FALL 2009

NEWSLETTER

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

Fall 2009 Newsletter in PDF Format for Printing

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http://rowdy.msudenver.edu/~sundbyel/maanews/fall2009news.pdf

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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. This year's award winner is Professor Richard Grassl, of the University of Northern Colorado. In addition to receiving a certificate and a check, Professor Grassl will deliver the opening address at next 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. Professor Grassl certainly fits this description. His teaching has already received recognition from the University of Northern Colorado—he was recognized as the winner of the 2005 Excellence in Teaching Award for the College of Natural and Health Sciences from a pool of over 190 faculty members. Additionally, Professor Grassl has made an impact beyond the University of Northern Colorado through the UNC statewide mathematics contest. He exemplifies the teacher-scholar model with a dozen published articles and over thirty presentations on the teaching and learning of mathematics over the past eleven years.

Professor Grassl's classroom has certainly had a positive impact on those who entered it. One colleague wrote, "College students first meet him as the instructor of a mathematics class and then find that he is working beside them as part of a problem solving team." A student who now is an educator said, "He pushed all of us to be better students, to explore the content, and to seek understanding rather than a simple grade." Of particular note is Professor Grassl's discrete mathematics class, which received national recognition in 1997 and continues to be a positive force in the education of mathematicians and mathematics educators. Many of the students in this class choose Professor Grassl as their undergraduate research advisor and look to him as a mentor.

Professor Grassl has made a lasting impact on mathematics education through the creation of the UNC Mathematics Contest. Begun in 1992 with only 140 students, it now reaches approximately 2400 Colorado high school students annually. This competition differs from most other mathematics contests in several respects. First, all students in grades 7-12 may participate, and all take the same exam. There are two rounds, and the questions are paired—a theme introduced in the first round is often developed further in the second round. Perhaps the most unique aspect of this competition is that while students participate in the second round at the UNC campus, a session is held for parents and teachers to discuss the contest problems. This aspect of the contest strengthens ties between the university and the broader educational community.

The Burton W. Jones Distinguished Teaching Award recognizes significant contribution to the mathematical profession. Professor Richard Grassl has shown a tremendous dedication to the scholarship and teaching of mathematics and the achievements of his career make him a fitting recipient of this award.

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
2008 Steven Janke
Colorado College
2009 Richard Grassl
University of Northern Colorado

2010 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 2009**. **Complete**

nomination materials (described on the website) are due **15 January 2010**.

Section Students Recognized for Mathematics Excellence

On May 12, 2009, the Fourteenth 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 55 Colorado students and 33 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 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).

Pictures of this year's CMA can be found at http://cma.coloradomath.org/. Thanks to Colorado Math Circle Director, Silva Chang, for arranging to have the photos displayed.

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 **Anil Damle, Anna Lieb,** and**, Colin Peterson** coached by Prof. **Anne Dougherty**. The team received an Outstanding ranking (one of nine awarded out of 1675 teams in the contest!) for their solutions and was the recipient of the INFORMS prize for their work.

University of Colorado-Boulder and the University of Northern Colorado shared Putnam Competition honors. Individual top Putnam scorers were **Marshall Carpenter** and **Andrew Scacco** from from CU-Boulder, and **Brian**

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Shourd from UNC. The CU-Boulder coaches were Profs. **Alexander Gorokhovsky**, **Keith Kearnes**, and **Sergei Kuznetzov** and the UNC coach was Prof. **Steven Leth**.

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 **Marshall Carpenter**, CU-Boulder. The Rocky Mountain **Section AMC 12 Top Score** was achieved by **Ben Alpert**, a sophomore at Fairview High School in Boulder. (Ben is the son of Silva Chang, the Colorado Math Circle Director.) Congratulations, Marshall and Ben!

Prof. **Richard Grassl** (University of Northern Colorado), recipient of this year's Rocky Mountain Section Burton W. Jones Distinguished Teaching Award, was recognized by section Chair **Mike Brilleslyper**.

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

Dick Gibbs, Fort Lewis College

Attention Putnam Coordinators

Putnam coordinators at the participating schools please send Dick Gibbs at gibbs_d@fortlewis.edu the top three scores and their team score. No names are requested at this time. When we know the top three scores and the top team score we will contact the schools for the names.

Chair's Report

The MAA is a very fun organization. I came to this realization while running across the Hawthorne Bridge in Portland, during the Mathfest 5K. And then, somewhere through the mounting fatigue, I realized it's not the organization, but the people in the MAA that are fun. Now, it's true that the average person you meet might not list college math instructors as high on their list of fun people, but we really are.

To prove my point, I have compiled my own top 10 list of "why mathematicians are fun."

10. They own an iPhone and a slide rule, but don't know which one is cooler.

9. When dining at a conference they always insist on finding the most eclectic, ethnic restaurant possible (note: I have never gone out for burgers with other mathematicians at a conference).

8. They like juggling, yo-yo's, tops, and just about anything that spins.

7. When going somewhere they prefer their recumbent bikes and unicycles to cars.

6. They almost all play Frisbee in the park while claiming to be "working on a hard problem."

5. They know "Java" is more than a drink and they're not sure which one they like better.

4. A blizzard does not hurt conference attendance because getting there is now a *more challenging problem*.

3. "Formal attire" is the jeans that aren't frayed.

2. Give them the back of an envelope and a pencil. Now stand back and watch.

And the #1 reason why mathematicians are fun is

1. They will wear socks that don't match and either don't know or don't care.

Now that you know we are such a fun group, I'm sure you will plan to attend the Rocky Mountain Section meeting this April 17–18, 2010 at Colorado State University in Fort Collins. The members of the Rocky Mountain section have all the above attributes plus they climb 14ers and know the locations of all the best Colorado microbrews. And if that is not enough reason to attend, we also offer a phenomenal program with dynamic speakers and wonderful opportunities to talk shop with your colleagues and students from across the region.

Co-program chairs **Simon Tavener** and **Kelly Chappell** (CSU) are organizing a great program highlighted by talks from MAA president **David Broussard** (Macalester College) and Polya Lecturer, **Judy Walker** (University of Nebraska). The RMS has been

fortunate to have wonderful keynote speakers in past years and this year is clearly no exception.

I fully expect the recent trend of large undergraduate involvement to continue. The RMS meeting is a great place to introduce your students to the MAA and the mathematics profession. Please consider bringing some students this April (and really, what's more fun than road tripping through the Rockies with students?).

Finally, everyone wants to know what cool things you have been working on. Please consider giving a talk about your recent work and/or adventures in the classroom. The *Call for Papers* and other meeting information can be found in this newsletter.

I will leave it to our section Governor, **Kyle Riley** (SDSMT), to get you up to date on National MAA news, but my sense is the MAA continues to work hard for its members. There are a number of initiatives and re-organizations in the works that will help move the MAA forward. Mathfest was a great experience and I am always impressed at the scope of activities and the dedication of the members. One theme that always comes through is that the sections are the life-blood of the MAA and that the MAA exists to support the sections.

I know that I have enjoyed serving the RMS as chairman the past several years. Except for the pain of writing the newsletter articles, it has been a great experience. At the April meeting, I will hand the reigns to our next section Chairman, **Daluss Siewert** (BHSU). I'm sure Daluss will do a great job for the RMS.

Enjoy the school year and the changing seasons. I hope to see you all in Fort Collins next April.

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

Governor's Report

I was able to attend the Board of Governors Meeting on August 5 in Portland, OR. Before the meeting, I had an opportunity to meet with the new class of Project NExT for this coming year and I gather we have two new dots that are in our section. Michael Barrus is with Black Hills State University and Stephanie Vance is with Adams State College. I know I very much enjoyed my tenure with Project NExT and hope

our new dots will enjoy their experience as well. The Mathfest in Portland appears to be one of the largest meetings we have had with over 1,400 registered participants for the meeting. It was nice to see a few members of the Rocky Mountain Section at the meeting and we were very fortunate on weather since it didn't really rain while we were there and the massive heat wave Portland had the week before had just been broken before the conference started.

The Board receives numerous reports every meeting, but there were three reports that I think particularly merit mention in my section report. The first item was a report from the strategic planning group on sections and they raised many good questions and offered some thoughtful recommendations. They observed communication was a crucial need for the MAA sections. In this case communication really covers all possible communications, for example, between section members, across sections, between a section and the national office, and externally to the rest of the mathematics community. The planning group also suggested that sections take an opportunity to reflect on their organization and processes. What is the mission of the section? How are officers elected and do the officers have much guidance and understanding on their role in the section? It is my impression that our section is doing fine, but it is always good to reflect on any possible changes that could result in improvements. If you have any suggestions that might help in this regard then please contact any of the section officers.

A second report was a strategic planning group on STEM education. This rather large report was a review of the state of college level mathematics around the country. One associated item in this vein is the NSF grant awarded to the MAA to study the successful programs of teaching college calculus (http://www.maa.org/pubs/augsept09pg7.pdf). The real theme of the STEM planning group report is a general desire to enhance the pursuit of the MAA goal in advancing the mathematical sciences at the collegiate level. The report mentioned the importance on student transitions. I think most colleagues are aware of the bumpy transitions that students tend to experience from high school math to collegiate level math and there is a wealth of research on ways to assist with this transition. However, other transitions might not be as popular and yet

just as important. Students often experience difficulty moving from the service calculus sequence and into the more proof oriented upper level courses. How do we encourage students to take a math course that is outside the requirements for their major? How do we get students to retain the concepts and skills covered in one course so it can easily be recalled in a later course? This report mostly raised these types of questions, but perhaps there is something that can be gained if we all take a moment to consider looking at the larger picture of how mathematics contributes to higher education.

A third report was in regard to electronic memberships. Electronic memberships offer the unique combination of allowing the Association to provide more benefits at a lower expense. The only big question is if the electronic delivery will prove effective and promote the desire of people to join the MAA. The Board did approve some electronic membership packages contingent on the MAA Online delivery system developing a sufficient ability to deliver these types of memberships. The details are long and complicated and it will require some time to develop. The end result is that the Board fully sees the opportunity that electronic membership provides, but implementation will not be easy. I believe we have the desire to move the students to an electronic membership starting in the 2010-11 academic year where they will pay the same rate as normal, but will get access to more journals. At the same time full members will have the option to retain their normal membership package that we currently have, or have the option to try an electronic membership that will be at a similar price and provide access to all the journals electronically. The tentative plan is to offer these memberships a year from now, but hopefully more information will be released once MAA staff can sort out the implementation issues these changes will entail.

I will close with my standard plugs. Try MAA online (http://www.maa.org) where there is a wealth of information, all at the click of a mouse! Consider attending an MAA meeting

Joint Mathematics Meeting, San Francisco, January 13-16, 2010 (abstracts due Sept. 22, 2009)

Rocky Mountain Section Meeting, Ft. Collins, April 16-17, 2010

Mathfest, Pittsburg, August 5-7, 2010

Please consider developing a submission to one of the MAA publications, a short listing of the MAA publications can be found at http://www.maa.org/subpage_2.html. I hope everyone has a chance to enjoy the fall and I look forward to seeing you at a future MAA meeting.

Respectfully submitted,
Kyle Riley, SDSMT
Governor, Rocky Mountain Section

Section News

Arapahoe Community College

Alexsis Venter is a new faculty member at Arapahoe Community College focusing on developmental education. She holds a masters degree in Applied Mathematics with an emphasis in Discrete Mathematics from UC-Denver. In addition to mathematics, she enjoys crafts, music, reading, traveling, and spending time outdoors with family and friends.

Robert Seletsky is a new faculty member at Arapahoe Community College. He has over seven years of college mathematics teaching expertise and over ten years of professional software development experience. He earned his Master of Science degree in Applied Mathematics from The University of New Mexico in 2004. He looks forward to continue to focus on demonstrating the many practical applications of mathematics to his students.

Tracy Lawrence and **Erica Hastert** were two of the three teachers named as ACC's Distinguished Faculty for 2009 – 2010.

Debbie Grant and a Reading faculty member have been teaching developmental math and reading courses back to back to two cohorts of students as part of their retention efforts.

The Colorado Mathematics Association of Two-Year Colleges will meet on March 5, 2010, at Arapahoe Community College. E-mail jeff.berg@arapahoe.edu or erica.hastert@arapahoe.edu for more information.

Black Hills State University

We have two new tenure-track hires and one new instructor at Black Hills State University.

Michael Barrus who recently completed his Ph.D. at the University of Illinois at Urbana-

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Champaign was hired as a tenure-track assistant professor. Michael also has two M.S. degrees. One in Mathematics from Brigham Young University and one in the Teaching of Mathematics from University of Illinois at Urbana-Champaign. Michael's research interests are in structural and extremal graph theory, graph classes, and matroids. Michael is also a MAA project NExT fellow.

Daniel Swenson who recently completed his Ph.D. at the University of Minnesota was hired as a tenure-track assistant professor. Daniel also has a M.S. from the University of Minnesota and a B.S. in Mathematics and a B.A. in Philosophy from Iowa State University. Daniel's research interests are in representation theory of categories, homological algebra, mathematical logic, voting theory, and ranking algorithms.

We also have hired **Elizabeth Lane-Harvard** as an instructor. Elizabeth recently completed her M.S. degree at South Dakota State University. We are very pleased to have these three new colleagues join our department and we expect they will soon become actively involved in the Rocky Mountain Section.

Colorado School of Mines

The Colorado School of Mines, Golden, Colorado, would like to congratulate **Gus Greivel** in his promotion to Senior Lecturer.

We would also like to welcome three new hires in mathematics and statistics, **Amanda Hering**, Assistant Professor of Statistics, **Jennifer Strong**, Lecturer, and **Holly Eklund**, Lecturer.

Congratulations are also in order to several of our mathematics or statistics faculty for their recent accomplishments.

Dr. **Jingmei Qiu**, Assistant Professor of Applied Mathematics, has received two grant awards, one from the USAFA, *A High Order Essentially Non-Oscillatory Method for Temporal Multi-scale Problems in Plasma Physics* ($25,777) and another from NSF, *A High Order Adaptive Semi-Lagrangian WENO Method for the Vlasov Equation* ($253,981).

Dr. **Luis Tenorio**, Associate Professor of Statistics, received an NSF award, *Numerical optimization for large-scale experimental design of ill-posed inverse problems* ($173,348) and was selected by the IMA to organize a semester on inverse problems.

Dr. **Barbara Moskal**, Professor of Mathematics Education, and **Jason Hightower**, Elementary Principal of Meeker Elementary School, received a grant from the ExxonMobil Corporation, *Partnership Between Colorado School of Mines and Meeker Elementary School* ($590,000). Dr. Moskal has also received matching funds for her research in K-12 education from the Denver Foundation ($20,000) and the J.P. Morgan Foundation ($15,000).

Dr. **Willy Hereman**, Professor of Applied Mathematics, has accepted a Visiting Fellowship of the Isaac Newton Institute for Mathematical Science, Cambridge (U.K.) to participate in a semester program on Discrete Integrable Systems and he received a supplement from NSF to support Research Experiences for Undergraduates with **Terry Bridgman**.

Dr. **Paul Martin**, Professor in Applied Mathematics, recently co-edited a Special Issue of the SIAM Journal of Applied Math on Fuel Cells.

Metropolitan State College of Denver

The Department welcomes **John Ethier** who received his Ph.D. in combinatorics and finite fields from Penn State in 2008, and visiting faculty members **Benjamin Dyrh** and **John Carter.**

Brooke Evans received a $250K grant from the Colorado Department of Education for her proposal entitled: *Metro's Mathematics for Rural Schools Program.*

Ruth Yarar retired at the end of last year. She was in charge of scheduling and hiring our part-time faculty for many years. **Ken Prevot** has taken over this position.

Jean Ethredge is our new assistant director for our Peer Study Program, working with **Connie Novicoff,** program director.

The new wing of the Science Building is scheduled to open in spring 2010. The old wing which housed the math department, the biology, chemistry, and earth and atmospheric sciences departments, and the LAS Dean's office will be remodeled. This past September we all had to move across campus to the Admin building. We will in this temporary space for about 1 ½ years. We will then move back into the newly remodeled space.

University of Colorado at Boulder

The Department of Mathematics at CU-Boulder is in a period of great turnover of the faculty. In recent years we have had several retirements. Following four retirements in 2002, **Jerry Malitz**, **Jan Mycielski**, **Richard Roth**, and **Jay Wolkowisky**, we have continued to have faculty retirements: in 2003 **Arlan Ramsay** and **Wolfgang Schmidt**, in 2004 **Dick Holley**, in 2006 **Larry Baggett**, in 2007 **Gordon Brown**, and in 2008 **Richard Laver** and **Walter Taylor**. We have also had one resignation, **Lynne Walling**.

The loss of so many faculty has allowed us to make many hires: **Su-Ion Ih** (Number Theory) 2005, **Stephen Preston** (Analysis) 2006, **Nat Thiem** (Algebra) 2007, **Marcus Pflaum** (Geometry) 2007, **Sebastian Casalaina-Martin** (Algebraic Geometry) 2008, **Bart Kastermans** (Foundations) 2009, and **Janos Englander** (Probability) 2009.

We have also established a postdoctoral position, first held by **Christopher Sinclair** (2007-2009) and presently held by **Graeme Wilkins** (2009-2011). This post-doc is funded, in part, through a generous bequest from the estate of the late Professor Emeritus Burnett Meyer.

University of Northern Colorado

We have several announcements concerning the activities of faculty members. **Robert Powers** is spending the fall semester at the University of Delaware on a sabbatical leave. He is working with a team of researchers there on a project involving the use of lesson experiment in mathematics education. **Nat Miller** will be on sabbatical leave in the spring semester working on a programming project to implement the ideas detailed in his book *Euclid and His Twentieth Century Rivals: Diagrams in the Logic of Euclidean Geometry* (2006) on formalizing the way that diagrams are used in arguments in Euclidean geometry. **Shandy Hauk** is on leave for the academic year with WestEd, a nonprofit research, development, and service agency focused on education. **Stephanie Fitchett** is spending the year at the National Science Foundation in a rotator position with the Division of Undergraduate Education. We are pleased to announce that **Lingqi Meng** was hired as a visiting assistant professor in mathematics education. Finally, we are anticipating conducting a search for a tenure-track position in mathematics education this year.

Two undergraduates at UNC, **Sarah Nowak** and **Dennis Gucker**, attended NSF-sponsored Research Experiences for Undergraduates this past summer. UNC's second Las Chicas de Matematicas, a residential Summer Math Camp for mathematically-talented young women successfully ran in June. The one-week residential camp, co-directed by **Tensia Soto-Johnson** and **Cathleen Craviotto**, introduced thirty mathematically talented high school girls to various topics in mathematics through problem-solving and collaborative learning. We are making plans to hold the camp again next summer.

We began the implementation of the Math TLC grant awarded by the NSF to UNC and the University of Wyoming. As part of that project, a joint masters degree program in mathematics for secondary teachers is being developed and the first cohort of students in that program began taking courses this past summer. More information can be found at http://www.mathtlc.org.

University of Wyoming

The University of Wyoming welcomed five new faculty to its department this fall.

Chris Hall comes to UW from the University of Michigan where he spent two years as Assistant Professor in the Mathematics Department and as a Research Specialist in their Epidemiology department. Chris grew up in Loveland, received his PhD from Princeton University in 2003 and held a post-doctoral position at U. Texas-Austin for three years. Chris's research interests are number theory and arithmetic geometry with an emphasis on elliptic curves; and he has already has much experience supervising undergraduate and graduate research projects.

Jason Williford comes to UW from the University of Colorado-Denver where he spent two year as Research Assistant Professor. Prior to this he held positions at Worcester Polytechnic and at Albion College. He received his PhD in 2004 from the University of Delaware. His research interests lie in combinatorics and algebra, specifically finite geometry, graph theory, and the theory of association schemes.

Tyrrell McAllister joins the Mathematics Department after a year as visiting researcher at

the Max-Planck-Institut, and a two-year post-doc position at the Technische Universiteit Eindhoven. Tyrrell received his PhD from UC-Davis in 2006, and his research interests are discrete & polyhedral geometry, representation theory, and algebraic geometry.

Rongsong Liu joins the Mathematics and Zoology/Physiology departments after a two-year post-doc at Purdue University. Rongsong received her PhD in 2006 from York University, and her research concerns Mathematical Ecology and Mathematical Epidemiology. Her work on plant-herbivore interactions, and on spatial-temporal patterns of disease spread is well suited for application in the Rocky Mountain ecosystems.

Jeff Selden received his PhD in 2004 from the University of Arizona, and his research concerns Mathematical analysis motivated by physics (e.g. spectral theory of partial differential operators and spectral geometry). Last year Jeff was a part-time instructor at UW, where he proved himself to be an excellent, demanding teacher. Prior he was a Research Fellow at the University College of London and the University of Birmingham, and a visiting Professor at the University of Northern Iowa.

The University of Wyoming completed its first year of an NSF funded Math REU site. Nine students (hailing from the U. of Northern Colorado, New Mexico Tech, Fordham, U. of Maryland, Austin Peay, Emory U., and Alabama A&M) spent the summer working with UW faculty and graduate students on research projects; learning about graduate schools and careers in Mathematics; and learning the tools to become professional mathematicians.

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 the Colorado State University, Fort Collins, CO, April 16-17, 2010. There will be student sessions in which you can attend, as well as a student poster session.

You may also present a poster. 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

7th Annual Pikes Peak Regional Undergraduate Mathematics Conference
Colorado State University - Pueblo
Saturday, February 27, 2010

The seventh annual Pikes Peak Regional Undergraduate Mathematics Conference (PPRUMC) is scheduled to take place on February 27, 2010 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 projects, independent studies, REU's or other research projects; both research and expository topics are welcome.

Student talks will be scheduled in 15-minutes blocks 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. Lunch will be provided for all participants and travel stipends will be available for students traveling longer distances.

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Details on conference scheduling and registration will be available in the Rocky Mountain Section Spring Newsletter and through future emails. 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 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 either:
Janet Barnett
 janet.barnett@colostate-pueblo.edu,
Darren Funk-Neubauer
 darren.funkneubauer@colostate-pueblo, or
Jonathan Poritz
jonathan.poritz@colostate-pueblo.edu

Definitions of Terms Commonly Used in Math

http://www2.stetson.edu/~efriedma/mathhumor.html

CLEARLY: I don't want to write down all the in-between steps.

TRIVIAL: If I have to show you how to do this, you're in the wrong class.

OBVIOUSLY: I hope you weren't sleeping when we discussed this earlier, because I refuse to repeat it.

RECALL: I shouldn't have to tell you this, but for those of you who erase your memory tapes after every test, here it is again.

WITHOUT LOSS OF GENERALITY: I'm not about to do all the possible cases, so I'll do one and let you figure out the rest.

ONE MAY SHOW: One did, his name was Gauss.

IT IS WELL KNOWN: See "Mathematische Zeitschrift", Vol XXXVI, 1892.

CHECK FOR YOURSELF: This is the boring part of the proof, so you can do it on your own time.

SKETCH OF A PROOF: I couldn't verify the details, so I'll break it down into parts I couldn't prove.

HINT: The hardest of several possible ways to do a proof.

BRUTE FORCE: Four special cases, three counting arguments, two long inductions, and a partridge in a pair tree.

SOFT PROOF: One third less filling (of the page) than your regular proof, but it requires two extra years of course work just to understand the terms.

ELEGANT PROOF: Requires no previous knowledge of the subject, and is less than ten lines long.

SIMILARLY: At least one line of the proof of this case is the same as before.

CANONICAL FORM: 4 out of 5 mathematicians surveyed recommended this as the final form for the answer.

THE FOLLOWING ARE EQUIVALENT: If I say this it means that, and if I say that it means the other thing, and if I say the other thing...

BY A PREVIOUS THEOREM: I don't remember how it goes (come to think of it, I'm not really sure we did this at all), but if I stated it right, then the rest of this follows.

TWO LINE PROOF: I'll leave out everything but the conclusion.

BRIEFLY: I'm running out of time, so I'll just write and talk faster.

LET'S TALK THROUGH IT: I don't want to write it on the board because I'll make a mistake.

PROCEED FORMALLY: Manipulate symbols by the rules without any hint of their true meaning.

QUANTIFY: I can't find anything wrong with your proof except that it won't work if x is 0.

FINALLY: Only ten more steps to go...

Q.E.D. : T.G.I.F.

PROOF OMITTED: Trust me, it's true.

Contributed by:
Mike Brilleslyper, USAFA

Colorado State University to Host 2010 Meeting

The Department of Mathematics at Colorado State University is pleased to announce the 2010 Rocky Mountain Section Meeting, to be held in Fort Collins on April 16 and 17, 2010 at the Lory Student Center on the campus of Colorado State University.

Details of the meeting will be posted at http://www.math.colostate.edu/~hulpke/MAA/

SESSION PROPOSAL SUBMISSIONS
We are inviting mathematics teachers at all levels to contribute and attend, middle school, high school and college, as well as undergraduate and graduate students. We are currently inviting proposals for parallel sessions in all areas of Mathematics Education and Research. A typical session will consist of 4-9 talks of 20 minutes each. Please submit session proposals to maameeting@math.colostate.edu by November 30, 2009.

REGISTRATION AND ABSTRACT SUBMISSIONS
Registration and submission of talks will be available on the web, starting in December 2009. For full consideration, talk abstracts must be submitted by February 8, 2010.

INVITED SPEAKERS
The meeting will feature three invited speakers.

1) The 2009 Burton W. Jones Distinguished Teaching Award Recipient:

Dr. Richard Grassl
Professor of Mathematics at the University of Northern Colorado.
The title of his talk will be:
>	*The "Ah Ha" Moment*

2) The MAA National featured speaker will be:

Dr. David Bressoud
DeWitt Wallace Professor of Mathematics at Macalester College and President of the Mathematical Association of America.
His talks will be:
>	*Calculus as a High School Course*

on Friday, and
>	*Proofs and Confirmations: The Story of the Alternating Sign Matrix Conjecture*

on Saturday.

3) The 2009/10 MAA Polya Lecturer will be:

Dr. Judy Walker
Professor and Graduate Chair at the University of Nebraska-Lincoln.
The title of her talk will be:
>	*Codes on Graphs: Shannon's Challenge and Beyond*

Speaker biographies and their abstracts will be available on the meeting webpages.

For any questions or requests, please contact: maameeting@math.colostate.edu

2009 Section Meeting Report

Following the tradition of the Rocky Mountain Section of the MAA, the snow began to fall on the morning of April 17, 2009, and continued until the conclusion of our meeting on April 18, 2009. To further crystallize our experience, several major highways were closed. This did not deter the mathematicians, mathematics educators, middle and high school teachers, and graduate and undergraduate students from attending the 2009 section meeting. Wearing boots, hats and gloves and carrying window scrappers and shovels, over 90 faculty, 50 students and 20 middle and high school teachers sloshed through the halls of the Colorado School of Mines (CSM) Student Center to attend this meeting.

The meeting began on Friday morning with a workshop presentation by **Gary Harris**, **Jerry Dwyer**, and **Julie Tilton** from Texas Tech University (TTU) and **Juli D'Ann Ratheal**, from the University of Texas of the Permian Basin (UTPB). The workshop was a product of the National Science Foundation sponsored Mathematics and Science Partnership project, the West Texas Middle School Math Partnership (WTMSMP) which consists of TTU, UTPB, Angelo State University, Sul Ross State University, and three Texas regional education service centers (ESCs). Texas is divided into 20 such ESCs which are designed to support the improvement of elementary, middle and high school public education. The workshop materials were created with the help of **Zenaida Aguirre-Munoz** and **Tara Stevens** from TTU and **Warren Koepp** for ESC 18. Participants in this workshop experienced first hand the use of case studies as tools to provide teachers with strategies for enhancing their students' mathematics self-efficacy; while at the same time, increasing their own cultural sensitivity and strengthening their own conceptual understanding of the basic mathematics taught in middle school. This workshop was attended by university instructors, researchers, and middle and high school teachers.

The meeting officially opened on Friday afternoon with welcoming messages from **Nigel Middleton**, Provost and Senior Vice President for Strategic Enterprise, and **Barbara Olds**, Associate Vice President for Educational Innovation and Director of the Trefny Institute for Educational Innovation at CSM. Next, **Michael Siddoway**, Colorado College, introduced our 2008 Burton W. Jones Distinguished Teacher Award Recipient, **Steven Janke**, Colorado College. Dr. Janke reviewed the Traveling Salesperson Problem and its relevance in undergraduate courses. This talk included history, graph theory, computer science, and updates on problem variations and solutions.

Gilbert Strang, Massachusetts Institute of Technology, presented the ExxonMobil sponsored talk following the parallel sessions on Friday. Dr. Strang discussed the graph Laplacian matrix and circulants and raised enticing questions concerning future research in this area. Our banquet speaker was **Elizabeth Mayfield**, Hood College. Dr. Mayfield provided a brief glimpse of the exciting experiences that she had while leading a research experience for undergraduate students which focused on women in mathematics during the time of Euler. Her goal was to convince the audience of the value of undergraduate research; a goal which she easily met. The following morning Dr. Mayfield gave the keynote address, tantalizing the audience with stories of the challenges and successes of female mathematicians during the time of Euler.

The scientific program included 68 talks organized in the sessions that follow.

- **Graduate and Undergraduate Student Research**—Organized by Hortensia Soto-Johnson, University of Northern Colorado, and Carl Lienert, Fort Lewis College
- **History of Mathematics** – Organized by Janet Barnett, Colorado State University, and George Heine, Bureau of Land Management, Pueblo.
- **K-16+ Connections and Challenges**—Organized by Bernadine Sherman and Catherine Barkley, Mesa State College. On-site oversight by Catherine Skokan, Colorado School of Mines.
- **Mathematics Education Research**—Organized by Robert Powers, University of Northern Colorado.
- **Programs for Middle School and High School Students and Preservice and Inservice Teachers**—Organized by Sara Dallman and Alex Probst, Colorado Christian University.
- **Pure and Applied Mathematics, Number Theory and Geometry**—Organized by Robert Tubbs, University of Colorado, Boulder, and Phil Gustafson, Mesa State College.

Other meeting activities included a Department Chairs and Liaison Luncheon (under the direction of **Michael Brilleslyper**, U.S. Air Force Academy), a MAA Book Sale Display (under the direction of **Janet Barnett**, Colorado State University), Business Meetings for the section and for the Rocky Mountain Association of Mathematics Teacher Educators, a Student Success Forum, a Commercial Demonstration by Pearson Arts and Sciences and banquet door prizes.

Congratulations and thanks to all speakers, workshop presenters, panelists and session organizers for the success of the meeting program. We would also like to thank the unknown attendees who became instant session chairs while assigned chairs played in the snow (unwillingly, of course). The Section also wishes to acknowledge the following exhibitors and door prize donors for their ***support of the meeting and the section.***

- [James River Technical, Inc.](#) and InteractiveSupercomputing, Drew Vohs, Account Executive
- [Colorado School of Mines](#) Graduate School, Jahi Simbai, Director of Graduate Recruiting and Admissions
- [Pearson Arts and Sciences](#), Scott Day, Senior Publisher's Representative
- [Zim Mathematics](#), Zim Olsen, Owner
- [Colorado School of Mines](#) Admissions Office, Bruce Goetz, Director of Admissions
- [McGraw-Hill Companies](#), Marcy Capell, McGraw-Hill Representative
- [John Wiley & Son's](#), Krista Azer, Representative
- [Old Capitol Grill](#)
- [Grappa](#)
- [Woody's Woodfire Pizza](#)
- [Pickets: Unique Collections for Home and Gardens](#)
- [MillerCoors Brewery](#)
- [Colorado School of Mines Book Store](#)
- [Foss Building Wine & Spirits](#)
- Graeme Fairweather, Retired Department Head of Mathematical and Computer Sciences, Colorado School of Mines.

The Section further offers it's thanks to the **Colorado School of Mines** faculty, students and their relatives for many hours of work and hospitality. Special acknowledgement is extended to the individuals listed here.

Administrative:
- Carole Baptiste

Photography:
- Al Baptiste

Technology Support:
- Ashlyn Munson (as well as oversight of abstract booklet and name tag construction)
- Alex Probst
- John Jackson
- Daniel Heersink
- Doug Hakkarian
- Rachel Miller

Book Sales:
- Christer Karlsson
- Jennifer Picucci

Registration:
- Christie O'Hara
- Eric Larson

- Matthew Kuplilik
- Bao Nguyen
- Michael Asheim
- Tonya Lauriski-Karriker
- Jake Rezac (as well as abstract booklet and name tag construction)
- Pat Kelly (as well as abstract booklet and name tag construction)

Special thanks to **ExxonMobil Corporation** for sponsoring this meeting. Without your generous contribution and support, this meeting would not have been possible.

Barbara Moskal
Meeting Chair

Undergraduate Student Poster Session Report

Thank you to all students and their advisors who presented posters this year. Despite the weather there were a record number of posters.

Posters from undergraduates were judged and the winners were:

1st place
Randy Anguiano, Fort Lewis College, *The Game of Chutes & Ladders as a Markov Chain*

2nd place
Kristin Yearkey, Western State College, *A Most Marvelous Theorem in Mathematics, Or A proof of Marden's Theorem*

3rd place
William Fey, Metropolitan State College, *Rubik's Cube*

Contributed Papers - 2009 Section Meeting

Graduate Students are marked with *
Undergraduate Students are marked with **

Note: This list was prepared based on the original schedule. Some of these sessions may have been cancelled due to the weather and road closures.

Pure and Applied Mathematics, Number Theory and Geometry
Organized by Robert Tubbs, University of Colorado at Boulder and Phil Gustafson, Mesa State College

- **Bernard Bialecki**, Colorado School of Mines, *Chebyshev Spectral Collocation for Second and Fourth Order Dirichlet Problems*
- **Jon M. Collis**, Colorado School of Mines, *Multiple Scale Parabolic Equation Solutions for Low-Shear Speed Seismo-Acoustic Problems*
- **William Cherowitzo**, University of Colorado, Denver, *What is a Translation Hyperoval?*
- **Mahadevan Ganesh**, Colorado School of Mines, *T-matrix Computations in Three Dimensional*

Electromagnetic Scattering

- **Phil Gustafson**, Mesa State College, _The Fab Fourier: Using Music to Motivate Mathematics_
- **Willy Hereman**, Colorado School of Mines, _Symbolic Computation of Conservation Laws of Nonlinear Partial Differential Equations_
- **Roger Johnson**, South Dakota School of Mines & Technology, _Strategies for Playing the Dice Game 'Toss Up'_
- ***Christer Karlsson**, Colorado School of Mines, _Two-Dimensional Dynamic Systems_
- ***Jeffrey Larson**, University of Colorado, Denver, _An Implementation of Scatter Search to Classify Medical Images_
- ***Ashlyn Munson**, Colorado School of Mines, _Efficient Sampling in Case-Control Studies_
- William Navidi, Colorado School of Mines, _Determining Bioequivalence of Topical Drugs_
- ***Jennifer Picucci**, Colorado School of Mines, _Case-Crossover Design_
- ***Keith Wojciechowski**, University of Colorado, Denver, _Numerical Solution to an Integro-Differential Equation Modeling Swelling Porous Materials_
- ***Zou Yang**, Colorado State University, _Evolution of Quantitative Traits with Immigration_

K-16+ Connections and Challenges
Organized by Bernadine Sherman and Catherine Barkley, Mesa State College; On-site oversight: Catherine Skokan, Colorado School of Mines

- ***Joe Champion** and **Kristin King**, University of Northern Colorado, _Outcomes of Math Placement at the University of Northern Colorado: An Analysis of Advising and Enrollment Data_
- **Stephanie Fitchett,** University of Northern Colorado, _What does a C in a First Year Mathematics Course Mean? Tracking Students in the First Two Years._
- **Catherine Skokan**, Colorado School of Mines, _Bridging Mathematics and Science: An Interdisciplinary Course for High School Seniors and First Year College Students_
- **Louis Talman**, Metropolitan State College of Denver_, Knowing Your Asymptote From a Hole in the Graph_
- ***Ann Wheeler**, University of Northern Colorado, _Traditional and Nontraditional Preservice Elementary Teachers' Perceptions about Mathematics and Mathematics Teaching_

Open Session
Organized by Kyle Riley, South Dakota School of Mines and Technology

- ****Dylan Asmar** and **Eric Robinson**, US Air Force Academy, _Big Integers that Divide Random Products_
- **Shahar Boneh**, Metropolitan State College of Denver, _How Not to Fake a Sequence of Coin Tosses_
- ****Katherine Ghadimi**, Fort Lewis College, _Dynamical Systems Using the Sandpile Model_
- **Michelle Ghrist**, US Air Force Academy, _Homework: Simplifying the Grading Burden While Retaining the Advantages_
- **Travis Kowalski**, South Dakota School of Mines & Technology, _The Many Breeds of Analyticity_
- **Lindsay Packer**, Metropolitan State College of Denver, _Compartment Models of Insulin-Glucose Dynamics_
- **Kyle Riley**, South Dakota School of Mines & Technology, _Getting Your Numerical Methods to Excel_
- **Holly Zullo**, Carroll College, _Clickers and Classroom Voting_

Mathematics Education Research
Organized by Robert Powers, University of Northern Colorado

- **Jeffrey Berg**, Arapahoe Community College, *On-line Mathematics Education … Are We Upholding Our Responsibilities?*
- **Ralph Boedigheimer** and **Kenneth Horton**, US Air Force Academy, **Hortensia Soto-Johnson**, University of Northern Colorado, and **Michael Brilleslyper**, US Air Force Academy, *What's on Your Card? Information Students Perceive Will Help Them on a Calculus Exam*
- **Alexander Hulpke**, Colorado State University, Fort Collins, *Computer Algebra for Abstract Algebra*
- **Zim Olson**, *Zim Mathematics, Creative Mathematics - Zim Mathematics*
- ***Alexander Probst**, Colorado School of Mines and Colorado Christian University, *A Tablet-PC mediated, multi-tasking, classroom software system for Statistics Education*
- ***Daniel Reinholz** and **Kenneth Klopfenstein**, Colorado State University, *An Analysis of Factors Affecting Student Success in MATH 160 Calculus for Physical Scientists*
- ***Brian Rogers**, University of Northern Colorado, *Mathematic Damaged II – Reflection*
- **Hashim Saber**, Colorado State University, Pueblo, *Mathematics and Education Research*
- ***Erin Skjelstad**, Texas Tech University, *Calculus II Students' Perception of Instructors' Teaching Styles*

Graduate Student Research
Organized by Hortensia Soto-Johnson, University of Northern Colorado

- ***Daniel Daly**, University of Denver, *Enumerating Permutations that Contain Few Copies of 321 and 3412*
- ***Mike Garkie** and **Adam Ruff**, University of Colorado, Denver, *Social Network Surveys in Math and Science Education*
- ***Colin Garnett**, University of Wyoming, *Graphs with Large Minimum Skew Rank*
- ***Daniel Heersink**, Colorado School of Mines, *Statistical Analysis of Soil Stiffness Data in a Florida Test Bed*
- ***Jennifer Maple**, Colorado State University, *Characterization of Spatio-Temporal Complexity in Ginzburg-Landau Equations for Anistropic System*
- ***Justin Marks**, Colorado State University, *Discriminative Canonical Correlations: An Offspring of Linear Discriminant Analysis*
- ***Rachel Miller**, Colorado School of Mines, *Nonlinear Scattering of Bose-Einstein Condensates on a Finite Barrier*
- ***Reshmi Nair**, University of Wyoming, *Minimum rank of Skew-Symmetric Matrices Described by a Graph*
- ***Michael Presho**, University of Wyoming, *The Multiscale Finite Element Method and its Use in Quantifying Uncertainties*
- ***Kyle Pula**, University of Denver, *Recent Developments in Latin Squares*
- ***Elizabeth Untiedt**, University of Colorado at Denver, *On Cardinalities and Elements of Fuzzy Sets*
- ***Timothy Vis**, University of Colorado at Denver, *Classifying Monomial Hyperovals*

Undergraduate Student Research
Organized by Carl Lienert, Fort Lewis College

- ****Cody Alsaker**, South Dakota School of Mines & Technology, *Taylor Series Solutions for Systems of ODE*
- ****Tiffany Brown-Utoft** and **Jessica Smoot**, University of Northern Colorado, *Lesson*

Experiment

- ****Sarah Detty**, Regis University, *An In-Depth Look at Fractal Image Compression*
- ****Barry Longden**, South Dakota School of Mines & Technology, *Resonance of the Human Voice*
- ****Virginia Maddox**, Fort Lewis College, *Enumerative Algebraic Geometry: How Many Conics?*
- ****Ruth Martin**, University of Colorado, Boulder, *An Investigation of Shallow Water Wave Equations*
- ****Hilary Smallwood**, Fort Lewis College, *Groebner Bases Over Field Extensions*
- ****Heather Thomas**, Mesa State College, *Voice-Printing Great Horned Owls Using Wavelet Analysis*

History of Mathematics
Organized by Janet Barnett, Colorado State University – Pueblo and George Heine, Bureau of Land Management, Pueblo

- **Janet Barnett**, Colorado State University, Pueblo, *Boolean Algebra Past and Present: A Two-Valued Approach to Its Teaching*
- **George W. Heine**, Math and Maps, *Leonhard Euler's Contributions to Mathematical Cartography*
- **Michael Lord,** Intera, Inc., *Lagrange and the Method of Variation of Constants*
- **James Lowdermilk**, Mathemagician Tutoring, *From Pebbles to Precession*
- **John Martin**, University of Colorado, Boulder, *Count: Pedagogical Comments on Reading a Math Play*
- **Paul Martin**, Colorado School of Mines, *Harry Bateman and Applied Mathematics*
- **Mike Siddoway**, Colorado College, *Constructing and Squaring Lunes Whose Fundamental Quotient is Algebraic*
- **Donald Teets**, South Dakota School of Mines & Technology, *Newton's Solution to Kepler's Problem*

Programs for Middle School and High School Teachers
Organized by Sara Dallman and Alex Probst, Colorado Christian University

- **Janet Barnett**, Colorado State University, and **Janet Nichols**, Colorado State University, *The ABC's of Problem Solving: A Capstone Course for Pre-Service Elementary Teachers*
- ***John Jackson** and **Michael Asheim**, Colorado School of Mines, *An Exploration into Hong Kong's Secondary School System*
- **Larry Johnson**, Metropolitan State College of Denver, The Metropolitan State Summer *Science Programs II*
- **Robert Powers** and **April Judd**, University of Northern Colorado, *The Professional Development of Secondary Teachers through Lesson Experiments*

Commercial Demonstration
Scott Day, Pearson Education, *MyMathLab: Teaching with Technology*

Student Success Forum
Johnathan Poritz, Colorado State University – Pueblo, *Promoting Student Success in Mathematics: An Open Discussion*

Business Meeting
Rocky Mountain Association of Mathematics Teacher Educators

<div style="border: 2px solid navy;">

2009 Business Committee Meeting Minutes
Saturday, April 18, 2009

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Minutes: MAA Business Meeting
Date: April 18, 2009; 8:00-9:00 am
Location: Student Center Ballroom A; Colorado School of Mines

1. Mike called meeting to order, Kyle made a motion to approve minutes. Randall made a second to approve the minutes from the 2008 MAA RMS business meeting. All were in favor. Stan Payne from UCDenver asked about the 100e prize for the DTA. Mike explained that it was in celebration of Euler and that we made this change a couple of years ago. Mike explained the circumstances of why we are having another election for chair elect. This was due to the fact that Graeme Fairweather resigned his position since he retired from Colorado School of Mines.

2. Reports
   a) Amelia Taylor, the chair of the nominating committee, stated that Daluss Siewert from BHSU and Stanley Payne from UC Denver were the nominees for chair elect and asked each nominee to provide a brief statement. Stanley Payne: University of Colorado at Denver: Stan recommended that everyone vote for Daluss, but said that he would be willing to serve if elected, but would prefer to participate in less imposing ways.
   Daluss Siewert: Black Hills State University: Daluss stated he is willing to continue to participate in the section but willing to participate under the leadership of Stan.

   b) Financial Report: Hortensia provided everyone with a financial statement (see appendix) and explained the budget. We are in great shape due to Barb Moskal's ability to acquire funds for the 2009 section meeting. Janet asked about the newsletter cost and Hortensia explained that the cost was for postcards that Linda sends to members informing them that the newsletter is ready and on-line. Dick asked that Barb explained what her grant entailed. Barb explained how Exxon provided the money as long as the meeting met their needs. Mike commented that it may be getting harder to have the host institution provide support for the meeting, thus it is important that we use our money wisely. Mike suggested that everyone come up with ideas as to how we might best use these funds. Hortensia suggested that we support a Project NExT fellow since a majority of the executive committee is made up of NExTers.

   c) Student Competitions Report: Dick Gibbs announced that the awards celebration would take place May 12, 2009. He is worried about the financial aspect b/c of the lack of support from CCTM, they are not able to provide as much financial support as they have in the past due to the economy. He gave a breakdown of top scorers in the different AMC brackets, Math Modeling Competition, and the Putnam exam.

   d) Chair's Report: Mike Brilleslyper detailed the executive committee meeting decisions: We have a larger participation from students so we need to start charging more. We agreed to charge $30 (for faculty) and $10 (for students). On-site registration will be $40.00. We don't want to prevent students from attending so we will work out the details of how we can help students. I explained that we will continue to help support grad students. Fees will go into effect for next year's meeting. We will support CMA with $250.00.

   e) Student Activities Report: Carl Lienert reported that we had a record turn-out for the poster session with 15 posters. This was a big jump from the 3 posters that we have had in the past 2 years.

f) Newsletter Report: I let everyone know that we will try to include photos in the newsletter and the website.

g) National Officer Report: Betty Mayfield provided greetings from the mothership. The MAA is attempting to recruit more members from other countries. MathFest in Portland, please take students. Think about MAA Centennial – she liked our banner. Randall made a comment to think about pie (3.1415) for the centennial.

h) Governor's Report: Kyle Riley informed us of the strategic planning on website, the support from Halmos for Carriage House and our brick is at the carriage house. Also the MAA is no longer providing free membership for students but they are working on electronic journals. Egypt is the travel plans for the 2009 MAA travel tour. Future locations include Spain and Portugal. MAA book sales doing well and they are now selling, textbooks.

3. Announcements and Informational Items
   a. Richard Grassl was the 2009 DTA recipient.
   b. Upcoming Meetings
      - 2010 MAA Rocky Mountain Section Meeting: Colorado State University (April 16-17, 2010)
      - CCTM: Denver, CO (October 2-3, 2009)
      - NCTM Regional Meting in Denver: (October 6-8, 2010) → November 1, 2009 is deadline to submit abstract
      - NCTM Annual Meeting: San Diego, CA (April 21-24, 2010)
      - MathFest 2009: Portland, OR (August 6-8, 2009) (Janet reminded us that abstracts due May 1. Mike will represent the section at the section officers meeting.
      - Joint Winter Meeting: San Francisco, CA (January 13-16, 2010) Tensia and Amelia will be present
   c. Election Results: Amelia informed us that Daluss was elected as our new chair elect
   d. Other: Amelia is going to work to put together a section next. Explained why sometimes it is difficult to get commitment from institutions for PNext. Amelia will organize this along with folks from Metro and Western. Mike asked that folks who are willing to serve as program chair speak to the dept chair before agreeing so that we can inform the dept chair of financial commitments.

4. Discussion Items: Janet wanted to discuss how to spend the money in our account. Mike wants to make sure that we do something that is lasting and meaningful. I suggested sponsoring a Project Next Fellow.

5. Motion to thank Colorado School of Mines and passing of the banner: So moved to thank Mines. We had the passing of the banner.

6. Adjourn: Kyle made a motion to adjourn. So moved.

Respectfully Submitted,
Hortensia Soto-Johnson
Secretary/Treasurer of the MAA Rocky Mountain Section

Appendices:
Appendix A: Chair-Elect Statements (See Spring 2009 newsletter)
Appendix B: Business Meeting Agenda
Appendix C: Financial Report

APPENDIX B
MAA Rocky Mountain Section
Annual Business Meeting Agenda
Student Center Ballroom A; Colorado School of Mines
Saturday, April 18, 2009
8:00 AM – 8:50 AM

1. Call to Order, Approval of Minutes (see attached)

2. Reports
    a) Nominating Committee Report   (Amelia Taylor)
        Election of New Officers:
        Candidates for Chair Elect
            Stanley Payne: University of Colorado at Denver
            Daluss Siewert: Black Hills State University
    b) Financial Report   (Hortensia Soto-Johnson)
    c) Student Competitions Report   (Dick Gibbs)
    d) Chair's Report   (Mike Brilleslyper)
    e) Student Activities Report   (Carl Lienert)
    f) Newsletter Report   (Linda Sundbye)
    g) National Officer Report   (Betty Mayfield)
    h) Governor's Report   (Kyle Riley)

3. Announcements and Informational Items
    a) 2009 Distinguished Teaching Award Recipient
    b) Upcoming Meetings
        *   2010 MAA Rocky Mountain Section Meeting: Colorado State University (April 16-17, 2010)
        *   CCTM: Denver, CO (October 2-3, 2009)
        *   NCTM Regional Meting: (October 6-8, 2010) → November 1, 2009 is deadline to submit abstract
        *   NCTM Annual Meeting: San Diego, CA (April 21-24, 2010)
        *   MathFest 2009: Portland , OR (August 6-8, 2009)
        *   Joint Winter Meeting: San Francisco, CA (January 13-16, 2010)
    c) Election Results
    d) Other

4. Discussion Items

5. Motion to thank Colorado School of Mines and passing of the banner

6. Adjourn

APPENDIX C
MAA RMS Budget Report
Spring 2009

Balance on 12/31/07	$12,830.69

Balance on 12/31/08 (loss of $1,034.85)[a]	$11,795.84

[a]This does include some fund-raising from CSM for the 2009 meeting.

Checking Account Transactions from 12/31/08

Date		Income	Expense	Total
16-Jan-09	BHSU (return unused funds)	109.33		3,099.79
2-Mar-09	Eventbrite		52.47	3,047.32
6-Mar-09	Linda Sundbye Spring Newsletter		182.64	2,917.15
25-Mar-09	Registration	792.82		3,709.97
	PayPal	2000.23		5,710.20
2-Apr-09	Eventbrite		116.82	5,593.38
10-Apr-09	McGraw Hill	200		5,793.38
10-Apr-09	Registration	126.98		5,920.36
10-Apr-09	Arapahoe Community College	71.98		5,992.34
April 12, 209	PayPal	1243.55		**7,235.89**
March 31, 2009	Savings Account			**8,905.24**
April 12, 2009	Total			**16,141.13**

Expenses during 2009 Meeting
1. Graduate Students: $500.00
2. Undergraduate Students: $100.00
3. DTA Prize: $271.82
4. Colorado Mathematics Awards:
5. Banquet:

2009 Executive Committee Meeting Minutes
Thursday, April 16, 2009

Minutes: MAA Rocky Mountain Section Executive Committee Meeting
Date & Time: Thursday April 16, 2009 @ 6:30-10 p.m.
Location: Golden Hotel 800 11th St. #B Golden, CO 80401
Attendance: Jeff Berg, Mike Brilleslyper, Kyle Riley, Elizabeth Mayfield, Barb Moskal,
                 Hortensia Soto- Johnson, Amelia Taylor

1. Mike called the meeting to order. Called motion to approve minutes from 2008. Kyle motioned to approve minutes and Amelia second. We approved the minutes and approved the 2009 agenda.

2. We reviewed agendas for opening Ceremonies, banquet & business meeting
   a. Opening Ceremonies: We decided
      - Barb Moskal – will introduce VP and associate VP of educational innovations and Mike Siddoway
      - Mike Siddoway will introduce Steven Janke who will deliver the Burton W. Jones Distinguished Teaching Award Invited Lecture
      - Graeme will introduce Gil Strang who will give the Friday afternoon keynote address. Remember to remind folks to turn off cell phones
   b. Banquet (During Dessert) Mike will MC
      - Door Prizes: (conducted by Janet Barnett & Carol)
      - Undergraduate Poster Contest Results (Carl Lienert will facilitate): Amelia, Jeff & Betty will serve as judges
      - Membership Anniversary Certificates (Mike Brilleslyper will announce)
      - Announcement of 2009 DTA Award (Dean Allison will announce) – The 2009 DTA recipient is Richard Grassl from the University of Northern Colorado
      - Banquet keynote given by Betty Mayfield (Kyle Riley will introduce)
   c. Business Meeting: Mike will announce the situation about the chair-elect position. Amelia will discuss the possibility of section next.
   d. Saturday Keynote Address given by Betty Mayfield (Kyle Riley will introduce)

3. Reports
   a. Financial Report (Hortensia Soto-Johnson): Informed committee that we are spending $100.00 for undergraduate students and $500.00 for graduate students. Paypal worked well for the 2009 meeting. Barb informed us that is costs about $8.50/person for snacks for the section meeting. Thus we need to be careful about what we are charging.
   b. Nominating Committee Activities: Mike Jacobson will serve as chair of the nominating committee for 2010
   c. Amelia Taylor the chair of the nominating committee let us know that we have two candidates for chair-elect. They are Daluss Siewert (BHSU) and Stanley Payne (UCDenver). The 2010 election will be for vice chair. This person will serve until 2012 and is someone from the 2-year institutions.
   d. Jeff Berg announced Richard Grassl from UNC was selected as DTA

4. Discussion and Action Items
   a. Linda was not present to discuss the newsletter, but Hortensia let everyone know that she thought it was going well.

b. Membership Recruitment: It has become obvious that we can not continue to provide free registration to students, high school teachers, new members, and 25+ members. After much discussion Kyle Riley motioned that we make the registration for MAA members be 25.00, Amelia second that registration be $25.00. Mike suggested that this needs to go hand in hand with student registration since faculty are paying for students and it doesn't take care of the registration for students. Barb commented that the cost of the banquet is more than $30.00 so that is not getting paid for through registration and fees. Betty did mention that they charge $5.00 per student. Kyle amended his motion to change 30 for MAA and 10 for students, Amelia seconded the friendly amendment. We all voted in favor of this amendment.

c. This is the third that we have supported graduate students. Kyle made a motion to continue with our model of supporting graduate students to present at the section meeting through $500.00 and Mike seconded the motion to continue this effort. Betty commented that she is not aware of any sections that have active graduate students in the section meetings. All were in favor. Tensia made a motion to give $250.00 for the Colorado Math Awards. Mike seconded and the motion passed unanimously

d. Although there are no section activity grant proposals, Amelia is interested in developing a Section NeXT. We all encouraged this idea.

e. Representative needed for MathFest in Portland, OR (August 6-8, 2009) & Joint Meeting in San Francisco, CA (January 13-16, 2010): Kyle & Mike will be at Portland, Kyle, Mike, Amelia & I will be at San Francisco

5. Future Section Meetings
- 2010: April 16-17, Colorado State University (Program Co-Chairs are Kelly Chappell & Simon Tavener) Hortensia will be sure to let them know about the change in registration fees.
- 2011: Mike will contact Steven Aldredge at Adams State and Carl Lienert at Fort Lewis
- 2012: Metro State College

6. Other: Attempt to do the 2015 Meeting at CC. Jeff discussed his process of putting stuff together for the Centennial. He hopes to make a CD.

7. Kyle made a motion to adjourn and seconded by Jeff. All were in favor.

Respectfully submitted,
Hortensia Soto-Johnson
Secretary/Treasurer of the MAA Rocky Mountain Section

APPENDIX A
MAA Rocky Mountain Section Executive Committee Meeting Agenda
Thursday, April 16, 2009 at 6:30 pm - ???
Golden Hotel 800 11ᵗʰ St. #B Golden, CO 80401

1. Call to Order, Approval of Minutes (Mike Brilleslyper)

2. Review agendas for banquet & business meeting
   a. Opening Ceremonies
      • Opening Remarks: Barb Moskal
      • Burton W. Jones Distinguished Teaching Award Invited Lecture given by Steven Janke: (Introduction by Michael Siddoway)
      • Friday afternoon keynote address given by Gil Strang (Introduction by Barb Moskal)
   b. Banquet
      • Door Prizes: (Janet Barnett)
      • Undergraduate Poster Contest Results (Carl Lienert)
      • Membership Anniversary Certificates (Mike Brilleslyper)
      • Announcement of 2009 DTA Award (Dean Allison)
      • Banquet keynote given by Betty Mayfield (Kyle Riley)
   c. Business Meeting: See Business Meeting Agenda
   d. Saturday Keynote Address given by Betty Mayfield (Kyle Riley)

3. Reports
   a. Financial Report (Hortensia Soto-Johnson)
      • How did we handle the finances for this year's section meeting?
   b. Nominating Committee Activities
      • 2008-2009 Committee Report (Amelia Taylor)
      • Upcoming Elections – Vice-Chair (elect in 2010 and serve until 2012)
   c. Awards Committee Activities
      • 2008-2009 Awards Committee Report (Jeff Berg)

4. Discussion and Action Items
   a. Newsletter update
   b. Membership Recruitment
      • Free Meeting Registration (students, high school teachers, new members, 25+ members, DTA nominator/nominees)
   c. Student Recognition Grant Proposals
      • $500.00 for graduate student session
      • Request from Dick Gibbs for Colorado Math Awards
   d. Section Activity Grant Proposals- None at this time
   e. Representative needed for MathFest in Portland, OR (August 6-8, 2009) & Joint Meeting in San Francisco, CA (January 13-16, 2010)

5. Future Section Meetings
   a. 2010: April 16-17, Colorado State University (Program Co-Chairs are Kelly Chappell & Simon Tavener)
      • Confirm Registration Fees ($20 in advance, $30 on site, price for banquet TBD by host institution, $0 for students, K-12 teachers, new members, 25/50 year members)
   b. 2011: To be determined
   c. 2012: Metro State College

6. Other

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.

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 Francisco, CA; January 13-16, 2010
  MAA Rocky Mountain Section Meeting
  Colorado State University
  Fort Collins, CO
  April 16-17, 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
MAA MathFest; Lexington, KY; August 4-6, 2011

Joint Mathematics Meetings; Boston, MA; January 4-7, 2012
NCTM annual meeting; Philadelphia, PA; April 25-28, 2012
MAA MathFest; Madison, WI; August 2-4, 2012

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

Joint Mathematics Meetings; Baltimore, MD; January 15-18, 2014
NCTM annual meeting; New Orleans, LA; April 9-12, 2014

Joint Mathematics Meetings; San Antonio, TX; January 10-13, 2015
NCTM annual meeting; Boston, MA; April 15-18, 2015
MAA 100th Anniversary MathFest, Washington, DC; August 5-8, 2015

Joint Mathematics Meetings; Seattle, WA; January 6-9, 2016
NCTM annual meeting; San Francisco, CA; April 14-16, 2016

Joint Mathematics Meetings; Atlanta, GA; January 4-7, 2017

The Rocky Mountain Section of
The Mathematical Association of America

Burton W. Jones Award
for Distinguished College or University Teaching of Mathematics

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.