work. I am beginning to prepare a manuscript based on the first chapter of my dissertation. I also had a meeting with Gerald Goldin in New Jersey concerning our paper on math education. I hope that I have something substantial by the end of the semester, which is coming up quick.

Also coming up soon is the review of first-year faculty. I have to put together a folder based on my work here so far, and my classes will be visited by a department committee. Note to new faculty: your first day on the job, start a folder and/or computer file called "Accomplishments." Keep track of committee work, professional meetings you attend, and letters of appreciation that you receive.

Also, I spent this past weekend at the Educational Testing Service in Princeton. They are experimenting with putting open-ended questions on the SAT, and they hired me and a few dozen other people to help grade a sample of exams given to students this year. It was very interesting, and ETS would be happy if I didn't say anything else.

November 22: My first semester as a new professor is almost over, so, of course, it is time for a review of new faculty to determine which ones will be rehired next year.

Now, as I am in a tenure-track position, I believe that my contract will be renewed. After all, I am not a troublemaker. However, this exercise in bureaucracy needs to be taken seriously.

The Department Evaluation Committee (DEC) will be observing my classes in December, and again in February. (Interestingly, although I've been teaching for three months, I have not been monitored.) Also, I need to organize a portfolio of student evaluations, old tests, supporting letters and documents, and an essay. There will also be an interview. The whole process, climaxing in a letter of renewal (or not) from the President of the university, is to be completed by the beginning of March.

I have two concerns that I want to address in this process. One is what seems to me to be the large number of students who have withdrawn from my courses this fall. At this point, I have maybe two students who are failing. The other strugglers have disappeared.

My second concern is my research work so far. I have already written extensively about this in this diary, but a recent conversation that I had with a colleague is insightful: A memo was sent out from the Dean soliciting applications for "reassigned time for research." Basically, if approved, a faculty member can teach 9 credits next fall instead of 12, and the extra time is for research. I asked this colleague, "Is this appropriate for a new faculty member?" My thinking was that with the emphasis on teaching at Southern, to apply for reassigned time might be sending the wrong message. He didn't see a problem with it. However, he didn't strongly encourage me to apply, either.

To be continued...

CINCINNATI

Cincinnati *from page 1*

Also of interest to students is an AMS-MAA-SIAM-sponsored panel discussion, "Effective job seeking in today's market."

Highlights of the MAA portion of the joint meetings are the awards of the various MAA prizes, and the retiring presidential address of Past President Deborah Tepper Haimo, who has entitled her address "Experimentation and conjecture are not enough."

The presenters at the SUMMA Workshop on Intervention Projects for Minority Precollege Students, organized by SUMMA Director William Hawkins, are Joaquin Bustoz, Arizona State; Roger Contreras, Texas at Brownsville; and Robert Megginson, Michigan.

The MAA Invited Addresses are:

• Deane Arganbright, Whitworth College, "Mathematics and the ubiquitous spreadsheet: visualization, conceptualization, and applications."

• William W. Dunham, Muhlenberg College, "Euler's extraordinary sums."

• Stephen Monk, University of Washington, "What does it mean to understand a mathematical concept? It depends on your point of view."

• Brad G. Osgood, Stanford University, "Circle packing and conformal mappings."

Among the 17 minicourses listed are one on "The mathematics of the perfect shuffle," by S. Brent Morris, NSA, and another titled "Interactive computer graphics laboratories for introductory differential equations," given by Thomas F. Banchoff, Brown.

Attendees interested in learning about interactive mathematics texts can drop in at the poster session organized by Elizabeth Teles, NSF and Montgomery College, and sponsored by the Committee on Computers in Mathematics Education, and go to the talk The promise of interactive texts, given by James E. White, Institute for Advanced Technology.

All this and much more. Of course, you will be able to read the report of the meeting in the February issue of FOCUS. But it would be far better to brave the cold and the snow and see for yourself. See you there!

MEETINGS PROGRAM GUIDE

SCHEDULE OF EVENTS FOR CINCINNATI

Tuesday, January 11

8:30-4:00   **Board of Governors' Meeting**

7:00-8:00pm **Panel Discussion:** *Life after Retirement*, moderated by Andrew Sterrett, Denison University, MAA Assistant Director of Programs

Wednesday, January 12, Morning

8:00-9:20   **Panel Discussion:** *Changing the culture—making your department inviting to women*, moderated by Carole B. LaCampagne, U.S. Department of Education, chair of the Committee on the Participation of Women in Mathematics

8:00-10:55   **AMS-MAA Special Session:** *Mathematics and Education Reform*, Naomi D. Fisher, Harvey B. Keynes, Kenneth C. Millett, Hugo Rossi and Philip D. Wagreich, Mathematicians and Education Reform Network (MER)

8:00-10:55   **Contributed Paper Session:** *Environmental mathematics*, Ben Fusaro, Salisbury State University

8:00-10:55   **Contributed Paper Session:** *Favorite non-traditional calculus assignments or projects*, Duane Blumberg, University of Southwestern Louisiana

8:00-10:55   **Contributed Paper Session:** *Teaching mathematics with a spreadsheet*, Robert S. Smith, Miami University, Ohio

8:00-10:00   **Minicourse 1A:** *Organizing an undergraduate research program*, by Robby Robson, Oregon State University, and Joe Gallian, University of Minnesota, Duluth

8:00-10:00   **Minicourse 2A:** *Inverse problems in the undergraduate classroom*, by C. W. Groetsch, University of Cincinnati, and Zuhair Nashed, University of Delaware

8:00-10:00   **Minicourse 3A:** *The Joy of Mathematica: a point-and-click way to use and learn Mathematica*, by Alan Shuchat and Fred Shultz, Wellesley College

8:00-10:00   **Minicourse 4A:** *How to make effective use of inexpensive pocket computers to develop the concepts and techniques of calculus*, by Franklin Demana and Bert K. Waits, Ohio State University

9:30-10:55   **Panel Discussion:** *Revising the AP Calculus Syllabus*, Thomas W. Tucker, Colgate University

9:30-10:55   **Panel Discussion:** *Responding to reform in engineering curricula*, Co-moderated by Jane M. Day, San Jose State University, and Wade Ellis, Jr., West Valley College. Sponsored by CUPM Subcommittee on Service Courses (Barbara A. Jur, Macomb County Community College, chair).

11:10-12:00 **AMS-MAA Invited Address:** *A tale of two groups*, Georgia M. Benkart, University of Wisconsin

Wednesday, January 12, Afternoon

2:15-3:05   **MAA Invited Address:** *Mathematics and the ubiquitous spreadsheet: visualization, conceptualization and applications*, Deane Arganbright, Whitworth College

2:15-6:00   **AMS-MAA Special Session:** *Mathematics and Education Reform*, Naomi D. Fisher, Harvey B. Keynes, Kenneth C. Millett, Hugo Rossi and Philip D. Wagreich, Mathematicians and Education Reform Network (MER)

2:15-6:00   **Contributed Paper Session:** *Applied geometry*, Walter Meyer, Adelphi University

2:15-6:00   **Contributed Paper Session:** *Restructuring teaching and learning in linear algebra*, Donald R. LaTorre, Clemson University; Steven J. Leon, University of Massachusetts at Dartmouth; Charles R. Johnson, College of William and Mary

2:15-4:15   **Minicourse 5A:** *Unifying themes for discrete mathematics*, by Ralph Grimaldi, Rose-Hulman Institute of Technology

2:15-4:15   **Minicourse 6A:** *The mathematics of the perfect shuffle*, by Brent Morris, National Security Agency

2:15-4:15   **Minicourse 7A:** *Theorist*, by Donald Hartig, California Polytechnic State University

2:15-6:00   **MAA Poster Session:** *Interactive MathematicsTexts: using technology for active learning*, organized by Elizabeth J. Teles, NSF and Montgomery College, and sponsored by CCIME, the Committee on Computers in Mathematics Education, L. Carl Leinbach, Gettysburg College, chair.

3:20-4:10   **MAA Invited Address:** *Circle packing and conformal mapping*, Brad G. Osgood, Stanford University

4:25-5:15   **AMS-MAA Invited Address:** *Overview and update on Fermat's last theorem*, Kenneth A. Ribet, University of California

4:30-6:30   **Section Officers' Meeting**

4:30-6:30   **Minicourse 1B:** *Organizing an undergraduate research program*, by Robby Robson, Oregon State University, and Joe Gallian, University of Minnesota, Duluth

4:30-6:30   **Minicourse 2B:** *Inverse problems in the undergraduate classroom*, by C. W. Groetsch, University of Cincinnati, and Zuhair Nashed, University of Delaware

4:30-6:30   **Minicourse 3B:** *The Joy of Mathematica: a point-and-click way to use and learn Mathematica*, by Alan Shuchat and Fred Shultz, Wellesley College

6:00-7:00   **First Time Attendees Social**, including magic show by Brent Morris

Thursday, January 13, Morning

7:00-8:00 **Breakfast for Student Chapter Advisors and Section Coordinators:** Sponsored by the Committee on Student Chapters

8:00-9:20 **AMATYC-MAA-NCTM Panel Discussion:** *In the year 2000: Who will your students be and what will they know about mathematics?* organized by **Susan L. Forman**, Mathematical Sciences Education Board, **Donald L. Kreider**, Dartmouth College, and **Marcia P. Sward**, MAA, and sponsored by the Coordinating Board for AMATYC, MAA and NCTM

8:00-10:55 **Contributed Paper Session:** *Applied geometry,* Walter Meyer, Adelphi University

8:00-10:55 **Second Annual MAA Student Chapters Special Paper Session:** organized by Karen Schroeder, Bentley College, and sponsored by the Committee on Student Chapters (Aparna W. Higgins, University of Dayton, chair)

8:00-9:50 **SUMMA Workshop:** *Intervention projects for minority pre-college students,* organized by William A. Hawkins, Director of the SUMMA program of the MAA

8:00-10:00 **Minicourse 8A:** *Introduction to research in the teaching and learning of undergraduate mathematics: examples in calculus,* by Joan Ferrini-Mundy, University of New Hampshire, and Kathleen Heid, Pennsylvania State University

8:00-10:00 **Minicourse 9A:** *The Math Modeling/PreCalculus Reform Project: using discrete mathematical models to motivate mathematics,* Sheldon Gordon, Suffolk Community College, and B. A. Fusaro, Salisbury State University

9:00-9:50 **Special Presentation:** *The promise of interactive texts,* James E. White, Institute for Advanced Technology. Organized by Eugene A. Herman, Grinnell College, and sponsored by CCIME, the Committee on Computers in Mathematics Education, L. Carl Leinbach, Gettysburg College, chair.

9:00-9:50 **AWM Noether Lecture:** *Analysis in gauge theory,* Lesley M. Sibner, Polytechnic University

10:05-10:55 **MAA Invited Address:** *What does it mean to understand a mathematical concept? It depends on your point of view.* Stephen Monk, University of Washington

11:10-12:00 **AMS-MAA Invited Address:** *Random walks and volume,* László Lovasz, Eötvös Loránd Tudományegyetem, Budapest, Hungary

12:15-12:45 **MAA Business Meeting**

2:15-4:10 **Open Forum:** *Guidelines for an Effective Assessment Program for the Undergraduate Major,* sponsored by the CUPM Subcommittee on Assessment, Bernard L. Madison, University of Arkansas, chair

2:15-4:10 **Panel Discussion:** *Creating a Climate for Change—Math Leads the Way,* organized by Martha J. Siegel, Towson State University

2:15-4:10 **AMS-MAA Special Session:** *Mathematics and Education Reform,* Naomi D. Fisher, Harvey B. Keynes, Kenneth C. Millett, Hugo Rossi, and Philip D. Wagreich, Mathematicians and Education Reform Network (MER)

2:15-4:10 **Contributed Paper Session:** *Actuarial mathematics education and research,* James W. Daniel, University of Texas. Sponsored by the Actuarial Faculty Forum.

2:15-4:10 **Contributed Paper Session:** *Environmental mathematics,* Ben Fusaro, Salisbury State University

2:15-4:10 **Contributed Paper Session:** *Favorite non-traditional calculus assignments or projects,* Duane Blumberg, University of Southwestern Louisiana

2:15-4:10 **Contributed Paper Session:** *Teaching mathematics with a spreadsheet,* Robert S. Smith, Miami University, Ohio

2:15-4:15 **Minicourse 4B:** *How to make effective use of inexpensive pocket computers to develop the concepts and techniques of calculus,* by Franklin Demana and Bert K. Waits, Ohio State University

2:15-4:15 **Minicourse 5B:** *Unifying themes for discrete mathematics,* by Ralph Grimaldi, Rose-Hulman Institute of Technology

2:15-4:15 **Minicourse 6B:** *The mathematics of the perfect shuffle,* by S. Brent Morris, National Security Agency

2:15-4:15 **Minicourse 7B:** *Theorist,* by Donald Hartig, California Polytechnic State University

2:15-4:10 **MAA Poster Session:** *Research by Undergraduate Students,* sponsored by CUPM Subcommittee on Undergraduate Research in Mathematics, John Greever, Harvey Mudd College, chair, and the Committee on Student Chapters, Aparna W. Higgins, University of Dayton, chair

4:25-6:00 **Joint AMS-MAA Prize Session**

5:30-7:00 **Two-Year College Reception**

7:00-8:15 **Calculus Reform Workshop Reunion:** Organized by Donald B. Small, United States Military Academy

7:15-8:15 **Informal Gathering:** Humanistic Math Network organized by Alvin M. White, Harvey Mudd College

7:30-10:00 **Contributed Paper Session:** *Restructuring teaching and learning in linear algebra,* Donald R. LaTorre, Clemson University; Steven J. Leon, University of Massachusetts at Dartmouth; Charles R. Johnson, College of William and Mary

Friday, January 14, Morning

8:00-9:20   **Panel Discussion:** *Issues in implementing the MAA/AMATYC Guidelines,* organized by James R. C. Leitzel, University of Nebraska, and Marilyn E. Mays, North Lake College

8:00-9:20   **Panel Discussion:** *Writing in mathematics courses: A maturing discipline,* organized by Thomas W. Rishel, Cornell University

8:00-10:55   **Contributed Paper Session:** *Mathematics and music,* Robert Lewand, Goucher College

8:00-10:55   **Contributed Paper Session:** *New methods for teaching elementary differential equations,* T. Gilmer Proctor, Clemson University, and Robert Borrelli, Harvey Mudd College

8:00-10:55   **Contributed Paper Session:** *Reassessing discrete mathematics in the first two years,* Susanna S. Epp, DePaul University

8:00-10:55   **Contributed Paper Session:** *Restructuring the mathematical preparation of teachers,* Bettye M. Clark, Clark Atlanta University; Marjorie Enneking, Portland State University; and Phillip Wagreich, University of Illinois–Chicago

8:00-10:00   **Minicourse 10A:** *q-dimensional dynamical systems and chaos,* Mario Martelli, California State University, Fullerton

8:00-10:00   **Minicourse 11A:** *HP 48 learning environments for experienced users,* by Lynn E. Garner, Brigham Young University

8:00-10:00   **Minicourse 12A:** *Creating order out of chaos in freshman mathematics,* Wade Ellis, Jr., West Valley College

8:00-10:00   **Minicourse 13A:** *"Workshop" mathematics: using new pedagogy and technology in introductory mathematics courses,* by Nancy Baxter and Allan Rossman, Dickinson College

8:00-10:55   **MAA Poster Session:** *Calculus Projects Maturing—a chance to see what is emerging,* sponsored by CRAFTY, the CUPM Subcommittee on Calculus Reform and the First Two Years (A. Wayne Roberts, Macalester College, chair) and the Calculus Reform Study Group (Marcelle Bessman, Frostburg State University, chair)

9:30-10:55   **Panel Discussion:** *Hearing on the Project on Standards for Two-Year College and Lower Division Mathematics Below the Level of Calculus,* organized by Marilyn E. Mays, Project Director (sponsored by AMATYC with representation from AMS, MAA, NADE and NCTM)

9:30-10:55   **Panel Discussion:** *Aspects of humanistic mathematics,* organized and moderated by Alvin M. White, Harvey Mudd College

11:10-12:00   **AMS-MAA Invited Address:** *Some propositions from Newton's Principia,* S. Chandrasekhar, University of Chicago

Friday, January 14, Afternoon

1:00-6:00   **Contributed Paper Session:** *Research in undergraduate mathematics education,* Warren Page, NYC Technical College, SUNY. Sponsored by the Joint AMS-MAA Committee on Research in Undergraduate Mathematics Education.

1:00-6:00   **Contributed Paper Session:** *Restructuring teaching and learning in linear algebra,* Donald R. LaTorre, Clemson University; Steven J. Leon, University of Massachusetts at Dartmouth; Charles R. Johnson, College of William and Mary

1:00-3:00   **Minicourse 14A:** *Interactive computer graphics laboratories for introductory differential geometry,* by Thomas F. Banchoff, Brown University

1:00-3:00   **Minicourse 15A:** *Designing question-based mathematics courses,* by Larry Copes and Su Dorée, Augsburg College

1:00-6:00   **MAA Poster Session:** *Laboratory approaches in undergraduate mathematics,* organized by Arnold M. Ostebee, St. Olaf College, as part of the MAA project, Priming the Pump for Curricular Reform, funded by the NSF

2:15-3:05   **MAA Retiring Presidential Address:** *Experimentation and Conjecture are not Enough,* Deborah Tepper Haimo, University of Missouri at St. Louis

3:15-5:15   **Minicourse 16A:** *Calculus: an active approach with projects,* by Stephen Hilbert, John Maceli, Diane Schwartz, Stanley Seltzer, and Eric Robinson, Ithaca College

3:15-5:15   **Minicourse 17A:** *Teaching applied math via Maple,* by Robert J. Lopez, Rose-Hulman Institute of Technology

3:20-5:00   **MAA Teaching Awards Presentations** by Paul R. Halmos, Santa Clara University, Justin J. Price, Purdue University, and Alan C. Tucker, SUNY at Stony Brook

5:30-6:30   **Presentation:** *NSF Calculus Institute Using CAS,* Darrell H. Abney, Maysville Community College, and Larry Gilligan, University of Cincinnati

6:30-7:20   **Poetry Reading:** organized by Joanne S. Growney, Bloomsburg University of Pennsylvania, and Alvin M. White, Harvey Mudd College

7:00-8:30   **Open Meeting:** Sponsored by the Calculus Reform Study Group, (Marcelle Bessman, Frostburg State University, chair)

7:30-8:20   **Student Lecture:** *Magic tricks, card shuffling, and dynamic computer memories,* S. Brent Morris, National Security Agency

8:15-10:00   **Micro-inequities Skits—the Second Generation:** Sponsored by the Committee on the Participation of Women in Mathematics, Carole

B. Lacampagne, U.S. Department of Education, chair

8:45-9:30   **A Play:** *Gauss, Eisenstein, and the "third" proof of the quadratic reciprocity theorem: Ein kleines Schauspiel*, Reinhard C. Laubenbacher and David J. Pengelley of New Mexico State University. Sponsored jointly by the AMS and MAA.

Saturday, January 15, Morning

8:00-10:55   **Contributed Paper Session:** *The bridge to calculus*, Marilyn Mays, North Lake College, and Linda H. Boyd, DeKalb College. Sponsored by the Committee on Two-Year Colleges

8:00-10:55   **Contributed Paper Session:** *Research in undergraduate mathematics education*, Warren Page, NYC Technical College, SUNY. Sponsored by the Joint AMS-MAA Committee on Research in Undergraduate Mathematics Education

8:00-10:00   **Minicourse 8B:** *Introduction to research in the teaching and learning of undergraduate mathematics: examples in calculus*, by Joan Ferrini-Mundy, University of New Hampshire, and Kathleen Heid, Pennsylvania State University

8:00-10:00   **Minicourse 9B:** *The Math Modeling/ PreCalculus Reform Project: using discrete mathematical models to motivate mathematics*, Sheldon Gordon, Suffolk Community College, and B. A. Fusaro, Salisbury State University

10:05-10:55   **MAA Invited Address:** *Euler's extraordinary sums*, William W. Dunham, Muhlenberg College

Saturday, January 15, Afternoon

1:00-2:00   **Panel Discussion:** *A report to the community: Assessing calculus reform efforts*, organized by James R. C. Leitzel, University of Nebraska

1:00-5:30   **Contributed Paper Session:** *The bridge to calculus*, Marilyn Mays, North Lake College, and Linda H. Boyd, DeKalb College. Sponsored by the Committee on Two-Year Colleges.

1:00-5:30   **Contributed Paper Session:** *Mathematics and music*, Robert Lewand, Goucher College

1:00-5:30   **Contributed Paper Session:** *New methods for teaching elementary differential equations*, T. Gilmer Proctor, Clemson University, and Robert Borrelli, Harvey Mudd College

1:00-5:30   **Contributed Paper Session:** *Reassessing discrete mathematics in the first two years*, Susanna S. Epp, DePaul University

1:00-5:30   **Contributed Paper Session:** *Restructuring the mathematical preparation of teachers*, Bettye M. Clark, Clark Atlanta University; Marjorie Enneking, Portland State University; and Phillip Wagreich, University of Illinois–Chicago

1:00-3:00   **Student Workshop:** *Calculated deceptions*, S. Brent Morris, National Security Agency

1:00-3:00   **Minicourse 10B:** *q-dimensional dynamical systems and chaos*, Mario Martelli, California State University, Fullerton

1:00-3:00   **Minicourse 11B:** *HP 48 learning environments for experienced users*, by Lynn E. Garner, Brigham Young University

1:00-3:00   **Minicourse 12B:** *Creating order out of chaos in freshman mathematics*, Wade Ellis, Jr., West Valley College

1:00-3:00   **Minicourse 13B:** *"Workshop" mathematics: using new pedagogy and technology in introductory mathematics courses*, by Nancy Baxter and Allan Rossman, Dickinson College

2:10-4:00   **Panel Discussion:** *What Happens After Calculus Reform?*, organized by Sheldon P. Gordon, Suffolk Community College

2:15-6:00   **Special Session:** *Curriculum projects in undergraduate mathematics*, organized by James R. C. Leitzel, University of Nebraska, as part of the MAA project, Priming the Pump for Curricular Reform, funded by NSF

2:45-4:00   **Open Meeting:** *Quantitative literacy*, organized by Linda R. Sons, chair of the CUPM Subcommittee on Quantitative Literacy

3:15-4:45   **Panel Discussion:** *Mathematical life outside academia—input from the real world*, moderated by S. Brent Morris, National Security Agency, and sponsored by the Committee on Mathematicians Outside Academia (Patrick Dale McCray, chair)

3:15-5:15   **Minicourse 14B:** *Interactive computer graphics laboratories for introductory differential geometry*, by Thomas F. Banchoff, Brown University

3:15-5:15   **Minicourse 15B:** *Designing question-based mathematics courses*, by Larry Copes and Su Dorée, Augsburg College

3:15-5:15   **Minicourse 16B:** *Calculus: an active approach with projects*, by Stephen Hilbert, John Maceli, Diane Schwartz, Stanley Seltzer, and Eric Robinson, Ithaca College

3:15-5:15   **Minicourse 17B:** *Teaching applied math via Maple*, by Robert J. Lopez, Rose-Hulman Institute of Technology

Meetings

The Scientific Program

The January 1994 Joint Mathematics Meetings, including the 77th Annual Meeting of the Mathematical Association of America, the 100th Annual Meeting of the AMS, and the 1994 annual meetings of the Association for Women in Mathematics and the National Association for Mathematicians, will be held January 12–15 (Wednesday–Saturday), 1994, in Cincinnati, Ohio. Sessions will be held in the Cincinnati Convention Center (CCC), the Clarion Hotel Cincinnati, and the Hyatt Regency Cincinnati.

AMS-MAA Invited Addresses

Four speakers will address the AMS and MAA on the history or development of mathematics:

Georgia M. Benkart, University of Wisconsin, Madison, *A tale of two groups*, 11:10 a.m., Wednesday;

Subrahmanyan Chandrasekhar, University of Chicago, *Some propositions from Newton's Principia*, 11:10 a.m., Friday;

László Lovász, Eötvös Loránd Tudományegyetem, *Random walks and volume*, 11:10 a.m., Thursday; and

Kenneth A. Ribet, University of California, Berkeley, *Overview and update on Fermat's Last Theorem*, 4:25 p.m., Wednesday.

Other AMS – MAA Sessions

Mathematics and Education Reform: This jointly sponsored Special Session has been organized by **Naomi Fisher** and **Philip D. Wagreich**, University of Illinois at Chicago; **Harvey B. Keynes**, University of Minnesota, Minneapolis; **Kenneth C. Millett**, University of California at Santa Barbara; and **Hugo Rossi**, University of Utah, on Wednesday at 8:00 a.m. and 2:15 p.m., and Thursday at 2:15 p.m. This session is also cosponsored by the Mathematicians and Education Reform (MER) Network. This session will feature presentations to highlight the range of education reform projects in which mathematicians are engaged and systemic issues which relate to pursuing educational reform within the mathematics community. As in the past part of the session will highlight

themes from recent MER workshops. This year's theme is *Mathematics Departments and Education Reform*.

Effective Job Seeking in Today's Market: This panel discussion sponsored by the AMS-MAA-SIAM Committee on Employment Oportunities (JCEO) and moderated by **Stanley J. Benkoski**, Wagner Associates and chair of the JCEO, will take place in the Employment Register area on Wednesday, 2:00 p.m. to 3:15 p.m. All graduate students and mathematicians seeking employment are encouraged to attend. Four informational presentations are intended to advise job seekers of the realities of the current market and the best methods for determining what they should seek and how to carry out various steps in the employment process most effectively. A question-and-answer period will follow brief presentations. Panelists include **Annalisa Cranell**, Franklin and Marshall College (recent Ph.D. recipient); **Ronald Davis**, Anoka-Ramsey Community College (on the two-year college experience); **Frank R. Demeyer**, Colorado State University (Ph.D.-granting department); **S. Brent Morris**, National Security Agency (on government employment); and **Leon H. Seitelman**, Pratt & Whitney Aircraft (on industrial employment).

What Can Be Done About Employment of Mathematicians in the 90s and Beyond?: This panel discussion on the employment situation scheduled for Friday from 5:00 p.m. to 6:15 p.m. is cosponsored by the JCEO and the Young Mathematicians Network (YMN). The panel will be moderated by **Stanley J. Benkoski**. Panelists will focus on aspects of the current job market for mathematicians, addressing such questions as whether departments are producing too many mathematicians, whether mathematicians are receiving the wrong training in graduate school, and what responsibility the mathematics community has in addressing these issues.

Attendees are invited to an informal reception hosted by the AMS and the MAA after the conclusion of the panel in order to become better acquainted with panel members, the JCEO, and the YMN.

Other AMS-MAA Events

Mathchats and Graduate Student Reception: On Tuesday evening well-known mathematicians representing a wide range of disciplines (Tom Banchoff, Fan Chung, Ingrid Daubechies, Bob Devaney, Keith Devlin, John Ewing, Florence Fasanelli, Genevieve Knight, Jeff Lagarias, Jim Lightbourne, Eileen Poiani, Fred Rickey, Ken Ross, Martha Siegel, and others) will join interested graduate students for informal chats and all graduate students are invited. Departure is at 6:00 p.m. on Tuesday from the CCC for a short tour of Cincinnati by trolley, then on to SkyLine Chili for a buffet supper. Return will be about 9:00 p.m.

NOTE: This event is for students only. There is no cost. However, interested students must sign up on their advance registration forms.

Social for First-time Attendees: The AMS Committee on Membership (Hugo Rossi, chair) and the MAA Committee on Membership (Shirley Huffman, chair) are again cospon-

IMPORTANT DEADLINES	
MAA Abstracts of Contributed Papers	Expired
EARLY Meetings Advance Registration and Housing (Room Lottery)	October 29
ORDINARY Meetings Advance Registration/Housing/Tickets	November 12
MAA Minicourse Advance Registration	November 12
Employment Register Advance Registration	November 12
Hotel Changes and Cancellations with MMSB	December 10
FINAL Employment Register with no *Winter Lists* listings	December 13
FINAL Meetings Advance Registration (no housing or tickets)	December 13
Cancellations for all Banquets (50% refund)	December 30
Advance Registration Cancellations (50% refund)	January 9

soring a social hour on Wednesday from 6:00 p.m. to 7:00 p.m. If this is your first national meeting, you are especially encouraged to come and meet some old-timers and pick up a few tips on how to survive the environment of a large meeting. The program will include a 20- to 30-minute magic show put on by **S. Brent Morris**, MAA governor-at-large representing Mathematicians Outside Academia. Refreshments will be served.

Joint Prize Session and Reception: In order to showcase the achievements of the recipients of various prizes, AMS and MAA are cosponsoring this event at 4:25 p.m. on Thursday. A cash bar reception will immediately follow. All participants are invited to attend. AMS will announce the recipients of the Bôcher Prize and AMS Citations for Public Service.

The MAA Prizes to be awarded include the Distinguished Teaching Awards, the Chauvenet Prize, the Beckenback Book Prize, the Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics, and several Certificates of Meritorious Service.

Dramatic Presentation: The play *Gauss, Eisenstein, and the "third" proof of the quadratic reciprocity theorem: Ein kleines Schauspiel* will be performed from 8:45 p.m. to 9:30 p.m. on Friday by **Reinhard C. Laubenbacher** and **David J. Pengelley**, New Mexico State University. The setting is an imaginary dialogue between Gauss and Eisenstein taking place in the year 1844.

77th Annual Meeting of the MAA
January 12–15, 1994

Invited Addresses
Retiring Presidential Address: Past President **Deborah Tepper Haimo**, University of Missouri at St. Louis, will give her Retiring Presidential Address titled *Experimentation and conjecture are not enough* at 2:15 p.m. on Friday.

Deane Arganbright, Whitworth College, *Mathematics and the ubiquitous spreadsheet: visualization, conceptualizations, and applications*, Wednesday, 2:15 p.m.;

William W. Dunham, Muhlenberg College, *Euler's extraordinary sums*, Saturday, 10:05 a.m.;

Stephen Monk, University of Washington, *What does it mean to understand a mathematical concept? It depends on your point of view*, Thursday, 10:05 a.m.; and

Brad G. Osgood, Stanford University, *Circle packing and conformal mapping*, Wednesday, 3:20 p.m.

Minicourses
Minicourse #1: *Organizing an undergraduate research program*, **Robert O. Robson**, Oregon State University, and **Joseph A. Gallian**, University of Minnesota, Duluth. Part A: 8:00 a.m. to 10:00 a.m. on Wednesday, and Part B: 4:30 p.m. to 6:30 p.m. on Wednesday. Enrollment is limited to 40.

This workshop will focus on the practical aspects of starting and running a successful undergraduate research program. Topics will include designing or choosing projects, reasonable goals for a program, organizational hints, obtaining

funding and negotiating with administrators, following up on a program, and evaluating a program. We will consider programs of all sizes, summer programs, and programs run during the academic years. Participants will spend a portion of the time in smaller interest groups discussing sample undergraduate research projects.

Minicourse #2: *Inverse problems in the undergraduate classroom*, **Charles W. Groetsch**, University of Cincinnati, and **Zuhair Nashed**, University of Delaware. Part A: 8:00 a.m. to 10:00 a.m. on Wednesday, and Part B: 4:30 p.m. to 6:30 p.m. on Wednesday. Enrollment is limited to 30.

Inverse problems may be loosely defined as problems of finding a cause of a given effect or of finding a model of a given cause-effect relationship. Such problems are vitally important in modern technology and can be used to great effect in engaging student interest. The course will identify examples, models, and topics in inverse problems suitable for various undergraduate courses and student projects. Prerequisites are elementary differential equations and linear algebra. It is recommended that participants bring a graphics calculator.

Deborah Tepper Haimo, MAA Retiring Presidential Address

Minicourse #3: *The Joy of Mathematica: a point-and-click way to use and learn Mathematica*, **Alan H. Shuchat** and **Frederic W. Shultz**, Wellesley College. Part A: 8:00 a.m. to 10:00 a.m. on Wednesday, and Part B: 4:30 p.m. to 6:30 p.m. on Wednesday. Enrollment is limited to 30.

Hands-on introduction to the *The Joy of Mathematica*, software for the Macintosh that makes *Mathematica* useable "right out of the box". *Joy* runs concurrently with *Mathematica*, giving the option of substituting menus and dialog boxes for typing commands. Participants will learn to use *Joy* while exploring topics in calculus and linear algebra. They will see how *Joy* can enhance both traditional and "reformed"

Meetings

courses, with students and faculty knowing only the most basic Macintosh techniques.

Minicourse #4: *How to make effective use of inexpensive pocket computers to develop the concepts and techniques of calculus*, **Franklin D. Demana** and **Bert K. Waits**, Ohio State University. Part A: 8:00 a.m. to 10:00 a.m. on Wednesday, and Part B: 2:15 p.m. to 4:15 p.m. on Thursday. Enrollment is limited to 40.

Inexpensive ($100 or less) pocket computers are dramatically changing the way we teach and the way students learn calculus. Participants will use the latest "state-of-the-art" Texas Instruments pocket computers, powerful tools that permit the user to make and test generalizations by looking at a large number of examples quickly. This makes solving graphically and numerically a realistic and powerful problem-solving technique and makes noncontrived examples routine for all students. Topics include limits, continuity, differentiation, integration, optimization, sequences, series, vectors, matrices, and motion simulation.

Minicourse #5: *Unifying themes for discrete mathematics*, **Ralph P. Grimaldi**, Rose-Hulman Institute of Technology. Part A: 2:15 p.m. to 4:15 p.m. on Wednesday, and Part B: 2:15 p.m. to 4:15 p.m. on Thursday. Enrollment is limited to 80.

As discrete mathematics courses impact the college curricula, some students express concern about the apparent fragmented nature of the concepts. To dispel this feeling of fragmentation certain unifying themes can serve to interrelate different concepts. Among such themes are

(i) the function—with its role in enumeration, the analysis of algorithms, finite state machines, and the preservation of discrete structures.

(ii) enumeration—as it reinforces the study of partial orders, equivalence relations, graph theory, and summation formulas.

Minicourse #6: *The mathematics of the perfect shuffle*, **S. Brent Morris**. Part A: 2:15 p.m. to 4:15 p.m. on Wednesday, and Part B: 2:15 p.m. to 4:15 p.m. on Thursday. Enrollment is limited to 80.

This minicourse examines the mathematics of the perfect shuffle, a permutation often used by mathematicians, magicians, and computer scientists for seemingly different ends. The perfect shuffle has broad appeal because of its interesting mathematics and surprising applications to magic tricks and computer design. Most of the mathematics should be accessible to those having some knowledge of discrete mathematics. The basic shuffle and several generalizations will be introduced, and the group structure generated by perfect shuffles will be explored. Participants will be taught several card tricks using different properties of the perfect shuffle. The minicourse will conclude with a study of computer circuits using the perfect shuffle interconnection. Each participant should bring a new deck of cards.

Minicourse #7: *Theorist*, **Donald Hartig**, California Polytechnic State University. Part A: 2:15 p.m. to 4:15 p.m. on Wednesday, and Part B: 2:15 p.m. to 4:15 p.m. on Thursday. Enrollment is limited to 30.

Theorist is the first commercially available computer algebra system for the Macintosh, taking advantage of intuitive features built into Apple's operating system (see Raymond Smith's review in the *Notices*, Volume 38, Number 10). After acquiring a working knowledge of the system, participants, working in pairs on a Macintosh computer, will have the opportunity to learn how *Theorist* can be used effectively in their classrooms. Sample electronic notebooks, lab assignments, and demonstrations suitable for courses in calculus, differential equations, and linear algebra will be distributed. Bring a blank diskette.

Minicourse #8: *Introduction to research in the teaching and learning of undergraduate mathematics: examples in calculus*, **Joan Ferrini-Mundy**, University of New Hampshire, and **Kathleen Heid**, The Pennsylvania State University, University Park. Part A: 8:00 a.m. to 10:00 a.m. on Thursday, and Part B: 8:00 a.m. to 10:00 a.m. on Saturday. Enrollment is limited to 30.

Can better understanding of how students learn and of how teaching affects learning lead to more effective undergraduate mathematics experiences? We will encourage the formation of working groups interested in pursuing this question. By viewing data from research studies of learning and teaching calculus and other areas, and by conducting clinical interviews with undergraduate students, participants will gain first-hand introductory experience with qualitative research methods. An overview of literature and resources helpful to those interested in "getting started" in research of this nature will be provided. "Homework" between sessions is planned.

Minicourse #9: *The math modeling/precalculus reform project: using discrete mathematical models to motivate mathematics*, **Sheldon P. Gordon**, Suffolk Community College, and **B. A. Fusaro**, Salisbury State University. Part A: 8:00 a.m. to 10:00 a.m. on Thursday, Part B: 8:00 a.m. to 10:00 a.m. on Saturday. Enrollment is limited to 80.

Under support from the NSF the *Math Modeling/Precalculus Reform Project* is developing an alternative to precalculus courses which emphasizes the broad applicability of mathematics using mathematical modeling based on methods such as difference equations, data analysis, probability, and matrix algebra. The ideas and skill needed for calculus are developed in the context of solving interesting and important problems. The minicourse will provide an overview of the project and its goals as well as illustrations and hands-on experience with some specific models based on difference equations, data analysis for fitting nonlinear curves to data, and probability simulations that have been developed for the course. Copies of the project materials will be provided to all participants.

Minicourse #10: *q-dimensional dynamical systems and chaos*, **Mario U. Martelli**, California State University, Fullerton. Part A: 8:00 a.m. to 10:00 a.m. on Friday, and Part B: 1:00 p.m. to 3:00 p.m. on Saturday. Enrollment is limited to 40.

This minicourse will provide detailed information on a course designed for undergraduates. A team project is an integral part of the course. Emphasis is on the long-range behavior

of orbits and on the theoretical and computational devices for detecting chaos. Graphical and numerical techniques are included in the minicourse. Samples of completed projects will be available to the participants. *Mathematica* on a Macintosh is used in the presentation, but everything can be adapted to other machines and different symbolic manipulators.

Minicourse #11: *HP 48 learning environments for experienced users*, **Lynn E. Garner**, Brigham Young University. Part A: 8:00 a.m. to 10:00 a.m. on Friday, and Part B: 1:00 p.m. to 3:00 p.m. on Saturday. Enrollment is limited to 80.

This minicourse discusses "environments" for using the HP 48 as a "learning tool". In addition to built-in special-purpose environments such as graphics and matrix manipulation, we discuss several "homemade" environments useful in calculus, linear algebra, and numerical analysis that let students transform the HP 48 into a "doing tool" as they learn. Participants are expected to bring their own HP 48s.

Minicourse #12: *Creating order out of chaos in freshman mathematics*, **Wade Ellis, Jr.**, West Valley College. Part A: 8:00 a.m. to 10:00 a.m. on Friday, and Part B: 1:00 p.m. to 3:00 p.m. on Saturday. Enrollment is limited to 40.

Members of the MAA Committee on Testing will present an overview of the task of designing and implementing a mathematics placement program. Topics covered will include reasonable expectations of a placement program, selection or creation of placement tests, tests available through the MAA Placement Test Program (PTP), statistical analysis of tests and test items, establishing cutoff scores, and administration and validation of a placement program. Several placement models will be presented.

Minicourse #13: *"Workshop" mathematics: using new pedagogy and technology in introductory mathematics courses*, **Nancy Hood Baxter** and **Allan Rossman**, Dickinson College. Part A: 8:00 a.m. to 10:00 a.m. on Friday, and Part B: 1:00 p.m. to 3:00 p.m. on Saturday. Enrollment is limited to 30.

Participants in this minicourse will receive an in-depth look at the "workshop" pedagogical approach and its underlying research activities. The major component of the minicourse will be participants' hands-on experience working in small groups with sample workshop materials taken from courses in quantitative reasoning, statistics with applications, and calculus with applications I and II. Participants will use a variety of software packages. Issues concerning designing workshop materials and implementing the approach will be discussed. In the workshop approach, lectures are replaced by interactive teaching where students learn by doing and then reflect on what they have done. Students are first introduced to fundamental concepts in an informal and intuitive way; then they work collaboratively on various activities. Complete sets of instructional materials for the courses mentioned above will be available. No previous computer experience is necessary.

Minicourse #14: *Interactive computer graphics laboratories for introductory differential geometry*, **Thomas F. Banchoff**, Brown University. Part A: 1:00 p.m. to 3:00 p.m. on Friday, and Part B: 3:15 p.m. to 5:15 p.m. on Saturday. Enrollment is limited to 80.

Interactive electronic book technology makes it possible for students to investigate phenomena in the geometry and calculus of surfaces by participating in computer graphics laboratories. The purpose of this minicourse is to examine the potential of this medium for enhancing the visualization capability of undergraduates in mathematics and its applications. The laboratory modules we will be studying have been written in a language developed by the presenter and his students at Brown University, and it is designed to run on any computer with X-windows capability. No previous computer experience is necessary to use this software.

Minicourse #15: *Designing question-based mathematics courses*, **Lawrence E. Copes** and **Su Dorée**, Augsburg College. Part A: 1:00 p.m. to 3:00 p.m. on Friday, and Part B: 3:15 p.m. to 5:15 p.m. on Saturday. Enrollment is limited to 80.

Do you find yourself frustrated when your students ask, "Why is this important?" Do your colleagues in other disciplines complain that your former students don't seem to understand the ideas you taught them? Perhaps you are answering questions that students haven't asked, questions to which they aren't ready to hear answers. In this minicourse you will learn to design class sessions and courses in which students ask questions before they learn answers. The result will be more meaningful learning.

Minicourse #16: *Calculus: an active approach with projects*, **Stephen R. Hilbert**, **John C. Maceli**, **Diane D. Schwartz**, **Stanley E. Seltzer**, and **Eric E. Robinson**, Ithaca College. Part A: 3:15 p.m. to 5:15 p.m. on Friday, and Part B: 3:15 p.m. to 5:15 p.m. on Saturday. Enrollment is limited to 80.

This minicourse will address issues relating to the use of group projects and in-class activities in calculus, including an overview, examples of projects and activities, hands-on experience working in a group on projects and activities, and the impact on the curriculum. The organizers, who have been teaching calculus using group projects and in-class activities since spring 1989, have found that open-ended projects challenge students to develop problem-solving skills beyond looking for a similar problem solved in the text or class notes. They use in-class activities to help the students to become active learners and to develop the skills to successfully complete the projects.

Minicourse #17: *Teaching applied math via Maple*, **Robert J. Lopez**, Rose-Hulman Institute of Technology. Part A: 3:15 p.m. to 5:15 p.m. on Friday, and Part B: 3:15 p.m. to 5:15 p.m. on Saturday. Enrollment is limited to 30.

Computer algebra systems support a new approach to teaching classical applied mathematics, one that uses a "just-in-time" delivery of information and skills. This perspective is presented via examples taken from the list: Laplace transforms interactively, resonance by example, Fourier approximation to oscillators, Bessel and Legendre equations, fractionating columns, vector calculus, linear systems of ODEs, series solution of an ODE at an irregular singular point, the calculus of variations, and car-following models.

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Participants interested in attending any of the MAA Minicourses should complete the MAA Minicourse Advance Registration Form found at the back of this issue and **send it directly to the MAA office** at the address given on the form so as to arrive prior to the November 12 deadline. To check on availability for on-site registration after the deadline, potential participants are encouraged to call the MAA headquarters at 800-331-1622.

Please note that prepayment is required. Payment can be made by check, payable to MAA (Canadian checks must be marked "in U.S. funds") or Visa or MasterCard.

The registration fee for each of the MAA Minicourses is $45 with exception of the computer minicourses (#3, 7, 13, & 17) which are $65.

The MAA Minicourses are open only to persons who register for the Joint Meetings and pay the Joint Meetings registration fee. **If the only reason for registering for the Joint Meetings is to gain admission to a MAA Minicourse, this should be indicated by checking the appropriate box on the MAA Minicourse Advance Registration Form.** Then, if the minicourse is fully subscribed, a full refund can be made of the Joint Meetings advance registration fee. Otherwise, the Joint Meetings preregistration will be processed and then be subject to the 50% refund rule. Participants should take care when cancelling minicourse advance registration to make clear their intention as to their Joint Meetings preregistration, since if no instruction is given, the Joint Meetings registration will also be cancelled. Advance Registration Forms for the Joint Meetings should be mailed to the Providence office **prior to the deadline of November 12.**

Contributed Paper Sessions

Actuarial mathematics education and research, **James W. Daniel**, University of Texas, Austin; 2:15 p.m. on Thursday. Sponsored by Actuarial Faculty Forum.

Applied geometry, **Walter J. Meyer**, Adelphi University; 2:15 p.m. on Wednesday, and 8:00 a.m. on Thursday.

The bridge to calculus, **Marilyn E. Mays**, North Lake College, and **Linda H. Boyd**, DeKalb College; 8:00 a.m. and 1:00 p.m. on Saturday. Sponsored by the Committee on Two-Year Colleges.

Environmental mathematics, **B. A. Fusaro**, Salisbury State University, Salisbury; 8:00 a.m. on Wednesday and 2:15 p.m. on Thursday.

Favorite nontraditional calculus assignments or projects, **Duane D. Blumberg**, University of Southwestern Louisiana, Lafayette; 8:00 a.m. on Wednesday, and 2:15 p.m. on Thursday.

Mathematics and music, **Robert Lewand**, Goucher College; 8:00 a.m. on Friday, and 1:00 p.m. on Saturday.

New methods for teaching elementary differential equations, **T. Gilmer Proctor**, Clemson University, and **Robert Borrelli**, Harvey Mudd College; 8:00 a.m. on Friday, and 1:00 p.m. on Saturday.

Reassessing discrete mathematics in the first two years, **Susanna S. Epp**, DePaul University; 8:00 a.m. on Friday, and 1:00 p.m. Saturday.

Research in undergraduate mathematics education, **Warren Page**, NYC Technical College, CUNY; 1:00 p.m. on Friday, and 8:00 a.m. on Saturday. Sponsored by the AMS-MAA Committee on Research in Undergraduate Mathematics Education.

Restructuring the mathematical preparation of teachers, **Bettye M. Clark**, Clark Atlanta University; **Marjorie Enneking**, Portland State University; and **Philip D. Wagreich**, University of Illinois, Chicago; 8:00 a.m. on Friday, and 1:00 p.m. on Saturday.

Restructuring teaching and learning in linear algebra, **Donald R. LaTorre**, Clemson University; **Steven J. Leon** (for the ATLAST project), University of Massachusetts at Dartmouth; and **Charles R. Johnson** (for the LACSG), College of William and Mary; 2:15 p.m. on Wednesday, 7:30 p.m. on Thursday, and 1:00 p.m. on Friday.

Teaching mathematics with a spreadsheet, **Robert S. Smith**, Miami University, Oxford; 8:00 a.m. on Wednesday, and 2:15 p.m. on Thursday.

Details on submission procedures were published in the July/August issue of the *Notices* and the May/June issue of *Focus*. Authors should have supplied summaries of their talks to the organizers by **September 3, 1993**.

Other MAA Sessions

Changing the Culture–Making Your Department Inviting to Women: This panel discussion is scheduled from 8:00 a.m. to 9:20 a.m. on Wednesday and is sponsored by the Committee on Participation of Women in Mathematics. The committee chair, **Carole B. Lacampagne**, U. S. Department of Education, will be the moderator.

Revising the AP Calculus Syllabus: This panel discussion, scheduled from 9:30 a.m. to 10:55 a.m. on Wednesday, will be organized and moderated by **Thomas W. Tucker**, Colgate University. The Advanced Placement Calculus Program is expecting to undertake a revision in the course syllabus in order to address various issues raised by the ongoing reform of calculus instruction taking place at the college level. This panel will discuss some of those issues and invites participation of the mathematical community in determining the future direction and shape of the AP Calculus Program. The panelists include **Wade Curry**, College Board; **Thomas P. Dick**, Oregon State University; **Deborah Hughes Hallett**, Harvard University; **Daniel Kennedy**, The Baylor School and chair of the AP Calculus Committee for College Board; and **Anita E. Solow**, Grinnell College; and the moderator.

Reform in Engineering Curricula: This panel discussion is scheduled from 9:30 a.m. to 10:55 a.m. on Wednesday and will be co-moderated by **Jane M. Day**, San Jose State University, and **Wade Ellis, Jr.**, West Valley College. It is sponsored by the CUPM Subcommittee on Service Courses (Barbara A. Jur, chair). The panelists include **Donald W. Bushaw**, Washington State University; **Jeff Froyd**, Rose-

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Hulman Institute of Technology (department of electrical and computer engineering); and **Keith E. Schwingendorf**, Purdue University North Central, Westville.

Interactive Mathematics Texts: Using Technology for Active Learning: The Interactive Mathematics Text Project will hold an electronic poster session, organized by **Elizabeth J. Teles**, NSF and Montgomery College, in which selected developers of interactive texts will demonstrate work in progress. Participants will include **William J. Davis**, Ohio State University, and **David R. Hill**, Temple University. The session will be open Wednesday from 2:15 p.m. to 6:00 p.m. The sponsoring committee is CCIME, the Committee on Computers in Mathematics Education (L. Carl Leinbach, chair). This committee is also sponsoring a special fifty-minute presentation on *The promise of interactive texts*, given by **James E. White**, Institute for Advanced Technology, at 9:00 a.m. on Thursday.

In the Year 2000: Who Will Your Students Be and What Will They Know about Mathematics? This panel discussion, cosponsored by the American Mathematical Association of Two-Year Colleges (AMATYC), the MAA, and the National Council of Teachers of Mathematics (NCTM) is scheduled from 8:00 a.m. to 9:20 a.m. on Thursday. Organizers include **Susan L. Forman**, Mathematical Sciences Education Board; **Donald L. Kreider**, Dartmouth College; and **Marcia P. Sward**, MAA. Panelists include **Gail F. Burrill**, Whitnall High School, Hales Corner, Wisconsin; **Carolyn R. Mahoney**, California State University, San Marcos; **Stephen Rodi**, Austin Community College; and **Zalman P. Usiskin**, University of Chicago. How will college students whose school mathematics programs were built on the NCTM Standards differ from today's students in the mathematical topics they have mastered, their problem-solving abilities, and their attitudes toward mathematics and its uses? How will collegiate faculty have to adapt curricula and teaching methods to accommodate these students? The panelists will explore these critical issues from their various perspectives.

SUMMA Workshop: This workshop on *Intervention projects for minority precollege students* is scheduled from 8:00 a.m. to 9:50 a.m. on Thursday. It will be organized and directed by **William A. Hawkins**, Director of SUMMA (Strengthening Underrepresented Minority Mathematics Achievement). The presenters will be **Joaquin Bustoz**, Arizona State University; **Roger Contreras**, University of Texas at Brownsville; and **Robert E. Megginson**, University of Michigan.

Open Forum on Assessment: An open forum on a draft of *Guidelines for an effective assessment program for the undergraduate major* will take place Thursday from 2:15 p.m. to 4:10 p.m. It is sponsored by the CUPM Subcommittee on Assessment (Bernard L. Madison, chair). A draft of these guidelines will be distributed to all departments during the fall of 1993. This draft was prepared by the Subcommittee on Assessment with assistance from representatives of MSEB and NCTM. The intent of the guidelines is to provide departments with critical guidance for the process of establishing a program of assessment of student learning in the undergraduate major

in mathematics. Members of the subcommittee will be present to answer questions and receive advice for preparing the final report.

Creating a Climate for Change—Math Leads the Way: This panel discussion is scheduled from 2:15 p.m. to 4:10 p.m. on Thursday and will be organized and moderated by **Martha J. Seigel**, Towson State University. On October 2, 1993, The Math Connection, an MSEB-coordinated alliance of professional and educational organizations, and WQED in Pittsburgh (funded by the Annenberg Foundation) sponsored "Creating a Climate for Change . . . Math Leads the Way", a national teleconference. Representatives of the MAA and other Math Connection organizations, business, and parent leaders gathered at 150 local sites linked in the day-long interactive workshop. The program, which was designed to help communities get involved in education reform by using mathematics as a model, featured live and video presentations, on-site group work, panel discussions, and question-and-answer periods. The panelists, who were among local MAA representatives who participated, will share some video highlights and will discuss the issues raised and the strategies explored from the collegiate viewpoint. Panelists will be **Jerry L. Bona**, Pennsylvania State University, State College; **Marjorie Enneking**, Portland State University; **Joan Ferrini-Mundy**, University of New Hampshire; **Genevieve M. Knight**, Coppin State College; **Kenneth C. Millett**, University of Santa Barbara; and the moderator.

Research by Undergraduate Students: This poster session on Thursday from 2:15 p.m. to 4:10 p.m. is sponsored by the CUPM Subcommittee on Undergraduate Research in Mathematics, the Mathematical and Computer Science Division of the Council on Undergraduate Research (John Greever, chair) and the Committee on Student Chapters (Aparna W. Higgins, chair). Posters are invited which either describe mathematical research projects of individual undergraduate students or which describe the way in which undergraduate research is organized and encouraged at a given institution. Prospective exhibitors should contact **John Greever**, Harvey Mudd College.

Calculus Reform Workshop Reunion: This session is for participants of last summer's and this summer's workshops but is open to all. It will take place 7:00 p.m. to 8:15 p.m. on Thursday and is being organized by **Donald B. Small**, United States Military Academy.

Life After Retirement: This panel discussion scheduled on Thursday from 7:00 p.m. to 8:00 p.m. is organized by **Andrew Sterrett, Jr.**, MAA.

Humanistic Math Network Informal Gathering: Interested people will meet informally from 7:15 p.m. to 8:15 p.m. on Thursday to discuss future plans, programs, and structure of the network.

Writing in Mathematics Courses: a Maturing Discipline: This panel discussion, scheduled from 8:00 a.m. to 9:20 a.m. on Friday, is organized by **Thomas W. Rishel**, Cornell University. The panelists will include **Thomas H. Barr**, Rhodes College; **John E. Meier**, Lafayette College; **Richard G. Montgomery**, Southern Oregon State College;

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and the organizer. Many people have now tried writing assignments in their mathematics courses, and they know they work. Panelists will discuss how these assignments are being used in various courses and schools.

Issues in Implementing the *MAA/AMATYC Guidelines*: This panel discussion is scheduled from 8:00 a.m. to 9:20 a.m. on Friday. The presenters will be **John D. Fulton**, University of Missouri, Rolla; **Philip A. DeMarois**, William Rainey Harper College; and four chairs of mathematics departments representing diverse institutions in higher education. To achieve the quality programs described in the guidelines, departments must begin to change traditional practice. This audience-interactive session will discuss some of the issues pertinent to implementing the *MAA/AMATYC Guidelines* in mathematics departments. The organizers are **James R. C. Leitzel**, University of Nebraska, and **Marilyn E. Mays**, North Lake College.

Calculus Projects Maturing—a Chance to See What Is Emerging: This poster session is scheduled Friday 8:00 a.m. to 10:55 a.m. and is sponsored by CRAFTY, the CUPM Subcommittee on Calculus Reform and the First Two Years (A. Wayne Roberts, chair) and the Calculus Reform Study Group (Marcelle Bessman, chair). Persons interested in participating should contact **A. Wayne Roberts**, Macalester College at robertsw@macalstr.edu by December 1.

Hearing on Precalculus Reform: The hearing on the *Project on standards for two-year college and lower division mathematics below the level of calculus* is scheduled from 9:30 a.m. to 10:55 a.m. on Friday. It is being organized by **Marilyn E. Mays**, project director. This project is sponsored by AMATYC with representation from AMS, MAA, and NCTM and is funded by the NSF and Exxon Education Foundation. The circulating draft of the standards was made available for review in October. Panelists will be **Linda H. Boyd**, DeKalb College; **Dale E. Ewen**, Parkland College; **Harvey B. Keynes**; **James R. C. Leitzel**; and **Karen Sharp**, Mott Community College.

Aspects of Humanistic Mathematics: This panel discussion will be held from 9:30 a.m. to 10:55 a.m. on Friday and will be organized and moderated by **Alvin M. White**, Harvey Mudd College. Panelists will be **Jack V. Wales**, The Thacher School in California; **Joan Countryman**, Lincoln School in Providence; and **Tom Tymoczko**, Smith College. They will focus on mathematics and its applications, how students perceive mathematics, and value judgments in mathematics.

Laboratory Approaches in Undergraduate Mathematics: This poster session is scheduled on Friday from 1:00 p.m. to 6:00 p.m. It is organized by **Arnold M. Ostebee**, St. Olaf College, as part of the MAA project, Priming the Pump for Curricular Reform, funded by the NSF. Laboratory experiences in using appropriate technology are playing an increasing role in the teaching and learning of undergraduate mathematics. This poster session highlights some of the innovative approaches developed by mathematical sciences faculty for use in their programs. The projects discussed have been supported in part by the NSF through its Division of Undergraduate Education's initiative in Instrumentation and

Laboratory Improvement/Leadership Projects in Laboratory Development.

MAA Teaching Awards Presentations: The three winners of the second series of MAA Awards for Distinguished College or University Teaching of Mathematics are **Paul R. Halmos**, Santa Clara University; **Justin J. Price**, Purdue University; and **Alan C. Tucker**, SUNY at Stony Brook. The awards will be presented at the Joint Prize Session on Thursday afternoon. Each winner will make a presentation on "the secrets of their success" at a special session on Friday from 3:20 p.m. to 5:00 p.m.

NSF Calculus Institute Using CAS: This session, scheduled from 5:30 p.m. to 6:30 p.m. on Friday, will report on the institute held at Northern Kentucky University during the summer of 1993. Emphasis will be on classroom demonstrations and lab projects developed by the participants. The software packages used are *Derive* and *Converge*. The presentations will be made by **Darrell H. Abney**, Maysville Community College, and **Larry Gilligan**, University of Cincinnati.

Poetry Reading: This is scheduled from 6:30 p.m. to 7:20 p.m. on Friday and is open to all interested persons—readers and nonreaders. Bring mathematical poems of your own or verse by other poets. If possible bring copies (50+) to give to interested members of the audience. No advance registration is required, but the organizers, **JoAnne S. Growney** of Bloomsburg University, and **Alvin M. White** of Harvey Mudd College, would be pleased to hear from you in advance.

Calculus Reform Study Group: This open meeting will be held from 7:00 p.m. to 8:30 p.m. on Friday. The organizer is **Marcelle Bessman**, Frostburg State University, who is chair of the study group.

Micro-inequities Skits—the Second Generation: On Friday from 8:15 p.m. to 10:00 p.m. the Committee on the Participation of Women is presenting its eighth program of skits about the incidents reported by mathematicians that reveal the current relationship between the sexes within our community. These all-new skits will each offer two endings: what actually happened and how we wish the incident had been resolved.

Assessing Calculus Reform Efforts—a Report to the Community: This sixty-minute panel session will take place at 1:00 p.m. on Saturday. With support from the NSF the MAA conducted an assessment of the nationwide calculus reform effort. The task was to get an indication of the current involvement of mathematical sciences departments (their faculty and students) in efforts to revise courses in calculus. The project did not attempt to assess outcomes of individual projects but tried to provide a report on the movement as a whole. This session will report the findings. The organizer and moderator will be **James R. C. Leitzel**. The panelists will be **John A. Dossey**, Illinois State University; **Judy Franz**, University of Alabama-Huntsville; **Alan C. Tucker**, SUNY at Stony Brook; and the moderator.

What Happens after Calculus Reform? This panel

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discussion, organized by **Sheldon P. Gordon**, Suffolk Community College, is scheduled from 2:10 p.m. to 4:00 p.m. on Saturday. Participants will include **Deborah Hughes Hallett**; **Arnold M. Ostebee**, St. Olaf College; **Anthony L. Peressini**, University of Illinois; **David A. Smith**, Duke University; **Alan C. Tucker**, SUNY at Stony Brook; and the organizer. Now that many of the calculus reform projects are having significant impact across the country, it is time to turn attention to other aspects of the mathematical curriculum. In particular, the calculus reform movement has direct implications for multivariate calculus, differential equations, possibly linear algebra, and certainly the precalculus preparation of students. Questions addressed will include how the calculus reform movement relates to these other offerings and how we can apply what we've learned from this movement.

Curriculum Projects in Undergraduate Mathematics: This special session is scheduled from 2:15 p.m. to 6:00 p.m. on Saturday and is organized by **James R. C. Leitzel** as part of the MAA project, Priming the Pump for Curricular Reform, funded by the NSF. In addition to projects directed toward changes in the teaching and learning of calculus, there are projects addressing change in other areas of the undergraduate mathematics curriculum. This session highlights some of these projects that were recently funded through the NSF's program in Undergraduate Course and Curriculum Development.

Quantitative Literacy Open Meeting: Saturday from 2:45 p.m. to 4:00 p.m. individuals will have an opportunity to discuss informally with members of the CUPM Subcommittee on Quantitative Literacy (Linda R. Sons, chair) their questions, ideas, and problems regarding a quantitative literacy program at their institution. The committee is prepared to explain its views on what quantitative literacy is and why and how it should be fostered in colleges and universities.

Mathematical Life Outside Academia—Input from the Real World: This panel discussion, scheduled from 3:15 p.m. to 4:45 p.m. on Saturday, is organized by **Burton H. Colvin**, National Institute of Standards and Technology, and **Robert J. Thompson**, Sandia, and sponsored by the Committee on Mathematicians Outside Academia (Patrick D. McCray, chair). The focus of the panel will be on what life is really like for mathematicians outside academia, the situations which mathematicians face, the ways in which these situations can be addressed, and what their experiences are as products of our mathematical educational system. What mathematical skills and habits of mind are really used, how are they actually being used, how much, how often? Interesting (frustrating?) topics such as maintaining currency, publishing, research, and using mathematics will be discussed. The moderator will be **S. Brent Morris**, National Security Agency.

Other MAA Events

Two-Year College Reception: The Committee on Two-Year Colleges is sponsoring an informal reception for two-year college faculty and their friends from 5:45 p.m. to 7:00 p.m. on Thursday.

Business Meeting: The MAA Business Meeting is scheduled from 12:15 p.m. to 12:45 p.m. on Thursday. This meeting is open to all members of the Association.

Board of Governors: The MAA Board of Governors will meet from 8:30 a.m. to 4:00 p.m. on Tuesday. This meeting is open to all members of the Association.

Section Officers: There will be a Section Officers meeting from 4:30 p.m. to 6:30 p.m. on Wednesday.

Student Activities

MAA Student Chapter Hospitality/Information Center: The MAA Committee on Student Chapters is sponsoring a hospitality/information center in the CCC which will be open during the same hours the Joint Meetings Registration Desk is open, from Wednesday morning until 3:00 p.m. on Saturday. The center will be a gathering place for all students who are attending the Joint Meetings.

Student Lecture: This year's lecture by **S. Brent Morris**, National Security Agency, is titled _Magic tricks, card shuffling, and computer memories_. This lecture is scheduled for 7:30 p.m. on Friday and is sponsored by the Committee on Student Chapters. The talk will be followed by a "make-your-own sundae" party.

Calculated Deceptions: This student workshop is scheduled from 1:00 p.m. to 3:00 p.m. on Saturday. The organizer will be **S. Brent Morris**. Several magic tricks based on mathematical principles will be examined. After studying the magic, the mathematics will be generalized, in some cases leading to other tricks. Attendees will gain a better understanding of practical applications of mathematics (and should be able to amaze their friends).

Continental Breakfast for Student Chapter Advisors and Section Coordinators: This breakfast is scheduled from 7:00 a.m. to 8:00 a.m. on Thursday in the Student Hospitality/Information Center; the contact person is **Aparna W. Higgins**, University of Dayton.

The Second Annual MAA Student Chapters Special Paper Session: This session is scheduled on Thursday from 8:00 a.m. to 10:55 a.m. and will serve as a forum for the exchange of ideas among advisors to individual chapters and section coordinators. These fifteen-minute talks, which will focus on one or several activities implemented by a campus chapter or by a section, is sponsored by the Committee on Student Chapters and organized by **Karen J. Schroeder**, Bentley College.

100th Annual Meeting of the AMS
January 12–15, 1994

100 Years of Annual Meetings

On Saturday the Society will celebrate 100 years of Annual Meetings. A tentative list of activities scheduled for this special day appears throughout this announcement. All participants are invited to join in the activities planned to mark this unique occasion. Plans are also being made for the taking of group photographs of Cincinnati participants. Since it will

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not be possible to photograph the entire attendance at once, several photo sessions (probably by geographic area) will be necessary. A schedule of these sessions will be announced in the program.

Invited Addresses

Sixty-seventh Josiah Willard Gibbs Lecture: The 1994 Gibbs Lecture titled *Necessity and chance: deterministic chaos in ecology and evolution* will be presented at 8:30 p.m. on Wednesday by **Robert M. May**, University of Oxford.

Colloquium Lectures: A series of three Colloquium Lectures on *Harmonic analysis and nonlinear evolution equations* will be given by **Jean Bourgain**, IHES and University of Illinois, Urbana-Champaign. The lectures will be given at 1:00 p.m. daily, Wednesday through Friday.

Retiring Presidential Address: Michael Artin, MIT, will deliver his Retiring Presidential Address, *Noncommutative projective geometry*, at 1:00 p.m. on Saturday. Artin was president of the Society from 1991 to 1992. **Ronald L. Graham**, AT&T Bell Labs and current AMS president, will introduce Artin and comment about traditional lecture series at AMS meetings. (Part of the 100th Annual Meeting Celebration.)

Jacques C. Hurtubise, McGill University, *Particle configurations, instantons, and holomorphic maps*, Wednesday, 10:05 a.m.;

James M. Hyman, Los Alamos National Lab, *The fundamental role of solitons in nonlinear dispersive PDEs*, Thursday, 3:20 p.m.;

Carl Pomerance, University of Georgia, *Carmichael numbers*, Friday, 9:00 a.m.;

Gilbert Strang, MIT, *Wavelets, filters, and unitary matrices*, Friday, 10:05 a.m.; and

Ruth J. Williams, University of California, San Diego, *Reflecting Brownian motions*, Thursday, 2:15 p.m.

Special Sessions and Contributed Papers

(See also the AMS-MAA Special Session.)

Topology of high dimensional manifolds, **Fredric D. Ancel**, University of Wisconsin-Milwaukee, 8:00 a.m. and 1:00 p.m. on Friday, and 8:00 a.m. and 2:15 p.m. on Saturday.

History of mathematics, **W. Thomas Archibald**, Acadia University, and **Victor J. Katz**, University of the District of Columbia, 8:00 a.m. and 1:00 p.m. on Friday, and 8:00 a.m. on Saturday.

Algebraic topology and dynamical systems, **Robert Brown**, University of California, Los Angeles; **Christopher K. McCord**, University of Cincinnati; and **Konstantin Mischaikow**, Georgia Tech, 8:00 a.m. and 2:15 p.m. on Wednesday, and 8:00 a.m. and 2:15 p.m. on Thursday.

Undergraduate research in mathematics, **David C. Carothers**, Hope College, and **Gerard A. Venema**, Calvin College, 8:00 a.m. and 1:00 p.m. on Friday, and 8:00 a.m. and 2:15 p.m. on Saturday.

Meetings of mathematicians, **Bettye Anne Case**, Florida State University, 1:00 p.m. on Friday, and 9:00 a.m. and

3:15 p.m. on Saturday. (Part of the 100th Annual Meeting Celebration.)

Singular boundary value problems, **Paul W. Eloe**, University of Dayton, 8:00 a.m. and 2:15 p.m. on Wednesday, and 8:00 a.m. and 2:15 p.m. on Thursday.

Operator theory, nonself adjoint operator algebras and control theory, **Arthur E. Frazho**, Purdue University, and **Gary Weiss**, University of Cincinnati, 8:00 a.m. and 2:15 p.m. on Wednesday, and 8:00 a.m. and 2:15 p.m. on Thursday.

Representation theory and harmonic analysis, **Kenneth I. Gross**, University of Vermont; **Donald St. P. Richards**, University of Virginia; and **Paul J. Sally**, University of Chicago, 8:00 a.m. and 2:15 p.m. on Wednesday, and 8:00 a.m. and 2:15 p.m. on Thursday.

C*-algebras and von Neumann algebras, **Herbert Halpern**, **Victor Kaftal**, and **Shuang Zhang**, University of Cincinnati, 8:00 a.m. and 1:00 p.m. on Friday, and 8:00 a.m. and 2:15 p.m. on Saturday.

Quasiconformal mappings in analysis, **David A. Herron**, University of Cincinnati, and **Susan G. Staples**, College of Staten Island, CUNY, 8:00 a.m. and 1:00 p.m. on Friday, and 8:00 a.m. and 2:15 p.m. on Saturday.

Geometry and topology of moduli spaces, **Jacques C. Hurtubise**, 2:15 p.m. on Wednesday, and 8:00 a.m. and 2:15 p.m. on Thursday.

Geometric applications of operator algebras and index theory, **Jerome Kaminker**, Indiana University-Purdue University at Indianapolis, 8:00 a.m. and 2:15 p.m. on Wednesday, and 8:00 a.m. and 2:15 p.m. on Thursday.

Modern methods in continuum theory, **Krystyna M. Kuperberg** and **Piotr Minc**, Auburn University, 8:00 a.m. and 1:00 p.m. on Friday, and 8:00 a.m. and 2:15 p.m. on Saturday.

Quadratic forms and division algebras, **David B. Leep**, University of Kentucky; **Daniel B. Shapiro**, Ohio State University; and **Tara L. Smith**, University of Cincinnati, 8:00 a.m. and 2:15 p.m. on Wednesday, and 8:00 a.m. and 2:15 p.m. on Thursday.

Advances in function theoretic methods, **Peter A. McCoy**, U. S. Naval Academy, 8:00 a.m. and 2:15 p.m. on Wednesday, and 8:00 a.m. and 2:15 p.m. on Thursday.

Stochastic analysis, **Philip E. Protter**, Purdue University, 8:00 a.m. and 1:00 p.m. on Friday, and 8:00 a.m. and 2:15 p.m. on Saturday.

Scientific computing, **Seenith Sivasundaram**, Embry-Riddle Aeronautical University, 8:00 a.m. and 1:00 p.m. on Friday, and 8:00 a.m. on Saturday.

Wavelets and their applications, **Gilbert Strang**, MIT, 8:00 a.m. and 2:15 p.m. on Wednesday, and 8:00 a.m. and 2:15 p.m. on Thursday.

Nonlinear partial differential equations and applications, **Hong-Ming Yin**, Notre Dame University, 8:00 a.m. and 1:00 p.m. on Friday, and 8:00 a.m. and 2:15 p.m. on Saturday.

Abstracts for consideration for presentation in one of these sessions should have been submitted by **September 9, 1993**.

Meetings

AMS Short Course on Complex Dynamics: the
Mathematics behind the Mandelbrot and Julia Sets

This two-day Short Course will be held on Monday and Tuesday, January 10 and 11, 1994. The program is under the direction of **Robert L. Devaney**, Boston University.

Over the past decade alluring computer graphics images of the Mandelbrot and Julia sets have become commonplace in mathematics. Few people realize, however, that the mathematics behind these images is equally beautiful. In this Short Course several of the leaders in the field of complex dynamics will give an overview of the mathematical ideas behind these images. Topics to be discussed include the theory of external rays for quadratic polynomials, the geometry of the Mandelbrot set, the chaotic dynamics on Julia sets, and the computer algorithms used to generate these images. Other talks will center around recent developments in the study of cubic polynomials, rational maps, entire functions, and functions arising in Newton's method. Speakers and titles are **Robert L. Devaney**, *Overview of quadratic dynamics* and *Dynamics of entire functions*; **Linda Keen**, Herbert H. Lehman College, CUNY, *Julia sets*; **Adrien Douady**, Université de Paris, Sud, *The parabolic implosion*; **John H. Hubbard**, Cornell University, *The spider algorithm*; **Bodil Branner**, Technical University of Denmark, *The dynamics of complex cubic polynomials with disconnected Julia sets*; and **Paul R. Blanchard**, Boston University, *The dynamics of Newton's method*.

Other AMS Events

Mathematical Reviews **Reception:** There will be a reception for reviewers (past and present) for *Mathematical Reviews* (*MR*), on Friday, January 14, from 5:30 p.m. to 6:30 p.m. All reviewers are encouraged to come to the reception, and others who are interested in *MR* are also invited. Members of the *MR* Editorial Committee and the *MR* staff will make some brief comments, and there will be an opportunity for reviewers to ask questions and make comments and suggestions. Refreshments will be provided.

Council Meeting: The Council of the Society will meet at 1:00 p.m. on Tuesday.

Business Meeting: The Business Meeting of the Society will take place 12:10 p.m. on Friday.

Activities of Other Organizations

The **Association for Women in Mathematics** (AWM) is pleased to present its fifteenth annual **Emmy Noether Lecture**. This year's lecturer will be **Lesley M. Sibner**, Polytechnic University, who will speak on *Analysis in gauge theory* at 9:00 a.m. on Thursday. (A dinner in her honor is described in the *Social Events* section of this program.)

AWM Panel Discussion: This will take place at 3:20 p.m. on Wednesday and will be followed by the **Prize Session and the Business Meeting** at 4:20 p.m.

AWM Workshop: The AWM will conduct a workshop for women graduate students and postdoctorate fellows in mathematics on Tuesday from 9:00 a.m. to 5:00 p.m. similar to the ones held at other Joint Meetings. There will be funding for travel, subsistence, and registration fees for ten women graduate students and ten women postdocs to attend the workshop and the Joint Meetings. (Funding is provided by the National Science Foundation and the Office of Naval Research.) The workshop will provide opportunities to present and discuss 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 at a luncheon and a dinner.

All mathematicians (female and male) are invited to attend the entire program even though only twenty women are funded. Departments are urged to help graduate students and postdoctoral fellows obtain some institutional support to attend the workshop and the Joint Meetings that follow.

All applications must be postmarked by **October 8, 1993**, and sent to the Association for Women in Mathematics, 4114 Computer and Space Sciences Building, University of Maryland, College Park, MD 20742-2461. For application procedures or additional information contact Virginia Reinhart at (301) 405-7852 or e-mail: awm@math.umd.edu.

There will be an **AWM Dinner** following the workshop. Please see details in the *Social Events* section.

An **Open Reception** is planned for 9:30 p.m. on Wednesday. See the *Social Events* section for details.

A public policy address cosponsored by the **Joint Policy Board for Mathematics** (JPBM), the AMS Committee on Science Policy, the MAA Science Policy Committee, and the SIAM Science Policy Committee is scheduled on Thursday evening at 7:00 p.m. It is anticipated that the speaker will be the new director of the National Science Foundation.

The **JPBM Committee on Professional Recognition and Rewards** (Calvin C. Moore, chair) will present a panel discussion on Wednesday from 9:00 a.m. to 10:00 a.m. Highlights of their final report on the findings resulting from their study of the rewards system in the mathematical sciences, together with their recommendations, will be presented. The committee intends this meeting to provide an opportunity for dialog with the mathematical community and questions from the floor will be encouraged.

The **National Association of Mathematicians** (NAM) will present the William W. S. Claytor Lecture at 9:00 a.m. on Saturday. **James C. Turner, Jr.**, Ohio State University and Central State University, will speak on *A novel approach to turbulent modeling*.

Etta Z. Falconer, Spelman College, will give the Cox-Talbot Address titled *Challenges and opportunities for minorities in science and mathematics* at the NAM Banquet Friday evening. Please see more detailed information about the banquet in the *Social Events* section of this announcment.

At 3:15 p.m. on Friday NAM will have a session of *Presentations by recent doctoral recipients*, moderated by **John W. Alexander, Jr.**, University of the District of Columbia.

A panel discussion on *NAM's undergraduate MATHFest; one approach to the pipeline issue* will take place from 10:00 a.m. to 10:55 a.m. a.m. on Saturday. The moderator is **Johnny L. Houston**, Elizabeth City State University.

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The NAM Business Meeting will take place from 2:15 p.m. to 3:00 p.m. on Saturday.

The **National Science Foundation** (NSF) is sponsoring an address from 5:05 p.m. to 5:55 p.m. on Wednesday.

The NSF invites participants at the Joint Mathematics Meetings to meet informally with staff members from noon to 1:00 p.m. daily, Wednesday through Saturday.

The NSF will also be represented at a booth in the exhibit area. NSF staff members will be available to provide counsel and information on NSF programs of interest to mathematicians. The booth is open the same days and hours as the exhibits. Times that staff will be available will be posted at the booth.

The **Rocky Mountain Mathematics Consortium** (RMMC) Board of Directors will meet on Friday from 2:15 p.m. to 4:10 p.m.

Other Events of Interest

AMS Information Booth: All meeting participants are invited to visit the AMS Information Booth during the meetings. Complimentary coffee and tea will be served. A special gift will be available for participants, compliments of the AMS. The membership manager of the Society will be at the booth to answer questions about membership in the Society.

Book Sales: Books published by the AMS and MAA will be sold at discounted prices somewhat below the cost for the same books purchased by mail. **These discounts will be available only to registered participants wearing the official meetings badge.** Visa and MasterCard will be accepted for book sale purchases at the meeting. The book sales will be open the same days and hours as the exhibits.

A special publications exhibit in the AMS booth will showcase books on the history of mathematics. (Part of the AMS 100th Annual Meeting Celebration.)

Exhibits: The book, educational media, and software exhibits will be open 1:00 p.m. to 5:00 p.m. on Wednesday, 9:00 a.m. to 5:00 p.m. on Thursday and Friday, and 9:00 a.m. to noon on Saturday. All participants are encouraged to visit the exhibits during the meeting. **Participants visiting the exhibits will be asked to display their meeting badge or acknowledgment of advance registration from the Mathematics Meetings Service Bureau in order to enter the exhibit area.**

There will be a special display of photographs and mementos of AMS meetings past. (Part of the AMS 100th Annual Meeting Celebration.)

Joint Books, Journals, and Promotional Materials Exhibit: This exhibit will be open the same hours as the other exhibits and affords participants the opportunity to order publications from various commercial publishers not represented at the meeting.

Mathematical Sciences Employment Register: Those wishing to participate in the Cincinnati Employment Register should read carefully the important article about the Register which follows this meeting announcement.

It is strongly recommended that tickets for these events be purchased through advance registration since only a very limited number of tickets, if any, will be available for sale on site. To get a 50% refund returned tickets must be received by the Mathematics Meetings Service Bureau **by December 30.** After that date no refunds can be made. Special meals are available at all banquets upon advance request, but this must be indicated on the Advance Registration/Housing Form.

AWM Workshop Dinner: The Association for Women in Mathematics will host a dinner after the conclusion of their workshop on Tuesday. There will be a cash bar reception at 5:15 p.m. followed by dinner at 6:15 p.m. All participants are invited to attend the dinner whether or not they attended the workshop. The menu includes mixed greens, julienne of seasonal vegetables, and tangy black peppercorn and mustard dressing; sliced london broil; chef's choice of vegetables and potato, rice, pasta, or sauteed barley; rolls and butter; apple strudel with vanilla sauce; and coffee and tea. Tickets are $27.50 each including taxes and gratuity.

AWM Reception: There is an open reception on Wednesday evening at 9:30 p.m. This has been a popular, well-attended event in the past, and musical entertainment is anticipated.

All participants are invited to a **dinner to honor AWM's Noether Lecturer,** Leslie M. Sibner, on Wednesday. A sign-up sheet for those interested will be located at the AWM table in the exhibit area and also at the AWM panel discussion.

MER Banquet: The Mathematicians and Education Reform (MER) Network welcomes all mathematicians who are interested in issues in precollege and undergraduate mathematics education to attend the MER Banquet on Wednesday at 6:30 p.m. This is an opportunity to make or renew ties with other mathematicians who are involved in educational projects. There will be a presentation highlighting the current activities and future plans of the MER Network. There will be a cash bar beginning at 6:30 p.m. Dinner will be served at 7:00 p.m. and includes a salad with Boston bibb lettuce, romaine, artichoke hearts, hearts of palm, tomato, and lemon with mustard vinaigrette; broiled salmon with tomato fennel sauce; fresh seasonal vegetables; parslied new potatoes; rolls and butter; and coffee and tea. Dessert will be flourless chocolate torte with vanilla sauce. Tickets are $36 each including tax and gratuity.

NAM Banquet: The National Association of Mathematicians will host a banquet on Friday evening. A cash bar reception will be held at 5:30 p.m., and dinner will be served at 6:00 p.m. The menu includes mixed greens with tomato, cucumber, julienne of carrot, and gourmet dressing; roasted breast of chicken with hazelnut cream sauce; sweet potatoes dauphinois; fresh seasonal vegetables; dessert; rolls and butter; and coffee and tea. Tickets are $25 including tax and gratuity.

AMS Banquet: As a fitting culmination to the day's 100th Annual Meeting celebration this banquet provides an excellent opportunity to socialize with fellow participants in a relaxed atmosphere. The attendee(s) who has(have) been a

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member of the Society for the greatest number of years will be recognized and receive a special award. The banquet will be held on Saturday with a cash bar reception at 6:15 p.m. and dinner at 7:15 p.m. Special door prizes will be four travel gift certificates ranging in value from $250 to $1,000. Each attendee will receive a memento of the occasion. (Part of the AMS 100th Annual Meeting Celebration.)

The menu includes a salad of Boston bibb lettuce, radicchio, walnuts, sliced mushrooms with Balsamic vinaigrette dressing; boneless breast of chicken with tarragon mushroom sauce; mixed rice with chutney; fresh seasonal vegetables; strawberries with creme anglaise; rolls and butter; and coffee and tea. Tickets are $25 each including tax and gratuity.

Registering in Advance and Hotel Accommodations

How to Register in Advance

The importance of advance registration cannot be overemphasized. Advance registration fees are considerably lower than the fees that will be charged for registration at the meeting. Participants who register by the ordinary deadline of November 12 may use the housing services offered by the Mathematics Meetings Service Bureau (MMSB) and may elect to receive their programs, badges, and tickets for social events (if purchased) through the mail before the meeting.

Joint Mathematics Meetings

Member of AMS, Canadian Mathematical Society, MAA	$125
Emeritus Member of AMS, MAA; Students; Unemployed; Librarians; High School Teachers	35
Nonmember	194
High School Students	2

Employment Register

Employer	$150
Additional Interviewer (each)	75
Applicant	35
Employer Posting Fee	50

AMS Short Course

Students/Unemployed	$ 30
Emeritus Members of AMS, MAA	30
All Other Participants	70

MAA Minicourses

Minicourses #1, 2, 4, 5, 6, 8, 9, 10, 11, 12, 14, 15, 16	$ 45
Minicourses #3, 7, 13, 17	65

Advance registration and on-site registration fees only partially cover expenses of holding meetings. All mathematicians who wish to attend sessions are expected to register and should be prepared to show their badge if so requested. Badges are required to enter the exhibit area, to obtain discounts at the AMS and MAA Book Sales, and to cash a check with the

Joint Meetings cashier. If a registrant should arrive too late in the day to pick up his/her badge, he/she may show the acknowledgment of advance registration received from the MMSB as proof of registration.

Registration forms received well before the deadline of November 12 which are not accompanied by correct payment will be returned to the participant with a request for resubmission with full payment. This will, of course, delay the processing of any housing request. If time will not allow return of the form, a $5 charge will be imposed for all invoices prepared when advance registration forms are submitted with insufficient payment. We are sorry, but it is not possible for the MMSB to refund amounts less than $2.

Participants should check with their tax preparers for applicable deductions for education expenses as they pertain to this meeting.

There is no extra charge for members of the families of registered participants, except that all professional mathematicians who wish to attend sessions must register independently. Please indicate names for guest badges on the Advance Registration/Housing Form located in the back of this issue.

All **full-time students** currently working toward a degree or diploma qualify for the student registration fees regardless of income. Students are asked to determine whether their status can be described as graduate (working toward a degree beyond the bachelor's), undergraduate (working toward a bachelor's degree), or high school (working toward a high school diploma) and make the appropriate indication on the Advance Registration/Housing Form.

The **librarian** registration category refers to any librarian who is not a professional mathematician.

The **unemployed** status refers to any person currently unemployed, actively seeking employment, and not a student. It is not intended to include any person who has voluntarily resigned or retired from his or her latest position.

Persons who qualify for **emeritus** membership in either the Society or the Association may register at the emeritus member rate. The emeritus status refers to any person who has been a member of the AMS or MAA for twenty years or more and is retired because of age or long-term disability from his or her latest position.

Nonmembers who register in advance or register at the meeting and pay the nonmember fee will receive mailings from AMS and MAA after the meeting is over containing information about a special membership offer.

Advance Registration Deadlines: There are three separate advance registration deadlines, each with its own advantages and benefits.

EARLY advance registration (housing and room lottery)	October 29
ORDINARY advance registration (housing but no lottery)	November 12
FINAL advance registration (no housing, tickets, or inclusion in the *Winter Lists* for the Employment Register)	December 13

Early Advance Registration: Those who register by the EARLY deadline of October 29 will be included in a drawing to select randomly winners of complimentary hotel rooms in Cincinnati. Multiple occupancy is permissible. The location of rooms to be used in this lottery will be based on the number of complimentary rooms available in the various hotels. Therefore, the free room·may not necessarily be in the winner's first choice hotel. The winners will be notified by mail prior to December 31. **So register early!** (See the list of the winners in San Antonio in the hotel pages.)

Ordinary Advance Registration: Those who register after October 29 and by the ORDINARY deadline of November 12 may use the housing services offered by the MMSB but are not eligible for the room lottery.

Final Advance Registration: Those who register after November 12 and by the FINAL deadline of December 13 must pick up their badges, programs, and tickets for social events (if purchased) at the meetings. Unfortunately, it is not possible to provide FINAL advance registrants with housing, nor will applicant or employer forms be reproduced in the *Winter Lists* for the Employment Register. **Please note that the December 13 deadline is firm and any forms received after that date will be returned and full refunds issued.**

Electronic Advance Registration: Those wishing to register in advance through this method should send a message to meet@math.ams.org requesting this service. A reply will be sent within 24 hours with the electronic form and instructions on how to complete it. **Credit card is the ONLY method of payment which can be accepted for electronic registration.** Forms received through this method will be treated in the same manner as forms received through U.S. mail, and the same deadlines apply. Receipt of the form and payment will be acknowledged by the MMSB. This form and instructions on how to use it also may be found on e-MATH.

All EARLY and ORDINARY advance registrants will receive formal acknowledgments prior to the meetings. FI-NAL advance registrants will receive a letter from the MMSB (including receipt of payment) prior to the meetings.

Both EARLY and ORDINARY advance registrants will receive their badges, programs, and prepurchased tickets by mail two to three weeks before the meetings, unless they check the appropriate box to the contrary on the Advance Registration/Housing Form. Because of delays that occur in U.S. mail to Canada, it is strongly suggested that advance registrants from Canada choose to pick up their materials at the meeting. There will be a special Registration Assistance desk at the Joint Meetings to assist individuals who either do not receive this mailing or who have a problem with their registration. Please note that a $2 replacement fee will be charged for programs and badges that are mailed but not taken to Cincinnati.

There will be a **list of advance registrants sorted by area of mathematical interest** posted at the meetings. If you wish to be included in this list, please provide the *Mathematical Reviews* classification number of your major area of interest on the Advance Registration/Housing Form. (A list of these numbers appears on the back of the AMS and MAA abstract forms.)

Miscellaneous Information

Audio-Visual Equipment: Standard equipment in all session rooms is one overhead projector and screen. (Invited 50-minute speakers are automatically provided with two overhead projectors.) **Blackboards are not available.** Participants who require audio-visual assistance should come to the Registration Desk.

MAA speakers requiring additional equipment may make written requests for one additional overhead projector/screen, 35mm carousel slide projector, or VHS video cassette recorder with one color monitor. Such requests should be addressed to the MAA associate secretary (Kenneth A. Ross, Department of Mathematics, University of Oregon, Eugene, OR 97403). These requests should be received **by November 9, 1993**.

All other speakers requiring additional equipment should contact the audio-visual coordinator for the meetings at the AMS office in Providence at 401-455-4140, or electronic mail wsd@math.ams.org **by November 9**.

Speakers are cautioned that requests for equipment made at the meeting may not be satisfied because of budgetary restrictions.

Child Care: Many hotels have a list of bonded child care services. Participants should inquire at their hotel and are responsible for making individual arrangements.

A Parent/Child Lounge will be located in the CCC. This room will be furnished with casual furniture, a crib, a changing area, and a VCR and monitor for viewing videotapes. Tapes appropriate for children can be checked out at the Audio-Visual section of the Registration Desk. Any child using this lounge must be accompanied by a parent (not simply an adult) who must be responsible for supervision of the child. This lounge will be unattended, and parents assume all responsibility for their children. This lounge will be open only during the hours of registration, and all persons must leave the lounge at the close of registration each day.

Information Distribution: A table is set up in the registration area for dissemination of general information of possible interest to the members.

A second table is set up in the exhibit area for the dissemination of information of a **mathematical** nature **not** promoting a product or program for sale.

If a person or group wishes to display information of a mathematical nature promoting a product or program for sale, they may do so in the exhibit area at the Joint Books, Journals, and Promotional Materials exhibit for a fee of $35 per item. Please contact the Exhibits Manager, MMSB, P.O. Box 6887, Providence, RI 02940, for further details.

Mail: All mail and telegrams for persons attending the Joint Meetings should be addressed as follows: Name of Participant, Joint Mathematics Meetings, Cincinnati Convention Center, 525 Elm St., Cincinnati, OH 45202. Mail and telegrams so addressed will be posted on the Math Meetings Message Board. U.S. mail not picked up will be

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forwarded after the meetings to the mailing address given on the participant's registration record.

Petition Table: At the request of the AMS Committee on Human Rights of Mathematicians, a table will be made available in the exhibit area at which petitions on behalf of named individual mathematicians suffering from human rights violations may be displayed and signed by meetings participants acting in their individual capacities.

Signs of moderate size may be displayed at the table but must not represent that the case of the individual in question is backed by the Committee on Human Rights unless it has, in fact, so voted. Volunteers may be present at the table to provide information on individual cases, but notice must be sent at least seven days in advance of the meetings to the director of meetings in the Providence office, telephone: 401-455-4137. Since space is limited it may also be necessary to limit the number of volunteers present at the table at any one time. The Committee on Human Rights may delegate a person to be present at the table at any or all times, taking precedence over other volunteers.

Any material which is not a petition (e.g., advertisements, résumés) will be removed by the staff. **At the end of registration on Saturday any material on the table will be discarded, so individuals placing petitions on the table should be sure to remove them prior to the close of registration.**

Telephone Messages: These may be left at the Meetings Registration Desk from from January 11 through 15 during the hours that the Desk is open and will be posted on the Math Meetings Message Board. Once the Registration Desk has closed for the day there, is no mechanism for contacting participants other than calling them directly at their hotel. The telephone number at the Desk is 513-784-6011.

Travel: In January Cincinnati is on Eastern Standard Time. The Cincinnati/Northern Kentucky International Airport is located 12 miles (15 minutes) from downtown Cincinnati, across the Ohio River in northern Kentucky. Jetport Express shuttle vans depart the airport for downtown every half hour between 6:00 a.m. and 10:00 p.m. The cost is $10 one way and $13 round trip if you tell them you are attending a convention center event. Taxi fare from the airport to downtown is approximately $21.

DELTA and USAIR have been selected as the official airlines for this meeting. The following benefits are available exclusively to mathematicians and their families attending the meetings:

On DELTA a savings of up to 10% off any published domestic fare (includes U.S., Canada, Bermuda, the Bahamas, Puerto Rico, and the U.S. Virgin Islands), subject to applicable fare restrictions, is available. Seats are limited. Call 1-800-241-6760 between 8:00 a.m. and 11:00 p.m. EST to contact Delta directly or call any licensed travel agent. Instruct the ticket agent to refer to file **MO456** in order to qualify for the applicable discount.

On USAIR you may receive 10% off any published domestic fare with a seven-day advance purchase. Call USAir's Meetings and Convention Reservation Office at 1-

800-334-8644 between 8:00 a.m. and 9:00 p.m. EST or call any licensed travel agent and refer to gold file **#16950015**.

For Amtrak information call 1-800-872-7245.

Weather: January weather in Cincinnati is generally cool to cold. Normal daily maximum and minimum temperatures are 37°F (3°C) and 20°F (-7°C). Average precipitation for January is 2.5" which includes an average of 9" of snow in January.

AMS-MAA Joint Program Committee
Richard A. Askey, Thomas F. Banchoff, H. W. Lenstra (chair), and Peter M. Winkler.

AMS Program Committee for National Meetings
Hermann Flaschka, Robert M. Fossum (*ex officio*), Jerrold E. Marsden, Dusa McDuff, H. W. Lenstra, Nancy K. Stanton (chair), and Mary F. Wheeler.

MAA Program Committee for the Cincinnati Meeting
Sheldon Axler, David W. Ballew (*ex officio*), Francis W. Carroll, Ed Dubinsky, Joseph Ferrer, Aparna W. Higgins, Albert C. Lewis, Hugh Montgomery, Robert Osserman, Bruce P. Palka, Janet B. Roll, and Robert S. Smith (chair).

Local Arrangements Committee
Franklin W. Briese, Joseph K. Casey, Milton D. Cox, Robert Daverman (*ex officio*), Edward P. Merkes, William H. Jaco (*ex officio*), Melinda Michael, Kenneth A. Ross (*ex officio*), David Styer (chair), Marcia Sward (*ex officio*), and Janice B. Walker.
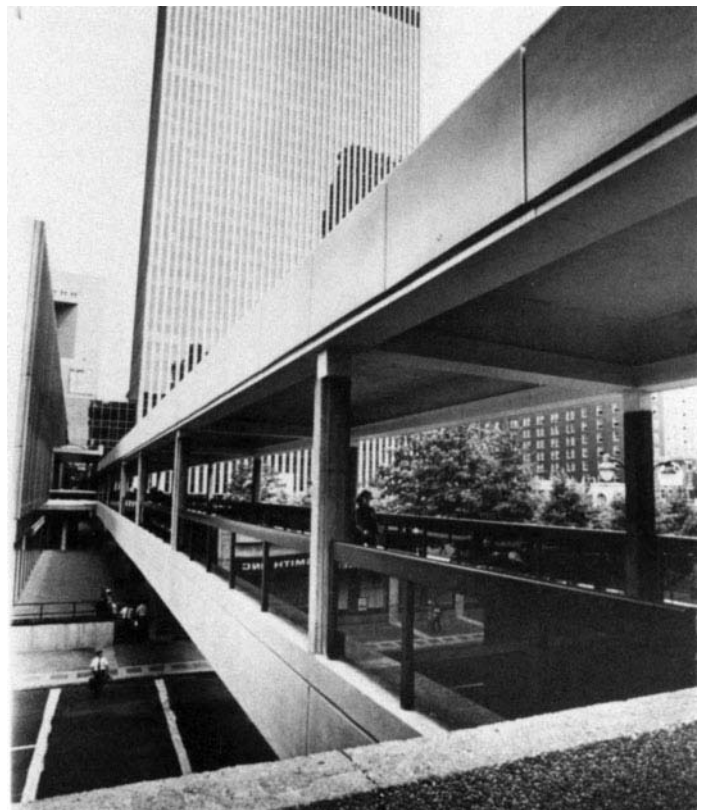
How to Obtain Hotel Accommodations

The following participants received complimentary hotel rooms during the San Antonio meetings. They qualified for these rooms, which can be occupied by as many as four persons, by submitting their Advance Registration/Hotel (ARH) Form (located at the end of this issue) by the **EARLY** deadline. Participants wishing to qualify for the Cincinnati room lottery are urged to register by the **EARLY** deadline of October 29.

San Antonio Room Lottery Winners:

HOLIDAY INN - Edward Merks
Rogers Newman

MENGER - Daniel Bettendorf
Theodore Hatcher
Hung The Dinh
Gail Earles

TRAVELODGE - Peter Williams
Yuri Latushkin

EMILY MORGAN - Daniel Flath
Ollie Nanyes
Michael Hutchings
Arthur Guetter

HILTON - Misao Nagayama
R. Lee VandeWetering
Rosalyn Lee
Bernard Sohmer

HYATT - Conduff Childress

CROCKETT - Robert McKelvey
Michael Neumann
Tom Brown
Marta Pecuch-Herrero

The AMS-MAA Joint Meetings Committee always endeavors to obtain the lowest possible sleeping room rates for participants at annual meetings. The committee is also responsible for maintaining a sound fiscal position for these meetings. As the meetings have grown in scope and complexity over the years, it has been necessary to find larger facilities with many more session rooms. Unfortunately, the cost of these facilities is higher than can be covered by the registration fees, and the committee has arranged for all of the hotels to collect an extra $3 per room per night from participants, which will be used to offset the rental cost of the Cincinnati Convention Center (CCC). Rates quoted below include this charge.

Participants must register in advance in order to obtain hotel accommodations through the Mathematics Meetings Service Bureau (MMSB). Be sure to complete the Housing section of the ARH Form completely, listing all hotels in order of preference, to insure accurate hotel assignments. Reservations must be made through the MMSB to receive the convention rates listed below. The MMSB encourages participants to feel free to call them at 401-455-4143 or 401-455-4145 for more detailed descriptions of the hotels, if necessary.

Rates:
- listed below by descending order
- subject to a 10% sales/occupancy tax
- parking rates are per day rates
- only certified students or unemployed mathematicians qualify for listed student rates

Room Payments:
- all major credit cards
- personal checks with personal id and/or credit card backup

Deadlines:
- reservations thru MMSB - November 12
- hotel will not accept direct reservations
- changes/cancellations thru MMSB - December 10
- changes/cancellations thru hotels - after December 22
- reservations thru hotels - after December 22 (convention rates based on availability only)

Special Services:
- all hotels in or working towards being in compliance with the Americans with Disabilities Act (ADA)
- special needs should be clearly indicated on ARH Form

Guarantee Requirements:
- $50 (or more) by check
- credit card - VISA, MC, AE

Hotel Info:
- limited nonsmoking rooms available
- checkin time - 3p.m. (all hotels)
- checkout time - 1p.m. (Terrace Hilton, Westin)
- 11a.m. (Clarion) noon (rest of hotels)
- hotels with some rooms with windows that open - Terrace Hilton, Quality, and the Holiday Inns

Hotel Name Distance from CCC	Location	Description	Single	Double 1 bed	Double 2 beds	Tfriple 2 beds	Triple 2 beds w/cot	Quad 2 beds	Quad 2 beds w/cot	Suites (starting rates)
Hyatt Regency Cincinnati (Headquarters) .06 miles	151 West Fifth Street Cincinnati, OH 45202 513-579-1234	Restaurants, Lounge, Indoor Pool Parking $12.50 valet (In/Out), Health Club Children 18 yrs. and younger free								
REGULAR			$ 83	$ 83	$ 83	$ 93	$ 113	$ 93	$ 113	$ 360+
STUDENT			73	73	73	73	93	73	93	N/A
The Westin .20 miles	At Fountain Square Cincinnati, OH 45202 513-621-7700	Restaurants, Lounge, Indoor Pool, Fitness Ctr Parking $8 self (In/Out), $12.95 valet Children 18 yrs. and younger free								
REGULAR			82	82	82	82	97	82	97	135+
STUDENT			70	70	70	70	85	70	85	N/A

How to Obtain Hotel Accommodations (continued)

Hotel Name Distance from CCC	Location	Description		Single	Double 1 bed	Double 2 beds	Triple 2 beds	Triple 2 beds w/cot	Quad 2 beds	Quad 2 beds w/cot	Suites (starting rates)
Terrace Hilton .15 miles	15 West Sixth Street Cincinnati, OH 45202 513-381-4000	Restaurant, Lounge, Health Club Parking $11 self (In/Out) Children 18 yrs. and younger free	REGULAR	$ 80	$ 80	$ 80	$ 90	$ 110	$ 90	$ 110	$ 140
			STUDENT	70	70	70	70	90	70	90	N/A
Clarion .06 miles (Directly Connected to Center)	141 West Sixth Street Cincinnati, OH 45202 513-352-2100	Restaurants, Lounge, Heated Outdoor Pool Parking $11 valet (In/Out), Health Club Children 17 yrs. and younger free	REGULAR	79	79	79	89	109	89	109	176+
			STUDENT	69	69	69	69	89	69	89	N/A
Omni Netherland Plaza .15 miles	35 West Fifth Street Cincinnati, OH 45202 513-421-9100	Restaurants, Lounge, Indoor Lap Pool Parking $12.50 valet (In/Out), Health Club Children 18 yrs. and younger free	REGULAR	63	63	83	93	N/A	103	N/A	205+
			STUDENT	49	49	83	93	N/A	103	N/A	N/A
Holiday Inn Queensgate* (Downtown) 1 mile	800 West Eighth Street Cincinnati, OH 45203 513-241-8660	Restaurant, Lounge, Outdoor Pool Free Parking Children under 18 yrs. free	REGULAR	59	59	59	64	64	69	69	175+
			STUDENT	49	49	49	54	54	59	59	N/A
Quality Hotel Riverview* 1 mile	666 Fifth Street Covington, KY 41011 606-491-1200	Restaurants, Lounge, Indoor Pool Free Parking, Health Club Children under 17 yrs. free	REGULAR	55	55	55	55	65	55	65	140+
			STUDENT	45	45	45	45	55	45	55	N/A
Holiday Inn Riverfront* 1 mile	600 West Third Street Covington, KY 41011 606-291-4300	Restaurant, Lounge, Outdoor Pool Free Parking, Health Club (off premise) Children under 18 yrs. free	REGULAR	51	51	51	51	61	51	61	N/A
			STUDENT	41	41	41	41	51	41	51	N/A

* The Holiday Inn Queensgate, Quality Hotel Riverview, and Holiday Inn Riverfront are not within walking distance. Complimentary shuttle service will be provided to and from these properties.

Joint Mathematics Meetings Advance Registration/Housing Form, Cincinnati, Ohio
January 12–15, 1994

Please complete this form and return it with your payment to: Mathematics Meetings Service Bureau (MMSB), P.O. Box 6887,
Providence, Rhode Island 02940; Telephone: (401) 455-4143; Telex: 797192

DEADLINES: AMS Short Course, Hotel Reservations (includes Room Lottery Qualification),
Joint Meetings (JM) & Employment Register (ER)   October 29, 1993
AMS Short Course, Hotel Reservations, JM & ER (includes Tickets, Registration
Material Mailed In December, and Inclusion in Winter Lists)   November 12, 1993
Housing Changes/Cancellations through MMSB   December 10, 1993
AMS Short Course, Final JM & ER Registration with no Housing, Tickets,
Inclusion in Winter Lists, or Material Mailed   December 13, 1993
50% Refund on Tickets   December 30, 1993 (no refunds after this date)
50% Refund Advance Registration/Employment Register/AMS Short Course   January 9, 1994 (no refunds after this date)

(*N.B.*: A separate form appears in this issue for advance registration for MAA Minicourses.)

ADVANCE REGISTRATION SECTION: Please complete this section and the appropriate sections on the reverse.

1) _____ Telephone: _____
   (Please print)   Surname   First   Middle

2) _____
   (Mailing address)

_____   _____
   (Mailing address continued)   (e-mail address)
   **I do not wish my badge, tickets, program, and/or Employment Register material to be mailed; however, the mailing address
   for my acknowledgment and room confirmation is given above.** ☐

3) Badge information: Affiliation _____

   Names for Guest Badges: _____

4) Students: Grad ☐   Undergrad ☐   High School ☐   5) Emeritus member ☐   High School Teacher ☐   Librarian ☐   Unemployed ☐

6) Member of: AMS ☐ CMS ☐ MAA ☐ Nonmember ☐   AWM ☐ NAM ☐   MR Classification # _____

7) Joint Meetings fee $ _____   8) **AMS Short Course fee** $ _____   9) Employer fee(s) $ _____   10) Co-Interviewer fee(s) $ _____

11) Applicant fee $ _____ 12) Posting fee $ _____ 13) Hotel deposit $ _____ **(necessary ONLY if paying deposit by check)**

14) Tickets: _____ AMS 25-Year Banquet @$25 each = $ _____ Veg. meal ☐   _____ MER Banquet @$36 each = $ _____ Veg. meal ☐
               _____ NAM Banquet @$25 each = $ _____ Veg. meal ☐   _____ AWM Workshop Dinner @$27.50 each= $ _____ Veg. meal ☐
               Students, please check here if you will be attending the MathChats on Tuesday, 1/11/94. ☐

15) **TOTAL AMOUNT ENCLOSED FOR 7 through 14** $_____ NOTE: May be paid by check payable to AMS (Canadian checks must be
    marked "U.S. Funds"), or VISA or MasterCard credit cards.   ☐ original institutional purchase order attached

    Credit card type: _____ Card number: _____ Expiration date: _____
    If this is your credit card, please print your name as it appears on the credit card on the line below as well as sign your name.
    If this is not your credit card, please print card holder's name as it appears on the credit card on the line below, and have the card holder sign.

    _____   _____
              (Printed name)   (Signature)

REGISTRATION FEES

JOINT MATHEMATICS MEETINGS		
	Member of AMS, CMS, MAA	$ 125
*	Emeritus Member of AMS or MAA	35
	Nonmember	194
*	Students:	
	High School	2
	Graduate or Undergraduate	35
*	High School Teachers/Librarians/Unemployed Mathematicians	35
AMS SHORT COURSE		
	Member/Nonmember	70
*	Student, Unemployed, or Emeritus	30
EMPLOYMENT REGISTER		
	Employer (1st Interviewer)	150
	Employer (2nd/3rd Interviewer)	75
	Applicant	35
	Posting for job descriptions for noninterviewing employers	50

* See section on "How to Register in Advance" in the *Notices* or *Focus* for definitions of various registration categories.

For office use only:

Codes	Options	Hotel	Room type
Dates	Hotel Deposit	Total Amount Paid	
Special Remarks			

HOUSING SECTION:

☐ I will not require housing.   ☐ I am making my own arrangements.   ☐ I am staying privately in the local area.   ☐ I am requesting a hotel reservation below.

Please rank hotels in order of preference by writing 1, 2, 3, etc., in the spaces at the left on the form and by circling the requested room type and rate. If the rate or hotel requested is no longer available, you will be assigned a room at a ranked or unranked hotel at a comparative rate. Rates listed below are subject to 10% sales/occupancy tax.   **GUARANTEE REQUIREMENTS:** $50 by check **OR** a credit card guarantee with VISA, MasterCard, or American Express. Please supply this information on the reverse.

ADVANCE REGISTRATION/HOUSING FORM, Cincinnati, Ohio   January 12–15, 1994

Order of choice	Distance from Conv. Ctr.	Single	Double 1 bed	Double 2 beds	Triple 2 beds	Triple 2 beds w/cot	Quad 2 beds	Quad 2 beds w/cot	Suites* (starting rates)
Hyatt Regency Cincinnati (Headquarters)	.06 miles								
Regular		$ 83	$ 83	$ 83	$ 93	$113	$ 93	$113	$360+
Student**		73	73	73	73	93	73	93	N/A
Westin	.20 miles								
Regular		82	82	82	82	97	82	97	135+
Student**		70	70	70	70	85	70	85	N/A
Terrace Hilton	.15 miles								
Regular		80	80	80	90	110	90	110	140
Student**		70	70	70	70	90	70	90	N/A
Clarion	.06 miles								
Regular		79	79	79	89	109	89	109	176+
Student**		69	69	69	69	89	69	89	N/A
Omni Netherland Plaza	.15 miles								
Regular		63	63	83	93	N/A	103	N/A	205+
Student**		49	49	83	93	N/A	103	N/A	N/A
Holiday Inn Queensgate (downtown)*†	1 mile								
Regular		59	59	59	64	64	69	69	175+
Student**		49	49	49	54	54	59	59	N/A
Quality Hotel Riverview†	1 mile								
Regular		55	55	55	55	65	55	65	140+
Student**		45	45	45	45	55	45	55	N/A
Holiday Inn Riverfront*†**	1 mile								
Regular		51	51	51	51	61	51	61	N/A
Student**		41	41	41	41	51	41	51	N/A

* Reservations for suites must be made directly with the Service Bureau. The hotel can supply general information only.
** Participant must be a certified student or unemployed (as described in the "How to Register in Advance" section of *Notices* or *Focus*) to qualify for these rates.
*** Room types available are king sofa and double-double. Please indicate your preference below.
† The Holiday Inn Queensgate, Quality Hotel Riverview, and Holiday Inn Riverfront are not within walking distance. Complimentary shuttle service will be provided to and from these properties.

Special housing requests: _____

If you are physically challenged and have special needs, please indicate your needs above. If necessary, a staff member will call you for further information to insure that you are placed in a property that is complying with ADA rules and that your stay in Cincinnati is comfortable. Phone number where you can be reached: _____

I will arrive on (date) _____ at _____ a.m./p.m., and depart on (date) _____ at _____ a.m./p.m.

Please list other room occupants, indicating their full name, arrival, departure date, and ages of children, and check here if one of the occupants is your spouse ☐

MAA Minicourse Advance Registration Form, Cincinnati, Ohio
January 12–15, 1994

NOTE: This is NOT the AMS Short Course Form. Please use the Joint Meetings Advance Registration/Housing Form to register in advance for the AMS Short Course.

To register for MAA Minicourse(s), please complete THIS FORM or a PHOTOCOPY OF THIS FORM and return it with your payment to:

> Minicourse Coordinator
> Mathematical Association of America
> 1529 Eighteenth Street, N.W.
> Washington, DC 20036
> Telephone: 202-387-5200

Telephone: _____

(Please print)   Surname   First   Middle

Street address   City   State   Zip

- Deadline for MAA Minicourse advance registration: November 12, 1993 (After this date, potential participants are encouraged to call the MAA headquarters at 800-331-1622 for availability of Minicourses.).
- Deadline for cancellation in order to receive a 50% refund: December 30, 1993.
- Each participant must fill out a separate Minicourse Advance Registration Form.
- Enrollment is limited to two Minicourses, subject to availability.
- Please complete the following and send both form and payment to the Minicourse Coordinator at the above address:

    I would like to attend ☐ 1 Minicourse   ☐ 2 Minicourses

    Please enroll me in MAA Minicourse(s):   #_____ and #_____

    In order of preference, my alternatives are: #_____ and #_____

- PAYMENT

    Check enclosed: $ _____   Credit card type: ☐ MasterCard ☐ Visa

    Credit card # _____   Expiration date: _____

Your Employing Institution   Signature (as it appears on credit card)

Minicourse Number and Name	Organized by	Fee
1. Organizing an undergraduate research program	Robert O. Robson & Joseph A. Gallian	$45
2. Inverse problems in the undergraduate classroom	Charles W. Groetsch & Zuhair Nashed	$45
3. The joy of *Mathematica*: a point-and-click way to use and learn *Mathematica*	Alan H. Shuchat & Frederic W. Shultz	$65
4. How to make effective use of inexpensive pocket computers to develop the concepts and techniques of calculus	Franklin D. Demana & Bert K. Waits	$45
5. Unifying themes for discrete mathematics	Ralph P. Grimaldi	$45
6. The mathematics of the perfect shuffle	S. Brent Morris	$45
7. *Theorist*	Donald Hartig	$65
8. Introduction to research in the teaching and learning of undergraduate mathematics: examples in calculus	Joan Ferrini-Mundy & Kathleen Heid	$45
9. The math modeling/precalculus reform project: using discrete mathematical models to motivate mathematics	Sheldon P. Gordon & B. A. Fusaro	$45
10. q-dimensional dynamical systems and chaos	Mario U. Martelli	$45
11. HP48 learning environments for experienced users	Lynn E. Garner	$45
12. Creating order out of chaos in freshman mathematics	Wade Ellis, Jr.	$45
13. "Workshop" mathematics: using new pedagogy and technology in introductory mathematics courses	Nancy Hood Baxter & Allan Rossman	$65
14. Interactive computer graphics laboratories for introductory differential geometry	Thomas F. Banchoff	$45
15. Designing question-based mathematics courses	Larry Copes & Su Doreé	$45
16. Calculus: an active approach with projects	Stephen R. Hilbert, John C. Maceli, Diane D. Schwartz, Stanley E. Seltzer, & Eric E. Robinson	$45
17. Teaching applied math via *Maple*	Robert J. Lopez	$65

☐ I plan on registering in advance for the Cincinnati, Ohio meetings **ONLY** in order to attend the MAA Minicourse(s) indicated above. It is my understanding that should the course(s) of my choice be filled a full refund of the Cincinnati meetings advance registration fee will be made.

Mathematical Sciences Employment Register
Cincinnati Convention Center

January 12, 13, & 14, 1994

Overview of the Employment Register

The Mathematical Sciences Employment Register, held annually at the Joint Mathematics Meetings in January, provides opportunities for mathematical scientists seeking professional employment to meet employers who have positions to be filled. Job announcements and brief résumés, prepared by employers and applicants respectively, are assigned code numbers and circulated to participants in advance and at the meetings so that members of each group may determine which members of the other group they would like to have an opportunity to interview. Requests for interviews are submitted on forms that are turned in at the Employment Register desk by all participants the day before interviewing begins. **The algorithm used in the interview scheduling program selects interviews solely from among the requests submitted by employers and applicants. Since it does NOT compare an applicant's brief résumé with an employer's job announcement, participants should be aware that interviews between poorly matched participants may occur, if requested.** All participants are strongly advised to choose interview requests carefully to maximize the effectiveness of the Employment Register system.

The improved algorithm for scheduling employer-applicant interviews performed well at the 1993 Employment Register. Priority is now given to certain classes of employer and applicant requests. Specifically, mutual requests (requests where an applicant and employer have each asked to interview the other) are virtually assured of being scheduled. Employer requests are also given priority, as are the requests by applicants that applicants designate "high priority". Under this scheduling system employers in 1993 interviewed 100% of the applicants they requested (who were actually present at the Employment Register). The new system is based on computer code developed by J.P. Jarvis, D.R. Shier, and M. Myers of the department of mathematical sciences, Clemson University, under a contract with the AMS sponsored jointly by the AMS and the Mathematical Association of America.

The Mathematical Sciences Employment Register is sponsored by the American Mathematical Society, the Mathematical Association of America, and the Society for Industrial and Applied Mathematics; it is operated by members of the AMS staff under the general supervision of the AMS-MAA-SIAM Committee on Employment Opportunities.

All interviewing employers and applicants MUST appear at the Employment Register desk to submit their request/availability sheets by 4:00 p.m. Wednesday, January 12, 1994, regardless of whether they have registered in advance. Those who will not be able to appear on Wednesday afternoon should not plan to participate. Should unexpected delays occur while travelling, contact the Employment Register desk at the Cincinnati Convention Center by telephone at 513-784-6010 before 4:00 p.m. EST on Wednesday.

Advance Registration Procedures for Applicants

Advance registration is an important step in Employment Register participation that offers several advantages:

- Advance registration fees for applicants are $35, plus Joint Meetings registration fee, vs. $70 on-site registration fee, plus Joint Meetings registration fee.
- Each typed Applicant's Résumé Form will be reproduced in a booklet, the *Winter List of Applicants*, and distributed to all registered employers. Applicant Résumé Forms received after November 12, 1993, cannot be included in the booklet. The booklet allows employers to examine each candidate's qualifications in advance, which may be advantageous to those applicants. Of the 100 applicants who were most requested by the employers at the 1993 Employment Register, 95 had registered in time to get their Résumé Forms printed in the booklet.
- Applicants registered in advance will receive their badges, programs, and Employment Register materials two to three weeks in advance of the meeting, unless they indicate otherwise. The package will include the complete job announcements received from employers registered by November 12.

Applicants may register in advance by submitting the Joint Meetings Advance Registration/Housing Form and Applicant Résumé Form (all found in the back of this issue) to the Mathematics Meetings Service Bureau **by November 12**. These forms must be accompanied by payment of the appropriate fees. Applicant Résumé Forms received by the November 12 deadline will be included in the *Winter List*. Advance registration for the Employment Register will continue until the Final Registration deadline of **December 13, 1993**, however, the Résumé Form will NOT be included in the *Winter List* but will be posted on site at the Employment Register. Those who do not register by December 13 must register on site at the Joint Meetings Registration Desk and pay the higher fees.

Meetings

Advice to Applicants

Applicants should be aware of some objective information concerning recent Employment Registers:

- At the 1993 Employment Register in San Antonio the ratio of applicants to interviewers was close to seven applicants to one interviewer.
- The employers who responded to the 1993 follow-up survey (78%) reported giving 94 invitations for on-campus interviews to Employment Register applicants, and they reported making 44 job offers to applicants.
- In San Antonio the average total number of interviews for each applicant was between five and six.
- Most jobs listed required a doctorate.
- Most jobs listed have been academic positions at bachelor's-granting institutions.
- Over 50% of the employers interviewing at the Employment Register in San Antonio indicated that they were restricted by their institution or company to hiring only U.S. citizens or permanent residents.

Applicants should obtain their materials in time to examine all job listings carefully and make interview requests appropriately. They are likewise encouraged to complete the Applicant Résumé Form carefully to ensure that employers are aware of any geographical or other restrictions they may have. Those with schedule conflicts during the Joint Meetings should indicate that they are unavailable for one or more half-day sessions.

Applicants should keep in mind that interviews arranged by the Employment Register represent only an initial contact with the employers and that hiring decisions are not ordinarily made during or immediately following such interviews. Applicants are advised to bring a number of copies of their vita or résumé so that they may leave them with prospective employers; or applicants may wish to mail materials several weeks in advance directly to participating employers in which they are particularly interested.

Advance Registration Procedures for Employers

Representatives of mathematical sciences departments and private or governmental organizations who plan to contact job seekers at the Joint Mathematics Meetings in Cincinnati are encouraged to register one or more interviewers in advance for the Employment Register.

- The fee for employers to register in advance is $150 for the first interviewer and $75 for each additional interviewer. On-site registration fees are $200 for the first interviewer and $100 for each additional interviewer. Employers must also register for the Joint Meetings and pay the appropriate Joint Meetings fee.
- Employer Forms submitted by November 12 will be photographically reproduced in a booklet which will be distributed to all applicants. Employers may elect to receive their badges, programs, and Employment Register material in advance, including the *Winter List of Applicants* containing all the Résumé Forms of applicants registered by November 12.

To register in advance employers should submit the Employer Form and the Joint Meetings Advance Registration/Housing Form (both found in the back of this issue), along with payment of the appropriate fees, to the Mathematics Meetings Service Bureau by **November 12**.

One Employer Form should be submitted for each position or set of positions for which interviews will be conducted. All co-interviewers should register at the same time. Each interviewer listed on an Employer Form will be charged separate Joint Meetings and Employment Register fees; however, the "additional interviewers" listed on the form will be charged a lower Employment Register fee. Interviewers may work concurrently or may register as only one person and work in shifts. If individuals from an institution want to interview separately for different positions, they will be assigned a separate code number and table and will each pay "first interviewer" fees.

It is the policy of some institutions to pay directly for employer fees. If a payment of this type is made separately from the submission of the advance registration materials, it is important that the institution's fiscal department include the name of the department and interviewer with their payment so that proper credit can be made in the Providence office.

Advice to Employers

Employers should know about several flexible options for participation in the Employment Register:

- Participants may register for any subset of the four half-day sessions.
- The new schedule allows slightly longer interviews, with five minutes between for note taking.
- One or more interviewers may interview separately, together, or in shifts.
- Employers may elect to receive a booklet containing hundreds of Applicant Résumés Forms two to three weeks in advance. ALL interview request forms must be submitted on Wednesday, then on Thursday and Friday employers will interview almost all of the applicants they requested. Most employers report that they met with excellent candidates among the group of applicants who had requested interviews with them.

Employers should bring school catalogs or corporate reports to the Employment Register desk for perusal by applicants prior to interviews.

Registration on Site

Applicants and employers who do not register for the Joint Mathematics Meetings and the Employment Register by **December 13** may register on site in Cincinnati at the Joint Meetings Registration desk. They must bring their receipt to the Employment Register desk between 7:30 a.m. and 4:00 p.m. on **Wednesday, January 12** to receive their materials. Every effort should be made to type the Applicant Résumé or Employer Form (found in the back of this issue) and bring it to the Register. Participants should keep in mind that on-site registration should be done as early on Wednesday

Meetings

as possible to allow a longer time for their Résumé Form or job listing to be viewed by other participants and also to allow time to examine materials before making their own interview requests. **There will be no on-site registration for the Employment Register after 4:00 p.m. Wednesday, January 12.**

1994 Employment Register Schedule
Wednesday, January 12
- 7:30 a.m. Distribution of Employment Register material for on-site registrants and participants registered in advance who did not receive materials by mail.
- 9:00 a.m. Short (optional) orientation session.
- 9:30 a.m.–4:00 p.m. Submission of all interview request forms for both Thursday and Friday interviews. This applies to both advance and on-site registrants. Those who do not submit interview request sheets by 4:00 p.m. will be unable to participate in the Employment Register on Thursday and Friday.
- 2:00 p.m.–3:15 p.m. Panel discussion, *Effective job seeking in today's market.*
- *N.B.* **No interviews are held on Wednesday.**

Thursday, January 13
- 7:00 a.m. Distribution of interview schedules for both Thursday and Friday.
- 8:15 a.m.–4:40 p.m. Interviews.

Friday, January 14
- 8:15 a.m.–4:40 p.m. Interviews.

All participants in the 1994 Employment Register must submit their Interview Request/Availability Forms between 9:30 a.m. and 4:00 p.m. on Wednesday, or they will not be included when the interview scheduling program runs Wednesday night. This applies to all employers and applicants, whether advance or on-site registrants. Forms submitted with advance registration do not automatically include the participants in the interviewing process.

Interviews now occur at twenty-minute intervals with five minutes between successive interviews. The interviews are scheduled in half-day sessions: Thursday morning and afternoon, and Friday morning and afternoon, amounting to four half-day sessions for interviews. Participants may choose to indicate unavailability for one or more sessions when they submit interview request forms. However, once scheduled, participants need to make a good faith effort to meet each appointment. Employers or applicants who must cancel an interview should fill out a cancellation form at the Employment Register Desk well in advance.

Winter List of Applicants
The *Winter List of Applicants*, formerly the December issue of *Employment Information in the Mathematical Sciences (EIMS)*, contains résumés of persons seeking professional positions in the mathematical sciences and is distributed to all employers interviewing at the Employment Register. Résumé Forms of applicants taking part in the Employment Register

and those not attending will be included provided they are received before the November 12 deadline. No changes may be made after the form is submitted.

Copies of the booklet will be available for sale at the AMS Exhibit and Book Sale at the meeting for $10. Any copies remaining after the meeting will be available from the Providence office of the Society for $17 each. Please note that the booklet will no longer be distributed as part of the *EIMS* subscription.

Applicants Not Planning to Attend
Applicants seeking professional positions in the mathematical sciences who do not plan to attend the meeting in Cincinnati also may submit the Applicant Résumé Form at the back of this issue for publication in the *Winter List of Applicants*. Please indicate you are not attending the meeting and observe the deadline of November 12. There is no charge for this service.

Winter List of Employers
The *Winter List of Employers* consists of the position listings submitted by employers who submitted job descriptions by November 12. It will be distributed to the applicants participating in the Register. Others may purchase the *Winter List of Employers* at the AMS Exhibit and Book Sale at the meeting for $10 each. Any copies remaining after the meeting will be available from the Providence office of the Society for $17 each.

Employers Not Planning to Interview
Employers who do not plan to participate in the Employment Register may display a job description. This description must be submitted on the Employer Form which appears in the back of this issue, with the appropriate box checked indicating that no interviews will take place. A fee of $50 is charged for this service. If the form is received in the Providence office (with payment) **by the November 12 deadline**, it will appear in the *Winter List of Employers*. Forms received with payment in the Providence office after that deadline will be displayed at the meeting. For on-site postings the fee of $50 must first be paid at the Joint Mathematics Meetings Registration Desk. Participants should inform the cashier that they would like to post a job description but are not planning to interview and should obtain the proper receipt. Additional forms are available at the Employment Register desk.

For Further Information
Questions about the Employment Register should be addressed to the Employment Register Coordinator at the AMS, 401-455-4142, or by e-mail: cak@math.ams.org. The telephone number at the Register in Cincinnati is 513-784-6010. This number will be in service only during the hours the Register is open in Cincinnati. Participants should note that this number is to be used for contacting the Employment Register Desk and is not for contacting participants nor for taking messages. Those who wish to leave messages should call the message center telephone number, 513-784-6011, during the hours that the Meetings Registration Desk is open.

APPLICANT RÉSUMÉ FORM

MATHEMATICAL SCIENCES EMPLOYMENT REGISTER
JANUARY 12–14, 1994
CINCINNATI, OHIO

1. **Form must be typed. (Please see instructions on facing page. No other format will be accepted. Use of codes is optional.)**
2. **This form CANNOT be submitted by electronic mail.**
3. **Hand lettered forms will be returned. Do not type beyond the box.**
4. **Please check if Advance Registration/Housing Form previously sent.** ☐
5. **Return form with payment with your Advance Registration/Housing Form by November 12 to AMS, P.O. Box 6887, Providence, RI 02940, in order to be included in the *Winter List of Applicants*.**

APPLICANT Name ——————————————————————
CODE: Mailing Address (include zip code) ———————————————

  E-mail address ——————————————————————

Ⓐ Specialties ——————————————————————

  Career objectives and accomplishments:

  ACADEMIC: ☐ Research ☐ University Teaching College Teaching: ☐ 4-year ☐ 2-year

  Would you be interested in nonacademic employment? ☐ yes ☐ no

  Significant achievements, research, or teaching interests ——————

  Paper to be presented at this meeting, or recent publication ——————

  Degree Year (expected) Institution

  —— ——— ——————————————

  —— ——— —————————————— Number of refereed papers

  —— ——— —————————————— accepted/published ————

PROFESSIONAL EMPLOYMENT HISTORY:

Employer	Position	Ⓑ Experience	Years
1. _____	_____	_____	__ to __
2. _____	_____	_____	__ to __
3. _____	_____	_____	__ to __

DESIRED POSITION:

Ⓒ Duties ——————————————— Available mo. ____ /yr. ____

  Significant requirements (or restrictions) which would limit your availability for employment ————

  References (Name and Institution)

  ——————————————————————

  ——————————————————————

  Citizenship: (check one) ☐ U. S. Citizen ☐ Non-U.S. Citizen, Permanent Resident
  ☐ Non-U.S. Citizen, Temporary Resident

AVAILABLE FOR INTERVIEWS:

  Session 1 ☐ Session 2 ☐ Session 3 ☐ Session 4 ☐
  Thurs. AM 8:15–11:40 Thurs. PM 1:00–4:40 Fri. AM 8:15–11:40 Fri. PM 1:00–4:40

I do not plan to attend the Cincinnati meetings. ☐

EMPLOYER FORM

MATHEMATICAL SCIENCES EMPLOYMENT REGISTER
JANUARY 12–14, 1994
CINCINNATI, OHIO

1. **Form must be typed. (Please see instructions on page facing Applicant Form. No other format will be accepted. Use of codes is optional.)**
2. **This form CANNOT be submitted by electronic mail.**
3. **Hand lettered forms will be returned. Do not type beyond this box.**
4. **Please check if Advance Registration/Housing Form previously sent.** ❏
5. **Return form with payment with your Advance Registration/Housing Form by November 12 to AMS, P.O. Box 6887, Providence, RI 02940, in order to be included in the *Winter List of Employers*.**

EMPLOYER
CODE: Institution _____

                Department _____

                City, State, Zip _____

                E-mail address _____

Name(s) of Interviewer(s) 1._____

                                2. _____

                                3. _____

                                4. _____

Ⓐ Specialties Sought_____

     Title(s) of Position(s)_____

     Number of Positions _____

     Starting Date _____ / _____   Term of Appointment _____
                         Month   Year   Years

     Renewal   Tenure Track Position
     ❏ Possible ❏ Impossible   ❏ Yes ❏ No   Teaching Hours per Week _____

     Degree Preferred _____   Degree Accepted _____

Ⓑ Duties_____

Ⓒ Experience Preferred_____

     Significant other requirements, needs, or restrictions which will influence hiring decisions_____

     _____

Able to hire for this position :   ❏ U.S. Citizen   ❏ Non-U.S. Citizen, Permanent Resident
     (check all that apply)   ❏ Non-U.S. Citizen, Temporary Resident

Available
for Interviews   ❏ **Session 1** (Thurs. AM, 8:15–11:40)   ❏ **Session 2** (Thurs. PM, 1:00–4:40)

                         ❏ **Session 3** (Fri. AM, 8:15–11:40)   ❏ **Session 4** (Fri. PM, 1:00–4:40)

Number of   **Session 1:** _____ **Interviewers**   **Session 2:** _____ **Interviewers**
Interviewers
                        Session 3: _____ **Interviewers**   **Session 4:** _____ **Interviewers**

❏ Not Interviewing

Instructions for Applicant and Employer Forms

Applicant forms submitted for the Employment Register by the November 12 deadline will be photographically reproduced in a booklet titled *Winter List of Applicants*.

Employer forms submitted by the November 12 deadline will be photographically reproduced for the *Winter List of Employers*. Employers are encouraged to provide more than one interviewer when they are able to do so, in order to increase the number of interviews which may be scheduled. Please take care to indicate the number of interviewers for whom simultaneous interviews may be scheduled. Please refer to the Employment Register text for specific instructions.

The forms must be carefully typed using a fresh black ribbon. It is important that the keys be clean and make a sharp, clear impression. Do not erase—it causes smudges which reproduce when photographed. Use a correcting typewriter, or correction tape or fluid if necessary. Submit the original typed version only. Copies will not reproduce properly and are not acceptable. **Hand lettered forms will be returned. Do not type outside the box.**

All forms must be received by the Society by November 12, 1993, in order to appear in the *Winter Lists* and, if attending the meeting, must be accompanied by the Advance Registration/Housing Form printed in the issue.

Ⓐ Specialties

AL = Algebra	EC = Economics	MO = Modelling
AN = Analysis	ED = Mathematics Education	MP = Mathematical Physics
BI = Biomathematics	FA = Functional Analysis	MS = Management Science
BS = Biostatistics	FI = Financial Mathematics	NA = Numerical Analysis
CB = Combinatorics	FL = Fluid Mechanics	NT = Number Theory
CN = Control	GE = Geometry	OR = Operations Research
CM = Communication	HM = History of Mathematics	PR = Probability
CS = Computer Science	LO = Logic	SA = Systems Analysis
CT = Circuits	MB = Mathematical biology	ST = Statistics
DE = Differential Equations	ME = Mechanics	TO = Topology

Ⓑ Ⓒ Duties and Experience

T = Teaching	U = Undergraduate	IND = Industry
R = Research	G = Graduate	GOV = Government
S = Supervision	A = Administration	DP = Data Processing
C = Consulting		

DOWNTOWN CINCINNATI
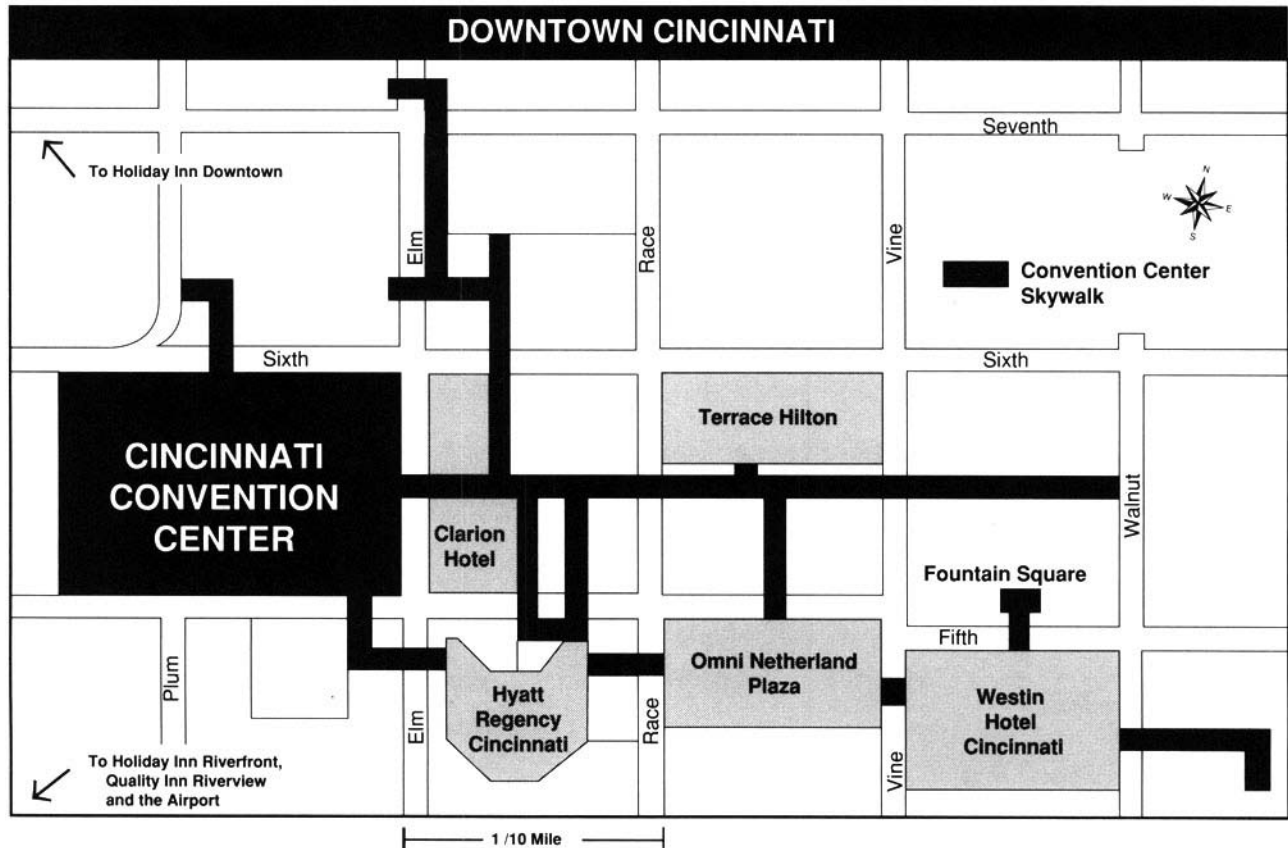
administrator at the University of Texas at Dallas. You need to choose a platform that works with what you have and that can talk to the other systems you want to communicate with, Webb recommends.

Training, according to Barrett, determines whether people use the system or not.

"You need to make it a habit for people," she says. "As soon as they get into the office every morning they should automatically log on and check their mail. It won't work any other way."

Barrett trains all users in small groups, recruiting those who have used computers before as team teachers. With the proper training and support, she estimates that the average computer-phobic user will get up to speed in about a week.

When it comes to selecting e-mail software, both service and the reputation for service are important qualifiers. Two of the e-mail leaders are cc:Mail and Microsoft Mail, available respectively from software giants Lotus Development and Microsoft Corp. Both come from acquisitions, where the product was already on the market when Lotus and Microsoft bought the companies.

This is to the benefit of the user. Both Scott and Relyea, respective users of the Microsoft and Lotus products since before the buyouts, say the service improved after the larger companies bought the products.

Things to Consider Before Purchasing A System

Webb thinks that the underlying protocol is the most important aspect of a product. A package that is part of a larger "strategy"— or a suite of connected applications—can be a hindrance. "Microsoft Mail and cc:Mail incorporate a proprietary mail system, which can make it hard for other systems to interact," Relyea says.

"Try before you buy" is another important maxim. Relyea suggests that a network administrator test several different packages with different workgroups; for instance, equipping some people with cc:Mail and some others with Microsoft Mail.

If this process seems to increase the distance between two points—purchase and use— consider the negative implications of

purchasing the wrong package for your needs. A few extra weeks will be time well spent. And companies like Microsoft and Lotus will cooperate, if not bend over backwards, to supply evaluation copies on a temporary or permanent basis. This will depend on the individual salesperson and the potential for growth. It's not out of the question for a vendor to supply several evaluation copies if the potential to sell copies to a whole university is there. In order to get full cooperation from that software vendor, the university's representatives should convey that possibility.

Relyea says that much resistance to e-mail comes from people who "have a bad taste in their mouths from the previous use of an inferior system." These bad old days may be gone. With perennial campus favorite the Apple Macintosh, and programs supporting Microsoft Windows, among them cc:Mail and Microsoft Mail, the interface has become the most important factor.

Mail is interactive and easy to use. It lets you know immediately when you have a message. Says Relyea, "You shouldn't have to log on to find out if there is anything waiting. That would be like having to make a telephone call to find out if you had any calls. A good system will let you know right away when a message has arrived, and allow you to incorporate that message into your environment."

Future Shock

As electronic mail demonstrates its worth on some campuses, schools without a strong e-mail structure will be working at a clear disadvantage. A strong computing infrastructure will eventually become a deciding factor in a school's ability to deal in information and, subsequently, its academic reputation.

While electronic mail has a clear place in the future, technological changes will incorporate its use even more. With the emergence of integrated telephony—the integration of telephone technology with personal computers—comes the capability to do many things. Among the benefits of integrated telephony is that users will be able to integrate voice mail with other forms of communication such as faxes and electronic mail.

Departments and colleges must look to the future when setting up new e-mail systems.

In doing so, they will have an easier time than their predecessors. For one thing, products have developed to the point where intuitiveness and functionality are taken for granted. Sending a communiqué with an attached document is a modern convenience that has become a practical necessity, a process that aids students, faculty, and administrators in getting the point across.

The best start for a collegiate e-mail system will be a fresh start, where the network administrator can acquire the hardware and software that best fits the department's needs. A fresh start, however, will be the exception rather than the rule. Most colleges will be forced to build computing systems on what has come before. Still, the quality of adaptable software has improved. There are many choices available, and a careful selection will give users a system that meets their informational needs at a price they can afford.

Three Year Lecturer Positions
Department of Mathematics
University of Arizona
Tucson, Arizona

The Department of Mathematics at the University of Arizona plans to offer three year, non-tenure track appointments to the rank of lecturer, starting in the Fall of 1994. We are looking for individuals with records of effective and innovative undergraduate teaching. Documentation of such accomplishments will be the primary consideration used in offering these lectureships. A graduate degree in Mathematics or Mathematics Education is required. Teaching duties include the following courses: college algebra, precalculus, finite mathematics, and calculus. These positions offer excellent opportunities for individuals to work with other faculty members in an innovative learning environment. Lecturers enjoy all the benefits and privileges that are available to other University employees.

The deadline for applications is November 15, 1993. Early submission of application material is strongly encouraged. Women and minority applicants are especially welcome. Correspondence regarding job descriptions, qualifications, and application procedures should be sent to:

Entry Level Teaching Positions
Alan C. Newell, Head
Department of Mathematics
University of Arizona
Tucson, Arizona, 85721 USA

The University of Arizona in an Affirmative Action/Equal Opportunity Employer.

Pomona College
Claremont, California

Pomona College seeks applications for a tenure track position, at the assistant professor level. The strongest candidates will have postdoctoral experience and be excited about teaching our culturally and intellectually diverse student body, of which about a third of the mathematics majors are women. They should also be committed to continuing a strong research program.

Send application materials to: The Search Committee, Department of Mathematics, Pomona College, Claremont, CA 91711-6348. Include a curriculum vitae and 3 letters of recommendation (which include evaluations of teaching), graduate school transcripts, and a description, written for the non-specialist, of research accomplishments and plans. Let us know if you will be at the January AMS meeting. We especially encourage applicants from traditionally under-represented groups. Pomona College is an AA/EO employer.

DARTMOUTH COLLEGE
John Wesley Young Research
Instructorship in Mathematics

The John Wesley Young Research Instructorship is a two year post-doctoral appointment for promising new or recent PhD's whose research interests overlap a department member's. Current departmental interests include areas in algebra, analysis, combinatorics, computer science, differential geometry, logic and set theory, number theory, probability and topology. Teaching duties of four ten-week courses spread over two or three quarters typically include at least one course in the instructor's speciality and include elementary, advanced and (at instructor's option) graduate courses. Nine-month salary of $34,000 supplemented by summer (resident) research stipend of $7,556 (two-ninths). Send letter of application, résumé, graduate transcript, thesis abstract, description of other research activities and interests if appropriate, and 3 or preferably 4 letters of recommendation (at least one should discuss teaching) to Phyllis A. Bellmore, Mathematics and Computer Science, 6188 Bradley Hall, Hanover, NH 03755-3551. Applications received by Jan. 15 receive first consideration; applications will be accepted until position is filled. Dartmouth College is committed to affirmative action and strongly encourages applications from minorities and women.

MACALESTER COLLEGE
MATHEMATICS/
COMPUTER SCIENCE
1600 GRAND AVENUE
ST. PAUL, MN 55105

Applications are invited for a position at the rank of either associate professor or full professor in Mathematics to begin in the fall of 1994. Candidates must have experience in teaching a broad assortment of undergraduate courses, a solid and ongoing scholarly record, familarity with the integration of computing into mathematics, and a commitment to teaching and research in an undergraduate liberal arts college. While applications in all fields will be considered, our department has a special need for someone in the areas of dynamic systems or a branch of geometry.

Located in a pleasant residential neighborhood of the culturally rich twin cities of St. Paul and Minneapolis, Macalester has a student body of 1800, 9% of whom are international and 13% of whom are American minorities. Part of a vigorous science division on campus, the Math and Computer Science Department has traditionally attracted strong students.

Applicants should send a resumé and a statement detailing their ideas for curricular and scholarly leadership in a combined math and

computer science department in a liberal arts environment. They should also arrange for three letters of reference to be sent to Wayne Roberts at the address above. Evaluation of applications will begin on November 1 and will continue until the position is filled. Macalester is an Affirmative Action/Equal Opportunity employer.

University of St. Thomas
Dept. of Mathematics, St. Paul, MN
Assistant Professor of Mathematics

Applications are sought for a non-tenure track position in mathematics. Applicants must have completed a Ph.D. in an area of discrete mathematics, be recognized for quality undergraduate teaching, have a well-defined research agenda, and share a commitment to liberal arts education. Candidates should also consider their role in contributing to the mission of the University. The University of St. Thomas, located in the heart of the attractive Twin Cities metropolitan area, has, for over a century, provided a strong program of liberal arts education in the Catholic tradition. The Department of Mathematics offers a comprehensive undergraduate program. Application materials, including a letter of interest, a CV, and three letters of recommendation (including comments of the applicant's experience and promise in the areas of teaching and scholarship) must be received by December 1, 1993. Applications should be sent to Suzanne Lechtman, Department of Mathematics, University of St. Thomas. St. Paul, MN 55105. The University of St. Thomas is an equal opportunity/affirmative action employer. Qualified women and persons of color are particularly encouraged to apply.

Davidson College
Department of Mathematics
P.O. Box 1719, Davidson, NC 28036
E-mail: math@apollo.davidson.edu

Applications are invited for an entry level tenure track position in the Mathematics Department beginning August 1994. Completion or near completion of PhD is required. A candidate must be committed to outstanding teaching and continuing scholarly activity. Computer science background is desirable. The teaching load will be 5 courses per year. Davidson is a liberal arts college with a Presbyterian heritage.

A completed application consists of a statement of professional aspirations and goals, resume, graduate and undergraduate transcripts, and 3 letters of reference (at least one about teaching). These should be sent to the attention of Prof. L. R. King, Chair, at the address above. Applications completed by November 27, 1993 will receive first consideration. Davidson College is an Equal Opportunity Employer; women and minorities are encouraged to apply.

Mathematics Chair Search

Rose-Hulman Institute of Technology is a school of 1350 strong (mean SAT scores - 680 math, 540 verbal) science, engineering, and mathematics students.

The Department of Mathematics consists of 17 faculty who take teaching seriously. Faculty are active in regional and national professional organizations and are leaders in curriculum efforts to use computers in instruction and to teach innovative curriculum combining science, engineering, and mathematics.

We seek a Chair to begin in Fall 1994.

Send request for more information, inquiries, and applications to: Chair Search Committee, Department of Mathematics, Rose-Hulman Institute of Technology, Terre Haute, IN 47803, USA. E-mail: Mathsearch@rose-hulman.edu. Phone (812) 877-8391.

A complete application includes a vita, a statement of mathematical, pedagogical, and administrative philosophy, and three letters of recommendation. Evaluation of applications begins December 15, 1993.

C O L B Y

Carter Professor of Mathematics and Computer Science and Chair of the Department

Colby invites nominations and applications for Carter Professor of Mathematics and Computer Science and Chair of the Department, effective September 1, 1994. Ph.D. in mathematics or computer science required. Desirable qualifications include: a distinguished record as teacher & scholar; demonstrated departmental & collegial leadership, including a clear vision of the future of the department in both mathematics and computer science and the ability to nurture faculty development & research programs; commitment to liberal arts & undergraduate mathematics and computer science education.

Colby is a highly selective college of 1700 students and 165 faculty. Its Department of Mathematics and Computer Science has 9 full-time and 2 part-time faculty members who are active researchers and teach courses in mathematics, computer science, and statistics. Department chairs normally serve 3-year terms, renewable one time. Colby is an AA/EO employer and encourages applications from women and minorities.

Send nominations or applications to **Dale Skrien, Chair, Department of Mathematics and Computer Science, Colby College, Waterville, ME 04901;** (djskrien@colby.edu). Review of applications will begin on November 15, 1993, and will continue until the position is filled.

Wanted: Writers for a biographical reference work on 20th-century scientists, mathematicians, and engineers. Fees to average $175. Suitable candidates will possess excellent writing skills and the ability to explain scientific concepts to a general audience. Send resume and writing samples to: Emily McMurray, Gale Research Inc., 835 Penobscot Bldg., Detroit, MI 49226-4094.

Williams College
Department of Mathematics
Williamstown, Massachusetts 01267

Anticipated visiting position for the 1994-95 year, probably at the rank of assistant professor; in exceptional cases, however, more advanced appointments may be considered. Excellence in teaching and research and doctorate are expected. Please have a vita and two letters of recommendation on teaching and research sent to Visitor Hiring Committee. Evaluation of applications will begin November 15, and continue until the position is filled. As an EEO/AA employer, Williams especially welcomes applications from women and minority candidates.

Williams College
Department of Mathematics
Williamstown, Massachusetts 01267

Anticipated tenure-eligible position in statistics, beginning Fall, 1994, probably at the rank of assistant professor; in exceptional cases, however, more advanced appointments may be considered. Excellence in teaching and statistics, including scholarship and consulting, and doctorate required.

Please have a vita and three letters of recommendation on teaching and statistics sent to Statistics Hiring Committee. Evaluation of applications will begin November 15 and continue until the position is filled. As an EEO/AA employer, Williams especially welcomes applications from women and minority candidates.

Southern Illinois University of Edwardsville

SIUE, a state university 20 miles from downtown St. Louis, MO, a major cultural and educational center, invites applications for one or possibly two anticipated tenure track positions in Statistics, Operations Research or Computational Mathematics with rank open, beginning August, 1994. Applicants who have a doctorate, or equivalent experience, or will complete Ph.D. requirements by August 1994, will be considered. We seek applicants with a strong commitment to teaching and excellent research accomplishments/potential. Industrial or consulting experience is desirable. Salary is competitive and based on qualifications and experience. Send applications including CV, transcripts, 2 letters of reference (at least one of the letters should address candidate's teaching ability) to Computational Math Search Committee, Department of Mathematics and Statistics, SIUE, Edwardsville, IL 62026-1653. Closing date for applications is November 1, 1993, or until positions are filled. Women/minorities urged to apply. AA/EOE.

Teaching Calculus Laboratories Using the DERIVE Symbolic Computation System

A weekend minicourse at IMTP Laboratory,
University of Michigan-Dearborn
November 19-20, 1993
Presented by
Marvin Brubaker, Messiah College
Carl Leinbach, Gettysburg College

This course gives participants hands-on experience with a symbolic computation system. Participants use this system in an actual laboratory setting working on laboratory projects developed by the presenters.

The Friday evening and Saturday morning sessions of the course will be devoted to learning to use DERIVE and exploring some mini projects that can be developed into more extensive laboratory projects. Saturday afternoon will be spent working on an extended lab or an out of class project that begins with an exploration of the connection of a differentiable function and its derivative, and culminates in a demonstration of the Fundamental Theorem of Calculus.

Register by sending a letter of intent along with a $25.00 registration fee to:

Lisa Johnson, MAA Minicourse Coordinator, 1529 Eighteenth St., NW, Washington, DC 20036, 1-800-331-1622, e-mail: ljohnson@maa.org

Calendar

National MAA Meetings

January 12-15, 1994 Seventy-seventh Annual Meeting, Cincinnati (Board of Governors, January 11, 1994)

August 15-17, 1994 Sixty-ninth Annual Joint Summer Meeting, Minneapolis

January 4-7, 1995 Seventy-eight Annual Meeting, San Francisco (Board of Governors, January 3, 1995)

Sectional MAA Meetings

ALLEGHENY MOUNTAIN, April 8-9, 1994, West Virginia University, Morgantown

EASTERN PA & DELAWARE, Nov. 13, 1993, Cedar Crest College, Allentown

FLORIDA, Feb 25-26, 1994, Daytona Beach Comm College, Daytona Beach

ILLINOIS, April 22-23, 1994, Parkland College, Champaign

INDIANA, Oct 15-16, 1993, Indiana Univ-Kokomo, Kokomo, IN, and March 19, 1994, DePauw University, Greencastle

INTERMOUNTAIN, April 8-9, 1994, Westminster College, Salt Lake City

IOWA, April 15-16, 1994, Grinnell College, Grinnell

KANSAS, March 11-12, 1994, University of Kansas, Lawrence, KS

KENTUCKY, April 8-9, 1994, Morehead State University, Morehead

LOUISIANA-MISSISSIPPI, March 4-5, 1994, Nicholls State University, Thibodaux, LA

MD-DC-VA, November 12-13, 1993, Montgomery College, Takoma Park, MD

METROPOLITAN NEW YORK, May 1, 1994, Merchant Marine Academy, Kings Point

MICHIGAN, April 29-30, 1994, Alma College, Alma, MI

MISSOURI, April 1994, Missouri Southern State College, Joplin, MO

NEBRASKA, April 22-23, 1994, Nebraska Wesleyan University, Lincoln

NEW JERSEY, November 13, 1993, Union County College, Elizabeth, NJ

NORTH CENTRAL, October 22-23, 1993, University of North Dakota, Grand Forks, ND, and April 22-23, 1994, Winona State University, Winona, MN

NORTHEASTERN, November 5-6, 1993, Westfield State College, Westfield, MA

NORTHERN CALIFORNIA, February 12, 1994, San Jose City College

OHIO, October 22-23, 1993, Ohio Northern University, Ada, OH, and April 8-9, 1994, Miami University, Oxford, OH

OKLAHOMA-ARKANSAS, March 25-26, 1994, Harding University, Searcy, AR

PACIFIC NORTHWEST, June 16-18, 1994, University of Oregon, Eugene

ROCKY MOUNTAIN, April 15-16, 1994, South Dakota School of Mines & Tech., Rapid City, SD

SEAWAY, Nov. 5-6, 1993, Onondaga Community College, Syracuse, NY, and April 22-23, 1994, SUNY at Albany

SOUTHEASTERN, April 8-9, 1994, Carson Newman College, Jefferson City, TN

SOUTHWESTERN, April 8-9, 1994, Glendale Community College, Glendale, AZ

SOUTHERN CALIFORNIA, November 6, 1993, The Claremont Colleges, Claremont, CA, and March 5, 1994, Loyola Marymount University, Los Angeles

TEXAS, April 7-9, 1994, Texas A&M, College Station, TX

WISCONSIN, April 22-23, 1994, University of Wisconsin-Eau Claire, Eau Claire, WI

Other Meetings

April 13-16, 1994 Seventy-second Annual National Council of Teachers of Mathematics Meeting, Indianapolis. For more information, contact: NCTM, 1906 Association Drive, Reston, VA 22091-1593.

December 1993 MATH HORIZONS arrives in your mailbox. See page 7 for more details.