Fall 2007 Newsletter

Section Website **http://sections.maa.org/rockymt**

Fall 2007 Newsletter in PDF Format for Printing

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2007 - 2008 Section Officers and Committee Members
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Lynne Ipiña
of
The University of Wyoming
named
2007 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.

Criteria for the award require far more than effective teaching. Awardees are expected to be outstanding teachers, widely recognized both within and beyond their institution for extraordinary success in teaching mathematics.

The 2007 Burton W. Jones Distinguished Teaching Award was presented to Professor Lynne Ipiña of the University of Wyoming. Dr. Ipiña accepted her award at the 2007 spring section meeting at CSU-Pueblo. The criteria for the award set out a broad spectrum of qualities and achievements that leave no doubt the recipient has had a profound effect on the mathematics profession. This year, there were several very strong nominations (a testament to the quality of the faculty working in the Rocky Mountain Section), but the committee felt that Dr. Ipiña's accomplishments best exemplified the characteristics required of the award. Indeed, her activities and scholarship cut across broad areas of the profession, leaving a positive impact wherever she has been involved. Her colleagues and former students look to her as a resource, a mentor, and a friend.

Lynne Ipiña has won teaching awards on five previous occasions. Students seek out her courses for the passion and enthusiasm she brings to the classroom. Students and colleagues describe her as innovative, caring, and a true master of curriculum design. Dr. Ipiña's lessons meet students at the appropriate level and push them to greater understanding. Her expertise in the classroom has repeatedly merged with other professional endeavors—she played a prominent role in NSF grants at the University of Wyoming to allow high school teachers to earn a Master's of Science in Teaching degree and in the Middle-level Math Initiative. Always an innovator, Dr. Ipiña was at the forefront of the calculus reform movement and was instrumental in bringing graphing calculators into the curriculum at UW. She has continued to use technology in innovative and instructive ways in her courses. She is described by her colleagues as a master teacher and by her students as an inspirational instructor.

Dr. Ipiña's concern for quality education transcends her own classroom. She has served as course coordinator for precalculus, written teaching notes for graduate students, and organized a three-day workshop for incoming teaching assistants at Wyoming (in use since 1988). The breadth of her teaching is also impressive. Though she has taught everything from calculus through differential equations, mathematical modeling and even math history, Professor Ipiña has made her greatest contributions in courses for perspective math teachers. Her involvement with both teachers and students in the K-12 community is extraordinary. Her colleagues have great respect for her impact on teacher education and her work with middle and high school students in Wyoming. Many of Dr. Ipiña's students have gone on to earn advanced degrees in mathematics and math education—a true testament to how much she inspires her students.

The Burton W. Jones Distinguished Teaching Award recognizes significant contributions to the mathematical profession. Measuring far more than course critiques or popularity, the award signifies a deep commitment to mathematics education and an enviable level of expertise. Professor Lynne Ipiña has shown a tremendous dedication to her craft and the achievements in her career make her a fitting recipient of this award.

Mike Brilleslyper, USAFA
Chair, Rocky Mountain Section

Past Burton W. Jones DTA Recipients

1992 John H. "Jack" Hodges
University of Colorado, Boulder
1993 Gerald Diaz
United States Air Force Academy
1994 A. Duane Porter
University of Wyoming
1995 William D. Emerson
Metropolitan State College of Denver
1996 Zenas Hartvigson
University of Colorado at Denver
1997 Thomas Kelley
Metropolitan State College of Denver
1998 Monte Zerger
Adams State College
1999 Bill Briggs
University of Colorado at Denver
2000 Barbara Bath
Colorado School of Mines
2001 Jim Loats
Metropolitan State College of Denver
2002 Gene Abrams
University of Colorado at Colorado Springs
2003 Hugh King
Colorado School of Mines
2004 Don Teets
South Dakota School of Mines and Technology
2005 Bryan Shader
University of Wyoming
2006 Barbara Moskal
Colorado School of Mines
2007 Lynne Ipiña
University of Wyoming

Distinguished Teaching Award to Increase

After careful deliberation and much scrutiny of the section budget, the Executive Committee voted to increase the monetary award for the Burton W. Jones Distinguished Teaching Award. For many years, the award was $50 and it seemed appropriate to increase the award (though we know our award winners don't do it for the money!). Several amounts were suggested, but in keeping with the recent Euler celebrations the committee settled on $271.82 as the new amount. We just wonder if the bank will cash a check that says 100e$ on it?

2008 Distinguished Teaching Award Call for 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 an honorarium, a certificate and an invitation to deliver the opening lecture at the next Section Meeting, the recipient 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. All nominators also receive a certificate of in recognition of their efforts to support the section mission of promoting excellence in teaching; nominators and nominees both receive free meeting registration at the next section meeting. To begin the nomination process for an outstanding teacher that you know, simply submit the **one-page nomination form** (available at our website: http://www-math.cudenver.edu/~maa-rm and in this newsletter) by **1 December 2007**. **Complete nomination materials** (described on the website) are due **15 January 2008**.

Section Students Recognized for Mathematics Excellence

On May 15, 2007, the Twelfth 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 44 Colorado students and 28 teachers for outstanding performances on six national mathematics competitions: MATHCOUNTS, the American Mathematics

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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 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 Larue for his AMC 10, 12 web site: 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 **Mike Brilleslyper** (USAFA).

Again his year a team from University of Colorado-Boulder excelled in the Mathematical Contest in Modeling. Team members were **Benjamin Barrow, Andrew Glugla,** and **John Shelton,** coached by Prof. **Mike Ritzwoller**. The team received the **Meritorious** designation for their solutions and was the recipient of the Ben Fusaro Award for the problem they worked on.

Colorado State University and the University of Colorado-Boulder shared Putnam Competition honors. Individual top Putnam scorers were **Ben Joeris** from CSU, and **Andrew Scacco** and **Jared Ahrendsen** from from CU-Boulder. The CSU coach was Prof. **Justin Sawon,** and the CU-Boulder 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** again belongs to **Ben Joeris**, CSU (he was top scorer last year, too!). The Rocky Mountain **Section AMC 12 Top Score** was achieved by **Sam Elder**, a junior at Poudre High School in Fort Collins. Congratulations, Ben and Sam!

Prof. **Lynne Ipiña** (University of Wyoming), recipient of this year's Rocky Mountain Section Bchairurton W. Jones Distinguished Teaching Award, was recognized by section Chair **Mike Brilleslyper**.

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

Dick Gibbs, Fort Lewis College

Chair's Report

I was just recovering from spring finals and settling in to a relaxing summer schedule when someone mentioned the fall newsletter articles were due! Yes, it's true, another gorgeous summer in the Rockies is past and another fall semester is already half over. Classrooms are full of (not so) eager students learning that "Euler" doesn't rhyme with "ruler," and that rectangles having no width somehow add up to the area under the curve. Many more students (+ or – 3%) will learn the power of statistics as we enter a presidential election year. The polls and surveys will have center stage in the media as mathematics teachers help their students understand the world they live in. Creating a mathematically literate population has never been more important and the members of the Rocky Mountain section play a vital role in this endeavor.

This fall marks the start of my tenure as section chair. I look forward to serving in this role and to helping the section move forward in meeting its goals. My predecessor, Jeff Berg (Arapahoe CC), has completed his term as acting chair and now assumes the role of past chair. Jeff did a great job leading the section and I would like to thank him for his dedication, his hard work, his wry sense of humor, and his commitment to the ideals and goals of the MAA. Jeff will be a tough act to follow. The section also said goodbye to our vice-chair, Karen Walters (Arapahoe CC), who has moved to Virginia and is teaching at Northern Virginia CC. Karen also worked diligently for the section and her efforts will be missed. We welcome Sarah Stanley (Western Wyoming CC) as our new vice-chair.

Though the Rocky Mountain section and its members are involved in many activities throughout the year, there is no doubt that the highlight of our year is the spring section meeting. In the seven years that I have lived in Colorado, I have been impressed by the attendance at our section meetings. People will drive 10 hours or more through all kinds of

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weather to attend, often bringing car-loads of students with them. The spring meeting is the glue that holds the section together. Faculty can reconnect with colleagues, attend insightful keynote talks, inspire future mathematicians and math educators, and share ideas.

This spring we will be meeting at Black Hills State University in Spearfish, SD (April 25-26, 2008). It will be my first trip to South Dakota and I am excited to bring my family along to experience Mt. Rushmore, the Black Hills, Custer State Park, and nearby Deadwood. The meeting itself will be very memorable. Program chair, Daluss Siewert, is preparing a dynamic schedule featuring keynote addresses by MAA president Joe Gallian (Univ of Minn Duluth) and Dr. Ben Sayler, Director of the South Dakota Center for the Advancement of Mathematics and Science Education at BHSU. The meeting kicks off with a special address by our 2007 teaching award winner, Lynne Ipiña (Univ of Wyoming). Other features include student paper sessions, a special session for graduate students, and the usual assortment of outstanding contributed papers by our colleagues in the section. The 2008 Burton W. Jones Distinguished Teaching Award will be announced as well. Please see the article in this newsletter by Daluss for more information about the spring meeting. Remember, Presidents Washington, Jefferson, Lincoln, Roosevelt, and Gallian are expecting you!

As one of my first official duties as section chair, I attended the Section Officer's Meeting at Mathfest in August. Below are highlights from that meeting containing information that I thought would of interest to many of our members:

1. Martha Siegel, MAA secretary, would like input for the National Committee on Committees. If you have had a desire to serve at the national level or know someone that would, you can submit their name and interests directly to Martha at msiegel@townson.edu .

2. It was announced that Hal Nesbitt was leaving the MAA to pursue other professional opportunities. Hal was a valuable asset in the Washington office and he will be missed.

3. Roseann Brown, Director of information services, asked for comments on the new MAA website design. She also reminded members that many journals are available online and that MAA is actively upgrading their website to improve online membership renewal, monetary donations, etc. Also, the logon for the MAA site is being revamped and an easier system will become active in December.

4. Ivars Peterson, Director of Journals & Communications, discussed several new features available on the MAA website. There is now a daily "math in the news" feature which (besides being of interest to members) may make great classroom discussion material. These articles will also be archived on the site. If anyone has mathematical news features of interest that are worthy of sharing, feel free to submit them directly to Ivars at IPeterson@maa.org. Another fun feature coming in the near future will be the ability to subscribe to the "Number a Day." Each day, subscribers will get a new number with all sorts of interesting information about it. Another enhancement in the works includes a job site that focuses on positions that could utilize a B.S. in mathematics.

5. Nancy Hagelgans, Chair of the Committee on Sections, reminded all members to update their email addresses and contact information with the National office.

6. A highlight of the section officers meeting was the time spent in breakout groups. The groups focused on questions relating to section meetings. There was lively discussion concerning how section meetings have changed over the years, what components of meetings are most successful, ideas for attracting faculty members and students from all types of institutions, and how the sections can reach out to involve other members of the mathematical community. Many terrific ideas were shared from "Math Jeopardy" games for students, to special outreach programs for K-12 teachers.

The section officers' meeting showed me that the MAA is an incredibly diverse, thriving organization that is involved in a wide array of activities. The scope of the organization is impressive. It was clear that all the national officers care deeply about the MAA and recognize that the sections are the life blood of the organization.

On the flight home, I reflected on the impact the MAA has had on my own career. I began as a Project NExT Fellow in 1995. This experience

laid the foundation for a career spent teaching college mathematics. It is wonderful program and I am pleased that it continues to thrive. I have twice served as Program Chair for section meetings. Other MAA-related experiences include organizing a session at a national meeting, serving on panel presentations, numerous contributed paper talks, serving on section-level and national committees, organizing undergraduate conferences, and now serving as section chair. The MAA has provided a framework for many of my service activities and an outlet for scholarly work. It is a professional and accepting organization. My goal as section chair is to help faculty in the Rocky Mountain region continue to see the value of the MAA. I would like to increase membership across the region, focusing on new and younger faculty who may not appreciate the role the MAA can play in their careers. I would also like to help current members see the MAA in a new light. The MAA supports so many activities and programs that there is likely something for everyone, regardless of where they are in their career. I look forward to working with the executive committee and other members of the section as we move forward together. If anyone has ideas, comments, or concerns about the section, please feel free to contact me directly.

It is likely the middle of fall as you read this; I hope you are enjoying the changing leaves and the vibrant colors (and maybe a little college football). Don't get too relaxed though, fall semester finals will begin any minute…

Respectfully submitted,
Mike Brilleslyper, USAFA
Chair, Rocky Mountain Section

Governor's Report

There was record attendance at MathFest this summer, both in terms of students and overall numbers. The meeting was held August 2 through August 5 in San Jose, California. The Joint Meetings in New Orleans this past January also set records in both categories. The Board of Governors met on August 1st in San Jose, and some of the highlights of the meeting are included below.

The MAA 2008 Operating Budget (not including grant funding) has a slight deficit;

however, it is expected that the actual spending will balance.

Membership in the MAA is down 3%, approximately 800 members, over the past 18 months. It is hoped that this isn't a serious downturn. An auto pay option for membership dues is expected to be available by 2008, which might help the membership numbers.

The self study being conducted by the MAA continues with the Cycle III topics: meetings, sections, and STEM (science, technology, engineering and mathematics) issues. These topics were chosen by the Board.

You might want to consider applying to run a National REU, for underrepresented groups. There is money for 12 sites, and they say they need more proposals. See www.maa.org/nreup for more information. Don't forget the Tensor-SUMMA grants; one site got $6000 last year to prepare students for the Putnam.

MAA Online "Math in the News" is available, and archived as well. MAA wants articles about what interesting and innovative things that sections are doing. They are also looking for information from SIGMAAs. Focus Online is trying to make a sort of "career center," with jobs posted online. These are anticipated to be jobs for undergraduates, or for people with master's degrees.

Each MAA section is encouraged to "buy a brick" for the Carriage House.

National is looking at a way to incorporate Section websites into the national website. As a next step they may buy a content management system, and perhaps host the sites on the MAA server.

Focus magazine is always looking for articles; include images!

There are now 3230 entries in the MAA Reviews (books). You can generate user reviews, which are filtered through Fernando Gouvêa. You may get free books!

We need a new Governor; are you interested? It is a very interesting position, and has been a terrific experience for me. However, I cannot run again, so please consider being the new Governor! You may email Graeme Fairweather (gfairwea@mines.edu) or Hortensia Soto-Johnson (hortensia.soto@unco.edu) if you think you might like to run for this position. The election will probably be sometime in March, and will be managed by the national MAA people. New Governor Orientation will be held in

Washington DC, probably in June; it will be important for the new Governor to attend.

This just in, for those of you who plan way ahead: the Joint Meetings in January 2009 in Washington DC have been rescheduled. They will be held Mon. - Thurs. Jan. 5-8 instead of Wed. - Sat. Jan 7-10. All pre- and post-meetings are similarly rescheduled. Thus the Board of Governors meeting will be Jan. 4, 2009.

Respectfully submitted,
Jane Arledge, Mesa State College;
Governor, Rocky Mountain Section

Section News

Arapahoe Community College

Karen Walters moved away. She is teaching at the Northern Virginia Community College in Annandale, Virginia. The ACC Math Department welcomed **Debbie Grant** and **Lane Andrew** as new full time faculty. **Jeff Berg** was elected as President Elect for ColoMATYC last March. **Erica Hastert** (formerly Johnson) is Faculty Senate President and Phi Theta Kappa Advisor at ACC. **Tracy Lawrence** is the new Math Department Chair.

Fort Lewis College

Veronika Furst has joined the department at Fort Lewis College this year. She finished her degree from CU Boulder in 2006, working with Larry Baggett. She spent one year as a teaching post-doc at the University of Arizona before coming back to Colorado.

This will be **Deb Berrier**'s last year at FLC, she plans to retire at the end of the year. She has been at FLC for 19 years.

Metropolitan State College of Denver

This past spring, **Ruth Yarar,** who is on transitional retirement, was awarded Emeritus status and **Earl Hasz**, Professor of Computer Science, retired after 39 years of teaching at Metro and was also awarded Emeritus status.

Shahar Boneh was promoted to Professor of Mathematical Sciences; **Ken Prevot** was tenured and promoted to Associate Professor of Mathematical Sciences; **Jody Paul** and **Noel LeJeune** were both tenured and promoted to Associate Professors of Computer Science; and **Ilyia Georgiev** was tenured and promoted to

Professor of Computer Science. Congratulations to all!

The Department welcomes **Diane Davis** who recently completed her Ph.D. from Colorado State University in the field of algebraic geometry.

Our new Department Chair is **Noel LeJeune.** Our past Department Chair, **Steve Beaty**, is now serving as Interim Vice President of Information Technology for Metro.

South Dakota School of Mines and Technology

The team we had for the Putnam Competition was ranked in the top 150 teams of the competition with two of our students finishing in the top 25 percent of the participants. We think this is a wonderful accomplishment when one considers the size of our program and the applied nature of our program.

Another outstanding honor goes to **Julie Dahl** with the Virginia Simpson Award, which is a campus award that is dedicated to the recognition of community service. Julie has been one of the primary organizers of the West River Math Contest for several years. The West River Math Contest has a 57 year tradition of challenging hundreds of high school and middle school students across the region.

Another event to mention is the NASA award to **Jeff McGough** of his grant proposal to incorporate the use of robotics in our first semester programming class. We will be conducting a pilot of this course this fall in the hopes we can expand on this success in future semesters.

The last thing we would like to mention is an item that can be found on the cover of the May edition of the *College Mathematics Journal*, where our very own **Don Teets** has a wonderful article on the Go To telescope.

University of Colorado at Boulder

In the spring, **Gordon Brown** retired from the department after roughly 40 years of service. This fall we welcome two new faculty members: **Nat Thieme** (algebra) and **Markus Pflaum** (topology).

University of Northern Colorado

Many changes transpired at the UNC School of Mathematical Sciences over the summer. **Jeff Farmer** retired and is off to new adventures, while **Dean Allison** has taken over the position

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of Director. **Michelle Chamberlin** is on academic leave and at the University of Wyoming. Both Jeff and Michelle are greatly missed by everyone. **Nat Miller** was awarded tenure and promoted to associate professor, while **Dean Allison** and **Jodie Novak** were promoted to full professor. We are extremely pleased with our two new tenure-track hires, **Cathleen Craviotto** and **Stephanie Fitchett**. Cathleen is re-joining our faculty after several years of absence and we're delighted to have her back! She earned her Ph.D. in mathematics in the area of complex analysis and continued fractions at the University of Colorado-Boulder. **Stephanie Fitchett** will join us in the spring semester. She is currently an Associate Professor at the Harriet L. Wilkes Honors College of Florida Atlantic University. Steph received her Ph.D. in mathematics at the University of Nebraska-Lincoln in algebraic geometry and also has an M.S. in Statistics from CSU-Fort Collins.

We have been awarded two new grants. The Fort Morgan Math and Science Partnerships Project is a three-year, $633,549 grant to create a comprehensive K-12 instructional system for mathematics that will provide high quality mathematics instruction for all students. Drs. **Chamberlin, Novak** and **Powers** from the Mathematics Department at UNC are supporting this effort by providing comprehensive, integrated content and pedagogy professional development for teachers during the summer and throughout the school year.

The Weld County School District 6 Math/Science Partnership Project is a three-year, $619,061 grant to increase the math and science achievement of middle school students and reduce the achievement gap by increasing the knowledge of middle school math and science teachers. Drs. **Novak** and **Powers** from the Mathematics Department at UNC are supporting this effort by providing monthly professional development sessions around content and pedagogy to help middle school teachers at each grade level implement their new instructional materials, prepare for the next instructional unit and reflect on their practice in order to improve student results from the previous unit.

University of Wyoming

We have two new tenure-track faculty in the UW Math Department this semester, both of whom have come from other parts of the Rocky Mountain region. **Michelle Chamberlain** comes to Laramie from the University of Northern Colorado in Greeley. Her interests are in math education, particularly designing effective courses for math ed majors, and professional development for practicing teachers. **Victor Ginting** moved to Laramie from Fort Collins, where he was a postdoc at Colorado State University. He studies numerical analysis and multiscale modeling. In addition, **David Anton** has been appointed the director of UW's Math Lab, after two years as acting director.

In the spring, we congratulated **Lynne Ipiña** for winning the 2007 Burton W. Jones Distinguished Teaching Award, and **Stefan Heinz**, who received tenure and was promoted to Associate Professor.

Fall 2008 marks the 40th anniversary of the Ph.D. program in Mathematics at the University of Wyoming. The Department will be celebrating this occasion with a meeting featuring its MST, MS, and Ph.D. graduates. This will take place July 17-18, 2008.

For the 26th consecutive year, UW hosted the Rocky Mountain Mathematics Consortium Summer School. This year's theme was Flow in Porous Media with Emphasis on Modeling Oil Reservoirs. The school was co-organized by **A. Duane Porter** and **Benito Chen-Charpentier**. Next year's program will take place June 9-20, 2008; the topic will be Parallel Numerical Methods for Partial Differential Equations. Some funding will be available, so if you're interested, check it out.

On October 12, the Math Department will be featured at this year's Arts and Sciences Morning of Courses. This is an annual series of lectures presented by one department for a general audience, as part of Homecoming events. As a lead-up to this, we have organized a countdown contest of mathematical problems. See the problems (and solutions) by going to: uwacadweb.uwyo.edu/MATH-PR/ and clicking on the Rubik's cube.

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.

Student Activities

Students are invited to participate in the MAA Sectional meeting at Black Hills State University in South Dakota, April 25-26, 2008. There will be student sessions in which you can give a talk, as well as a student poster session. If you would like to give a talk, please submit your proposal as described in the general announcement for the meeting.

You may also present a poster, even if you're also giving a talk. Bring a poster relating to your independent study, senior seminar, modeling contest, etc. Anything with mathematical content will be appropriate. Prizes will be awarded in categories to be determined.

Ask a faculty member at your institution about the meeting and/or contact me at lienert_c@fortlewis.edu.

Carl Lienert
Section Student Activity Coordinator

5th Annual Pikes Peak Regional Undergraduate Mathematics Conference
Colorado College
Saturday, February 23, 2008

The fifth annual **Pikes Peak Regional Undergraduate Mathematics Conference** (PPRUMC) is scheduled to take place on **23 February 2008** at **Colorado College** in Colorado Springs.

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, and time will be scheduled for optional participation in an informal celebratory dinner. The steering committee expects that lunch will 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 student projects 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 **Jane McDougal**l (email: JMcDougall@ColoradoCollege.edu).

Nominees Sought

This year we are seeking nominations for three positions to serve on the executive committee. We are soliciting names for **chairperson-elect**, for **secretary/treasurer,** and for section **governor**. The elections for the chairperson-elect and secretary/treasurer will be held at the Spring 2008 meeting to be held at Black Hills State University. The election of our new section governor is handled by MAA headquarters and will require early nominations.

The chairperson-elect serves a 1-year term then serves a 2-year term as chair of the section. In the fourth year, this person will serve as past-chair. Both the secretary/treasurer and governor serve a three-year term. The secretary/treasurer is responsible for the budget, the preparation of reports, and all details not

assigned to other officers. During the 3-year term, the governor attends all national meetings and serves as a liaison between our section and national.

Send your nominations to Graeme Fairweather (gfairwea@mines.edu), the chair of the nominating committee. Please include contact information and a brief bio of the candidate along with your nomination.

4th Annual Pikes Peak Regional Undergraduate Mathematics Conference Report

Braving blizzard warnings and Air Force security, eighty hardy souls attended the 4th Annual Pikes Peak Regional Undergraduate Mathematics Conference (PPRUMC) on February 24, 2007 at the United States Air Force Academy in Colorado Springs. The sleet and dark clouds soon gave way to bright blue skies and views of the conference namesake. The participants had a fascinating day learning about interesting mathematical ideas and enjoying the historic Air Force Academy.

PPRUMC participants with the Cadet Chapel in the background

Despite the local nature of the regional conference, contingents of students came from as far away as Kansas, Wyoming and New Mexico. Students also traversed the continental divide from the western half of Colorado to attend. It was a diverse and fun group of students and faculty members.

The meeting opened with a keynote address by Professor Dan Rudolph of Colorado State University. He discussed an open-ended undergraduate research project involving "chasing rabbits" and other discrete mathematics ideas. In the second half of his talk, he summarized many of the different career paths available in mathematics, from actuarial science, to industry, to academia. The remainder of the morning session included talks by undergraduates and spanned an impressive array of topics. Talks included music and mathematics, strange attractors and chaotic maps, fluid flow, numerical analysis, and large-scale computer searches.

The participants were then treated to lunch in the cadet dining facility, Mitchell Hall, with seating for 4000 under a single span of roof. Lunch was followed by cadet-led tours of some of the Academy facilities including aircraft displays and the world renowned Cadet Chapel. After all that walking around at 7200 feet above sea level, the participants were ready for more mathematics.

The afternoon began with an all military panel discussion focusing on how mathematics is used in Department of Defense applications. The discussion spanned the spectrum from keeping track of space debris in orbit, to the accuracy of weapon systems, to the allocation of personnel across the Air Force.

The student speakers in the afternoon session covered topics in abstract algebra, number theory, and statistics in baseball. A particularly enjoyable talk by two students was an overview of the mathematical arguments for and against the existence of a supreme being.

The interest and participation from throughout the region indicates the continued need for conferences such as the PPRUMC. The opportunity to give a talk in a professional conference setting is a significant milestone for many mathematics majors. Now in its fourth year, the conference has been held at Colorado State University-Pueblo (2004 & 2006), Colorado College (2005), and the Air Force Academy (2007). In each year the conference has been generously supported by NSF grant DMS-0536991 through the MAA Regional Undergraduate Conferences Program.

Mike Brilleslyper and Beth Schaubroeck
USAFA

Black Hills State University to Host 2008 Meeting

The Department of Mathematics at Black Hills State University is pleased to announce the results of its preliminary planning for the 2008 Spring Section Meeting, to be held at Black Hills State University on April 25-26, 2008. In keeping with tradition, the meeting will officially open with a special address by our most recent Burton W. Jones Distinguished Teaching Award Recipient, **Dr. Lynne Ipiña** of the University of Wyoming. Dr. Ipiña is an innovative teacher that is involved with improving education at many levels, both inside and outside the university. In particular, she has played a major role in the NSF funded Middle-Level Math Initiative and she plans to speak about her work with middle level in-service teachers.

This years Invited Keynote Speaker will be **Dr. Joseph Gallian** of the University of Minnesota Duluth and current president of the MAA. Dr. Gallian is an inspiring speaker, a highly respected author, and an innovative educator who has received numerous prestigious awards and honors for his work. Dr. Gallian's banquet address and Saturday morning lecture on *Using Groups and Graphs to Create Symmetry Patterns* is sure to make the drive to Spearfish worthwhile.

A special featured address on Friday afternoon by **Dr. Ben Sayler**, Director of the South Dakota Center for the Advancement of Mathematics and Science Education (CAMSE) at Black Hills State University, will focus on university-school district partnerships in improving K-12 education. Dr. Sayler is the principle investigator on Project PRIME, an NSF funded project focusing on improving K-12 mathematics in the Rapid City school district.

Rounding out the scientific program will be talks contributed by intelligent, involved and inspirational people like you! Although talks on all topics mathematical are welcome, special sessions are being organized around the following themes: **History of Mathematics – Emphasis on American Mathematics**, **Partnering to Improve K-12 Mathematics**, and **Ideas and Applications in Ordinary Differential Equations**. A **Graduate Student Research Session** and **Undergraduate Student Papers Session** are also being planned. For more information about these sessions, or to submit a talk for the general session, please see the **First Call for Papers** and **Speaker Response Form**.

Additional topics under consideration for inclusion in the program are: *The Placement Process, The Role of Algebra in Applied Mathematics, Finite Geometry,* and *Project-Based Mathematics Courses.* Volunteers to organize special sessions or panel discussions around these or other themes of interest to the section membership are welcome!

Preceding the program on Friday morning, **Dr. Gary Hagerty** of Black Hills State University will conduct a workshop on **ALEKS**. ALEKS is a web-based, artificially intelligent assessment and learning system. This hands-on workshop will discuss what ALEKS is, how it works, and how to implement it successfully. The workshop will also provide information on how ALEKS has been used in the college algebra courses at BSHU and the results that were obtained – these results include cutting our failure rate by more than half. Current and prospective teachers of remedial mathematics through precalculus level courses are encouraged to participate. Registration is limited to 15 participants; the registration fee is $5 per person.

The BHSU mathematics and mathematics education faculty are excited about this opportunity to host the section meeting next spring. Most of you have never been to our beautiful campus nestled in the foothills of the northern Black Hills. We hope you and your students will come see what's happening up north. We encourage attendees to visit some of the areas attractions, such as Mount Rushmore or Devil's Tower, while in the area. Some attendees may want to bring their family and visit some family attractions like Reptile Gardens and Bear Country near Rapid City.

About Our Featured Speakers

Lynne Ipiña received her B.S. in Mathematics from South Dakota State University in 1972. As an undergraduate, she received a Fulbright award to travel to Argentina, which awakened an interest in opportunities abroad. As a result she spent four years in Bolivia before returning to the United States to complete her M.A. and Ph.D in Mathematics from New York State University in 1978 and 1986, respectively. Dr. Ipiña is currently an associate professor at the University of Wyoming. At the University of Wyoming, she has had central involvement in two large NSF grants. One to deliver curriculum to enable in-service middle-school mathematics teachers in Wyoming to become highly proficient teachers, and another to prepare secondary mathematics teachers from around the United States to be leading mathematics educators in their districts. She is currently co-director of the Wyoming State Math Contest for high school students, she is active in both AMATYC and WCTM, and she provides a valuable bridge to the Wyoming community colleges. Dr. Ipiña has a passion for excellence in teaching and has had a significant impact on improving mathematics education at all levels.

Ben Sayler is a professor at Black Hills State University, and he's in his ninth year as director of South Dakota's Center for the Advancement of Mathematics and Science Education (CAMSE), a statewide "Center of Excellence." He holds bachelor and master's degrees from Yale University and a Ph.D. in Atmospheric Sciences from the University of Washington. Following his doctoral work, he completed an NSF-funded postdoctoral fellowship in math and science education. The bulk of his work has focused on partnerships between universities and K-12 schools. He currently serves as lead faculty or principal investigator on eight grant-funded initiatives designed to improve the teaching and learning of K-12 math and science.

Joseph Gallian received his undergraduate degree in mathematics from Slippery Rock University in 1966, a Master's degree in Mathematics from the University of Kansas in 1968, and a Ph.D. in Mathematics from Notre Dame in 1971. Dr. Gallian is currently a professor at the University of Minnesota Duluth where he has been teaching since 1972. Dr. Gallian has received numerous prestigious awards and honors. These include teaching awards at both the state and national levels, awards for excellence in research with undergraduates, and exposition/scholarly awards. Dr. Gallian has been the author, co-author, or editor of seven books. He has written 100 journal articles and supervised 124 papers written by undergraduate students published in mainstream journals. Dr. Gallian has delivered numerous invited addresses, including 19 at national meetings and 47 at regional MAA meetings. Articles about his work have also appeared in the mainstream media, including twice in the Washington Post. Dr. Gallian has been actively involved in the MAA and the greater mathematical community. He is currently co-director of project NExT and has served as Associate Editor of the American Mathematical Monthly and Mathematics Magazine just to name a few. Currently, Dr. Gallian serves as the President of the Mathematical Association of America.

First Call for Papers

The **deadline** for submission of abstracts for the 2008 Spring Section Meeting is **March 3, 2008.** 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 topics mathematical are welcome, special sessions are being organized around the following themes:

History of Mathematics – Emphasis on American Mathematics
Organized by Janet Barnett (CSU - Pueblo) and Don Teets (SDSM&T)

While all talks on the history of mathematics are welcome in this session, we would like to especially encourage talks pertaining to American mathematicians, the development of mathematics in America, the history of American mathematics organizations, etc.

Partnering to Improve K-12 Mathematics
Organized by Ben Sayler (BHSU - CAMSE)

In this session, we invite talks on university-school district partnerships, changes in K-12 instruction, teacher professional development projects, and any other topic related to how university faculty and K-12 leaders are working together to strengthen mathematics education.

Ideas and Applications in Ordinary Differential Equations
Organized by Parthasarathi Nag (BHSU)

In this session, we invite talks on broad range of topics involving ordinary differential equations, such as, but not limited to, modeling physical phenomena, control theoretic analysis, describing phenomena related to bifurcation and chaos, numerical solutions of differential equations, and existence uniqueness results. Speakers should take into account that their talk will address an audience with a broad range of backgrounds and varied mathematical interests.

Research by Graduate Students
Organized by Hortensia Soto-Johnson (UNC)

In this session, graduate students will present their research to faculty, other graduate students and undergraduates. Graduate students in pure mathematics, applied mathematics, and mathematics education are invited to participate. Presenters need not be near completion of his/her program.

Undergraduate Student Papers
Organized by Carl Lienert (Fort Lewis College) and Kyle Riley (SDSM&T)

Are you supervising a student research project? Encourage your student to present their 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.

Additional topics under consideration for inclusion in the program are *The Placement Process, The Role of Algebra in Applied Mathematics, Finite Geometry,* and *Project-Based Mathematics Courses*. To volunteer to organize special sessions or panel discussions around these or to suggest other themes, please contact the Program Chair, Daluss Siewert at dsiewert@bhsu.edu, 605-642-6209.

Speaker Response Form – Due March 3, 2008

E-Mail submissions strongly preferred

Speaker Name _____

Affiliation _____

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

_____

_____

Email Address _____ Phone Number _____

Faculty Sponsor[1] _____

MAA Member Sponsor[2] _____

Title: _____

Abstract (100 words or less):

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

_____ History of Mathematics – Emphasis on American Mathematics
_____ Partnering to Improve K-12 Mathematics
_____ Ideas and Applications in Ordinary Differential Equations
_____ Graduate Student Research Session
_____ Undergraduate Student Paper Session

Special Equipment Needs: _____
Schedule Preference Request: _____
Special Talk Length Request: _____

PLEASE E-MAIL ELECTRONIC MATERIALS, AND RETURN THIS FORM OR AN E-MAIL EQUIVALENT TO:

> Daluss Siewert
> Department of Mathematics
> Black Hills State University
> 1200 University Street, Unit 9029
> Spearfish, SD 57799-9209
> dsiewert@bhsu.edu

[1] For student speakers only   [2] For non-MAA members/non-students only

MAA Rocky Mountain Section
Suggestions for Speakers

The Section offers the following suggestions which might be of assistance, *especially to first-timers*, during preparation of a talk for a Section Meeting.

1. The default talk length is 20 minutes, but longer times can be requested. Program organizers will attempt to provide the amount of time requested for your presentation, within the limitations of the program. Once you have been notified of the amount of time allotted, carefully prepare your presentation accordingly. If possible, plan to leave a few minutes at the end of your presentation for questions.

2. A presider will be assigned to facilitate each session of presentations. The presider will introduce the speaker, assist in distribution of any handouts, signal the end of the presentation, and ask for questions from the audience.

3. If handouts are to be provided, give them to the presider prior to the beginning of the session including your talk. Plan to bring about 30 handouts and be prepared to give attendees your address in case the supply runs out. It may also be possible to arrange for posting of electronic materials from your talk on the section website; check with program organizers concerning this possibility.

4. Do not plan to present so much detailed material that your presentation becomes rushed. Focus on providing the audience with insight into your topic and its key notion during the presentation. Remember that very few members of the audience will be experts in the field you are discussing and that the audience will include some students.

5. The use of transparencies on an overhead projector greatly enhances the pace of a presentation. But make sure that notes on transparencies are written or typed in a font big enough and with spacing adequate to be seen clearly 50 to 100 feet away. Simply copying ordinary typewritten pages will not produce readable transparencies. Power Point or PDF presentations can serve a similar purpose in providing pacing for a talk, but be sure to check with program organizers concerning available technology and means of transferring data.

2007 Section Meeting Report

A Rocky Mountain Spring snow storm didn't deter nearly 200 mathematicians, mathematics educators and mathematics students from celebrating the 300th anniversary of the birth of Leonhard Euler at the 2007 Annual Spring Section Meeting at Colorado State University – Pueblo on April 14 – 15.

The centerpiece of the birthday celebration was a special Friday Keynote Address Euler - 300th anniversary lecture delivered by Mr. Euler himself! The good-natured Mr. Euler (aka **Robin Wilson** of The Open University) also graced the Friday evening reception and banquet with his presence, helping to award special Euler Birthday Quiz door prizes and even blowing out the candles on Saturday's Birthday Cake. Congratulations to Robin for his fine performance as Mr. Euler at the meeting! Other birthday activities included a Celebrating Euler contributed paper session organized by **Janet Barnett** (CSU-Pueblo) and **George Heine** (BLM), an Euler's 300th Birthday Undergraduate Poster Session organized by **Carl Lienert** (Fort Lewis), and traditional Russian birthday pies at Friday's banquet to honor Euler's time in St. Petersburg.

The meeting was officially opened on Friday afternoon with a welcoming message from University President **Joe Garcia**. Our 2006 Burton W. Jones Distinguished Teacher Award Recipient **Barbara Moskal** (Colorado School of Mines) then offered insights into the impact of the growing demand for assessment and evaluation on higher education mathematics programs. Barbara's talk *Assessing Mathematics: Historical Significance and Future Directions* examined both the potential benefits and challenges of assessment, and shared the experiences of the Mathematical and Computer Sciences Department at the Colorado School of Mines.

Following the banquet dinner on Friday evening, MAA Associate Secretary **Jim Tattersall** (Providence College) introduced us to several sets of numbers – including polite numbers and sad numbers - and the history of these sets. Jim also introduced participants to the intriguing characters Nicholas Sanderson and John Colson in his Saturday Keynote Address *The Early Lucasians,* uncovering

several untold stories and some interesting mathematical results along the way.

The scientific program also featured the workshop *A Hands-On Tour of the MAA Digital Library* led by **Linda Sundbye** (Metro), the panel discussion *Math Job Search 101* with special attention to Academia organized by **Jeff Berg** (Arapahoe) and a total of 66 contributed papers delivered in four special and two general sessions. The section's first ever *Research by Graduate Students Special Session* organized by **Tensia Soto-Johnson** (UNC) was a particular success with 18 talks by 19 graduate student speakers. Speakers in the *Interesting Ideas in Mathematics Special Session* organized by **Jane Arledge** (Mesa) and **Rob Tubbs** (CU-Boulder) again offered insight into mathematical tidbits too tantalizing not to share, while speakers in the *Mathematics in K-12 Teacher Preparation Special Session* organized by **Pam Smith** (Fort Lewis) offered insight into the challenges and rewards of preparing future teachers of K-12 mathematics. Participants in the latter session also discussed the formation of a Colorado Association of Mathematics Teachers Educators (AMTE) affiliate, an endeavor which now seems to be off and running. Contact Pam Smith for more information about AMTE.

Other meeting activities included a Department Chairs and Liaison Luncheon, a highly successful MAA Book Sales Display, the usual early morning Business Meeting, and door prizes for more than a few lucky winners at Friday's Banquet. Special thanks go out to CSU-Pueblo Department Chair **Paul Chacon**, both for hosting the Chair & Liaison luncheon and for creating and donating three beautiful fractal images as special door prizes.

Congratulations and thanks to all speakers, panelists and session organizers for the success of the meeting program! The Section also wishes to acknowledge the following exhibitors and publishers for their **support of the meeting and the section:**

- *Calc for the Forgetful*, Representative and Author **Wojciech Kosek**
- Flannery Group, Representative Matthew Ours
- Houghton Mifflin, Representative Natalie Eldridge
- McGraw-Hill, Representative Marcy Capell

- Pearson Addison-Wesley & Pearson Benjamin Cummings, Representative Lisa Moller
- Pearson Prentice Hall, Representative Scott Day
- Thomson Brooks/Cole Wadsworth and Duxbury, Representative Dwala Canon
  Finally, many thanks to the **Colorado State University – Pueblo Mathematics faculty and students** for their many hours of volunteer work and hospitality throughout the meeting.
  Janet Barnett and Janet Nichols
  Program Co-Chairs

Contributed Papers

Undergraduate Student Paper Session
Organized by Kyle Riley, SDSMT

Colin Carrick, Chris Carlsgaard, Michael Corson, Austin Hazzard, Keren Herrera, Vance Holzmann, Zac Milby, Mathew Piccolo, AJ Waski, Cody Weller and Ryan Yost, Bridges High School
  Geometric Transformations
  Simulating Digital Circuits on a TI – 84 Graphing Calculator
  Teaching Students How to Become Geometers
Thomas Chartier and Douglas Warner, Pikes Peak Community College
  Non-Euclidean Geometry – The Problem of Distance in Hyperbolic Geometry
Alby Graham, Regis University
  Poncelet's Closure Theorem:
Amanda Hannah, Regis University
  Untangling DNA
Gregory Kaiser, Metro State College Denver
  Playfully Partitioning Eratosthenes
Christine Lee, University of Colorado, Denver
  Irregular Graph Colorings of Paths and Cycles
Tom Leps, Fort Lewis College
  Laplace Transforms in Fractional Calculus
Stephanie Proksch , Regis University
  Energy in Stick Knots
Gretchen Tracy, Fort Lewis College
  EXTENSIONS: not just for washed-up pop stars any longer!

Graduate Student Paper Session
Organized by Tensia Soto-Johnson , UNC

Lane Andrew, Univeristy of Northern Colorado
  The Relationship Between Mathematical Induction and Functional Ability
Jesse Gilbert, Univeristy of Colorado at Denver
  On Irregularity Strength of $\vec{c}_{4k} \times \vec{c}_j$
Angela K. Harris, University of Colorado at Denver
  H-avoiding Hamiltonian Cycles
Matt Leonard, University of Wyoming
  Knots and Unknotting - Nakanishi's Conjecture
Beth Malmskog, Colorado State University
  An Introduction to Sato-Tate
Bernadette Mendoza-Spencer, University of Northern Colorado
  A Road Less Traveled: One Hispanic Woman's path to the Ph.D
Jeremy Muskat, Colorado State University
  Alternating Group Galois Coverings of the Projective Line
Aditya Nagrath, University of Colorado at Denver
  Superatomic Boolean Algebras and Scattered Lattices
Frieda Parker, University of Northern Colorado
  Use of Student Generated Concept Maps to Analyze Student Understanding of Linear Independence
Ryan Pedersen, University of Colorado and Health Sciences Center
  On the Classification of Hyperovals
Kyle Pula, University of Denver
  Edge-colored multigraphs lacking colorful triangles.
Noel Sagullo, University of Colorado at Boulder
  A Drinfeld Analog of the Brownawell-Waldschmidt Theorem
Elizabeth Untiedt, University of Colorado at Denver
  Algorithm Selection in Fuzzy Optimization

Celebrating Euler Special Session
Organized by Janet Barnett, CSU-Pueblo and George Heine, BLM

Janet Heine Barnett, CSU – Pueblo
  Euler and the Military?
Gregory Carlson, Canon City High School
  Easy as Pi
George W. Heine, Math and Maps
  From Euler to the Bering Sea

Lynne Ipiña, University of Wyoming
   What evil can be wrought: 1+-1+1+-1+ ...
Milan Lukic, University of Northern Colorado
   Variae Observationes Circa Series Infinitas: Theorema 7
Bruce Lundberg, CSU - Pueblo
   Eulerian Butter and Bread in the Current Practice of Astrodynamics
Stan Payne, University of Colorado at Denver and Health Science Center (UCDHSC)
   Euler and the Riemann Zeta Function
E. Keith Sinkhorn , CSU - Pueblo
   Graph theory applications 300 years after Euler
Rob Tubbs, University of Colorado, Boulder
   What Euler did not know about values of the zeta function

Interesting Ideas in Mathematics Special Session
Organized by Jane Arledge, Mesa State and Rob Tubbs, CU-Boulder

Edward Bonan-Hamada, Mesa State College
   Finite Choice, Countable Choice and the Foundations of Mathematics
Mike Brilleslyper, U. S. Air Force Academy
   Connections between really Nice Vector Fields and Analytic Functions
Joe Champion, University of Northern Colorado
   The Inverse of the Open Box Problem
Gerald Harnett, St. Mary's Academy High School
   The Geometry of Logarithms and Powers Abstract
Markus Reitenbach, Mesa State College
   The Axiom of Choice for Non-Experts
William S. Weber, Jr, University of Wyoming
   A Simple Derivation of the Vertex Formula

Mathematics in K-12 Teacher Preparation Special Session
Organized by Pam Smith, Fort Lewis College

Brooke Evans, Don Gilmore, Jim Loats, Patty McKenna, and Lew Romagnano, Metropolitan State College of Denver
   Content Courses for Rural Teachers: An Electronic Classroom Model
Michael Ewing, Colorado School of Mines
Understanding Gifted/Talented Students through International Teacher Collaboration

Andrew Hoegh & Michael Ewing, Colorado School of Mines
   Popular Television to Motivate Mathematical Learning: "Numb3rs"
Robert Powers , University of Northern Colorado
   Applying the Synectics Method of Instruction to Writing in Mathematics
Lew Romagnano, Don Gilmore, Brooke Evans, James T. Loats, Metropolitan State College of Denver
   Hortensia Soto-Johnson, Michelle Chamberlin, Robert Powers, University of Northern Colorado
   The Pedagogical Preparation of Prospective Mathematics Teachers
Lew Romagnano, James T. Loats, Don Gilmore, Brooke Evans, The Metropolitan State College of Denver
   Creating a Mathematical Community for Prospective Elementary Teachers
Pam Smith, Fort Lewis College
   Activities for Fraction Understanding
Louis A. Talman, Metropolitan State College of Denver
   Questions my Calculus Teacher Didn't Answer
Ann Wheeler, University of Northern Colorado
   The Impact of IMAP Videos on Prospective Elementary Teachers

Math Job Search 101 with Special Attention to Academia
Organized by Jeff Berg, ACC

Panelists:
 Curtis Card, Black Hills State University
 George Heine, Bureau of Land Management
 Michael Martinez, US Air Force
 Chip Nava, Pueblo Community College
 Dana Pickup, Walmart Corporation
 Markus Reitenbach, Mesa State College

Mathematics General Session
Bill Cherowitzo, University of Colorado at Denver and Health Science Center
   Every little bit counts
Howard A. Flanders, Metropolitan State College of Denver
   Lower Triangular Matrices as a Function of the shift Matrix
Nels Grevstad, Metropolitan State College of Denver

An Introduction to Penalized Least Squares Regression, with Application to Censored Environmental Data

Sylvia Hobart, University of Wyoming
Saving the Loggerhead Sea Turtle: Linear Algebra in Action.

Andrew G. Keck, Western State College
Detecting transient signals in chemical spectra

Wojciech Kosek, Colorado College
Green-Tao Theorem and some other recent results about primes

Leo A. Maslov, Otero Junior College
The Pyramid problem

Lindsay Packer, Metro State College
Mathematical models in the control of diabetes

Jonathan Poritz, Colorado State University - Pueblo
Perlmann Proves Poincaré

Hugo Rodríguez Ordóñez , Colorado State University-Pueblo
Nonsingular bilinear maps and octonion polynomial

Daluss Siewert, Black Hills State University
Tournament Ranks

Glen van Brummelen, Quest University
Controversies in the Early History of Trigonometry

Teaching General Session

David Anton , University of Wyoming
The Importance of Receiving a D

Cathy Bonan-Hamada and Tracii Friedman, Mesa State College
Teaching College Algebra from a Modeling Perspective

Shahar Boneh, Metropolitan State College of Denver
The Elusive Nature of Conditional Probability

Benito Chen-Charpentier, University of Wyoming
Testing for Learning in College Algebra

Michelle Ghrist, US Air Force Academy
Cubic splines – there's more than one?

Roger W. Johnson, South Dakota School of Mines and Technology
Two 'Pig' Dice Games

Janet Nichols, Colorado State University - Pueblo
Remedial Learning Communities

Robert Powers and Dean Allison (Co-author Richard Grassl), University of Northern Colorado
A Study of the Use of the TI-92 in Discrete Mathematics

Brian D. Rogers, University of Northern Colorado
Stranger in a Strange Land: The adventures of a traditionalist in the land of cooperative learning

Beth Schaubroeck (Coauthor: Nicholas Sawruk), U.S. Air Force Academy
Racecars and Calculus

2007 Section Business Meeting Minutes Saturday, April 14, 2007

Section Chair, Jeff Berg (Arapahoe Community College) called the meeting to order at 8:00 a.m. Minutes from the 2006 section meeting were approved. Jeff Berg then introduced the executive committee, he also introduced other committee members.

Graeme Fairweather, member of the nominating committee from Colorado School of Mines introduced the nominees for section vice-chairperson. The nominees were Sarah Stanley from Western Wyoming College and Karen Walters from Arapahoe Community College. Sarah was not present at the section meeting. Karen was given an opportunity to state her goals for the section. She commented on her involvement in updating the section web-page and her commitment to AMAYTC and the MAA. She hopes to play a role in organizing the Rocky Mountain Section's materials for the MAA Centennial which takes place in 2015. Graeme opened the floor for other nominations. Graeme and Barbara Moskal counted the votes and Karen Walters was elected as the new vice-chairperson. She will serve in this capacity for two years; her term will expire April 2009. As part of her duties, she will serve on the Section Awards Selection Committee.

Since the spring meeting Karen has moved out of the MAA Rocky Mountain Section, thus Sarah Stanley will serve as our vice-chair.

Hortensia Soto-Johnson provided the financial report that was provided to National in January. She also provided an up to date summary of the budget. (See Below) This year the executive committee allocated $500.00 for the graduate student session. Four graduate students were invited to present at this year's session designed specifically for graduate students. We also agreed to contribute $250.00

for the Colorado Mathematics Awards ceremony and $50.00 was awarded to the Distinguished Teaching Award Recipient, as is customary.

Financial Report
April 4, 2007

Balance 12/31/06	Money Market	10,164.90	
	Checking Account	1,816.80	11,981.70
Expenses	Newsletter	173.88	
Income	Interest	30.45	
Balance 4/4/07			11,838.27

Questions arose as to how much the section's cash flow should be and how we should spend our money. Suggestions from the floor included increasing the monetary amount for the Distinguished Teaching Award (from Rob Tubbs), increasing the monetary amount for the Service Award (Janet Barnett), and contributing to the undergraduate research conference (Mike Brilleslyper). The executive committee will discuss these suggestions throughout the academic year.

Dick Gibbs announced the upcoming 12th annual Colorado Mathematics Awards Ceremony to be held in Denver on May 25, 2007. He asked that we send names of any students who had done well on the Putnam exam or the Mathematics Modeling Competition. Students from outside of Colorado will also be honored at this event if he receives their names. He also announced that the American Mathematics Competitions (AMC) is looking for universities who are willing to participate in the administration of the AMC exams. Currently CU is an AMC site.

During the chair's report, Jeff Berg congratulated Lynne Ipiña from University of Wyoming for being selected as the 2007 DTA recipient and announced the new registration fees for the 2008 section meeting. They will be $20.00 in advance and $30.00 on site. He thanked Hortensia Soto-Johnson, Kyle Riley and Mike Brilleslyper for organizing the graduate student session, the undergraduate student session, and the Pikes Peak Undergraduate Mathematics Research Conference respectively. He reported that he would like to see more on

the web such as: the by-laws, handouts for presentations given at section meeting, and history of the section. Jeff reported on the executive committee meeting. He commended Janet Barnett and Janet Nichols for their efforts in initiating this endeavor. He announced that an election would take place during the meeting to have the Rocky Mountain Section Meeting endorse the American Association of University Professors statement of academic freedom.

Kyle Riley, the section's student activity coordinator announced that he would be stepping down as the student activity coordinator. Carl Lienert from Fort Lewis College will serve in this role. Carl facilitated the poster session for the section meeting and announced that the theme for the 2008 poster session will be "Pick Your Theme."

Linda Sundbye, the section newsletter editor announced that the post cards are working nicely in announcing that the newsletter is available on the web. Only a few postcards were returned in the spring mailing. The newsletter is available in both PDF and HTML format.

Jim Tattersall, the associate secretary of the MAA the report from national. He announced the change in the web page and that 4300 people attended the National meeting in New Orleans with 20% of the attendants were students. He also announced the grand opening of the Carriage House to be held on April 19-22.

Jane Arledge, the section governor gave her report. She is beginning her last year as section governor. She announced the new MAA dues structure which is based on the journals to which one subscribes. Jane announced that the Tensor Foundation and SUMMA both have funds to facilitate programs for underrepresented groups.

Jeff Berg facilitated discussion on the AAUP motion. He and Janet Barnett intend to write a letter to the Rocky Mountain News and/or The Denver Post to promote awareness of academic freedom. Members present at the meeting elected to support the AAUP academic freedom statement. He announced that the 2008 section meeting will be held in Spearfish, South Dakota (Black Hills State University) on April 25-26; Daluss Siewert will serve as program chair. The 2009 section meeting will be in Golden, Colorado (Colorado School of Mines); Graeme Fairweather and Barbara Moskal will serve as program co-chairs. Next year elections will be held for the positions of governor,

secretary/treasurer, and chair-elect. Graeme Fairweather will serve as the chair of the nominating committee.

There was a motion to thank CSU-Pueblo for hosting the 2007 Rocky Mountain Section Meeting. All were in favor. The meeting closed with the passing of the section banner from Janet Barnett to Daluss Siewert and Mike Brilleslyper serving as the new section chair.

Respectfully Submitted –
Hortensia Soto-Johnson,
Secretary/Treasurer

2007 Executive Committee Meeting Minutes Thursday, April 12, 2007

Members Present:
Jane Arledge, Janet Barnett, Jeff Berg, Michael Brilleslyper, Janet, Nichols, Hortensia Soto-Johnson, Karen Walters

Guests Present:
Curtis Card, Graeme Fairweather, George Heine, Daluss Siewert, Jim Tattersall

The meeting was called to order by the Chair, Jeff Berg, at 7:00 p.m.
Agenda Item 1 - Approval of Agenda and Minutes
The agenda of the meeting and the minutes of the meeting for the preceding year were approved without amendment; a copy of the approved agenda is included in Appendix A below.
Agenda Item 2 – Review of agendas for Banquet and Business Meetings and Conference Program
Assignments for introductions and agendas for the banquet and the business meeting were reviewed (see Appendix A & B). Hortensia Soto-Johnson, the section secretary/treasurer announced that Graeme Fairweather would announce the DTA lecturer, Barbara Moskal. It was decided that Michael Brilleslyper, chair of the nominating committee, would introduce Sylvia Hobart, the nominator for this year's DTA recipient at the banquet.
Agenda Item 3a – Financial Report
Hortensia Soto-Johnson announced that the current balance was $11,838.27. Our holdings were about $500.00 more than the previous

year. Hortensia announced that she transferred $500.00 from the money market account to the checking account in order to pay the DTA recipient, pay 4 graduate students for participating in the graduate student session. The four recipients were Jeremy Muskat from CSU, Ryan Pederson from CU-Denver, Noel Sagullo from CU, and Matt Leonard from UW. Originally $350.00 was allocated for a bowling party for undergraduates, but Janet Barnett announced this was not going to occur.

Mike Brilleslyper inquired about the amount of money in reserve. Executive committee members were not in agreement on this issue; suggestions ranged from $5,000.00-$10,000.00. Hortensia informed the committee that National's goal is to have 2-year's worth of spending in reserve. She followed-up by saying that our section spends on average $1,000.00 a year. We are attempting to spend our money in a way that promotes the MAA to both undergraduates and graduates. Karen Walters suggested we use funds to help support a member of the executive committee to attend either Mathfest or the Winter Meeting. This will be discussed further at the business meeting.

Janet Barnett will facilitate the door prizes at the banquet. It was approved to donate $42.00 for an MAA book to be given as a door prize.
Agenda Item 3b – Nominating Committee Report
In spring 2008 there will be an election for the position of Governor, Secretary/Treasurer, and Chair-Elect. National will facilitate the elections for the Governor position, but we must submit the candidates. Nominations for all positions will be solicited and Graeme Fairweather from Colorado School of Mines will serve as chair of the nominating committee.
Agenda Item 3c- Awards Committee Activities
Michael Brilleslyper, chair of the nominating committee announced that Lynn Ipiña from the University of Wyoming was the 2007 DTA recipient. There were several nominations this year and the candidates were very strong.
Agenda Item 4b – Website/Web-based newsletter/meeting registration
Karen Walters has been helping Bill Briggs with the section's website. Janet Barnett and Janet Nichols of CSU-Pueblo and co-chairs of the 2007 section meeting did an excellent job of putting meeting information on the website. Janet Barnett requested that our newsletter be

more web-based. Linda Sundbye, newsletter editor, and Karen Walters and Bill Briggs will work closely on this task.

Agenda Item 4c – Membership Recruitment

Governor Jane Arledge e-mailed welcome letters to new faculty at each institution. Jane did not receive as many names as she did last year. Hortensia, the secretary will attempt to let chairs and liaisons know that new members to the section will receive free registration to that year's section meeting. The executive committee hopes this will attract members and speakers to the section meeting.

Agenda 4d – Centennial Activities

Discussions took place as to where our section meeting might take place for the National MAA Centennial, which takes place in 2015. Suggestions included Colorado College and the USAFA. Members were asked to start thinking about a location for the 2015 meeting.

Agenda Item 4e - Student Recognition Grant Proposals

Dick Gibbs requested funds for the Colorado Mathematics Awards Ceremony to be held in Denver, Colorado on May 15, 2007 from 4:30-6:45. It was voted to award $250.00 for this cause. Jane Arledge, our governor and Mike Brilleslyper our new section chair will represent our section at this ceremony.

Agenda Item 4g – Representative for MathFest and Joint Meeting

It was decided that Michael Brilleslyper will attend the Section Officers Meeting at MathFest (August 3-5, 2007) to be held in San Jose, CA. It was not yet decided who would attend the Section Officers Meeting at the Joint Meeting to be held in San Diego (January 6-8, 2008).

Agenda Item 5 – Future Section Meetings

The 2008 Rocky Mountain MAA Section Meeting will be held in Spearfish, SD at Black Hills State University on April 25-26, 2008. Jane suggested chartering a bus to take people to the meeting. Daluss Siewert will serve as program chair and thus will serve on the executive committee during the 2007-2008 academic year. It was agreed that registration would be $20.00 in advance and $30.00 on-site. The 2009 section meeting will be held in Golden, Colorado at the Colorado School of Mines. Graeme Fairweather and Barbara Moskal will serve as program co-chairs.

Agenda Item 6 – AAUP

As was decided last year and was announced in the Fall 2006 and Spring 2007 newsletter, the section will have an opportunity to vote to endorse the AAUP's statement on academic freedom (http://www.aaup.org/statements/Redbook/1940stat.htm#endorsers). Jeff Berg will present the AAUP statement and answer the question of "So What." If the section votes to endorse this statement, Jeff Berg and Janet Barnett will write a letter to the editor of the Denver Post and/or Rocky Mountain News in an attempt to make others aware of the meaning of academic freedom.

The meeting was adjourned at 9:30 p.m.

Respectively submitted,

Hortensia Soto-Johnson,
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

Joint Mathematics Meetings, San Diego, CA; January 6-9, 2008
20th annual ICTCM; San Antonio, TX; March 6-8, 2008
NCTM annual meeting; Salt Lake City, UT; April 9-12, 2008
   MAA Rocky Mountain Section Meeting
   Black Hills State University
   Spearfish, SD
   April 25-26, 2008
MAA MathFest; Madison, WI; July 31 – August 2, 2008

Joint Mathematics Meetings; Washington, DC; January 5-8, 2009
NCTM annual meeting; Washington, DC; April 22-25, 2009
   MAA Rocky Mountain Section Meeting
   Colorado School of Mines
   Golden, CO
   April, 2009
MAA MathFest; Portland, OR; August 6-8, 2009

Joint Mathematics Meetings; San Francisco, CA; January 6-9, 2010
NCTM annual meeting; San Diego, CA; April 21-24, 2010
MAA MathFest; Pittsburgh, PA; August 5-7, 2010

Joint Mathematics Meetings; New Orleans, LA; January 5-8, 2011
NCTM annual meeting; Indianapolis, IN; April 13-16, 2011

Joint Mathematics Meetings; Boston, MA; January 4-7, 2012
NCTM annual meeting; Miami, FL; April 25-28, 2012

Joint Mathematics Meetings; San Diego, CA; January 9-12, 2013
NCTM annual meeting; Denver, CO; April 17-20, 2013

NCTM annual meeting; New Orleans, LA; April 9-12, 2014

NCTM annual meeting; Boston, MA; April 15-18, 2015
MAA 100th Anniversary MathFest, Washington, DC; August 5-8, 2015

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 December 1.
Complete nomination materials should reach Section Secretary by January 15.
Please consult section webpage (http://www-math.cudenver.edu/~maa-rm/) for complete guidelines.
Section Secretary - Hortensia Soto-Johnson, UNC Dept of Mathematical Sciences, Ross 2240 A, Greeley, CO 80639.

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/Secretary: UNC Dept of Mathematical Sciences, Ross 2240 A, 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.