ROCKY MOUNTAIN SECTION OF THE MATHEMATICAL ASSOCIATION OF AMERICA

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FALL 2005 NEWSLETTER

Section Website   http://www-math.cudenver.edu/~maa-rm

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Bryan Shader of the University of Wyoming named 2005 Distinguished Teacher

In 1991, the MAA Board of Governors established Section Awards for Distinguished College or University Teaching to recognize excellence in mathematics teaching at the post-secondary level. The Rocky Mountain Section Award is named in honor of Burton W. Jones, a lifelong advocate of excellence in teaching and supporter of the members and programs of the MAA. In addition to receiving a certificate and a check, award recipients deliver the opening address at the following year's spring meeting and become the Section Nominee for the Deborah and Franklin Haimo Awards for Distinguished College or University Teaching of Mathematics.

The criteria for the award are superior teaching effectiveness where "teaching" is interpreted in its broadest sense, ability to generate excitement and curiosity about mathematics in students, recognition of extraordinary success at the post-secondary level, and influence in teaching both within and beyond the local institution and community. Professor Bryan Shader of the University of Wyoming has quietly addressed the high standards set for the award with his professional accomplishments. His efforts in teaching, establishing meaningful and effective connections with students, establishing connections with local and national area high school teachers, leading undergraduate research projects, developing and implementing curriculum, and establishing a broad impact and a high regard in the international mathematics community acclaim his teaching excellence.

Dr. Shader has taught a variety of graduate level courses in Algebra and Combinatorics along with an undergraduate regimen. Students at both levels have consistently noted his devotion to the subject matter, his ability to challenge them to learn, and his concern for their academic progress. He has received the University of Wyoming Ellenbogen Award for Outstanding Teaching and Mortar Board Chapter Top Prof Award.

His follow-up and professional ties with students after they graduate from the University of Wyoming and demonstrated ability to positively influence mathematical appreciation in students highlight his interest in students' personal lives as part of his defining character. His initiative to establish and sustain a voluntary undergraduate research program in small world networks demonstrates his penchant for motivating students to excel and enrich their educational experience. On one occasion, he was involved in a National Science Foundation Project called "Model Masters Degree Program" that was for high school teachers including participants from across the country. As part of this involvement, he was able to successfully teach a group of students who undeniably have strong opinions about teaching methods while making the experience enjoyable and satisfying.

He has strengthened connections with local area high schools by helping high school students with Science Fair projects. Two of the students he worked with received international acclaim.

His curriculum development, revision, and implementation accomplishments include courses for in-service middle and high school teachers, investigation of Calculus reform, Math for Liberal Arts, Elementary Linear Algebra, Seminar for Math Majors, and graduate level Applied Algebra. The investigation of Calculus reform led the Mathematics Department to choose a balanced approach adapting strengths of both the traditional and the reform methods.

He has advised a significant portion of students awarded graduate degrees by the University of Wyoming Mathematics Department. The number of his students who are, or intend to be, mathematics educators is noteworthy.

His involvement and accomplishments in the international mathematics community and publication record reinforce his teaching effectiveness. He is a leader in the International Linear Algebra Society (ILAS). He is associate editor of Linear Algebra and Its Applications and the Electronic Journal of Linear Algebra and Editor-in-chief of IMAGE-the bulletin of ILAS. He is regularly invited to give talks at ILAS conferences and is in high demand as a speaker at regional and national meetings. He has co-authored a book in Qualitative Matrix Theory with Richard Brualdi.

The Rocky Mountain Section is fortunate to have a person with Dr. Shader's abilities and passion for teaching mathematics. It is an honor to recognize his contributions to mathematics education with the 2005 Burton W. Jones Distinguished Teaching Award. Congratulations, Dr. Shader! The Section is proud to present you as our representative in the competition for the Deborah and Franklin Haimo Awards for Distinguished College or University Teaching of Mathematics!

Jeff Berg, Arapahoe Community College

Past Burton W. Jones DTA Recipients

1992 Professor John H. "Jack" Hodges,
University of Colorado, Boulder
1993 Professor Gerald Diaz,
United States Air Force Academy
1994 Professor A. Duane Porter,
University of Wyoming
1995 Professor William D. Emerson,
Metropolitan State College of Denver
1996 Professor Zenas Hartvigson,
University of Colorado at Denver
1997 Professor Thomas Kelley,
Metropolitan State College of Denver
1998 Professor Monte Zerger,
Adams State College
1999 Professor Bill Briggs,
University of Colorado at Denver
2000 Professor Barbara Bath,
Colorado School of Mines
2001 Professor Jim Loats,
Metropolitan State College of Denver
2002 Professor Gene Abrams,
University of Colorado at Colorado Springs
2003 Professor Hugh King,
Colorado School of Mines
2004 Professor Don Teets,
South Dakota School of Mines and Technology
2005 Professor Bryan Shader,
University of Wyoming

Section Students Recognized for Mathematics Excellence

On May 12, 2005, the Tenth Annual Colorado Mathematics Awards Ceremony was held at the Grant-Humphreys Mansion in Denver. Organized by **Dick Gibbs**, Emeritus Professor at Fort Lewis College, and **David Carlson**, President of Resource Analysis, Inc., the event recognized 46 Colorado students and 32 teachers for outstanding performances on six national mathematics competitions: MATHCOUNTS, the American Mathematics Contests 8, 10 and 12, the William Lowell Putnam Mathematical Competition, and the Mathematical Contest in Modeling. The AMC 8, AMC 10, AMC 12, and Putnam Competitions are sponsored programs of the national MAA, which also provides support for the other three competitions. The Rocky Mountain Section is an educational sponsor of the Colorado Mathematics Awards Ceremony.

Other MAA members on the Awards Steering Committee include **David Larue** (Mines) and **Lou Talman** (Metro). Special thanks to David for his AMC 10, 12 website: http://www.mines.edu/amc/. Pictures of this year's CMA can be found there.

The American Mathematics Contests 10 and 12 awards were presented by **David Larue**, the Mathematical Contest in Modeling awards and the William Lowell Putnam Mathematical Competition awards were presented by section Chair **Jeff Berg** (ACC).

Again his year a team from University of Colorado-Boulder excelled in the Mathematical Contest in Modeling. Team members were **Brian Camley, Pascal Getreuer,** and **Bradley Klingenberg,** coached by Prof. **Anne Dougherty**. The team received the **Outstanding** designation for their solutions. 'Outstanding' is the highest award level possible, reserved for those papers which provide excellent analysis, thoughtful insights and exceptionally clear exposition. Only 10 of 644 teams worldwide achieved it in 2005. This same team received an Outstanding designation in 2004. Quite an accomplishment!

The University of Colorado-Boulder and Colorado State University shared Putnam Competition honors. Individual top Putnam scorers were **Thomas Mark Bailey, Brian**

Camley, and **Ryan Gardner** (also a member of the CU-B Outstanding MCM team!), University of Colorado - Boulder, and **Travis King,** Colorado State University. University of Colorado-Boulder had the top Putnam team, comprised of **Reuben Brasher, Ryan Gardner,** and **Nicholas Hall**. The coach was Prof. **Gordon Brown**.

In addition to supporting the Colorado Mathematics Awards Ceremony, the Section also recognizes top section scorers on two exams. This year, the Rocky Mountain **Section Putnam Exam Top Score** belongs to **Thomas Mark Bailey**, University of Colorado-Boulder. The Rocky Mountain **Section AMC 12 Top Score** was achieved ed by **Bryce Herdt**, a senior at William Mitchell High School in Colorado Springs. Congratulations, Thomas and Bryce!

Although he was unable to attend, Prof. **Brian Schader** (U of W), recipient of this year's Rocky Mountain Section Burton W. Jones Distinguished Teaching Award, was recognized by section Chair **Jeff Berg**.

Special thanks to the CMA Steering Committee for identifying and recognizing these outstanding young mathematicians.

Dick Gibbs, Fort Lewis College

Chair's Report

I am excited as I begin my term as Chair. I thank each member of the Rocky Mountain Section for the opportunity to serve and I look forward to working with everyone. Although I am a bit nervous about finding the time to attend to my responsibilities as Chair well, I grow more and more impressed with extent and variety of worthwhile activities and collaborations that occur in the Section. I am working to expand the support the Section provides in recognizing and promoting these activities.

In May, I was fortunate to be invited to the 10th Annual Colorado Mathematics Awards Reception at the Grant-Humphreys Mansion in Denver. Dr. Richard Gibbs and Dr. David Carlson put together a very nice program and being able to talk with some of the students who have demonstrated an exceptional aptitude in Mathematics was inspiring.

Over the years, I've noticed a growing interest in the Section to expand opportunities for students to interact in a broader forum. So, I was pleased when at the spring meeting the Section identified a need for a Student Activities Coordinator and elected Dr. Kyle Riley of South Dakota School of Mines and Technology to serve in this position. Dr. Riley's experience and abilities are fitting, and I am confident he will make a positive contribution as he defines his role and the position.

As the atmosphere in which we all work becomes increasingly volatile, I ask for your help to keep the mathematics discipline in a proactive posture in our schools. Our ability to convey the message of the value and importance of mathematics and mathematics education in our society is influenced by the vitality of the Section. The vitality of the Section depends on your involvement.

Jeff Berg, Chair

Governor's Report

My first MAA Board of Governors meeting was interesting and informative. We met August 3, the Wednesday before MathFest, in Albuquerque. Our agenda for the one-day meeting was 150 pages, and we got through every item by the end of the day. There were many reports from the staff, and finance and budget and working group reports. In addition, we voted on some national committee members, MAA publications editors, and governors-at-large, and voted on nominations and awards for various MAA honors.

The Board of Governors consists of 50 members. Each of the 29 MAA sections is represented, along with six at-large governors representing minority interests, Canada, non-academics, teacher education and high school teachers. Also on the board are the three editors of the MAA journals and eleven people who are national officers, past officers, board elected staff, and some national committee members. It is quite a gathering!

One issue that may be relevant to our section is the changing of bylaws. There seems to be a trend for sections to change the officer "secretary-treasurer" to two separate offices. Our section's executive committee has discussed this issue, as there is much work in the current combined position. Such a change would have to go to national and be considered

by the governors, though this would likely be a formality.

The board considers meeting places for the joint meetings and the summer MathFest well in advance. Planned joint meetings are:

2007 New Orleans, Jan. 12-15;
2008 San Diego, Jan. 6-9;
2009 Washington, D.C., Jan. 7-10;
2010 San Francisco, Jan. 6-9; and
2011 New Orleans, Jan. 5-8.

Planned MathFests:

2006 Knoxville, TN, Aug 10-12;
2007 San Jose, Aug. 3-5;
2008 Madison, July 31-Aug. 2.

The MAA is looking at Portland, Ore., Pittsburg, and Austin, TX as potential sites for 2009 and 2010.

One thing you may not be aware of is that there are 115 national standing committees. If you wish to serve at the national level, there are probably opportunities. Please contact me if you are interested.

Thank you for electing me! If you have any questions or concerns, please feel free to contact me.

Jane Arledge, Governor

Section News

Colorado College

Colorado College has a new addition to its math department faculty this year. **Stefan Erickson** joins us fresh from the University of California at San Diego where he just completed his Ph.D. in Mathematics. His research is in analytic number theory.

In fact, Colorado College no longer has a "math" department; we are now officially the Department of Mathematics and Computer Science. This change in name is a result of the fact that we recently upgraded our long-standing computer science program to a full-blown major.

Colorado State University - Pueblo

Personnel changes were many this past year, with more anticipated in the near future. The department bid a fond farewell to faculty members **Roger Johnson** (now retired) and **Tensia Soto-Johnson** (now of UNC) last spring; we wish both well in their new endeavors. This fall, we welcomed **Igor Melnykov** to our faculty ranks; Igor comes to us from the Ukraine by way of Bowling Green, where he completed his doctorate in statistics last spring.

Tammy Watkins moved from her post as director of our Mathematics Learning Center (MLC) into a new position as full-time lecturer this academic year; we owe her many thanks for creating such an effective space for our students to learn and grow. **Mary Middleton** became our new MLC director this fall; despite a steep learning curve, she has managed to stay at least two steps ahead at every point. We were also fortunate to have **Mariah Mincic** join us as the program's administrative assistant, replacing **Linda Wilkerson** who retired last January and has since married – congratulations to bride and groom!

Congratulations also go out to **Jim Louisell** on his promotion to full professor last spring. Other changes include a return of **Paul Chacon** to the position of department chair; program faculty are grateful for his willingness to re-assume these responsibilities. His immediate predecessor in that position, **Gil Orr**, recently announced plans to fully retire at the end of this academic year. **Jim Derr** has likewise announced imminent retirement plans, and is now in his first year of a two-year retirement transition. Both algebraists will be missed when they leave, and we hope their remaining time on campus is both personally and professionally satisfying.

Metropolitan State College of Denver

The Department welcomes our new faculty members **Brook Evans** in math ed and **Ray Curran** in theoretical math. **Steve Beaty** was promoted to full professor and **Patty McKenna** was promoted to associate professor. **Charlotte Murphy** and **Frieda Holley** were awarded emeritus status. Both retired in 2004.

Regis University

Charles Brase retired last year after 28 years of excellent service to our students, the math department, and Regis University. We all miss him greatly! He and his wife Corrinne are working on the next edition of Understandable Statistics, and Charlie hopes to return to us teach out of it in the near future.

Charlie's retirement allowed us to hire **Suzanne Caulk** (2002 PhD from CU Boulder in Algebraic Number Theory). She has been an

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energizing force in the department, and we are excited to have her here!

Diane Wagner is returning from sabbatical this year. She spent the last year as a student taking graduate statistics courses at CU Denver. She enjoyed her time there, but is happy to be back on the right side of the lectern.

Jim Seibert led an undergraduate research project this summer. Students **Michael Uhrig** and **Anthony Giordano** spent the summer proving theorems in advanced linear algebra, and applying them to a face recognition program they developed in Matlab. (They'll be presenting their results at the Spring meeting.)

Linda Duchrow's term as chair of the department has included a new hire, the development of an unofficial math club (Pizza and Puzzles Nights), record participation in the COMAP modeling competition (including a couple Honorable Mentions), record participation in the Putnam exam (including more than a few non-trivial scores), and significant revision of the major (in progress!). She has also served the faculty as president of the Regis Chapter of the AAUP (during a successful negotiation year).

We are also happy that our long-time part-time faculty are still with us: **Carol Donovan, Bill Simms, Jim Ernst, Jolene Ruggles,** and **Paul Younger**.

University of Colorado at Boulder

We have a new faculty member **Su-ion Ih**. His field is number theory.

And speaking of number theory, there is now a joint seminar including the University of Colorado at Boulder, Colorado State University and the University of Wyoming.

University of Northern Colorado

Over the summer the UNC Department of Mathematics underwent several changes. We are now known as the School of Mathematical Sciences and are housed in the College of Natural and Health Sciences. **Richard Grassl** stepped down as chair of the department and is now the interim dean of the college and **Jeff Farmer** is the director of our school. Congratulations go out to both Richard and Jeff on their new positions. We would also like to congratulate Richard for receiving the Outstanding Teaching Award for the College.

The School is pleased to have three new faculty: **Anton Dzhamay**, **Milan Lukic** and **Hortensia Soto-Johnson**. Anton earned his undergraduate degree in Mathematics and Computer Science from Moscow Institute of Electronics and Mathematics in 1993 and his PhD degree from Columbia in 2000. Before coming to UNC he was an Assistant professor at the University of Michigan in Ann Arbor and Ritt Assistant Professor at Columbia University. Anton's research is in the field of Integrable Systems and Soliton Equations.

Milan earned his B.S. and M.S. in Mathematics from the University of Belgrade. He earned a second M.S. in Mathematics from Maharishi International University and his Ph.D. in Mathematics from the University of Wisconsin Milwaukee. Milan has taught high school in Yugoslavia and the US. Before coming to UNC he was an Assistant Professor at Viterbo University, La Crosse, Wisconsin. Milan's research area is probability and stochastic processes. Personal interests include aikido, biking, hiking and skiing.

Hortensia, aka, Tensia is not new to the Rocky Mountain Section. She earned her M.S. in Mathematics from the University of Arizona and her Ph.D. from UNC in 1996, and was an associate professor at CSU-Pueblo before returning to UNC. Tensia's research area is mathematics education. Her favorite personal interest is yoga.

University of Wyoming

We have three new tenure-track faculty in the UW Math Department this year. **Long Lee** studies computational fluid dynamics applied to biology and geophysics; he moved to Laramie from Chapel Hill, North Carolina, where he had a postdoc at UNC. **Gregory Lyng** comes to us after a postdoc at the University of Michigan. His research area is partial differential equations, in particular those related to the stability of detonation waves. **Siguna Mueller** moved to Laramie (with her horse!) from Calgary Alberta, where she had a research position at the University of Calgary. Siguna is part of a new emphasis on information theory; she works on cryptography and primality testing for very large numbers.

In the last few years, we have had a number of faculty retirements. The latest is **Ben Roth**, who taught his last course during spring semester, 2005, although he has been recently spotted hanging around the math department. He joins other recent retirees **Duane Porter** (May, 2004) and **George Gastl** (August 2003).

In the spring, we congratulated **Bryan Shader** for winning the 2005 Burton W. Jones Distinguished Teaching Award, and **Man-chung Yeung,** who received tenure and was promoted to Associate Professor.

The Student Math Association of Wyoming is our local student chapter of the MAA. This was organized by some enthusiastic students during the spring of 2003 (and they would like to thank the Grand Junction student chapter for their help with this). Students from the math club attended the 2005 sectional meeting, and won a prize in the first Rocky Mountain section math poster contest. They are starting the academic year with a push to increase membership, and had fun at a bowling party to start the year.

Our annual Math Awareness week--this year on Math and the Cosmos--took place April 11-15. Events included the Calc Bowl, a talk on prime numbers by **Carl Pomerance**, and a talk on knots by **Sam Nelson** (a UW alumnus).

There were a number of interesting mathematical events at UW this summer, many of which are annual events.

The Summer Mathematics Institute for Wyoming High School and Middle School Teachers continued this summer, with a two week program entitled Adventures in Problem Solving. **Terry Jenkins** has run this popular summer program since 1989.

The Rocky Mountain Mathematics Consortium Summer School this year combined with the Institute for Mathematics and its Applications for a three week program entitled "Stochastic Partial Differential Equations and Environmental and Geophysical Modeling". Next year's program will meet June 19-July 7; the topic will be "Computational Number Theory and Applications to Cryptography". Some funding will be available, so if you're interested, check it out.

In August, we hosted the ninth annual Rocky Mountain Discrete Mathematics Days, with speakers from Canada and the Netherlands as well as Iowa and the Rocky Mountain region. Look for this conference to be in Denver next year.

Longtime MAA Members Honored

Each spring, the section recognizes some of our longtime active MAA members. At the 2005 Section Meeting Banquet, we were delighted to recognize three individuals for achieving fifty year of membership in the MAA: **Ronald Arms**

of Colorado Springs, **Francis Hildebrand** of Hot Springs, South Dakota and **William Trench** of Woodland, Colorado. **Dean Allison** of Greeley, **Margaret Cozzens** of Lakewood, **Sylvia Hobart** of Laramie, Wyoming, **James Loats** and **Lou Talman**, both of Denver were also recognized for twenty-five years of membership. All received a certificate honoring their long-term commitment to the mission of the MAA. Congratulations, and thanks to you all for service to and support of the association!

Is news from your school missing?
Send your news to your department liaison now with a request to forward it to the Linda Sundbye, Newsletter Editor for inclusion in the next issue.

Highlights of the NCTM Western Regional Conference in Denver November 10 – 12, 2005

Date: 10 - 12 November 2005
Place: Colorado Convention Center, Denver
250 sessions and workshops; Major speakers and themes include:
• Cathy Seeley, NCTM President
• Johnny Lott, Gail Burrill, Glenda Lappan, all past NCTM presidents
• Mathematicians like Bob Devaney, Tom Banchoff, Dan Teague
• A strand devoted to assessment, with major sessions by experts like Lorrie Shepard, Bob Linn (both of CU-Boulder), Bill Bush, and Frank Lester, with a full day of breakout sessions by leaders in the field, including Bill Bush, Vena Long and Linda Wilson.
• A strand devoted to Lesson Study, including two demonstration lessons facilitated by Japanese and American experts (including Kelly Chappell, CSU)
• Major sessions devoted to issues of diversity and community, with speakers like Miriam Leiva (president of TODOS), and Ruth Parker
• Technology sessions and labs, with speakers like Bill Finzer (Fathom), Cliff Konold (Tinkerplots), Steve Rasmussen (Geometer's

SketchPad)

• Other local speakers include Jim Loats and Don Gilmore (MSCD), Barb Moskal (CSM), Jeff Farmer (UNC), Jim Curry (CU-Boulder), Duane Porter (Wyoming).

Register at www.nctm.org

The program for the Denver Regional is online:

http://www.nctm.org/meetings/denver/

Lew Romagnano, NCTM Meeting Co-Chair

NCTM Western Regional Conference Comes to Denver November 10 – 12, 2005

The Western Regional Conference for the National Council of Teachers of Mathematics will be held this November in Denver, and on behalf of the executive board of host organization CCTM, let me be the first to cordially invite all mathematicians, educators, administrators, and any others interested in a fun and enlightening three days.

The Colorado Council of Teachers of Mathematics has asked me, as their representative in the world of higher education, to encourage anyone in the Colorado/Wyoming area whose interests include the fields of mathematics and mathematics education to join us at the Colorado Convention Center from November 10—12 for a wide range of programs and activities centering on this year's theme, "Mathematics at Its Peak," as well as NCTM's Focus of the Year for 2005—2006, "Assessment—Assessing to Learn and Learning to Assess." Both themes will be overarching topics from many of the sessions and workshops throughout the conference.

In addition to over one hundred fifty special sessions, each featuring a variety of speakers on a wide range of topics from K-12 to higher education and general audiences in between, the conference will also include over one hundred workshops giving participants the opportunity to have extensive, hands-on experiences and return home with supporting materials. There will also be a dozen three-hour minicourses with a more in-depth examination of workshop-type topics and materials. A special orientation session, meant to help first-time attendees find the ideal sessions and workshops for their needs and interests, will be held each morning at the convention center.

Some of the major topics for the various sessions and workshops include:

• **Professional Development Focus of the Year—Assessment**
• **Number and Number Sense**
• **Geometry, Trigonometry, and Measurement**
• **Data Analysis and Probability**
• **Calculus**
• **Problem Solving** — critical thinking, reasoning, and proof
• **Communications and Connections** — history, literature and mathematics applications, modeling, discrete mathematics, and representation
• **Algebra**
• **Research**—research insights, reflecting on practice, and classroom research by teachers
• **Issues**—equity, diversity, alternative schools, funding, multilingual/gifted/special needs, community relations, state and federal legislation, outreach, and advocacy
• **Technology**—using calculators and computers as tools
• **Professional Development**—certification, international perspectives, analysis of students' work, coaching, alternative certification, and instructional strategies
• **Today's "Hot Topic"**—the No Child Left Behind Act

Other services offered at the conference include special discussions of topics ranging from computer use in the classroom to the Japanese instructional model, a specially discounted NCTM Bookstore, and social events both within the conference and outside it; the Convention Center and conference hotels are bridged by Denver's picturesque, bustling pedestrian promenade, the 16th Street Mall. Attending the conference also entitles participants to a discounted rate with airlines and car rental agencies and at two of downtown Denver's choice hotels, the Hyatt Regency Denver—Downtown and the Denver Marriott City Center.

If you are considering attending the conference, there are several reasons to register by October 10:

• Early registration entitles participants to a 15—30% discount for the conference.
• Early signup helps guarantee room reservations in the conference hotels.

- Confirmations, conference badge, and the program book will be mailed to you.
- The three-day registration fee for nonmembers includes a complimentary one-year NCTM membership, including a subscription to your choice of NCTM's three fine journals. Those who are already members receive an additional discount on the conference fee.
- Groups of five or more who register together by the October 10 deadline receive a significant additional discount.
- It lets you give back to the K-12 level; as the host organization, CCTM receives a portion of the proceeds from the registration fees. If attendance tops three thousand—a goal definitely within reach—the allotted percentage will increase.

Anyone interested can register in one of four ways:
- Online—at http://www.nctm.org/meetings/Denver/registration.htm
- By phone at (888) 747-8704 or (972) 349-5804
- By fax at (972) 349-7715
- By mail at:
  NCTM Regional Conferences
  P.O. Box 841207
  Dallas, TX 75284-1207

We will be mailing conference preview guides to colleges and universities in the Colorado/Wyoming area which can fill you in on any other questions. Hope to see you there!
Mark Rogers, MAA/CCTM Liaison

3rd Annual Pikes Peak Regional Undergraduate Mathematics Conference at CSU – Pueblo
Saturday, February 25, 2006

The third annual **Pikes Peak Regional Undergraduate Mathematics Conference** (PPRUMC) is scheduled to take place on **25 February 2006** on the **Colorado State University – Pueblo** campus.

PPRUMC is a one-day mathematics conference held each spring at one of several host institutions in the Pikes Peak region. The focus of the conference is to give undergraduate mathematics students the opportunity to present in a professional setting. This is also an occasion for students to become acquainted with other students, to become aware of opportunities for undergraduates in mathematics, to investigate the possibility of graduate school, and to learn more about career options in mathematics.

Faculty, now is the time to start working with students on projects for presentation next February!!! Presentation topics could include the results of classroom, independent study, REU or other research projects; both research and expository topics are welcome.

Student talks will be scheduled for 15-minutes each in parallel sessions throughout the day. The conference will also feature a morning keynote address by a noted mathematician, and an afternoon panel discussion on career or graduate school options. The conference day lasts roughly from 9:00 - 4:30, with an optional pizza party in the evening. The steering committee expects that lunch will again be provided for all participants and that travel stipends will be available for students traveling longer distances, pending renewed funding from the MAA Undergraduate Mathematics Conferences Program (NSF Grant DMS – 0241090).

Details on conference scheduling and registration will be available in the Rocky Mountain Section Spring Newsletter. The **steering committee also seeks faculty volunteers** at Rocky Mountain Section schools to assist us in locally disseminating conference information to students, and in encouraging other faculty to undertake supervision of undergraduate research projects and\or independent study courses with students who are interested in presenting at the conference.

To volunteer as a local contact, or for more information about the conference, please contact janet.barnett@colostate-pueblo.edu.

Second Annual Pikes Peak Regional Undergraduate Mathematics Conference Report

The Second Annual **Pikes Peak Regional Undergraduate Mathematics Conference** was held at Colorado College in Colorado Springs on February 26, 2005. There were 40 participants,

including 23 students from 9 different institutions and 11 of the students gave talks ranging on topics from *Mathematics and Origami* to *The Gauss-Bonnet Theorem*. The conference got off to a lively start in the morning with a keynote address by **Joan Hutchinson**: *"When Three Colors Suffice".* Joan's keynote address and an afternoon panel on careers in mathematics were cited by the students as the highlights of the conference. The contingent from Western State College in Gunnison also deserves special notice, not only for their exceptionally large turn-out and the distance they had to travel, but for their enthusiastic and spirited sharing of mathematics which, after all, is what this particular undergraduate conference is all about.

John Watkins, Colorado College

Nominees Sought

Nominees for Section Chair

Nominees are now being sought for the position of 2007-2008 Section Chair. This individual will serve a one-year term as Chair-elect beginning April 2006, as well as a one-year term are Chair elect ending April 2009. In addition to providing leadership for the section, the Section Chair serves on the Section Executive and Program Committees, handles all correspondence between the national MAA and the section, and oversees appointments for the Awards Selection and Nominating Committees.

The election will take place at the 2006 Spring Section Meeting at Mesa State. If you would like more information about the responsibilities of the position, please contact the Section Secretary. **To make a nomination, please contact the Nominating Committee Chair Carl Lienert, Fort Lewis College, 970-247-7169,** lienert_c@fortlewis.edu**.**
The deadline for nominations is February 25, 2006.

Distinguished Teaching Nominations

Each year the section recognizes one outstanding teacher of collegiate mathematics with an award named in honor of Burton W. Jones, a life long advocate of excellence in teaching at all levels. In addition to a $50 honorarium, the recipient receives a certificate an invitation to deliver the opening lecture at the next Section meeting. The section recipient also becomes the section's nominee for the Deborah and Franklin Haimo Awards for Distinguished College or University Teaching of Mathematics. These national awardees (at most three) are honored at the MAA winter meeting with a certificate and $1000 check.

To implement the nomination process, nominators simply **submit the one-page nomination form (see p. 23) by December 1, 2005 to Hortensia Soto-Johnson,** UNC School of Mathematical Sciences, Campus Box 122 A, Greeley Colorado 80639. **Complete nomination materials should then be sent by January 29, 2006**. All materials are available on the section website and from your departmental liaison. These materials are limited to a narrative description of nominee's credentials (not to exceed 5 pages), no more than three additional pages of evidence to document the nominee's teaching success, and as many as five letters of recommendation. All nominators will receive a certificate of appreciation from the section in recognition of their efforts to support the section mission of promoting excellence in teaching; nominators and nominees will also receive free meeting registration a the next section meeting.

Any section member may nominate any other section member, including those who teach at another university. Nominees should be widely recognized as extraordinarily successful at the post-secondary level, have documented teaching effectiveness, where "teaching" is interpreted in it broadest sense, have had influence in their teaching beyond their institution, and be recognized for their ability to foster curiosity and generate excitement about mathematics in their students. A nominee must also be assigned at least half time to the teaching of mathematics in the U.S. or Canadian college or university, and have at least 5 years teaching experience. We know there are many extraordinary teachers within our section who deserve the honor of being nominated for this award---nominate one today!

Service Award Nominees

At its August meeting in 1983, the Mathematical Association of America Board of Governors voted to establish a Certificate for Meritorious Service to be presented for extraordinary contributions and outstanding efforts consistent with the stated purposes of the MAA and the Section. The first such awards were presented at the August 1984 meeting.

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At the Sectional level, each Section is entitled, and encouraged, to nominate one person for the award every five years. For this purpose, the Sections of the Association are separated into five groups, with one group of Sections making their nominations to the Board each year on a rotating basis. At each January meeting of the Association, honorees from roughly six Sections are recognized. Past recipients of the Rocky Mountain Section Certificate are David Ballew (1987), A. Duane Porter (1992), William C. Ramaley (1997), and Dick Gibbs (2002).

The next Rocky Mountain Section recipient will be honored at the January 2007 National Meeting. To meet the deadline for Board of Governor approval, the Section Award Selection Committee has been charged with selecting a recipient no later than 31 March 2006 from nominations made by the section membership. The Section Governor will then present the name of this nominee to the Board of Governors at the appropriate meeting for their approval. After the Board's approval, the name of the Awardee is public knowledge and will be presented to the Section and the public at large.

Rocky Mountain Section MAA members may nominate any other member of the Section. Any member of the MAA Rocky Nominees should be current members of the MAA. Previous winners of the Certificate for Meritorious Service are not eligible. The Certificate may be issued posthumously. Nominees should be individuals who have played a significant role in the activities of the section over a sustained time period and made extraordinary contributions and outstanding efforts which are consistent with the Rocky Mountain Section Mission Statement of promoting excellence in mathematics education, especially at the collegiate level. A full copy of the MAA Rocky Mountain Section Mission Statement and Goals appears at: http://www-math.cudenver.edu/~maa-rm

Nominators should submit a completed nomination form (see p. 24), a letter of nomination, and a current vita for the nominee, to the Chair of the Awards Selection Committee, **Rob Tubbs** by **January 31, 2006**. The nomination letter should provide a narrative description of those activities and accomplishments which demonstrate the nominee's meritorious service to the MAA and the section.

Limericks

Integral t-squared dt
from 1 to the cube root of 3
times the cosine
of three pi over 9
equals log of the cube root of 'e'.

In arctic and tropical climes,
the integers, addition, and times,
taken (mod p) will yield
a full finite field,
as p ranges over the primes.

A challenge for many long ages
Had baffled the savants and sages.
Yet at last came the light:
Seems old Fermat was right--
To the margin add 200 pages.

A Dozen, a Gross and a Score,
plus three times the square root of four,
divided by seven,
plus five times eleven,
equals nine squared and not a bit more.

Mesa State College to Host Joint 2006 Meeting

The Department of Computer Science, Mathematics and Statistics at Mesa State College is pleased to announce the results of its preliminary planning for a joint meeting of the Rocky Mountain and Intermountain Sections of the MAA. The meeting will be held at Mesa State College in Grand Junction, Colorado on April 7-8, 2006. A special theme of the meeting will be undergraduate research. To launch this theme, a workshop entitled **Supervising Undergraduate Research** will take place on Friday morning. Topics to be covered in the workshop include techniques for recruiting students, preliminary preparation of students and supervision of undergraduate research. Additional information about the workshop, including meeting times and registration fees, will be available in the spring newsletter.

In keeping with tradition, the meeting will officially open Friday afternoon with a special address by our most recent Burton W. Jones Distinguished Teaching Award Recipient, Bryan Shader of University of Wyoming. In addition to being an outstanding teacher, Dr. Shader is involved with the Middle School Mathematics Initiative Project for the state of Wyoming and is a co-organizer of the Rocky Mountain Mathematics Consortium Summer School. Professor Shader's research interests include combinatorics, discrete mathematics, graph theory, linear and multilinear algebra, and matrix theory.

In 1991 the George Pólya Lectureship was created by the MAA to encourage and acknowledge high quality exposition. Each Section is entitled to a Pólya Lecture approximately once every five years. We are fortunate this year to have been approved for a Pólya Lecture and are pleased to announce that **Dr. Steven Rudich** will be speaking at our meeting. Dr. Rudich is a Professor of Computer Science at Carnegie Mellon University. His research interests include computational complexity theory, cryptography and combinatorics. Perhaps we will also be treated to some sleight of hand magic!

Another exciting feature planned for this year will be a **Mathematics Awareness Month Undergraduate Poster Session**. Organized by **Kyle Riley** of the South Dakota School of Mines and Technology, the session will have a general theme related to mathematics awareness month. Prizes will be offered for Best in Show, Best Use of Mathematics and Most Creative. More information about the session can be found at http://www.mcs.sdsmt.edu/kriley/pubinfo/maa/poster.html. Please encourage your students to take part in this opportunity.

A special feature of this year's meeting will be a joint panel discussion with the Colorado Council of Teachers of Mathematics. More information about panelists and the panel topic will be announced in the spring newsletter.

Rounding out the scientific program will be talks contributed by intelligent, involved and inspirational people like you! Information on submission guidelines can be found in the First Call for Papers and Speaker Response Form located at the end of this announcement.

Finally, MAA books will again be on display at the meeting, with the opportunity to purchase books at a discount below membership prices! Not only does this save you money, but also the section receives a 10% "rebate" on all orders placed at the meeting. We also hope to have textbook publishers and other vendors available on-site.

First Call for Papers

The deadline for submission of abstracts for the 2006 Spring Section Meeting is **February 24, 2006**. Proposals received from students and MAA members after this date will be scheduled on a first-come, first-scheduled, space-available basis. Proposals from non-members sponsored by MAA members must be received by the deadline.

Although talks on all mathematical topics are welcome, the following special sessions are being organized:

Mathematics, Society and Culture: Past and Present

Organized by Janet Barnett (janet.barnett@colostate-pueblo.edu)

Like all persons, mathematicians live in human society and respond in some way to important social and cultural events of their times. This session invites talks on any aspect of the relationship (historical and contemporary) between mathematics, society and culture. Possible topics include: responses (personal and professional) of mathematicians to important events of their day; the influence of larger social/cultural issues on mathematics, and vice versa; the role of mathematics in helping individuals to critically analyze public discourse concerning social/cultural issues; and the responsibility of the mathematics community to promote public understanding of the discipline, its limitations and its potential uses in addressing social/cultural issues.

Interesting Ideas in Number Theory

Organized by Jane Arledge (arledge@mesastate.edu) and Rob Tubbs (robert.tubbs@colorado.edu)

In this session, we will share interesting tidbits of knowledge and explore connections in the broad areas of number theory and geometry. Talks should be addressed to general mathematics faculty.

Mathematics Education

Organized by Cathy Barkley (cbarkley@mesastate.edu)

Topics related to teacher preparation and improvement at all levels are welcome.

Student Papers

Organized by MSC Math Club. The Math Club President is Brian Rogers (brogers@mesastate.edu)

Students are encouraged to present their research project results at the meeting! Registration is free for all students, and student speakers receive a complimentary one-year membership in the MAA, including the journal of their choice.

The default talk length will be 20 minutes, with every effort made (within the constraints of the schedule) to accommodate requests for longer talks and other scheduling preferences. Please submit special requests early.

For non-electronic submissions, please use the Speaker Response Form located on the following page. E-mail equivalents of this form are encouraged! Please be sure to include all requested information if using e-mail.

Please direct questions and suggestions about the program, including ideas for additional panel discussions or special sessions, to **Program Chair Cathy Bonan-Hamada** at cbonan@mesastate.edu.

Speaker Response Form – Due February 24, 2006

Speaker Name _____

Affiliation _____

Mailing Address   (Please include affiliation if needed for U.S. mail)

_____

_____

Email Address _____   Phone Number _____

Faculty Sponsor* _____

MAA Member Sponsor** _____

Title: _____

Abstract (100 words or less):

Is this talk intended for any of the following special sessions?

   Mathematics, Society and Culture: Past and Present   _____

   Interesting Ideas in Number Theory   _____

   Mathematics Education   _____

   Student Paper Session   _____

       Students: Are you a graduate or undergraduate?   _____

Special Equipment Needs: _____

Schedule Preference Request: _____

Special Talk Length Request: _____

PLEASE RETURN THIS FORM OR AN E-MAIL EQUIVALENT TO:

Cathy Bonan-Hamada
Department of Computer Science, Mathematics and Statistics
Mesa State College
1100 North Ave.
Grand Junction, CO 81501-3122

 cbonan@mesastate.edu

* For student speakers only   ** For non-MAA members/non-students only

Mathematics Awareness Month
Undergraduate Poster Session Contest
Rocky Mountain Section Meeting, April 7-8, 2006

Sponsored by the Rocky Mountain Section of the MAA
Held during Intermountain-Rocky Mountain Joint Section Meeting
Mesa State College, Grand Junction, CO, April 7-8, 2006

Schedule and Location: During the general reception on Friday night.

Entries in the contest will try to meet the goal of creating awareness of mathematics to a general audience. The poster contest will also have a theme so the posters generally tie together.

Theme: **To Infinity and Beyond** – Poster entries should give applications and/ or illustrations of how infinity plays a role in daily lives. Applications of Fourier Series, Improper Integrals, and Fractals are just a few topics that could address this theme.

Prizes: Prizes will be evaluated by a team of judges (each entry can win <u>at most</u> one prize)
- **Best in Show** ($50) – The entry that best adheres to the theme and is the best example for creating awareness of mathematics in a general audience.
- **Best Use of Mathematics** ($25)
- **Most Creative** ($25)

Rules:
- At most one entry from each institution.
- Entries must be the sole production of students.
- Presentation format is a poster session.
    - o All entries must be self-contained (internet connections and possibly power outlets will not be available and space will be limited)
- The scores from any judge directly affiliated with an entry will automatically be one of the scores dropped.
- Awards will be announced during the banquet.

Register: Space may be limited so be sure to register (**registration is absolutely <u>free!</u>**). To register, or to volunteer as a judge, send an email to Kyle.Riley@sdsmt.edu with the following information:
- To register please send the name of your institution and the name of a faculty member that will act as advisor.
- Registration deadline is March 31, 2006.
- Teams are encouraged to bring a poster stand to the session to display your poster.

If you would like additional information then please consult the following website
http://www.mcs.sdsmt.edu/~kriley/pubinfo/maa/poster.html

2005 Section Meeting Report

The University of Northern Colorado hosted the 2005 Annual Spring Section Meeting over the weekend of April 15 - 16. The 164 meeting participants included 57 students, in addition to a dozen K-12 teachers, several individuals from the business, industry and government sector, and faculty from nearly every two-year and four-year institution in the section.

The meeting was officially opened with an address by the 2004 Burton W. Jones Distinguished Teaching Award Recipient, **Dr. Don Teets** of the South Dakota School of Mines and Technology. Originally inspired by a short paper by Carl Friedrich Gauss on celestial mechanics, Professor Teets' attempt to answer the historical question "Who invented the method of least squares?" turned into an unexpected gold mine of mathematics research and teaching opportunities. In his talk "*Gauss and Gauss Again*", Dr. Teets shared his experiences in blending examples from celestial mechanics with topics from the standard undergraduate mathematics curriculum.

Later on Friday afternoon, a special **joint panel discussion** with the **Colorado Council of Teachers of Mathematics** brought together mathematics teachers from different levels of K – 16 continuum to share their experiences in exploring algebraic thinking with their students. CCTM will be hosting a Regional NTCM Conference in Denver in November 2005.

MAA Second Vice President, **Dr. Jean Bee Chan** of Sonoma State College led meeting participants in a magical tour of the hexagon in her Friday Banquet Address, *There is Magic in a Hexagon*. Her Saturday Keynote Address, *How Should We View an Art Gallery?*, led participants through an equally magical tour of the Art Gallery Theorem for polygonal galleries.

The program also featured 32 contributed paper talks, including 8 by students, a panel session on becoming a college mathematics faculty member, and a workshop on Collegiate Mathematics Education Research by UNC's **Dr. Shandy Hauk and Dr. Nat Miller**. Other meeting features included an extensive sales display of MAA Books, the usual early morning Business Meeting [see p. 18 -20], a Department Chairs Luncheon hosted by UNC's **Dr. Richard Grassl and Dr. Jeff Farmer**, and a meeting of Department Liaisons.

The Section wishes to thank **Addison Wesley Publishing** and **Houghton Mifflin Publishing** for their support at the meeting. Thanks also go out to the entire **University of Northern Colorado Mathematics faculty and students** for their many hours of volunteer work and gracious hospitality throughout the meeting, and especially our program chair **Shandy Hauk** for her attention to detail and commitment to the meeting's success. Congratulations on a very fine meeting!

Contributed Papers

STUDENT PAPER SESSIONS

Benjamin Cutler, South Dakota School of Mines & Technology
Factoring in Rings of Algebraic Integers
Faculty Sponsor: Edward Corwin

Joshua Farrell, Metropolitan State College of Denver
Nonlinear Dynamics and Neural Networks
Faculty Sponsor: Linda Sundbye

Janae Herman, South Dakota School of Mines & Technology
Singular Value Decomposition: Theory and Applications
Faculty Sponsor: Janet Burgoyne

Michael Habinsky, Nicki Habinsky, Eric Moore, Dan Packard, Katie Read, and **Shawn Schmalzer,** University of Northern Colorado
A Mathematical Model of the Lake Murray Dam Failure
Faculty Sponsor: Nat Miller

Gregory Kaiser, Timothy Klein and **Anthony Peterson,** Metropolitan State College of Denver
Runge-Kutta for Systems of Differential Equations, Implementation and Optimization in Mathematica and C
Faculty Sponsor: Bill Emerson

Stephanie Kuenzel, Regis College
Solving Rubik's Cube: An Abstract Algebra Approach
Faculty Sponsor: James Seibert

Logan Marlatt, Western State College
Mathematics and Origami: Solving the Classic Greek Problems of Geometry
Faculty Sponsor: John W. Brown

Kevin Tankersley, Metropolitan State College of Denver
Groups, Rings, Fields, Curves and Codes
Faculty Sponsor: Linda Sundbye

OTHER SPECIAL SESSIONS

HISTORY OF MATHEMATICS AND ITS TEACHING

Janet Heine Barnett, Colorado State University - Pueblo
More than a Snack: History as an Essential Ingredient in Mathematics Instruction
George W. Heine, Math and Maps
From the Mariner's Compass to the Argand Plane: Some Incidents in the Development of Cartography and its Influence on Mathematics
John Martin, University of Colorado - Boulder
"I see it, but I don't believe it"
Rob Tubbs, University of Colorado - Boulder
Hilbert' 7ᵗʰ Problem: A Brief History

PREPARATION OF COLLEGE MATHEMATICS TEACHERS

Shandy Hauk, University of Northern Colorado
Culturally Responsive College Teacher Development
A. Duane Porter, University of Wyoming
(Co-author **Charles Funkhouser**, California State University Fullerton)
Native American-Based Mathematics for the College Classroom

GENERAL SESSIONS

CLASSROOM INNOVATIONS

Shahar Boneh, Metropolitan State College of Denver
How Mathematica Turned a Textbook Problem into a Research Project.
Bill Briggs, University of Colorado -Denver
Ten Best Calculus Teaching Problems
Bill Emerson, Metropolitan State College of Denver
WeBWork in Calculus I and II
Roger W. Johnson, South Dakota School of Mines & Technology
Using the Dice Game "Craps" to Illustrate Fundamental Probability Calculations
Jim Rolf , United States Air Force Academy
Using CalcTool to Teach Calculus 1 and 2

K-12 TEACHER PREPARATION

Claire Banks & Igor Szczyrba, University of Northern Colorado
A Comparison of Mathematics Teachers' Preparation Requirements in the U.S. and Some Countries in Europe and Asia.
George S. Donovan, Metropolitan State College of Denver
That Giant Sucking Sound
Janet Nichols, Colorado State University - Pueblo
Will the Real Cross Multiplication Please Stand Up and Other Tales from Teaching Mathematics to Prospective Elementary School Teachers

Nat Miller, University of Northern Colorado
Visualization on Cones and Pool Tables using Geometer's Sketchpad

MATHEMATICS

Mike A. Brilleslyper, United States Air Force Academy (co-author **Robert H. Wolverton)**
The Partial Sums of $\sum_{k=1}^{\infty}\sin(kx)$ and their Relationship to the Saw-Tooth Function
Harold Davenport, Mesa Sate College
The Contribution of Felix Klein & Sophus Lie to Geometry
Nels Grevstad, Metropolitan State College of Denver
Statistical Estimation of a Sample Size When Some Data are Unobservable
George W. Heine, Math and Maps
R: The Best Statistical Software is Free
Richard J. Longcore, Community College of Denver - Auraria
Synthetic Division: A New, Unifying Paradigm for Elementary Divisibility Testing
Eric Packard, Mesa Sate College
Perfect Shuffle Groups
Jim Seibert, Regis College
Poncelet's Closure Theorem: Old and New Geometry
Igor Szczyrba, University of Northern Colorado
Numerical Modeling of Brain Dynamics in Traumatic Situations
Lou Talman, Metropolitan State College of Denver
Triangles, Reflections, and the Nine-Point Circle

2005 Section Business Meeting Minutes

MAA Rocky Mountain Section
Saturday 16 April 2005

Section Chair Rob Tubbs (CU - Boulder) called the meeting to order at 8:04, 16 April 2005. Minutes of the meeting for the preceding year were approved with one minor correction.

Nominating Committee member Cheryll Wingard (Aurora) reported that there were two candidates for Section Secretary/Treasurer (Heidi Keck of Western and Tensia Soto-Johnson of CSU-Pueblo/UNC), and two candidates for Section Vice-Chair, (Terry Reeves of Red Rocks and Karen Walters of Arapahoe). The nominees present each made brief statements; written statements from all nominees were distributed. As there were no

further nominations from the floor, Wingard distributed ballots.

Section Treasurer Janet Barnett presented the financial report. In summary, the 2004 Annual Section Financial Report filed with national reported holdings of $11,548.65 as of 31 December 2004, with revenues totaling $7,633.76 and expenses totaling $6,966.75 for the 2004 calendar year. After paying fall and spring newsletter costs, Barnett reported the section held approximately $10,622.00 in interest-bearing accounts on 31 March 2005, with first-quarter interest payments from the section's credit union yet to be included in that total. This amount is up slightly from the $10,355.45 that the section held as of 31 March 2004. She further noted that $1495.61 of the section's current holding is encumbered in some form, and expenses\proceeds related to the UNC section meeting were as yet unknown. Voluntary dues contributions continue to be good, but are now paid primarily through the spring meeting registration form. Copies of a more detailed financial report are available from Barnett.

Barnett delivered a short report on Student Competitions on behalf of Dick Gibbs (Fort Lewis). The 9th Annual Colorado Mathematics Awards Reception will be held in May 2005; this reception recognizes top performers from the state of Colorado on the William Lowell Putnam Mathematical Competition the Mathematical Contest in Modeling, the American Junior High School Mathematics Examination, MATHCOUNTS, and the American High School Mathematics Examination. The Section has supported the Colorado Mathematics Awards since 1996. Barnett added that section members could apply for funds through the section's Student Recognition Grant program to support similar activities in other states.

In his chair's report, Tubbs again encouraged individuals from outside Colorado to organize a student recognition ceremony similar to Colorado Mathematics Awards reception. He also encouraged continued support for research conferences for undergraduate and graduate students within the section. As a third area of concern that the section may wish to pursue in the coming year, Tubbs commented on the current Colorado political situation and its impact on higher education and academic freedom within the state. In response to a comment concerning the recent Ward Churchill incident at CU-Boulder, Tubbs provided additional background on that incident and noted that faculty without tenure are now starting to leave Colorado. Rebekka Struik (CU-Boulder) noted that TABOR has had an additional negative impact by decreasing state funding for higher education in Colorado; she noted that two referendums aimed at reducing this impact would appear on the November ballot. Don Teets (SDSMT) reported that, although the state of South Dakota does not spend much on education at any level, there was no pressure from the state to change what higher education is really about. Jane Arledge (Mesa) mentioned that the possibility of obtaining "enterprise status" will be available to some Colorado institutions of higher education, as a result of decreased state funding of higher education. Tubbs brought the discussion to a close with the suggestion that section members consider what an appropriate role for the section might be relative to responding to political pressures on higher education and academic freedom within the region.

Jean Bee Chan (MAA Second Vice-President) reported on various national MAA programs and projects, including:

- the initiation of a strategic planning effort at the national level;
- the creation of three new awards: the Robbins Prize for discrete mathematics and combinatorics, the "New Professors Teaching Award" for faculty within 5 years of entering the profession, and the Selden Award for mathematics education;
- the success of national's grant efforts, which have brought in $3.5 million in funding for projects including the PREP project in mathematics education and the PMET project for preparing teachers of mathematics teachers;
- the development of a career brochures project, coordinated by Michael Pearson at national headquarters;
- the continued growth and success of the SIGMAAs;
- the continued growth and success of MAA Book sales, directed by Don Albers at national headquarters;
- the efforts of the MAA Development Fund to raise funds for project NExT, once current Exxon funding for that project runs out;

- the success of the MAA Math Tours Program, with a tour completed to Mexico in 2005 and a tour planned for China in 2006;
- the success of the Undergraduate Conference program, funded though an NSF award to the MAA.

Chan closed her report by praising the vibrancy of the Rocky Mountain Section.

Section Governor Tensia Soto – Johnson (CSU-Pueblo\UNC) reported that upcoming national meetings include Mathfest 2005 in Albuquerque and the 2006 Joint Meetings in San Antonio, with the grand opening of the Carriage House in Washington DC also planned for next year. Soto-Johnson commented on the national Strategic Planning initiative, and noted that she is a member of the Budget Working Group for that initiative.

Tubbs made various announcements, including the selection of Bryan Shader of the University of Wyoming as the 2005 Burton W. Jones Distinguished Teaching Award Recipient, and the planned locations of upcoming section meetings: Grand Junction in 2006 (joint with the Intermountain Section), Pueblo in 2007, and Spearfish in 2008.

Wingard announced the election results: Tensia Soto-Johnson will serve a three-year term as Section Secretary/Treasurer beginning in April 2005, and Karen Walters will serve a two-year term as Section Vice Chair beginning in April 2005.

Tubbs opened the floor for a discussion of the following section activities and issues.

- Section Newsletter
  Beginning in Fall 2004, the section began mailing only a one – page "Newsletter Light" to members, with the full newsletter posted on - line. Individuals were able to request that a hard copy of the full newsletter be mailed to them; a total of 7 such requests were received. The eventual goal will be to notify members of the newsletter's on-line availability via electronic mail, again with the option of receiving a printed copy by U.S. mail upon request. Several positive comments were made concerning the new delivery procedure for the Section Newsletter. Shandy Hauk (UNC) suggested that, as an electronic newsletter, the newsletter should be changed to a fully web-based format, versus the current .pdf format which is more appropriate for a hard-copy newsletter. Soto-Johnson reported that the National Web Policy Board of which she is a member is working on policies concerning web-based section newsletters.
- Section Student Activities Coordinator
  Tubbs spoke in favor of creating a new voting position on the executive committee for a Section Student Activities Coordinator; although the interests of current executive committee members are such that student interests are represented on that committee, there is no position dedicated to student activities that would ensure this is always the case. Barnett noted that any change in the voting membership of the executive committee would require a change to the By-Laws, which in turn would require approval by the Board of Governors; since this process could not be completed before August 2006, a non-voting ex-officio position might be created in the interim. Kyle Riley (SDSMT) indicated that he would be willing to serve in such a position. It was moved and seconded that (1) the position of Section Student Activities Coordinator be created; and (2) that Riley serve in that position during the upcoming year; both motions were approved. Riley agreed to define a position description during the coming year in collaboration with the executive committee. Chan reported on the success of a student competition in the Northern California section; she also suggested that Riley contact the national Student Chapter Committee and that he consider becoming a member of that committee.

The Section approved a motion to thank Barnett for her 12 years of service on the Section Executive Committee.

The Section approved a motion to thank the University of Northern Colorado and Program Chair Shandy Hauk for their efforts in organizing and hosting the meeting.

Tubbs adjourned the meeting at 8:50 a.m.

Respectively submitted,

Janet Heine Barnett, Secretary/Treasurer

Grants Available

Section Activity Grants Available

Applications for Section Activities Grants are again being accepted to assist Section members with projects in support of the Section Mission. Proposals may request up to $500; matching funds are preferred, but not required.

The project director(s) must be a current member(s) of MAA, and the proposal must be clearly tied to one or more of the Rocky Mountain Section Mission Goals. A copy of these goals appears on the inside back cover of this newsletter. All applications must include the following:

(a) Description of project (no more than one page);
(b) Statement of how project supports Section Goals (no more than one page);
(c) Estimated budget, including description of matching funds available, if any;
(d) Vitae of project director(s).

Upon completion of the project, the director(s) of the funded projects are required to file a brief report (no more than one page), and to present a project report at the next meeting of the Section.

Two non-officer members of the Section will review applications; the Executive Committee on the basis of the reviewers' reports will make final funding decisions. Although applications are accepted at any time, please note that notification of funding decisions may take up to two months following receipt of the application by the section secretary.

Student Recognition Grants Available

The establishment of a Student Recognition Grant Program was approved by the section membership at the 2003 Annual Business Meeting. In support of this program, the Section will set aside $500 every calendar year. From these monies, the Section will make grants for the purpose of recognizing superior achievement in mathematics on the part of (1) students enrolled in post-secondary institutions within the geographic region served by the Section and (2) high school students whose school districts, or other appropriate political subdivisions, substantially intersect the geographic region served by the Section.

Proposals for such grants must

1. Originate from a member of the Rocky Mountain Section of the Mathematical Association of America on behalf of an agency, institution, or organization whose stated purposes are consistent with recognizing or encouraging superior academic achievement at the high school level;
2. Be in the hands of the Chair of the Rocky Mountain Section no later than March 15 of the year in which the proposed recognition is to be made;
3. Include the criteria under which superior achievement in mathematics is to be recognized, together with the time and the manner of such recognition;
4. Report, insofar as possible at the time of the proposal, other potential sources of support together with proposals or requests made or intended; and
5. Be limited to a maximum amount of $250.

The Executive Committee will review all proposals for grants under this policy and will make such grants as, in its sole judgment, it deems proper. In keeping with the section mission, funding priority will be given to grants that include recognition of undergraduate students. Funding decisions will be announced no later than the Annual Business Meeting of the Section. Monies not expended during any particular year shall revert to the Section's general fund.

Section Logo Shirts Available

First unveiled at the 2002 Spring Section Meeting in Laramie, Rocky Mountain Section Logo shirts are now available in two styles: a **long-sleeved button-front denim shirt** and a **short-sleeved white polo shirt**. Both styles are 100% cotton and feature the section logo in high-quality color embroidery on the front left.

In order to promote awareness of the MAA and the Rocky Mountain Section, prices have been set in order to recover production costs, just **$35 for denim** and **$30 for polo**. Proceeds, if any, will be used to support section activities.

If you are interested in obtaining one of these special shirts, please contact **Janet Barnett,** janet.barnett@colostate-pueblo.edu, with information on desired quantities and sizes.

About Our Logo

The logo for the Rocky Mountain Section of the Mathematical Association of America was created in by Mark Petersen in 2001. A graduate student in the Applied Mathematics Department at the University of Colorado at Boulder at that time, Mark says of his design:

"The mountain symbols were chosen because analysis is the foundation for all of mathematics. The equation $e^{i\pi} + 1 = 0$ must rank among the most beautiful formulas in mathematics. It connects the five most important constants of mathematics with the three most important operations - addition, multiplication, and exponentiation. These five constants symbolize the four major branches of classical mathematics: arithmetic, represented by 0 and 1; algebra, by i; geometry, by π; and analysis, by e. (Quoted from Eli Maor's *e, The Story of a Number*). I chose to portray this equation as a train because rail has historically been the life blood of the American West, and trains are complementary to any mountain scene."

Meetings Calendar

AMATYC National Conference, San Diego, CA; November 10-13, 2005
NCTCM; Denver; November 10-12, 2005

Joint Mathematics Meetings, San Antonio, TX; January 12-15, 2006
ICTCM, Orlando, FL; March 16-19,2006
NCTM National Meeting, St. Louis, MO; April 26-29, 2006
MAA Rocky Mountain Section Meeting
Mesa State College; Grand Junction
April 7-8, 2006
MAA Mathfest; Knoxville, TN; August 10-12, 2006

Joint Mathematics Meetings, New Orleans, LA; January 4-7, 2007
MAA Mathfest; San Jose, CA; August 3-5, 2007

Joint Mathematics Meetings, San Diego, CA; January 6-9, 2008
MAA Mathfest; Madison, WI; July 31 – August 2, 2008

Joint Mathematics Meetings; Washington, DC; January 7-10, 2009
Joint Mathematics Meetings; San Francisco, CA; January 6-9, 2010
Joint Mathematics Meetings; New Orleans, LA; January 5-8, 2011

Burton W. Jones Award Nomination Form

Name of Nominee _____
(First name first)

College or University Affiliation _____

College or University Address _____

City _____ State _____ Zip: ____

Is the nominee a member of the MAA? _____

Number of years of teaching experience in a mathematical science _____

Has the nominee taught at least half time in a mathematical science
for the past three years (not counting a sabbatical period)? _____

In the space below, please briefly describe the unusual personal and professional qualities of the nominee
that contribute to her or his extraordinary teaching success.

Name of Nominator) _____
(first name first)

Address of Nominator _____

_____

Email Address _____

Telephone: Work _____ Home _____ Fax _____

Nominator's Signature _____

Nomination form should reach Section Secretary by 1 December 2005.
Complete nomination materials should reach Section Secretary by 29 January 2006.
Please consult section webpage (http://www-math.cudenver.edu/~maa-rm/) for complete guidelines and address of Section Secretary.

The Rocky Mountain Section of
The Mathematical Association of America

Certificate of Meritorious Service Nomination Form

Name of Nominee _____

Affiliation _____

Address _____

_____

_____

Email Address _____

Telephone: **Work** _____ **Home** _____

Is the nominee a member of the MAA? _____

Name of Nominator _____

Address of Nominator _____

_____

_____

Email Address _____

Telephone: Work _____ **Home** _____

Fax _____

Nominator's Signature _____

Complete nomination materials should reach the Award Selection Committee Chair, Rob Tubbs, by 31 January 2006:

Rob Tubbs, Department of Mathematics, University of Colorado, 395 UCB, Boulder CO 80309, Robert.Tubbs@colorado.edu

Please consult section webpage (www-math.cudenver.edu/~maa-rm/)
or Rob Tubbs for additional information.

Voluntary Section Dues

Many thanks to those members who have made a voluntary dues contribution to the section along with their Spring Meeting Registration!

Although the section has found itself in good financial health in recent years, additional funds are always needed in order to pursue special initiatives suggested by the membership. The successful John Fauvel Memorial Conference and William Dunham Special Lecture, both supported in part by the Section Activity Grant program, provide excellent examples of what can be done with even a small amount of funding to support our section mission and goals.

A voluntary section dues contribution from you now can help build up funds in support of similar initiatives!

To submit your dues, simply return the coupon below with a check for any amount you wish - every little bit will help, and all contributors will receive a letter acknowledging the contribution for their financial records.

MAA Rocky Mountain Section Voluntary Dues Contribution Form

Name   _____

Address   _____

_____ **ZIP** _____

Please indicate in the space provided how you would like your dues to be used:

_____   Undergraduate Student Initiatives

_____   Graduate Student Initiatives

_____   Burton W. Jones DTA Fund

_____   Section Activity Grant Program

_____   Wherever needed most

_____   Other: _____

_____   **TOTAL DUES PAID ($10 recommended)**

Please make check payable to: **MAA Rocky Mountain Section** and return to: Hortensia Soto-Johnson, MAA Rocky Mountain Section Treasurer: UNC School of Mathematical Sciences, Campus Box 122, Greeley, CO 80639

MAA Rocky Mountain Section
Mission Statement

**To promote excellence in mathematics education,
especially at the collegiate level.**

Mission Related Goals

1. To foster scholarship, professional development, and professional cooperation among the various constituencies of the mathematical community within the region.

2. To foster the implementation and study of recent research recommendations for the teaching, learning and assessment of collegiate mathematics.

3. To support the implementation of effective mathematics preparation programs of prospective teachers at all levels.

4. To enhance the interests, talents and achievements of all individuals in mathematics, especially of members of underrepresented groups.

5. To provide recognition of the importance of mathematics, mathematical research and quality mathematics teaching, and promote public understanding of the same.

6. To provide regional leadership in the promotion of systemic change in mathematics education, and in the enhancement of public understanding about the needs and importance of mathematical research and education.