Fall Meeting at Johns Hopkins

On November 7-8, 2003, Johns Hopkins University will host the Fall 2003 MD-DC-VA Regional Meeting of the MAA.

On Friday afternoon from 4-6 PM, Joseph Gallian of the University of Minnesota Duluth will be offering a workshop entitled "Getting Undergraduates Involved in Research." Dr. Gallian will also be the banquet speaker on Friday evening. For Saturday, both Charles Johnson of the College of William and Mary and Donald Geman of Johns Hopkins University have accepted our invitation to speak at the conference. Regional Project NExT fellows will give 15-minute talks on their research interests. The talks are open to all. Graduate students are also invited and encouraged to present either research or expository work at this fall's meeting. Please take a look at the Call for Graduate Student Papers above.

Participants are encouraged to pre-register for the meeting. You MUST pre-register if you wish to attend either the dinner on Friday evening or the lunch on Saturday. While on-site registration is available, pre-registration simplifies the process. Your badge, receipt, and any meal or workshop tickets will be waiting for you at the registration desk when you arrive.

Lodging:

The Inn at the Colonnade (Doubletree). 4 West University Parkway, 410-235-5400. Directly across the street from the Johns Hopkins University campus. Mention that you are visiting Hopkins. Rate is $125 per room double occupancy.

The Carlyle (Quality Inn). 500 W. University Parkway 410-889-4500. Short walk to the University’s campus (less than 5 minutes). Special MAA meeting rate of $90 per room, double occupancy and $80 per room, single occupancy. Valet parking is included in the price of the rooms.

Radisson Hotel at Cross Keys 100 Village Square 410-532-6900. About 5 miles from campus (car needed). Hotel is situated in gated village of 72 acres. Rate is $129 per room double or single occupancy.

Radisson Plaza Lord Baltimore 20 W. Baltimore Street, 410-539-8400. In heart of downtown, about 2 blocks from the Inner Harbor and 4 miles from campus (car or cab to campus). Rates run from $189-$239 per room, double or single occupancy.
Title of Friday Afternoon Workshop: Getting Undergraduates Involved in Research

Abstract: Although involving undergraduates in research has been a long standing practice in the experimental sciences, it has only been recently that undergraduates have been involved in research in mathematics in significant numbers. In this talk I discuss in general terms such things as how to get started in involving undergraduates in research, the benefits of undergraduate research to faculty and students, how to find suitable research problems, and what is considered to be undergraduate research.

Title of Banquet Talk: Breaking Drivers' License Codes

Abstract: Many states use complicated algorithms or formulas to assign drivers' license numbers but keep the method confidential. Just for the fun of it, Professor Gallian attempted to figure out how the states code their license numbers. In this talk he will discuss how he was able to break the codes for several of the states. The talk illustrates an important problem-solving technique that is not emphasized in mathematics classes. It also teaches the lesson that sometimes things done just for the sake of curiosity can have applications.

Bio: Joseph Gallian currently serves as the Second Vice President of the Mathematical Association of America. He recently earned the 2002 Council on Undergraduate Research Follow award for his excellence in conducting research with undergraduates. Among other high recognitions, he was an MAA Polya Lecturer (1999-2001). Professor Gallian earned his M.A. at Kansas in 1968 and his Ph.D. at Notre Dame in 1971. He has worked at the University of Minnesota Duluth since 1972.


Charles R. Johnson

Professor, Department of Mathematics, College of William and Mary

Title: What I have Learned from Undergraduate Research

Abstract: We survey some striking results of Undergraduates doing research in the Summer at William and Mary. These include: a) characterization of LU factorizability; b) solution of symmetric word equations arising from physics; and c) determination of the possible multiplicities of matrices with a given graph, among others. Some thoughts about how undergraduate research works will be given.

Bio: Charles Johnson was born sometime in the middle of the last century, received his BA from Northwestern and PhD from Caltech (with Olga Taussky Todd) and was an NRC-NAS Postdoctoral Research Associate with Morris Newman at the National Bureau of Standards.

His publications are nearing 300, including the books Matrix Analysis and Topics in Matrix Analysis and Topics in Matrix Analysis (with Roger Horn) and more than 20 papers with undergraduate students. He has received the Washington Academy of Sciences Award for Outstanding Achievement in the Mathematical Sciences and won a State of Virginia Outstanding Faculty Award in 2001. He has been an editor of all the major journals in matrix analysis, and has been managing editor of two Siam journals.
Donald Geman, Professor, Department of Mathematical Sciences, Johns Hopkins University

Title: Perception in Artificial and Natural Systems

Abstract: Animals process sensory data, such as acoustical and visual signals, very rapidly and virtually flawlessly in order to localize and identify sounds and objects in the surrounding environment. What representations and methods of inference does the brain employ? Moreover, regardless of how these tasks are accomplished by living organisms, how might one construct artificial systems - computer programs and algorithms – in order to perform similar tasks? In this talk I will review a few of the mathematical frameworks proposed for solving “perceptual inverse problems” arising in the semantic interpretation of natural scenes.

Bio: Donald Geman received his Ph.D. in Mathematics from Northwestern University and was Distinguished Professor at the University of Massachusetts until 2001, when he joined the Department of Mathematical Sciences and Whitaker Biomedical Engineering Institute at Johns Hopkins University, where he is now Professor. He works at the intersection of applied mathematics and computer science, specializing in stochastic analysis, vision, learning and bioinformatics.

Governor’s Report

MathFest, the summer meeting of the MAA, has become a well-established, interesting, fun conference, held on the campus of a university and a nearby hotel or conference center. Over one thousand mathematicians and their families met at the end of July this year in Boulder, Colorado for four days of lively talks, minicourses and social events in this beautiful setting in the foothills of the Rocky Mountains. And many of those people were from our Section. Section members organized contributed paper sessions (Howard Penn, USNA; William Haver, VCU; John Hamman, Anne Arundel Community College; Kira Hamman, Hood College), gave talks (Majid Masso, George Mason; Laurie Johnson, Trinity College; Bill Wardlaw, USNA; Kira Hamman; John Hamman), and spoke at special sessions (Bill Hawkins, UDC; Marilyn Hala, NCTM).

We welcome two new national Project NExT fellows to our Section: Patches Johnson at Emory & Henry College, and Michael McLendon at Washington College. These two fellows, and 68 others (the “sky dots”), spent several days in workshops before and during the regular conference.

More than one hundred undergraduate students attended MathFest this year, including many from MD/DC/VA. And three of our members were honored at the Prizes and Awards session. See the separate articles in this Newsletter about them.

At the Board of Governors meeting on July 30th, we:
- approved the 2004 MAA budget;
- approved changes in the by-laws relative to investments and finance;
- approved meeting sites for future MathFests, as follows:
  2006 Knoxville, TN
  2007 San Jose, CA
  2008 Madison, WI
- approved various awards;
- elected a new Pólya Lecturer and Hedrick Lecturer;
- approved a change in the deadline for the Haimo Teaching Award;
- endorsed the recommendations of the CUPM for the undergraduate curriculum in the mathematical sciences.

At the MAA Business Meeting on August 2nd, there was lively discussion (really) on several changes in the by-laws. From now on, a person running for Governor of a Section must be an individual (not institutional) member of the MAA in good standing. A governor who is unable to attend a meeting of the Board may appoint a past governor as a substitute. MAA votes may take place by electronic voting; the ballot will still provide for write-in votes. And retired members may elect to receive MAA journals at a rate determined by the Board.

John Kenelly, MAA Treasurer, pointed out that the MAA budget is based on “four sixes:”
- a $6 million budget;
- a $6 million endowment;
- $6 million in external grants;
- buildings worth $6 million.

(Continued on page 7)
Treasurer’s Report
September 25, 2003

General Account Balance, February 18, 02 $9704.87

Receipts
Interest $17.89
Meeting Registrations, Spring 03 $2479.50
Meeting Registrations, Fall 03 $157.25
Vendor Fees $100.00
Contribution from Texas Instruments $2785.00
MAA subvention $2300.00

Total Receipts $7839.64

Expenses
Speaker Expenses $60.39
Meal functions, Spring 03 $2422.51
Newsletter, Spring 03 $1476.20
John Smith Distinguished Teaching Award $200.00
MCM awards $250.00
MathFest expenses for M. Guberovic $500.00
Officers' retreat in June $602.33
Photocopying $26.25
Badge holders $55.89
Bank service charge $4.50

Total Expenses $5598

General Account Balance, September 25, 02 $11495.

Chair’s Report

I am honored to have been chosen as the current Chair of the Maryland-District of Columbia-Virginia Section of the Mathematical Association of America. It is a privilege to represent this group of outstanding mathematicians to the national organization; to the colleges, universities, and schools within the section; and to the other institutions in the region which employ mathematicians or mathematics in their operation. I have been a member of the section since 1972, and I have always been impressed by the collective intellect, energy, dedication, and kindness of the members. The primary plank in my platform when I ran for chair was to maintain the positive momentum which the section already has. That plank is the main goal of my term of office. To that end, in June the section's executive committee held a retreat. The theme of the retreat was the state of the section. What is the section doing well? Much, we officers concluded. Is there something which it could improve upon? Yes, there is. We active members need to pay more attention to the students within the region-undergraduate, graduate, and high-school. We need also to give more thought to the role of the SIGMAAs. Finally, should something be done about the relatively low level of participation in the life of the section by the mathematicians within it? At the close of the retreat, the executive committee took a first step toward paying attention to the high-school students within the section. It began the process of producing a draft statement on the section's desires regarding the mathematical preparation of students enrolling at the colleges and universities within the section. The beginning consisted of drawing up a charge for a committee to produce such a draft, and asking Professor Denny Gulick of the University of Maryland to chair it. I am delighted to report that Denny agreed to do so. We shall introduce the committee and him, and talk about the committee's charge, at the fall meeting. I hope to see you there.

Lee May, Chair

Robb T. Koether, Treasurer
News of the Section

Professor George B. Mackiw of the Loyola College Mathematical Sciences Department, and Chair of that Department from 1987 to 1992, died of cancer in Baltimore on September 1, 2003. As an undergraduate at Georgetown University, George was a student of Professor Richard McCoart, who recently retired after more than 30 years at Loyola. Upon receiving his Master’s degree from Cornell University in 1969, George began his teaching career at Loyola, and later earned his Ph.D. from University of Virginia. As a member of long standing in the MD/DC/VA Section of the MAA, George was a well-known presenter at sectional and national meetings as well as an invited speaker at various student groups. During his last six years as professor he gave ten presentations, half at MAA meetings and half as an invited speaker at various colleges, mainly about “burst error correcting codes” and “finite linear groups”, and one (at Hood College) on “Things I Like (and Don’t Like) About Mathematics.” George had been honored as Loyola’s Distinguished Teacher of the Year in 1982, and received the MD/DC/VA Section’s Distinguished Teacher of the Year Award in 1996. Dr. Mackiw was the author of Applications of Abstract Algebra, published in 1985 by John Wiley and Sons. He also had contributed a variety of articles in the MAA Notes, Mathematics Magazine, The Mathematical Gazette, and the American Mathematical Monthly. George is sorely missed by his friends and colleagues who have set up the George Mackiw Memorial Fund in his honor at Loyola College. (Submitted by Helen Christensen)

Gordon Gregg (Montgomery College – Rockville Campus) reports that Mr. Fred Katiraie has joined the mathematics department at Montgomery College in Rockville, MD. Mr. Katiraie comes to the college from American University where he is completing a Ph.D. in Mathematics Education. Also, Professor Carroll Matthews has retired from the department after 36 years of service.

Eve Torrence (Randolph-Macon College) reports that the mathematics department at Randolph-Macon College was thrilled this Spring when two of its members, Daniel Joseph and Adrian Rice, were awarded Thomas Branch awards for excellence in teaching. The winners of this award are chosen by the students each year and only two awards are given to the entire college faculty. It is extremely unusual for both recipients to be from the same department. Randolph-Macon is pleased to announce the addition of Chirashree Bhattacharya to the department. Chirashree is completing her PhD at the University of Virginia. Recent graduates Sarah Bendall and Gregory Smith have both enrolled in the PhD program at the University of Virginia. Sarah attend MathFest in Boulder and gave a talk entitled "Centers of N-Fold Tensor Products of Graphs".

Kathleen Shannon (Salisbury University) reports that longtime active section member Homer Austin was recognized by the faculty at Salisbury University in the opening sessions for the fall semester with the "Distinguished Faculty Award". The "Distinguished Faculty Award" is given annually by the faculty on the basis of exemplary performance in the areas of Teaching, Professional Development, and Service. Homer began his career as a mathematician, earning both his Bachelors (from James Madison University) and his Ph.D. (from the University of Virginia) in our region, only briefly leaving the section to earn a Master's degree in Wyoming. He taught at James Madison University from 1967 to 1983 and has been teaching at Salisbury University ever since. Among Homer’s many contributions which led to this award is a half million dollar N.S.F. grant to support the development of a certificate program for middle school teachers on which he is lead PI and director. Homer has always been interested in the preparation of future teachers of mathematics at all levels, from elementary school through University and has made many contributions to mathematics education in our section.

George Piegari (Virginia Military Institute) reports that Dr. Albert L. Deal, III retired after teaching mathematics for 41 years at VMI. Also VMI Cadet Mihaela Guberovic, accompanied by her project advisor Professor Robert Bennell, attended the Mathfest'03 meeting in Boulder, Colorado. Cadet Guberovic gave a presentation of her undergraduate research work on "Continuous Approximation Methods for Noisy Data" during the MAA Session #8 on Friday, 1st August.
Kira Hamman (Hood College) reports that the Department of Computer Science, which was part of the Department of Mathematics for many years, has been made a separate department. This summer, four Hood students attended MathFest in Boulder, and two of them gave talks there. Toni Border talked about her research on the conflict between traditional and constructivist methodology in mathematics education, and Jenny Webb talked about Gerbert, a 10th century mathematician who was made Pope. And a team from Hood was selected to attend the AMS/MER Conference on Undergraduate Mathematics in Anchorage, Alaska in September.

Sister Helen Christensen and Mary Kay Abbey (Loyola College) reports that Professor Richard McCoart retired from the department after 40 years of teaching at Loyola, following his early teaching at Georgetown University, where he had taught George Mackiw and was instrumental in George's having becoming a member of Loyola's faculty. Also, Michael Knapp is currently Assistant Professor of Mathematical Sciences at Loyola College in Maryland after receiving his PhD from University of Michigan in 2000, and assuming a postdoctoral position at University of Rochester until 2003,. His area of research interest is Number Theory.

‘How Important is Constructivist Methodology in Math Education?’ In the Pi Mu Epsilon sessions, Jenny Webb of Hood spoke on “Gerbert: The Mathematician Who Sold His Soul to the Devil,” and Sarah Bendall of Randolph-Macon College described “Centers of n-fold Tensor Products of Graphs.” Brenda Russo of Salisbury University was awarded a special Pi Mu Epsilon prize and was recognized at the student banquet for her talk, “Algebraic Structures and the Long-Term Behavior of Discrete Dynamical Systems.” Brenda will be a senior at Salisbury this year and plans to graduate in December. Special congratulations to Brenda, and to all of our students. (Submitted by Betty Mayfield)

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Section Members Honored at MathFest 2003

The Maryland-DC-Virginia Section was well represented at the MAA Prizes and Awards Session on August 1st in Boulder. Three members of our Section were awarded prizes for their outstanding expository writing in MAA journals.

Bud Brown from Virginia Tech won a Carl B. Allendoerfer Award for his article in the April 2002 issue of Mathematics Magazine, “The Many Names of (7,3,1).” His article, described in the awards booklet as “an intellectual picnic,” tells the story of an object that is “all at once a difference set, a block design, a Steiner triple system, a finite projective plane, a complete set of orthogonal Latin squares, a double regular round-robin tournament, a skew-Hadamard matrix, and a graph consisting of seven mutually adjacent hexagons drawn on the torus.” Bud is a previous teaching award winner from our Section and has twice won a Pólya award for his writing.

Mathfest News

Students Shine at MathFest

The summer meeting of the Association places a special emphasis on undergraduate student participation; this year’s gathering in Boulder was no exception. The meeting opened with a special reception for students, sponsored by MAA and Pi Mu Epsilon, in the lovely outdoor pavilion of the Millennium Hotel. Over the course of the week, there were lectures for students (the MAA Student Lecture by Art Benjamin and the J. Sutherland Frame Lecture by Robert Devaney), a workshop led by Clayton Dodge, a problem solving competition, and a banquet. Students from our Section participated in all of these events; we have much of which to be proud. Both the MAA and Pi Mu Epsilon sponsored contributed paper sessions for undergraduates. In the MAA sessions, Mihaela Guberovic of VMI, the winner of our spring student poster session, gave a talk on “Continuous Approximation Methods for Noisy Data,” and Toni Border of Hood College asked the question, "How Important is Constructivist Methodology in Math Education?" In the Pi Mu Epsilon sessions, Jenny Webb of Hood spoke on “Gerbert: The Mathematician Who Sold His Soul to the Devil,” and Sarah Bendall of Randolph-Macon College described “Centers of n-fold Tensor Products of Graphs.” Brenda Russo of Salisbury University was awarded a special Pi Mu Epsilon prize and was recognized at the student banquet for her talk, “Algebraic Structures and the Long-Term Behavior of Discrete Dynamical Systems.” Brenda will be a senior at Salisbury this year and plans to graduate in December. Special congratulations to Brenda, and to all of our students. (Submitted by Betty Mayfield)

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MAA President Ron Graham congratulates Bud Brown.
There was another Allendoerfer Award given out this year, and it went to Dan Kalman of American University. Dan’s award-winning article was “Doubly Recursive Multivariate Automatic Differentiation,” which appeared in the June 2002 Mathematics Magazine. Kalman explains, “Automatic differentiation is a way to find the derivative of an expression without finding an expression for the derivative.” His article was described as “an outstanding paradigm for masterful expository writing.” Dan also won an Allendoerfer award in 1998.

Dan Kalman receives the Polya Award from Ron Graham

Oh, and speaking of Dan Kalman, he was also the recipient of a George Pólya Award for his article in the November 2002 College Mathematics Journal, “An Undetermined Linear System for GPS.” In this paper, he describes a real-world problem and shows how to introduce it in an undergraduate course. This is Dan’s second Pólya Award.

The Trevor Evans Awards are given to authors of outstanding articles in Math Horizons. Our own Laura Taalman of James Madison University won this award for her article with Eugenie Hunsicker, “Simplicity Is Not Simple.” This “delightful” article, from the September 2002 issue, describes some relationships between tessellating the plane, space-filling solids, and modular architecture. Laura is a Project NExT fellow and has recently completed a calculus textbook.

So if you have a backlog of journals in your office, or need something good to read this weekend, here are four great articles to begin with! Congratulations to all of our talented authors (Submitted by Betty Mayfield)

Governor’s Report continued……

We are looking forward to the new Washington conference center, which will be established in the renovated carriage house behind MAA headquarters with funds donated by Paul and Virginia Halmos. Our other buildings are being rewired and restored. Grant activity in the past few years has been lively: our members are now benefiting from the PMET, PREP, and SAUM grants. There is a new award for young faculty in the MAA, the Alder Award; the deadline is December 15th. The MAA Study Tour to Greece was a great success; next year’s will be to England – London, Oxford, and Cambridge. As always, you may find out about these and other MAA programs at MAA Online: www.maa.org.

When you come to the fall meeting at Johns Hopkins, bring your checkbook for the MAA book display; there are lots of great new MAA books. The electronic textbook Mathematics for Business Decisions is doing well.

I hope to see many of you in November at JHU, and in January in Phoenix.

Betty Mayfield, Governor
Project NExT

During the 2003-2004 academic year, the MD/DC/VA Section of the MAA will continue Section NExT, a program extending the national Project NExT program. Project NExT (New Experiences in Teaching) is an MAA professional development program that provides support to those beginning an academic career in the mathematical sciences. Further information can be found at http://www.math.vt.edu/org/maa/section_next/

From MAA Online

The MAA plans to award grants for projects designed to encourage college and university women or high school and middle school girls to study mathematics. The Tensor Foundation, working through the MAA, is soliciting college, university and secondary mathematics faculty (in conjunction with college or university faculty) and their departments and institutions to submit proposals. For more information check http://ama.org/projects/solic_99.html

Proposals are now being solicited by the American Institute of Mathematics (AIM) Research Conference Center (ARCC), for small, focused workshops to be held between summer 2004 and summer 2005. These workshops are sponsored by AIM and the National Science Foundation, which jointly fund ARCC. It is anticipated that there will be eighteen focused workshops in 2004-2005, at AIM in Palo Alto, California. Each workshop will last approximately one week and involve up to 32 participants, allowing for close collaboration between scholars. All participants receive full funding to attend. For more information check http://ama.org/news/aimproposalcall.html

Mathematical Association of America
Maryland-District of Columbia-Virginia Section

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