

MARYLAND-DISTRICT OF COLUMBIA-VIRGINIA
SECTION OF THE MAA
NEWSLETTER



*FINAL ANNOUNCEMENT
SPRING 1991*

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MARYLAND-DISTRICT OF COLUMBIA-VIRGINIA SECTION OF THE MAA NEWSLETTER

VOL.13 NO.1 EDITOR: JOHN AUGUST MARCH 10, 1991

Notes from the Chair

As you remember, the Mathematical Association of America celebrated the 75th anniversary of its founding at the Columbus meeting last August. This year marks the 75th anniversary of the founding of our Section. If anyone is interested in working on a history of the Section, please drop me a line or give me a call. Also, if anyone has any materials relating to the early days of the Section, I would appreciate learning about it.

I hope that you will join us for our Spring meeting at Virginia Commonwealth University in Richmond on April 27. There are a number of interesting talks planned. We will once again invite to our spring meeting the teams from the Section who earned a meritorious rating in the Mathematical Competition in Modeling. This has become an interesting part of our Spring meeting.

Mathematics Awareness Week is April 21-27 this year. The theme is *Mathematics: It's Fundamental*. The theme encourages us to convey to others the diverse applications of mathematics in wide areas of science, technology, industry and our society. We can all make an effort to promote mathematics among the students in secondary schools and colleges. For those interested one free copy of the new pamphlet entitled *Careers in the Mathematical Sciences* may be obtained from the national office of the MAA. Additional copies cost \$0.25 a piece up to 100 copies or \$20.00 in multiples of 100.

Two of our officers will be completing their terms of office with the spring meeting: John August, our Vice-chairman for Membership, who is responsible for putting our newsletter together, and Robb Koether, our Secretary, who has taken care of the Section's correspondence and reporting as well as manning the book sales during the meetings. The Section appreciates their efforts in carrying out their duties. We will be electing their successors at the meeting.

John Milcetic

Governor's Report

At the San Francisco meeting, the Board of Governor's approved a new award for outstanding teaching at the College Level. Each section will nominate one person each year for the national award. The section will need to form a committee and set up procedures and guidelines for such a nomination. It is assumed that the sections would honor the section awardee in some manner at the section meeting.

The board approved a report of the Committee on the Mathematical Education of Teachers titled "A Call for Change". This report really does call for changes in the mathematical education of teachers. These changes would effect the very nature of the mathematics taken by teachers to such an extent as to perhaps require changes in the Mathematics major at some institutions. If you are at a school that has an education major, I urge you to get a look at a copy of this report. MAA should be distributing this document to departments in the near future.

The discussion item for the meeting was should the MAA approve the formation of Special Interest Groups(SIGS). There have been a couple of requests from different groups to set up a SIG. The MAA currently does not have any SIGS but some of the committees, such as the Committee on Computers in Mathematical Education, function almost as a SIG. In the American Society for Engineering Education you join a division which is dependant on your field. You can join more than one. A certain portion of your dues goes toward the division. If you join several divisions your dues might be increased. ACM is currently no more than a board representing various SIGS that operate almost completely independently. Some of the issues that were brought up were how would dues be handled? How much independence would a SIG have? What would be the relationship to the current section structure? The board decided that this was an idea worth studying but did not wish to act on the idea at the current time. I would appreciate your feelings on this subject because it may come up again.

Howard Lewis Penn

Secretary's Report

Minutes of the November 17, 1990 Meeting of the MD-DC-VA Section of the MAA

The meeting was called to order at 11:23am by Section Chairman, John Milcetic. A motion was passed to henceforth print the minutes in the newsletter rather than read them at the meeting, and also to approve the current minutes as they appeared in the fall newsletter.

Bob Tardiff, Treasurer, gave the treasurer's report:

Balance on hand April 30, 1990	\$5156.19
Balance on hand November 16, 1990	<u>\$7835.45</u>
Resulting in a net gain of	\$2679.26

Ben Fusaro announced the MAA summer workshops for 1991 and 1992. The topics for the 1992 will be "Applications of Spread-sheets", by Robert Smith of Miami University, and "Modeling with Energy Diagrams", by H.G. Odum of the University of Florida.

Regarding the Mathematical Contest in Modeling, he estimated that there would be 275 teams in 1991. The contest will be held the first

weekend in March. Our section was well represented in 1990 by fielding 20 teams out of 235.

Prof. Howard Penn reported on the governor's meeting. A proposal has been made to create a national award for outstanding teachers. He said that he foresees problems in deciding how to select the recipient of the award. There was some discussion on the matter, with the members generally feeling that the award is a good idea.

In anticipation of next spring's election of officers, John August described his duties as newsletter editor and Robb Koether described his duties as secretary.

It was announced that the spring meeting will be held at Virginia Commonwealth University on April 27, 1991.

John Milcetic thanked everyone involved in the fall meeting for their efforts. Howard Penn moved that a letter of appreciation be sent to Towson State University. The motion was passed.

The meeting was adjourned at 11:51 am.

Spring Meeting Information

Location: Virginia Commonwealth University

Virginia Commonwealth University was established by the General Assembly of Virginia in 1968 by merging the former Richmond Professional Institute and the Medical College of Virginia. Incorporating one of the largest and most comprehensive medical centers on the East Coast with a broad range of undergraduate and graduate programs, Virginia Commonwealth University is a major university in the Virginia system of higher education. Because of the quality and variety of its educational services and because of its strategic location, Virginia Commonwealth University serves not only the Richmond area but Virginia-at-large.

The University has two designated divisions, although organizationally it operates as one institution with two campuses. The Academic Campus (West Campus), offering undergraduate and graduate programs in the Schools of the Arts, Humanities, Business, Community and Public Affairs, Education and Social Work, is located in the residential area surrounding 901 Franklin Street. Two miles across Richmond, the MCV Campus (East Campus) offers health-related programs of study in the Schools of Allied Health Professions, Basic Health Sciences, Dentistry, Medicine, Nursing, and Pharmacy.

Directions:

The Academic Campus of VCU is bounded by Franklin, Harrison, Main, and Belvidere Streets in the 700 to 900 blocks west of downtown Richmond.

From the North or West: Remain on or take Interstate 95 South and take Exit 13 immediately after the 50 cent toll exchange. Turn left onto Leigh Street, then right onto Belvidere Street. Follow the VCU Academic Campus signs.

From the South or East: From south 95 or east 64, take Exit 12 (Chamberlayne Avenue South). Cross the overpass, turn right at the first traffic light, and go west on Leigh Street. Proceed on Leigh Street to Belvidere Street, and make that left on Belvidere. Follow the VCU Academic Campus signs.

Parking: Parking is available in the VCU parking deck located on Main Street between Laurel and Cherry Streets. Entry to the parking deck is from Cherry Street (one way going north). The \$2.00 charge entitles you to all-day parking.

This map belongs following the directions (pg. 4). I decided to go out with a bang for my last newsletter. Sorry for the inconvenience.

In August



Lodging Information:

Ask for VCU guest rates (Room tax is 9 1/2 %).

Linden Row Inn, 100 E. Franklin Street, (804)783-7000, \$61, within walking distance.

Jefferson Sheraton, Franklin and Adams Streets, (804)788-8000, \$75, within walking distance.

Holiday Inn Downtown, 301 West Franklin Street, (804)644-9871, \$54, within walking distance.

Omni Hotel, 100 South 12th Street, (804)344-7000, \$79, in Shockoe Slip - shopping and nightlife.

MD/DC/VA SECTION MEETING, MAA
APRIL 26 & 27, 1991
VIRGINIA COMMONWEALTH UNIVERSITY

FRIDAY EVENING APRIL 26, 1991

8:00-9:00pm Wine and Cheese
Anderson Gallery

SATURDAY APRIL 27, 1991

8:15 Registration (with coffee and donuts)
Lobby of the New Academic Building

8:45 Welcome
Room 1169 New Academic Building

9:00 Contributed Paper Session I

Richard E. Auer, Loyola College
"A Multivariate Analysis of Media Spending"

Wayne M. Dymacek, Washington and Lee University
"Mental Calculation: An Approach to Number Theory"

Roland Minton, Roanoke College
"Lean and Lively Through Exercise"

Will Miles, Virginia Commonwealth University, Student
"The Distributional Stieljes Transformation"

John Nolan, American University
"Discrete Approximating Measures"

William P. Wardlaw, US Naval Academy
"Periods and Subperiods of Matrices"

9:45 Contributed Paper Session II

Coreen L. Mett, Radford University
"Fractal Data Fitting"

Kathleen M. Shannon, Salisbury State University
"Writing Assignments for Mathematics Instruction"

Helen Christensen, RSM, Loyola University
"Sneaking Up on Limits"

Parviz Khajeh-khalili
"Periodic Solutions to Nonlinear Ordinary Differential Equations"

Karen Klaimon, James Madison University, Student
"Topics on Full Covering"

Stephen D. Casey, American University
"Two Problems in Remote Sensing and Convolution Equations"

J. Michael Berman, Hampden-Sydney College
"Conver's First Experience with Computers in Calculus"

10:30 Contributed Paper Session III

E. Lee May, Salisbury State University
"Are Seven-Game Baseball Play-offs Fairer than Five-Game?"

Christopher E. Barat, Randolph-Macon College
"Teaching History of Math in a Small-College Liberal Arts"

John Schneelk, Virginia Commonwealth University
"Software Graphics from Mathematical Vision Research"

Jeffrey Schroeter, James Madison University, Student
"Numerical Analysis of a Singular Perturbation Problem"

AMS-MTA Jan 92 Baltimore Sub Theme: Math and the Enterprise

GUEST SPEAKER

Jerry A. Johnson, Oklahoma State University

Dr. Johnson received his Ph.D. in Mathematics from the University of Illinois in 1969. He has been on the faculty of Oklahoma State University until the present. His career began as a research mathematician specializing in Functional Analysis. He has published sixteen papers in research journals and given numerous talks at national mathematics meetings and other universities. A few years ago his interests came to include problems in mathematics education involving the uses of microcomputers in the curriculum. Since then he has given numerous invited talks, workshops, and mini-courses on this subject.

Technology in the Curriculum: Derive™ and GyroGraphics™

Derive™ is a so-called computer algebra system capable of astonishing feats of symbolic as well as numerical computation.

GyroGraphics™ allows one to create three dimensional structures such as space curves with tangent vectors and "wire frame" surfaces with tangent planes and then animate them smoothly from the keyboard in the real time.

At Oklahoma State University we have been using these two software packages in our calculus and linear algebra classes. Some examples of these uses will be shown and implications for the future of the curriculum will be discussed.

WORKSHOP

3D Animated Graphing with GyroGraphics™

Many of the objects we study in three dimensions such as space curves with tangent vectors and surfaces with tangent planes cannot be adequately visualized with a static picture. GyroGraphics™ overcomes this by allowing such objects to be animated smoothly from the keyboard. This workshop will offer hands-on experience using GyroGraphics™ to create and visualize structures in three dimensions.

Tim McDevitt, James Madison University, Student
"Convergence of Complex Continued Fractions"
Nora Wade, American University, Graduate Student
"The Shannon Sampling Theorem: Theory and Applications"
Thomas Fanne, Virginia Wesleyan College
"Convergence of Sequences of Polynomials and their Derivatives"

11:00 MD/DC/VA Section Business Meeting Room 1169 New Academic Building

11:30 Lunch
Commons Building, First Floor "Park Place"

12:45 Invited Speaker: Jerry A. Johnson, Oklahoma State Univ.
"Technology in the Curriculum: Derive™ and GyroGraphics™"

1:50 Contributed Paper Session IV

Yong Li, American University, Graduate Student
"Simulation Studies of the Distribution of a Vector Correlation"

C. Michael Lohr and Loretta Braxton, VCU
"Insights: Curriculum & Evaluation Standards for School Mathematics"

Mike Kerckhove, University of Richmond
"Mathematica™ and Calculus I"

Dipa Choudhury
"Second Course of Linear Algebra in Undergraduate Studies"
V. Ray Hancock, Emory and Henry College
"Commutative Schreier Extensions of Small Groups and Monoids"

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CAMPUS NEWS

College of William and Mary: Visiting faculty: Dr. Lawrence M. Lemis from the University of Oklahoma.

Goucher College: New hire: Dr. Mark Smiley (Assistant Professor, Fractal Geometry, Auburn University), Dr. Jill Zimmerman (Assistant Professor, Recursion Theory, University of Minnesota); *Promotion:* Dr. Joan Morrison to Associate Professor.

Loyola College: New hire: Linda Cooper (Master's at University of Maryland); *Promotion:* Associate Professor Anne L. Young was granted tenure.

Montgomery College: New hire: Jose G. Alonso, Susan M. King, Lori A. Perine, and Xue-zao Zhang; *Other news:* Elizabeth Teles nominated for second vice-president of MAA.

Call For Papers

For the Fall Meeting: September 8, 1991
For the Spring Meeting: February 15, 1992

Spring Election State

Vice-President for Publicity: Ruth & Ray Hancock, Emory & Henry College

Secretary: Milton Eisner, Mount Vernon College

Advertisements

"Ancient Greek Mathematics": A Summer Course Offered in Greece. For information contact: Prof. Woltson, Dept. of Mathematics and Computer Science, West Chester Univ., West Chester, PA 19383, (215)436-1081.

Mathematician Wanted: Mount Saint Mary's College, an independent Catholic College, has an opening in academic year 1991-1992 for an entry level assistant professor of mathematics, tenure track. A Ph.D. in Mathematics is required by September of 1991 (preferably in hand). Candidates should possess a dedication to quality teaching at a small liberal arts college. Computer experience is desirable as is an interest in mathematical modeling and applications. Duties include teaching mathematics courses at all levels and involvement in departmental and college-wide activities and committees. Salary is competitive. Letter of application, vitae, and three letters of recommendation should be sent to Dr. John August, Search Committee, Department of Mathematics & Computer Science, Mount Saint Mary's College, Emmitsburg, MD 21727. Application review begins March 4, 1991 and continues until the position is filled. (Mount Saint Mary's College does not discriminate on the basis of sex, age, race or national origin. Women and minorities are actively encouraged to apply.)

MATHEMATICS: PLANNING FOR THE FUTURE

The following chronological listing of reports and establishment of organizations, issued by the Joint Policy Board for Mathematics, is intended to give you an overview to the developments occurring in our mathematical community.

1981 *The David Committee*

A National Research Council (NRC) establishes this committee to review health and support of research in the mathematical sciences in the United States.

1982 *The Browder Briefing Panel*

A Mathematical Panel is established, at the request of the White House, to brief the Science Advisor to the President on research opportunities in mathematics.

1983 *The Joint Policy Board for Mathematics (JPBM)*

The JPBM is created to implement the recommendations of the David Committee. The board emphasizes unity across the discipline of Mathematics.

1984 *"Renewing U.S. Mathematics: Critical Resource for the Future"*

The David report calls attention to two signs of trouble: shortage of mathematicians and lack of federal support of mathematics research. It calls for more than doubling the FY 1984 federal support level and lays out a ten-year implementation plan.

1984 *The Board on Mathematical Sciences (BMS)*

The NRC establishes the BMS to provide objective advice to federal agencies and to identify promising areas of mathematical research and suggested mechanisms for pursuing them.

1985 *The Mathematical Sciences Education Board (MSEB)*

The NRC establishes the MSEB to provide "a continuing national assessment capability for mathematics education" - kindergarten through college. This step is a response to a recommendation made by the David Committee.

WORKSHOP ANNOUNCEMENTS

Chaos and the Microcomputer 3-7 June 1991

C. Grebogi, Lab for Plasma Research, University of Maryland, has a Ph.D. in Physics from Maryland. He has taught courses in Chaos, as well as being an invited speaker at over a dozen national and international conferences. Grebogi is a master in the clarification and presentation of the ideas in this emerging field.

Cost: \$265.00 (deposit of \$125.00)

Location: Frostburg State University

Workshop Directors:

Dr. John H. Biggs (301) 689-5291

Math Dept., FSU, Frostburg, MD 21532

Discrete Modeling and the Microcomputer 10-14 June 1991

W. J. Meyer, Adelphi University and Grumman Data Systems, is co-author of the now classic "Graphs, Models and Finite Mathematics". He has taught several discrete modeling mini-courses to college faculty. Meyer spends the academic year teaching and his summers consulting in robotics.

Cost: \$265.00 (deposit of \$125.00)

Location: Frostburg State University

Workshop Directors:

Dr. John H. Biggs (301) 689-5291

Math Dept., FSU, Frostburg, MD 21532

Allegheny Mountain Section Summer Short Course 24-28 June 1991

Theory and Applications of Discrete Dynamical Systems

The course presenter will be James Sandefur, Professor of Mathematics at Georgetown University. The focus of the course is to show how the theory of discrete dynamical systems has traditionally been applied in the sciences and social sciences. Solution techniques for linear discrete dynamical systems are developed using linear algebra. The stability of non-linear equations is studied using calculus (linearization) and graphing. Chaos is discussed as one possibility when stability fails. The results are applied to areas such as genetics, economics, Markov chains, harvesting, and medicine. The TI-81 graphing calculator is used to enhance the material.

Cost: \$115.00 for tuition (and \$95.00 for room and board)

Location: Allegheny College

Summer Short Course Co-Directors:

Richard McDermot

Dept. of Mathematics

Allegheny College

Meadville, PA 16335

Dave Wells

Dept. of Mathematics

Penn State University

New Kensington, PA 15068

1986 *The JPBM Office of Governmental and Public Affairs (OGPA)*

The JPBM OGPA is opened and launches National Mathematics Awareness Week, to become an annual April event. Contact with media and resultant coverage of mathematics are increased.

1987 *The Committee on the Mathematical Sciences in the Year 2000 (MS2000)*

The NRC launches a comprehensive review of the college/university mathematics enterprise, analogous to the David Committee's review on the health and support of mathematics research nationally and the MSEB's first overview and analysis of mathematics education in the nation's schools.

1988 *"Everybody Counts: A Report to the Nation on the Future of Mathematics Education"*

The first BMS-MSEB-MS2000 'Report to the Nation' on the state of mathematics education at all levels. It emphasizes the potential of a modified mathematics education for contributing to the national welfare and outlines a national game plan for bringing about needed change.

1990 *"A Challenge of Numbers: People in the Mathematical Sciences"*

MS2000 prepares this descriptive report to outline the circumstances and issues related to the human resources in the mathematical sciences.

1990 *"Renewing U.S. Mathematics: A Plan for the 1990's"*

This report presents a five-year update of the 1984 David Report. It describes emerging research opportunities and new challenges for government, universities, and the mathematical sciences community to continue the program to renew U.S. mathematics.

1991 *"Moving Beyond Myths: Revitalizing Undergraduate Mathematics"*

The final report of the MS2000, to appear in early 1991, proposes a national plan for revitalizing mathematics education in U.S. colleges and universities.

Further information can be obtained from JPBM or the indicated agency.

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REGISTRATION FORM FOR SPRING MEETING

(Deadline: April 15, 1991)

Registration Fee \$5.00 _____

(students are free) Number of Students _____

Workshop Fee \$25.00 _____

Luncheon Details

(You must pre-register for lunch.)

Sandwich Board Buffet: Smoked ham, \$6.50 _____
roast beef, and turkey breast; Swiss, American,
and muenster cheeses; variety of breads and
rolls; potato salad, cole slaw, pasta salad; lettuce,
tomato, and condiments, fresh fruit bowl, cookies,
coffee, and tea. (How many ?) _____
(Sorry no special food requests.)

Total _____

Name(s) _____

Address _____

Make checks payable to MAA and send to :

Bob Tardiff
Salisbury State University
Department of Mathematical Sciences
Salisbury, MD 21801

(Deadline: April 15, 1991)