

## Rocky Mountain Section of the Mathematical Association of America

Check our Web page <<http://www-math.cudenver.edu/~maa-rm>>

Chair: **Shahar Boneh** <[bonehs@mscd.edu](mailto:bonehs@mscd.edu)>

Chair-Elect: **John W. Brown** <[jbrown@western.edu](mailto:jbrown@western.edu)>

Vice-Chair: **Al Skillman** <[skillman@acad.cc.whecn.edu](mailto:skillman@acad.cc.whecn.edu)>

Past Chair: **Karen Whitehead** <[kwhitehe@msmailgw.dsdmt.edu](mailto:kwhitehe@msmailgw.dsdmt.edu)>

Sec'y/Treas: **Bill Ramaley** <[ramaley\\_w@fortlewis.edu](mailto:ramaley_w@fortlewis.edu)>

Governor: **Janet Barnett** <[jbarnett@uscolo.edu](mailto:jbarnett@uscolo.edu)>

Colorado Mathematics Education Resource List (CMERL), **Jim Loats**

<[loatsj@mscd.edu](mailto:loatsj@mscd.edu)>

Web Page Editor, **Bill Briggs** <[wbriggs@tiger.cudenver.edu](mailto:wbriggs@tiger.cudenver.edu)>

### The Spring Meeting of the Rocky Mountain Section of the MAA

#### JOINT CONFERENCE PLANNED

Mark your calendars now for the annual meeting of the Rocky Mountain Section of the Mathematical Association of America to be held at Adams State College in Alamosa, on April 30 - May 1, 1999. The meeting, which will be held jointly with the Four Corners Council of Teachers of Mathematics, and will feature a Spring CCTM Mini-Conference, will bring mathematics educators from all levels (K-16), to the San Luis Valley.

MAA sessions will begin Friday afternoon with an invited address by the Rocky Mountain Section 1998 Distinguished Teaching Award Recipient, Professor Monte Zerger of Adams State College. A Friday evening reception and banquet will feature a talk by Professor Underwood Dudley, the current editor of the MAA publication, *College Mathematics Journal*. Professor Dudley, who is widely known as the author of immensely popular expository works including "Mathematical Cranks", "The Trisectors" and "Numerology", will also deliver a keynote address on Saturday morning. Workshops, panel discussions and contributed sessions on current topics in mathematics and mathematics education by speakers from the three sponsoring organizations will round out the conference program.

Watch for more information about the conference early in 1999; details will also be posted on the web at <http://www-math.cudenver.edu/~maa-rm> as they become available. You may also contact program chairs at the Department of Mathematics, Adams State College, Alamosa CO 81102.

Ed Adams (MAA)  
(719) 587-7487  
[eladams@adams.edu](mailto:eladams@adams.edu)

Nancy Budner (CCTM/4CCTM)  
(719) 587-7821  
[njbudner@adams.edu](mailto:njbudner@adams.edu)

#### FIRST CALL FOR PAPERS

The deadline for submission of abstracts for MAA members is *March 30, 1999*; proposals received from members after this date will be scheduled on a first-come, first-scheduled, space-available basis. Please indicate whether you are member of the MAA, along with any preference for a time slot (Friday afternoon or Saturday morning). The normal length for talks will be 20 minutes. Every reasonable effort will be made to accommodate individual preferences.

Abstracts (limited to 100 words or less) for the general contributed paper sessions should be submitted via e-mail to [eladams@adams.edu](mailto:eladams@adams.edu), or mailed to:

MAA PROGRAM COMMITTEE  
*Mathematics & Computer Science*  
*Adams State College*  
*Alamosa, CO 81102*

Suggestions for special topic sessions, workshops and panel discussions are also being sought at this time. If you have are interested in organizing one of these sessions, or wish to suggest a topic that would be of interest to the participants, please contact Ed Adams at [eladams@adams.edu](mailto:eladams@adams.edu), or by phone at 719-587-7487.

*Original*

**Governors newsletter** (*Janet Barnett, Univ. of Southern Colorado*)

As my term as Section Governor draws to a close, I would like to thank the section membership for allowing me to represent you on the Board of Governors for these three years. One of the many things I have learned during this time is how much quality work is accomplished through the volunteer initiatives of MAA members. In particular, we have many extraordinary individuals within our section with whom it has been my pleasure to work. The MAA is a truly remarkable organization, and my experience on the Board of Governors has been very rewarding for me personally. I hope that I have discharged my duties to you and the section satisfactorily, and I encourage you all to consider reaping the rewards of MAA service as a section officer, an organizer of a section or national contributed paper session, or a member of a national committee.

In this final report, I would like to highlight some business from recent Board of Governor meetings, as well as some of the activities which have taken place within our own section. Heading up the BOG news is the Board's reaffirmation of its commitment to planning a Mathfest for the year 2000. Various schemes are being considered that take into account meetings of the AMS and International Congress of Mathematics Education planned for that summer, watch for news on Mathfest 2000 location and dates on MAA Online (<http://www.maa.org>).

In the mean time, plans are well underway for Mathfest 1999, to be held in Providence, 31 July - 2 August, as well as the San Antonio Joint Meetings, 13 - 16 January. Those of you attending the San Antonio meeting may wish to attend the MAA Business Meeting (Saturday morning) at which the membership will be asked to vote on a Bylaw Change; the complete proposal, which was approved by the Board of Governors in Toronto, is available on MAA Online ([http://www.maa.org/features/bylaws\\_change.html](http://www.maa.org/features/bylaws_change.html)) until the end of the January meetings.

Another recent Board action will be of particular interest to the many members of our section dedicated to quality undergraduate mathematics education; namely, approval of a five year trial period for the Association for Research in Undergraduate Mathematics Education (ARUME). Membership in ARUME will be open to all MAA members and its newsletter will be hosted on the MAA website and linked to MAA Online. At national meetings of the MAA, there will be a short ARUME business meeting and expository talk, a contributed paper session devoted to ARUME, and opportunity for informal discussion at a reception. The San Antonio program will also include an ARUME sponsored poster session on Saturday morning.

Also on the agenda for the San Antonio meeting is a Departmental Liaison breakfast; liaisons can find details in the November Liaison Newsletter. The Liaison Network within our section is proving very valuable for communication between the Section Executive Committee and the institutions in our section. Thanks to all of you who serve in this capacity at your schools.

In other section news, I am pleased to announce that the Committee on Professional Linkages approved at the 1998 Spring meeting is up and running. Shahar Boneh (MSCD) currently serves as Chair of the Committee, representing 4-year colleges, with Al Skillman (Casper Community College) serving as the representative of 2-year colleges to the Committee. The NCTM Delegates of the four NCTM affiliates within our region have been invited to serve on the Committee as K-12 representatives. As of press time, Annette Cooper (Fort Lewis College) has agreed to represent the Four Corners Council of Teachers of Mathematics, and Eileen Rogers (Colorado Springs School District 11) has agreed to continue as Colorado Council of Teachers of Mathematics representative through the end of her term as NCTM Representative to the CCTM Board this June. If you have suggestions concerning collaborative projects for the Committee to pursue, please contact Shahar ([bonehs@mscd.edu](mailto:bonehs@mscd.edu)).

Our contacts with the NCTM affiliates in Colorado have already born fruit in many ways, including the forthcoming MAA-CCTM-4CCTM meeting to be held at Adams State College in Spring 1999. Nancy Budner of Adams State has agreed to serve as Program Chair for the CCTM/4CCTM aspects of the meeting, while Ed Adams of Adams State will serve as MAA Program Chair. Thanks to both Ed and Nancy for their work (completed and to come) in making this joint venture a reality. I look forward to seeing you all there!

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At the 1999 meeting the Section needs to nominate the following:  
Section Vice-Chair, this person must be from a 2-yr college  
Secretary/Treasurer

If you have any suggestions, please send them to one of the following, or to any officer of the Section

#### Section Nominating Committee

*William Hoard* - Front Range Community College  
*Tensia Soto-Johnson* - University of Southern Colorado  
*George Donovan* - Metropolitan State College of Denver

#### News from the Section campuses

##### Red Rocks Community College.

*Colleen Jorgensen* has been selected Red Rocks Community College's 1998-1998 Faculty of the Year. Colleen was chosen in recognition of a tremendous variety of contributions to the College, the System, her Department, and her peers and students. Some of her activities have included: excellence in the classroom, serving as Department Chair, teaching in a variety of formats, community service, monitoring full and part-time faculty, participating on committees, introducing and teaching innovative workplace literacy and construction math classes, implementing innovation, utilizing a variety of formats including on-line classes, interactive televised classes, and the Weekend College.

The University of Northern Colorado -*Richard Grassl*, Chair, Dept of Mathematical Sciences  
( from *Diana L. Moore* 970-351-2827 Office number 970-351-1269 FAX number  
[dlmoore@bentley.unco.edu](mailto:dlmoore@bentley.unco.edu) )

We hired two new Mathematics Educators *Helen Gerretson* from University of Florida *Jennifer Luebeck* from Montana State University.

Our Educational Mathematics PhD Program was honored by being accepted into the WICHE (Western Interstate Commission for Higher Education) program. Programs are admitted based on uniqueness and quality.

*Prof Guershon Harel*, an internationally known researcher in Mathematics Education at Purdue, visited us for four days. He will also teach a 2-3 weeks course on Proofs for us summer 1999.

Our Department of Mathematical Sciences will be host to the 2nd Annual Calculus Conference in Feb 1999.

*Richard Grassl* and *Tabitha Mingus* ( a 1996 PhD graduate) received a \$1000 ICTCM (International Conference on Technology in Collegiate Mathematics) AWARD for their project "Retooling Discrete Mathematics".

##### University of Wyoming.

*Duane Porter*, professor in the University of Wyoming the Department of Mathematics, is the Council for the Advancement and Support of Education (CASE) Professor of the Year in Wyoming. "This recognition is deeply deserved and appropriately recognizes Duane's contributions to the University and to the entire state," says Kenyon N. Griffin, interim UW provost and vice president for academic affairs. "Duane's most profound impact is evident among the many Wyoming high school graduates who studied with the K-12 teachers trained by him." Porter was among more than 550 faculty members in the United States nominated for the annual CASE competition. He is the seventh UW professor to be honored by CASE. "Duane has served the University of Wyoming for more than 34 years and has excelled in all areas -- teaching, research and service," says Oliver Walter, College of Arts and Sciences dean. "The University and the State of Wyoming owe him a great deal."

Last spring semester, *Porter* received UW's George Duke Humphrey Distinguished Faculty Award, which recognizes teaching effectiveness, distinction in scholarly work and distinguished service to the University and the state.

The new Head of the Department is *Benito Chen*, who took over from Myron Allen in August. *Terry Jenkins* retired on May 9, 1998.

**Adams State College** ( from *Ed Adams*, Math, CSci & Physics Dept,

1. The department has a Minority Faculty Fellow for the year. *Mike Trujillo* is teaching mathematics this year at ASC. Mike has recently finished his MA in mathematics at CSU.
2. This year the department was able to add a new computer scientist to its staff. Dr. *Steve Roach* comes to us from the NASA Ames Research Center at Moffett Field, CA.
3. The department and School of Science, Mathematics & Technology)are now located in a new building. The heat still does not yet work right, but the new computer labs are great.

**University of Colorado at Colorado Springs**

*Laurel Rogers* is retiring. She began at UCCS in 1965, spent some years as a part-time instructor and some time working for the Air Force. Then she returned to NMSU to finish her PhD in 1975 and joined UCCS in a permanent position. Following retirement she intends to continue her many volunteer activities as well as studying mathematics. This year she and Sandra Hilt are studying category theory. Next year she wants to do number theory.

*Joseph Liu* received the award as 1997/98 *Outstanding Honorarium Instructor in Mathematics*. He works full time for the Air Force, but for 15 years has taught courses at UCCS—primarily *Perturbation Theory in Astrodynamics*.

*K.M. Rangaswamy* was named recipient of the 1998 campuswide Chancellor's Award. His many contributions include 12 years as Math Department Chair. He donated his \$500 award to the Scholarship Fund.

*Rinaldo Schinazi* has authored *Classical and Spatial Stochastic Processes*, published by Birkhauser.

The Mathematics Department has been very involved with K-12 teachers in the region. *Gene Abrams* is still instrumental in this work. For more information look at their webpage <http://mathweb.uccs.edu>

The new department chair is *Jeremy Haefner*

**Fort Lewis College**

*Cliff Capp, Dick Gibbs, and Harry Rosenberg* have retired. Both *Capp* and *Gibbs* are on transitional contracts and will continue to teach half-time for the next two years. *Rosenberg* had a transitional contract last year and intended to retire to his new ranch a few miles north of Cortez. However, he is currently teaching at Dove Creek High School. *Gary Grefsrud* intends to retire next year. But retirement from FLC seems to be only temporary. At least that is the case for *Don Bushnell*, who retired in 1987 but continues teaching here. In fall term he taught both a section of College Algebra and Calculus III.

*Pamela Smith* has joined the faculty, specializing in mathematics education. She has been teaching in West Virginia and is working on her EdD from Temple. *Bill Ramaley* has become department chair.

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**MOTION ON GUIDELINES FOR PRESENTATIONS AT SECTION MEETINGS**

In recent years, technological advances such as the web have made it easier for us to spread the word about our annual section meetings. This broader outreach has resulted in increased participation by both MAA and non-MAA members at our section meetings. While the non-member participation has been largely welcome, it has occasionally resulted in what may be referred to as "non-standard" talks being included in the meeting program. In conjunction with the growth we have seen in meeting participation in recent years, this leads to concerns of unwelcome overcrowding of the program and minimal attendance at some sessions.

In response to these concerns, the Executive Committee of the Rocky Mountain Section recommends the following guidelines be adopted for future Section Meetings (beginning Spring 2000):

Talks submitted by any MAA member will be scheduled provided their titles and abstracts are received by the program deadline. The deadline is established by the host institution, but is usually 4 to 6 weeks prior to the meeting. If a proposal is received after the deadline, MAA members will be accommodated on a space-available basis. Presenters who are not members of the MAA must be sponsored by a member of the MAA and submit their proposals by the deadline. If a meeting is to be held jointly with another professional organization such as CCTM or COLOMATYC, the above guidelines apply only to sessions identified on the program as MAA sessions.

A preliminary version of these guidelines were presented for discussion at the 1998 Section Meeting, and met with general approval. The preliminary proposal has since been amended to address the needs of joint sponsoring associations. Official adoption of the guidelines will be proposed to the section membership at the 1999 Annual Meeting in Alamosa. Advance input on these guidelines is welcome, and may be sent to any section officer.

### **SECTION ACTIVITIES GRANTS AVAILABLE**

Applications for Section Activities Grants are currently being accepted to assist Section members fund projects in support of the Section Mission. Proposals may request up to \$500 per project; matching funds from host institutions are preferred, but not required. Projects must be clearly tied to one or more of the Rocky Mountain Section Mission Goals; a copy of these goals can be found on page () of this newsletter and on the section web page.

Applications should be received by the Section Secretary, Bill Ramaley, no later than January 31. Application materials must include the following materials:

- a) Description of project (no more than one page).
- b) Statement of how project supports Mission Goals (no more than one page).
- c) Estimated budget and description of additional funds available, if any.
- d) Vitae of project director(s); project director(s) must be MAA member(s).

Monies for funded projects will be available to project director(s) no later than March 1. The director(s) of funded projects are required to file a report upon project completion, and to present a project report at a Section meeting. Section members are especially encouraged to apply for funds to support discussion meetings of the NCTM standards 2000 Draft. See the following story for more information on the Standards 2000 Draft Document.

### **INPUT SOUGHT ON NCTM STANDARDS 2000 DRAFT**

After nearly two years of development, the Draft Version of NCTM's updated standards, "Principles and Standards for School Mathematics", was released in October 1998. The draft was written by a committee of 32 professors, curriculum directors, and teachers. Panels from professional groups, including the Mathematical Association of America, advised the writing committees by critiquing the 1989 standards and responding to questions posed by the standards writers. The official responses of the MAA Standards Taskforce to the NCTM are available on MAA Online at [http://www.maa.org/past/maa\\_nctm.html](http://www.maa.org/past/maa_nctm.html).

Development of the updated standards document has now moved into a phase of public commentary which will continue until May 1999. Feedback obtained during this phase will be used by the writing committees as they prepare the final document to be released in April 2000. The Draft Document can be downloaded free of charge from the web; hard copy is also available for \$7.50 (free to members) from the NCTM. Throughout the 342-page document, the writing committee poses specific questions to readers to gauge reaction and inform the final version. The NCTM Standards 2000 website also includes materials to support the organization of discussion groups, and NCTM will supply an unbound copy of the draft upon request to facilitate copying. More information on the Standards Draft may be obtained from the NCTM through their website [[www.nctm.org/standards2000](http://www.nctm.org/standards2000)], by e-mail [[standards2000-draft@nctm.org](mailto:standards2000-draft@nctm.org)], or by phone [888-220-7952].

MAA members are encouraged to review and submit individual input to the writing committees on this important document. The release of the draft document is also a wonderful opportunity for section members to promote dialogue between the various groups involved in mathematics education within our section --- K-12 teachers of mathematics, college and university mathematics and education faculty, prospective teachers, administrators and parents --- on important mathematical and educational issues. Institutions or individuals interested in organizing such a Standards 2000 Draft seminar or discussion meeting locally are encouraged to apply for a Section Activity Grant to support their efforts.

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**Minutes of the 1998 spring MAA Rocky Mountain Section Business Meeting, April 18, 1998**

The meeting was called to order by the Chair, **Karen Whitehead**, at 8am. The minutes of the meeting for the preceding year was approved, as was the financial report. In summary, we had \$5922.17 on April 12, 1997 and had \$6719.54 on April 12, 1998. Of this amount, \$2295.61 is encumbered in some form. A full financial report was given at the meeting, for a copy contact **Bill Ramaley**.

A question arose about the support of the annual Section meeting. At present, only those attending and registering give financial support to the meeting and its associated mailings, etc. The Executive Committee suggested that we involve non-attendees by asking them, on a voluntary basis, to contribute to the support of the Section meeting. The form below can be used for that purpose. This is an experimental effort and will be evaluated at the 1999 meeting.

**John Brown** of Western State College was elected Chair-Elect. He will serve one year in that position, then two years as Chair, followed by one year as Past-Chair.

The top scorer (in the Rocky Mountain Section) on the Putnam Exam was **Fritz Obermeyer**, of Wellington, Colorado. He is given a membership in the MAA

Motions approved at the meeting are given below:

- 1) Renaming the Distinguished Teaching Award in memory of **Burton W. Jones**
- 2) Establishing a Committee on Professional Linkages

**Motion to Rename the Distinguished Teaching Award (passed April 18, 1998)**

**Burton W. Jones** was a lifelong advocate of excellence in teaching at all levels and a strong supporter of the MAA, its members and programs. In honor of his memory a motion passed at the 1998 Spring meeting of our section to name the Distinguished Teaching Award for him. Hence, it will be the **Burton W. Jones Distinguished Teaching Award**. The recipient will receive \$50.

To endow a fund to support this award, members of the Association, as well as others who wish to remember **Burton Jones** or to recognize teaching, are encouraged to donate to the "Jones Teaching Award Fund" (c/o Rocky Mountain MAA). Ten members have already responded. The form below can be used for that purpose.

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(Especially for non-attendees) I wish to contribute to the general support of the section meeting \$ \_\_\_\_\_  
 I wish to contribute to the Jones Teaching Award Fund \$ \_\_\_\_\_

please send to **Bill Ramaley, Rocky Mountain MAA, Math Dept, Ft. Lewis College, Durango, CO 81301.**

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**Motion to Establish a Committee on Profession Linkages (passed April 18, 1998).**

A Committee on Professional Linkages consisting of not more than six members will be formed to address issues of collaboration and coordination with other professional organizations in our region. Membership will include:

- MAA Rocky Mountain Section Chair, or his or her designee (as a representative of 4-year colleges)
- MAA Rocky Mountain Section Vice-Chair or his or her designee (as a representative of 2-year colleges)
- The NCTM Delegate of each of the NCTM affiliates in our region (as representatives of K-12 education)

Members of the Committee on Professional Linkages will be included in and informed of any business transacted by the Executive Committee, including the Annual Meeting of the Executive Committee.

The Committee on Professional Linkages will be responsible for the proposal and review of recommendations concerning collaborative efforts, joint meetings, or other activities which address professional linkages in keeping with the Section Mission Statement.

{1998-99 members include **Al Skillman**, **John Brown**, and from the CCTM, **Eileen Rogers** (Colorado Springs School District 11) < [Eileen\\_J.\\_Rogers@cssd11.usa.net](mailto:Eileen_J._Rogers@cssd11.usa.net) >

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At the spring 1998 meeting, members discussed the policy concerning the presentation of papers at Section meetings. The following was presented for initial discussion and possible action at the 1999 meeting at Adams State.-

**Motion on Guidelines for Presentations at Rocky Mountain Section Meetings**

MAA members will be scheduled if their titles are received by the program deadline. The deadline is established by the host institution, but is usually 4 to 6 weeks prior to the meeting. If a title is received late, MAA members will be accommodated on a space-available basis. Presenters who are not members of the MAA must be sponsored by a member of the MAA. If a meeting is a joint meeting with another organization, such as the CCTM, the above guidelines only apply to sessions identified as being MAA.

**Announcements**

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The International Mathematics Olympiad (IMO) is scheduled to be held in the United States in the year 2001. More information will be forthcoming.

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The *Focus* of the MAA has been downsized. That is because the MAA is now on line. Please check it out at < <http://www.maa.org> >

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**Project NExT Funding**

The MAA has funds from Exxon Education Foundation for Sections to initiate Project NExT-like programs. This is a program for excellence in teaching. If someone wishes to request funding for a program, contact Janet Barnett or Bill Ramaley for more details. While each Section might have a somewhat different program, the national MAA hopes that any Section would have the following aspects:

(a) The activity would become a regular, long-term program of the Section. For example, there would be sessions or other activities at each Section meeting that would attract faculty in the early stages of their careers.

(b) There would be an electronic network established to link the beginning faculty and provide support and resource information.

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Colorado Mathematics Education Resource List (CMERL). Jim Loats asked for volunteers. Please contact him if you can give talks.

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If you are interesting in serving on one of the national committees of the MAA (for a list of these go to the MAA webpage), or know of someone who you think would be a good member, please contact any member of the Executive Committee of our Section. Members are suggested to the national office, but of course a willingness to serve is not an automatic guarantee that the member will be appointed.

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The business meeting ended with a vote of thanks to Arapahoe Community College for hosting the meeting.

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The 1998 Section meeting was jointly sponsored by the Rocky Mountain Section of the MAA and the Colorado Mathematical Association of Two-Year College.

The program of the meeting consisted of the following:

**Panels:** *Changes to the Math Core.* Organizer: Patricia Hauss (ACC). Panelists: Jim Johnston (ACC), LuAnnMalik (CCA), Rick Reeves, (RRCC)

*NCTM Standards.* Organizer: Janet Barnett (USC). Panelists: Bill Juraschek (CU-Denver), Lora Lindgren (Heaton Middle School, Pueblo), Jim Loats (MSCD), Lisa Mesple (Heatherwood Elementary, Boulder)

*Entry Level Competencies.* Organizer: Ben Manvel (CSU). Panelists: Patricia Hauss (ACC), Ken

Klopfenstein(CSU), Mattye Pollard (Colo. Dept. of Ed.)

The Friday evening banquet talk was "Math Mag Morsels" by Paul Zorn, the editor of *Mathematics Magazine*. He also gave an invited address: "The Bieberbach Conjecture: A Broad Historical View and a Close Look with Technology."

Other papers at the meeting were:

**Edwin Allison**, U. of Northern Colo.

*Differential Equations using VisualDSolve and a Dynamical Systems Approach*

**Jeffrey O. Bennett** U. of Colo. (Boulder) and **William L. Briggs** U. of Colo. (Denver)

*What About the Other Half? A Case for Quantitative Reasoning*

**Steve Billups** U. of Colo. (Denver)

*Enhancing the Optical Density Range of Digital Cameras: A Mathematical Approach*

**Shahar Boneh** Metropolitan State College of Denver

*Least Squares Solutions to Problems of Property Splitting*

**Henc Bouwmeester** Mesa State College

*How bad a set can be measured?*

**Dave Brown** Metropolitan State College of Denver

*Quaternions in Action*

**Jennifer Bush** U. of Northern Colo.

*Preliminary findings regarding what comprises student understanding of the quotient group concept in abstract algebra.*

**Howard Canode and Eric Knight**, Metropolitan State College of Denver

*Rudin Plot Investigation*

- Howard Christensen** Community College of Denver  
*The Algebra Review Workshop at CCD*
- Jason Derose** Mesa State College  
*Topics of Fair Division*
- George Donovan** Metropolitan State College of Denver  
*Atlantic Menhaden: Migration and Population Estimates*
- Donald Fairbairn**  
*Transformations on the Greatest Integer Function*
- Julie Ferrera** U. of Southern Colo.  
*The Galois Troupe Presents: Resolutions of a Young Radical (a dramatization)*
- Dave Fisher** U. of Colo. (Denver)  
*The Expected Time for a Widely Used Min-Plus Algebra Algorithm is Infinite*
- George W. Heine** Math & Maps  
*Finding God by Calculation: Attitudes Towards Mathematics in Medieval Islam*
- Jack Hodges** U. of Colo. (Boulder)  
*At Least 5 Obvious Things I Learned in 44 Years of Teaching Mathematics with some Examples from Teaching the History of Mathematics*
- Robert H. Jacobson**  
*Influence of Astronautics on Plane Geometry*
- Roger W. Johnson** S. Dakota School of Mines and Technology  
*Hands-on Learning Activities and Data Collection Project in Probability and Statistics*
- Thomas Kelley** Metropolitan State College of Denver  
*Molasses, MacLaurin and Oil: A Series of Surprising Connections*
- Judith Keyes** U. of Southern Colo.  
*The Beginning of Rigor in The Calculus*
- Bradford J. Kline** U.S. Air Force Academy  
*Some Simple Technology for Complex Variables-A Preliminary Look*
- W. W. Kokko** Arapahoe Community College  
*On Corley's Problem*
- Allen Lawrence** Metropolitan State College of Denver  
*The Belousov-Zhabotinsky Reaction*
- Steven C. Leth** U. of Northern Colo.  
*What I Learned about the Prime Number Theorem from My Students*
- Lu Ann Malik** Comm. College of Aurora, Pete Wildman Casper College  
*NASA-AMATYC PC*
- Meagan McNulty** Metropolitan State College of Denver  
*The Heart and Chaos*
- Burnett Meyer** U. of Colo. (Boulder)  
*The Work of T. J. Stieltjes on Continued Fractions*
- Jodie Novak** Univ. of Northern Colo.  
*Is SAS True on a Sphere? A Question Based Approach to Teaching Geometry.*
- Zim Olson**  
*Mathematics and the Human Condition*
- David J. Querton**  
*A (1-1) Correspondence Between the Natural Numbers and the Real Numbers*
- William Ramaley** Fort Lewis College  
*History of Mathematical Induction*
- Robert Ream** U. of Colo. (Boulder)  
*Fractional Functions and Operations*
- Robert Ream** U. of Colo. (Boulder)  
*Distribution of Additive Functions (mod 1)*
- David Reckseen** Metropolitan State College of Denver  
*Chaos and the Stock Market*
- Michael J. Seery** U.S.A.F.A. Preparatory School  
*Pursuit and Regular N-gons*
- Daluss Siewert** U. of Colo. (Denver)  
*Multi-Image Mosaic Problem*



**Becker Smith** U. of Colo. (Boulder)

*Teaching Mathematical Foundations in Lower-division and Survey Courses*

**Wendy Hageman Smith** U. of Colo. (Boulder)

*An Internet Application in a Constructivist Mathematics Classroom*

**Anne Spalding** U. of Colo. (Denver)

*A Dynamic Programming Application in Min-Plus Algebra for Finding the Domination Number for  $GXP_n$*

**John Starrett** U. of Colo. (Denver)

*Removing Hotspots from Aerial Photographs*

**Linda Sundbye** Metropolitan State College of Denver

*Chaos and Fractals on the TI Graphing Calculator*

**Igor Szcyrba** U. of Northern Colo.

*Quantum Mechanics and Thinking Processes*

**Paul Thalos** U. of Colo. (Denver)

*Bishop Domination on and  $M$  by  $N$  Chessboard*

**William F. Trench** Trinity University

*Some Dirichlet-like Tests for Convergence of Series*

**Tessa Weinstein** Metropolitan State College of Denver

*Chaos in the Heavens: A Presentation About Chaos in Our Solar System*

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Another long-time supporter of undergraduate education----

**Ross R. Middlemiss**, of Canon City, has been a member of the MAA for over 70 years. He joined in 1928, while a graduate student in engineering mathematics at the U. of Colorado, studying under Charles Hutchison (known by everyone as "Hutch"). Ross was born on July 30, 1903, in Marysville, Kansas and moved to Canon City in 1911 with his mother and his three brothers and four sisters. He earned a degree in Chemical Engineering in 1926 and his MS in Engineering Mathematics in 1929. He then joined the faculty of Washington University in St. Louis, where he taught for 40 years.

In recognition of Professor Middlemiss's record as a splendid teacher and lifelong devotion to the well-being of undergraduates, the Mathematics Department at Washington University created the Ross. R. Middlemiss Undergraduate Lounge several years ago.

He wrote four textbooks, with the invaluable help of his wife, Annabelle. Much of his writing was done during summers. He escaped the midwestern heat by summering at his ranch in Hillside, Colorado.

From one of his letters from the ranch back to Walter Leighton, then Chair at Washington, (Aug. 17, 1948) "Tell Charlie that the big brown envelope from Jackson, Michigan that he sent on was from a gentleman who is at present incarcerated in the Michigan state prison. He is studying my *Analytic Geometry* and hopes to go on with mathematics when he is again able to move about more freely. I suppose his present predicament results from the fact that his inability to distinguish right from wrong is not confined to the field of mathematics."

At the 1999 spring meeting at Adams State there will be a talk about Ross and his adventures with CU, his cows, his texts and his early work with multimedia. In a letter dated January 9, 1963, as Professor Middlemiss was about to launch into another film making project, he noted that the results of the 1960 institute "were not particularly good because we had green personnel and our schedule calls for [the production of] as many as twenty 30-minute kinescopes per week!"

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**Summer Short Course.** The summer, 1999 short course sponsored by the Ohio Section of the MAA is found on the web page <http://miavx3.mid.muohio.edu/~rdieffenbach/shortcourse.htm> Registration fee is \$125. Enrollment limited to 35.

The Mathematics of the Perfect Shuffle June 23 - 25, 1999 Miami University Oxford, OH

Presenter: S. Brent Morris, National Security Agency

This minicourse will examine 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 anyone who has studied a semester of discrete mathematics. The basic shuffle and several generalizations will be introduced, and the group structure generated by the perfect shuffle will be explored. Participants will be taught several card tricks using different properties of the perfect shuffle. The course will conclude with a study of computer circuits. Contact Bob Dieffenbach Miami University Middletown Middletown, OH 45042 Phone (513)-727-3238 email: diefferm

**Becker Smith** U. of Colo. (Boulder)

*Teaching Mathematical Foundations in Lower-division and Survey Courses*

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Another long-time supporter of undergraduate education----

**Ross R. Middlemiss**, of Canon City, has been a member of the MAA for over 70 years. He joined in 1928, while a graduate student in engineering mathematics at the U. of Colorado, studying under Charles Hutchison (known by everyone as "Hutch"). Ross was born on July 30, 1903, in Marysville, Kansas and moved to Canon City in 1911 with his mother and his three brothers and four sisters. He earned a degree in Chemical Engineering in 1926 and his MS in Engineering Mathematics in 1929. He then joined the faculty of Washington University in St. Louis, where he taught for 40 years.

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