



Spring 2010 Newsletter

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

Spring 2010 Newsletter in PDF Format for Printing

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2009 - 2010 Section Officers and Committee Members

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

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2011 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 lifelong 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 2010**. **Complete nomination materials** (described on the website) are due **15 January 2011**.

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

It was easy to spot the RMS folks at the Joint Meetings in San Francisco. We were the ones not huffing and puffing up all those hills (there are advantages to living above 5000 ft.). Despite

our superior conditioning, the cable car was still a necessity after gorging ourselves at dinner in Chinatown. Yes, San Francisco was a terrific host city. The meeting itself was also outstanding. With near record attendance and an incredible variety of events on the program, it is clear that our profession is in good shape.

It is always great to see old friends at the national meetings. I even ran into a few people I had not seen in twenty years. It was only after getting caught up that I realized how long ago grad school was. If the national meetings are a little like family reunions, then the sections are a little like your immediate family. I met with several members of the RMS family (a.k.a. the executive committee) and was again impressed by the level of commitment of the people that serve the section.

As the executive committee ate breakfast at famous Sears Fine Food (ah the Swedish pancakes), we discussed the details of the upcoming spring section meeting. This year we will be at CSU in Ft. Collins, which promises to be a very fun location. Professor **Alexander Hulpke** has taken over most of the responsibility for organizing the meeting. He is proving to be a tireless worker and the program promises to be outstanding. Once again, we are fortunate to have terrific and renowned keynote speakers. The meeting program is highlighted by talks from MAA President **David Bressoud** (Macalister College), and Polya Lecturer, **Judy Walker** (University of Nebraska). A new and exciting element is the kick-off of our very own section NeXT. **Amelia Taylor** (Colorado College) has done a tremendous amount of work in bringing this into existence. Please encourage your junior faculty members to consider applying to be part of our inaugural class of section NeXT fellows. This year we are continuing the practice of accepting abstracts and registrations online. Please see the meeting information in this newsletter and register early!

While not eating or sightseeing in San Francisco, I also attended the Section Officer's meeting. Some of the items from that meeting are discussed in the Governor's report, but another exciting project is that the National MAA is planning to start hosting section websites. There will be direct links from the MAA homepage and more continuity among the various websites. A great deal of creative freedom will still be afforded the sections, while

at the same time bringing stability to the entire process.

Finally, this spring will be my last section meeting as chairman. It has been a fun and rewarding three years serving the section and the MAA. We are a unique and diverse group of educators and mathematicians and I have been continually impressed and humbled by the hard work and dedication of our members. Though many of our members do great research and are very creative, what stands out most is the deep passion and commitment to providing our students with a great education. At every level and at every institution represented in the RMS, the concern for the students shines through. I believe this view reaches throughout the MAA and this is why it is so important to be a member and to support our professional organization.

As I close this last newsletter article (ok, quit jumping for joy), I would like to thank the other members of the executive committee. They are consummate professionals that have made my job easy. I would like to pay a special than you to our Governor, **Kyle Riley** (South Dakota School of Mines). Kyle is a great guy to work with and he does a wonderful job representing our section at the National level. I need to say a very special thank you to **Hortensia Soto** (University of Northern Colorado), our section secretary and treasurer. Tensia is one of my oldest friend in the profession (I know, how is that possible when she looks so young). Tensia keeps all of us in line and makes sure that everything gets done. And even though she is telling you what do, you can't help but like her. I also need to point out the great work by **Linda Sundbye** (Metro State), who makes sure this newsletter gets out twice per year. I am never happy to see her reminder email, but it wouldn't get done without her.

In April, I will hand the reigns to **Daluss Siewert** (Black Hills State University) who will take over as section chairman. Daluss is dedicated and very talented. I have no doubt that he will do great things for the RMS.

I appreciate the support I have received over the years. Thank you for giving me the opportunity to serve.

Respectfully submitted,

Michael A. Brilleslyper, USAFA
Chair, Rocky Mountain Section

Governor's Report

The Joint Mathematics Meetings is always a great conference and San Francisco did not disappoint. They expect attendance to top out near 6,000, which is close to the record attendance in DC last year. The variety of sessions and invited talks is really a testimony to the creativity and hard work that resides in the mathematical community. In addition, San Francisco has a wonderful convention site and the heart of downtown is a very interesting place to visit.

The Board of Governors meeting at JMM was filled with information, but I will attempt to hit the highlights. As you may know, the MAA launched their electronic membership option and over 1,600 members opted for the electronic membership. This enables a member to have access to all three professional journals and this is not only access for the current year, but also provides access to the previous three years. Of course, if you like your current membership with a paper copy of journals then you are welcome to keep your membership the way it is. The electronic membership will be the required structure of all student memberships once we start the next membership cycle for students. This will give students more access to journals and that access starts much more quickly than what could be done in the old mail delivery system. In addition, this electronic membership should prove much more attractive to the international audience of mathematicians and we hope it will help us grow our membership.

Strategic planning continues to be a large part of the Governors meeting and this last meeting we had reports on publications. The MAA continues to evaluate the variety of publications that it offers and many of the new publications are being delivered through the website <http://www.maa.org>. Book publishing is another area that has been another source of pride for the Association and we have found our textbook offerings are becoming popular. Most of the textbooks developed by the MAA are directed at the upper level classes in mathematics and hopefully you can get a chance to check out the MAA catalog online. Perhaps a new book or one of the new textbooks will be an interest to you.

The MAA has also been working hard on revising the bylaws in order to update the organization and position the association to better serve the membership. I am not sure when the proposed revisions in the bylaws will go to the membership for approval, but it is something that we spent a great deal of time on in the Board meeting at JMM and we are planning to spend more time at Mathfest. Speaking of meetings, I would like to remind you about the upcoming meetings:

Mathfest 2010, August 5-7, Pittsburg, PA

Joint Mathematics Meetings 2011, January 5-8, New Orleans, LA

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

Lastly, I would really like to thank Mike Brilleslyper for all his hard work serving as section chair. Mike has really gone the extra mile to serve the section and he has been a pleasure to work with. Mike will be finishing his term at the end of the spring meeting and I look forward to working with Daluss Siewert in the next year. I really do appreciate all the great work that our section benefits from with the cast of officers and other individuals that have been keeping the section business moving along. Our section is very lucky to have such great membership and if you haven't bothered to join the MAA in the past then I hope the new electronic membership provides an opportunity for you to join the party. I look forward to seeing everyone in Ft. Collins and I hope you enjoy 2010.

Kyle Riley, SDSMT

Governor, Rocky Mountain Section

Section News

Metropolitan State College of Denver

It is with great sadness that we note the passing of our esteemed colleague **Lew Romagnano** in January 2010.

South Dakota School of Mines and Technology

Our department is a proud parent of a new masters program. The Master of Science in Robotics and Intelligent Autonomous Systems (RIAS) will be launched this fall. This is a two year interdisciplinary program that will take graduates from a variety of disciplines and will

seek to foster collaboration skills on team research projects. To find out more about his program then please see

<http://rias.sdsmt.edu/rias/RIAS>. We have also new member of the faculty: **Randy Hoover** has a doctorate from CSU and will be teaching many of our Computer Science courses.

University of Northern Colorado

We are pleased to report that **Nat Miller** received the college Excellence in Scholarship Award and **Hortensia Soto-Johnson** received the college Excellence in Service Award from the College of Natural and Health Sciences at UNC. **Anton Dzhamay** has recently participated in a number of international programs, including the Discrete Integrable Systems Program at the Isaac Newton Mathematical Institute, Cambridge, UK, and the Workshop on Nonlinear and Modern Mathematical Physics in Beijing, China. **Richard Grassl** has been invited to become a member of the Advisory Board for the Math Teachers' Circle by the American Institute of Mathematics. AIM organizes annual training sessions on how to start and sustain a Math Teachers' Circle and provides logistical support and materials for Circle leaders. The program is the largest American Institute of Mathematics outreach effort and currently involves 16 Member Circles located throughout the country as well 14 more in the planning stages.

The 18th Annual UNC Math Contest for students in grades 7-12 had approximately 2000 participants. The first round was delivered on-line in November 2009 and provided students throughout the state the opportunity to participate. The top 200 students were invited to campus for the final round on January 30, 2010. The top 25 winners will be honored, along with their parents, at a banquet in early April that is hosted by the director of the Math Contest, **Richard Grassl**.

Tensia Soto-Johnson, Cathleen Craviotto, and **Ricardo Diaz** are organizing the third annual Las Chicas de Matematicas, a Summer Math Camp for young women. The free one-week residential camp will introduce mathematically talented high school girls to mathematical topics through problem-solving and collaborative learning. The camp will be on the UNC campus from June 6 to June 11, 2010. For more information, contact

Hortensia.Soto@unco.edu.

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 Colorado State University, April 16 and 17, 2010. 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

MAA PREP Workshops 2010

Registration is now open for the MAA's 2010 series of Professional Enhancement Program (PREP) workshops. There are both online workshop and onsite workshops. For more information, visit: <http://www.maa.org/prep/>

**Mathematics Awareness Month
Theme: Mathematics and Sports
April 2010**

Math Awareness Month is only a few months away. Initiated in 1986 to increase public understanding of, and appreciation for, mathematics, this annual event highlights the relevance of mathematics to a particular area of scientific endeavor.

This year, the MAA, American Mathematical Society (AMS), Society for Industrial and Applied Mathematics (SIAM), and American Statistical Association (ASA) have jointly proclaimed that the theme of Mathematics Awareness Month - April 2010 - shall be "[Mathematics and Sports](#)."

Sports offers a multitude of instances involving data, strategies and chance, each of which is perfectly suited to mathematical analysis. Beyond the obvious uses of mathematics for things such as rating baseball players and football quarterbacks, mathematics is used to design the dimple patterns on golf balls and the composition of racing tires; it is used for scheduling tournaments and for ranking teams; and it is used to determine tactics and to predict the ultimate limits in sports records.

In the 1960s the ABC television network began a popular weekly series called "The Wide World of Sports" that spanned the globe to show the tremendous variety of sports. For 2010, the Joint Policy Board of Mathematics has chosen the theme "Mathematics and Sports" to highlight the intersection of the sports world with the wide world of mathematics—a universal language that is used to investigate problems ranging from the athletic to the cosmic.

The 2010 Mathematics Awareness web site has articles on baseball, basketball, football, golf, soccer, track and field, tennis, and car racing as well as videos and links to other resources.

**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-minute 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.

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](mailto:darren.funkneubauer@colostate-pueblo.edu), or

Jonathan Poritz

jonathan.poritz@colostate-pueblo.edu

For more info, visit:

<http://csm.colostate-pueblo.edu/Mathematics/2010MathConference>

Funding for this conference is provided by NSF grant DMS-0846477 through the MAA Regional Undergraduate Mathematics Conferences program, www.maa.org/RUMC

**6th Annual SIAM Front Range
Conference at the University of
Colorado at Denver
Saturday, March 6, 2010**

The SIAM Student Chapters of the University of Colorado campuses are organizing the 6th Front Range Applied Mathematics Student Conference on Saturday, March 6th, 2010 at the University of Colorado at Denver campus (downtown Denver on the Auraria campus).

The conference is open to BOTH undergraduate and graduate students and will focus on student research projects and presentations in Applied Mathematics. Faculty are also welcome to attend.

Abstract deadline is Friday Feb. 26th, and registration fee is \$10 (to help cover breakfast and lunch costs). The keynote speaker is Dr. **Geoffrey Spedding** of the University of Southern California. He will be speaking on *The Aerodynamics of Everything*.

This will be a great opportunity for learning about current student research in the Front Range area and meeting fellow students.

Further information about this conference can be found at:

<http://amath.colorado.edu/index.php?page=conference>

Lynn Benethum, UC-Denver

Seeking Nominations for Section Vice Chair

As Our Spring Meeting Nears - We Are Still Seeking Nominations for Vice Chairperson.

The MAA Section Nominating Committee is seeking nominations for the position of vice-chairperson. This is a 2-year term beginning Spring 2010. The nominee must be someone from a junior or community college. The vice-chair person acts as a key contact for the section with two-year and community colleges; serves on the Distinguished Teaching Award committee; and assists the program committee with events for faculty from two-year and community colleges.

All nominations can be sent to any of the members from the section nominating committee. They are **Michael Jacobson** (chair)

michael.jacobson@ucdenver.edu,

Amelia Taylor

amelia.taylor@coloradocollege.edu,

and **Jeremy Muskat** muskat@western.edu.

Colorado State University to Host 2010 Meeting

The Department of Mathematics at Colorado State University is pleased to be hosting the 2010 sectional meeting on April 16-17, 2010 on its campus in Fort Collins. The program offers a wide variety of events, catering to the whole spectrum of the profession.

Detailed information about the meeting, including travel information, registration forms and guidelines for talk submissions can be found on the conference web pages at:

<http://www.math.colostate.edu/~hulpke/MAA>

The deadline for registration and submitting titles and abstracts for talks is **April 1, 2010**.

Hotel rooms are available at a special conference rate until **March 19, 2010**.

A pre-conference workshop will be held Friday morning from 9:30 – 11:30am on *Proposal Writing for Grant Applications to the NSF Division of Undergraduate Education* will be conducted by **Stephanie Fitchett**, NSF and University of Northern Colorado. Faculty members and graduate students in their final year are encouraged to participate. The registration fee is \$5 per person.

The meeting itself will start at 1:00pm on Friday, April 16, with a talk by the 2009 Burton W. Jones Distinguished Teaching Award Recipient, **Richard Grassl** of the University of Northern Colorado. His talk, *The ah Ha moment*, addresses the question of problem solving in a teaching context.

On Friday afternoon the current president of the MAA, **David Bressoud** of Macalaster College, will present a talk entitled *Calculus as a High School Course*, which will address a question of interest to all participants.

The dinner speaker on Friday evening will be the 2010 Polya Lecturer, **Judy Walker** of the University of Nebraska Lincoln. Her talk, *Codes on graphs: Shannon's challenge and beyond*, will discuss the current state of the art as well as open problems in coding theory and will be generally accessible.

David Bressoud will also address the meeting on Saturday morning. His talk, *Proofs and Confirmations: The Story of the Alternating Sign Matrix Conjecture*, is intended for a general audience.

A poster session for undergraduate students will be organized by **Carl Lienert**, Fort Lewis College.

Rounding out the scientific program will be talks contributed by intelligent, involved and inspirational people like you! Information on special sessions and submission guidelines can be found on the web pages.

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

About Our Featured Speakers

Judy Walker is Professor and Graduate Chair at the University of Nebraska-Lincoln. Her main research interests are in algebraic coding theory, and her current work focuses primarily on codes on graphs. She has also studied connections between coding theory and both algebraic geometry and number theory. She is co-founder of the Nebraska Conference for Undergraduate Women in Mathematics and an editor for the *Journal of Pure and Applied Algebra*, *Advances in Mathematics of Communications* and the *Rose-Hulman Undergraduate Math Journal*.

David Bressoud is DeWitt Wallace Professor of Mathematics at Macalester College and President of the Mathematical Association of America. He served in the Peace Corps, teaching math and science at the Clare Hall School in Antigua, West Indies before studying with Emil Grosswald at Temple University and then teaching at Penn State for 17 years. He chaired the Department of Mathematics and Computer Science at Macalester from 1995 until 2001. He has held visiting positions at the Institute for Advanced Study, the University of Wisconsin-Madison, the University of Minnesota, Université Louis Pasteur (Strasbourg, France), and the State College Area High School.

David has received the MAA Distinguished Teaching Award (Allegheny Mountain Section), the MAA Beckenbach Book Award for *Proofs and Confirmations*, and has been a Pólya Lecturer for the MAA. He is a recipient of Macalester's Jefferson Award. He has published over fifty research articles in number theory, combinatorics, and special functions. His other books include *Factorization and Primality Testing*, *Second Year Calculus from Celestial Mechanics to Special Relativity*, *A Radical Approach to Real Analysis* (now in 2nd edition), *A Radical Approach to Lebesgue's Theory of Integration*, and, with Stan Wagon, *A Course in Computational Number Theory*.

David has chaired the MAA special interest group, Teaching Advanced High School Mathematics as well as the AP Calculus Development Committee and has served as Director of the FIPSE-sponsored program Quantitative Methods for Public Policy.

Richard Grassl received his BA in mathematics from Santa Clara University and his graduate degrees from The University of Oregon and The University of New Mexico. After teaching at the U.of San Diego, UNM and as the Truman Koehler Prof. of Mathematics at Muhlenberg College in Pennsylvania he was appointed Chair of Mathematics at The University of Northern Colorado. After 14 years as chair, and several semesters as assistant dean of the newly formed College of Natural and Health Sciences he has returned to full time teaching and research at UNC.

His 42 years in higher education has resulted in numerous publications in both mathematics (combinatorics) and mathematics education, participation in a major NSF teacher enhancement grant, undergraduate research projects, and mentorship of talented secondary students through his involvement in statewide mathematics contests, first at UNM and now at UNC. Through the development of problem solving seminars he helped coach the UNM Putnam team to a ranking of #20. He started and has directed for the past 18 years the UNC Statewide Mathematics Contest for students in grades 7-12. Participation has grown from 150 initially to over 2200 recently.

Following the reception of teaching awards at UNM, Dr. Grassl earned college awards in three areas at UNC: Teaching, Research and Leadership.

Abstracts from Selected Invited Addresses

Codes on graphs: Shannon's challenge and beyond

Judy Walker, University of Nebraska, Lincoln
2009/10 MAA Polya Lecturer

Whenever information is transmitted across a channel, errors are bound to occur. It is the goal of coding theory to find efficient ways of adding redundancy to the information so that errors can be detected and even corrected. Coding theory began in 1948 with Shannon's groundbreaking result that efficient, reliable transmission of information is possible. This result was existential rather than constructive, however, and the challenge over the past half century has been to actually find the codes that Shannon proved must exist. In the past 10-15 years, it has been shown that certain graph-based codes come close to achieving Shannon capacity. Even with these recent advances, however, it is not clear whether Shannon's challenge has truly been answered. We will discuss the current situation as well as what the next big problems are for the field of coding theory.

The ah Ha moment

Richard Grassl, University of Northern Colorado
2009 Burton W. Jones Distinguished Teaching Award Recipient

Well designed problem solving episodes often elicit such moments from a broad range of audiences ranging from secondary students, to mathematics majors, and to in-service teachers; for example, the nice 10th grade problem: How many positive integers are there whose digits are in strictly increasing order (like 2478)? has an unexpected ah ha moment. Sometimes the presence of multiple disparate solutions ultimately yields the defining ah ha moment as often occurs with the following type of question: Verify that CONDITION HERE. Several such episodes will be highlighted as they have manifested themselves in my involvement over the years with problem solving courses for elementary and for secondary teachers (both pre-service and in-service), with undergraduate research projects, and with the UNC Statewide Mathematics Contest. A brief presentation of the history, philosophy and results of the past 18 years of this contest will further illuminate how the trio Teaching – Research – Mentoring are intimately related.

Calculus as a High School Course

David Bressoud, Macalaster College
President of the Mathematical Association of America

Over the past quarter century, 2- and 4-year college enrollment in first semester calculus has remained constant while high school enrollment in calculus has grown tenfold, from 50,000 to 500,000, and continues to grow at 6% per year. We have reached the cross-over point where each year more students study first semester calculus in US high schools than in all 2- and 4-year colleges and universities in the United States. There is considerable overlap between these populations. Most high school students do not earn college credit for the calculus they study. This talk will present some of the data that we have about this phenomenon and its effects and will raise issues of how colleges and universities should respond.

Proofs and Confirmations: The Story of the Alternating Sign Matrix Conjecture

David Bressoud, Macalaster College

President of the Mathematical Association of America

What is the role of proof in mathematics? Most of the time, the search for proof is less about establishing truth than it is about exploring unknown territory. In finding a route from what is known to the result one believes is out there, the mathematician often encounters unexpected insights into seemingly unrelated problems. I will illustrate this point with an example of recent research into a generalization of the permutation matrix known as the "alternating sign matrix." This is a story that began with Charles Dodgson (aka Lewis Carroll), matured at the Institute for Defense Analysis, drew in researchers from combinatorics, analysis, and algebra, and ultimately was solved with insights from statistical mechanics. This talk is intended for a general audience and should be accessible to anyone interested in a window into the true nature of research in mathematics.

Featured Workshops

A pre-conference workshop will be held Friday, April 16 from 9:30am – 11:30am on *Proposal Writing for Grant Applications to the NSF Division of Undergraduate Education* and will be conducted by **Stephanie Fitchett**, NSF and University of Northern Colorado. Faculty members and graduate students in their final year are encouraged to participate. The registration fee is \$5 per person.

On Saturday, April 17, 9:00am – 4:00pm, there will be a workshop primarily aimed at the high school classroom: *Inspiring Your Precalculus and Calculus Classroom: A TI-Nspire Workshop* hosted by **Wade Ellis Jr.**, West Valley College, Saratoga, CA. Registration is separate from the meeting but also available on the web pages.

Student Activities

Students are invited to participate in the MAA Sectional meeting on April 16 and 17, 2010, to be held at the Colorado State University, Fort Collins, CO. There are student sessions in which students will give talks and there will be a poster session as well. Abstract submissions for the poster session are still underway and should be sent to lienert_c@fortlewis.edu. Bring a poster related to your independent study, senior seminar, modeling contest, etc. Anything with mathematical content is appropriate. Prizes will be awarded in categories to be determined. To register, see:

<http://www.math.colostate.edu/~hulpke/MAA/>

Call for Papers

The **deadline** for submission of abstracts for the 2010 Spring Section Meeting is **April 1, 2010**. 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:

Combinatorics

Organized by Bryan Shader, University of Wyoming

Contributed Papers

Organized by Kyle Riley, South Dakota School of Mines & Technology

Graduate Student Research

Organized by Hortensia Soto Johnson, University of Northern Colorado, and Jeremy Muskat, Western State College

Mathematics Education Research

Organized by Robert Powers, University of Northern Colorado

Undergraduate Research

Organized by Jonathan Poritz, Colorado State University, Pueblo

Poincaré's Other Conjecture: The History of Mathematics and What It Can Teach Us

Organized by Janet Barnett (Colorado State University - Pueblo) and George Heine (Bureau of Land Management)

At the Fourth International Congress of Mathematicians in Rome in 1908, Poincaré opened his talk "The Future of Mathematics" by declaring: "If we wish to foresee the future of mathematics, our proper course is to study the history and present condition of the science."

This session invites speakers to respond to Poincaré's call by sharing interesting tales from the history of our science, as well as historical accounts of how specific mathematical topics came into their present condition. Talks which suggest ways in which the history of mathematics can be used to enrich the teaching of mathematics for today's students and future mathematicians are especially encouraged.

Pure and Applied Mathematics Research

Organized by Daniel Bates, Colorado State University

The default talk length will be 15-20 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.**

Electronic submissions are preferred. For non-electronic submissions, please use the Speaker Response Form on the web pages.

Additional Meeting Information

Department chairs and **MAA liaisons** are invited to a luncheon and an open discussion on Friday, April 16, 11:45 – 12:45pm in room 230, Lory student center. The cost is \$10 per person. Please indicate on your registration form if you are interested in attending the luncheon. Reservations must be received by April 1, 2010 to be guaranteed. A limited number may be available on-site.

The **Friday Evening Banquet and Awards Ceremony** will be at 7:00pm in the Fort Collins Hilton, preceded by a cash bar at 6:30pm. Please note that banquet reservations must be received by April 1, 2010 to guarantee availability. A limited number of banquet tickets may be available on-site.

Travel Information

Travel Information, including maps and hotel information will be available on the conference web pages: <http://www.math.colostate.edu/~hulpke/MAA/Housing.html>

Please note that hotel rooms will be available at a special rate until **March 19, 2010**.

Preliminary 2010 Meeting Schedule

Friday, April 16

- 9:30 - 11:30 **Workshop:** *Proposal writing for grant applications to the NSF Division of Undergraduate Education* (Lory 228)
Stephanie Fitchett, NSF and University of Northern Colorado
- 8:00 - 12:00 **Section NeXT workshop** (Lory 217)
- 11:45 – 12:45 **Luncheon for Department Chairs and MAA Liaisons** (Lory 230)
- 12: 00 – 4:30 **Registration** (Lory 227)
- 12: 00 – 4:30 **Registration, Publisher Exhibits, and MAA Book Sales** (University Club)
- 1:00 – 1:10 **Opening Remarks and Welcome** (North Ballroom)
- 1:10 – 1:55 **Burton W. Jones Distinguished Teaching Award Invited Lecture** (North Ballroom)
Richard Grassl, University of Northern Colorado
- 2:00 – 4:25 **Parallel Sessions** – Contributed Papers & Special Sessions
(Multiple Rooms in Lory)
- 5:00 – 6:00 **Education Address** (North Ballroom)
Calculus as a High School Course
David Bressoud, Macalaster College
- 6:30 – 7:00 **Cash Bar** (Fort Collins Hilton, Prospect Road)
- 7:00 – 9:00 **Banquet and Awards Ceremony** (Fort Collins Hilton, Prospect Road)
Banquet Address given by 2010 Polya Lecturer
Codes on graphs: Shannon's challenge and beyond
Judy Walker, University of Nebraska, Lincoln

Saturday, April 17

- 8:00 – 8:50 **MAA Rocky Mountain Section Business Meeting** (North Ballroom)
Please forward agenda items to Hortensia Soto-Johnson at hortensia.soto@unco.edu by April 1.
- 8: 00 – 12:00 **Registration** (Lory 227)
- 9:00 – 9:45 **Saturday Keynote Address** (North Ballroom)
Proofs and Confirmations: The Story of the Alternating Sign Matrix Conjecture
David Bressoud, Macalaster College
- 10:00 – 1:00 **Publisher exhibits and MAA Book Sales** (University Club)
- 10:00 – 1:00 **Parallel Sessions** – Contributed Papers, Special Sessions
(Multiple Rooms in Lory)
- 9:00 – 4:00 **Workshop:** *Inspiring Your Precalculus and Calculus Classroom: A TI-Nspire Workshop* (NESB B322). Separate registration required.
- 12:00 - 2:00 **Section NeXT workshop** (Lory 217)

Watch for regular meeting updates at <http://www.math.colostate.edu/~hulpke/MAA>

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

ICTCM, Chicago, IL; March 11-14, 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

MAA Rocky Mountain Section Meeting; Adams State College; April 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

MAA Rocky Mountain Section Meeting; Metropolitan State College of Denver; April 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

MAA MathFest; Hartford, CT; August 1-3, 2013

Joint Mathematics Meetings; Baltimore, MD; January 15-18, 2014

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

MAA MathFest; Portland, OR; August 7-9, 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.