



Fall 2010 Newsletter

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

Fall 2010 Newsletter in PDF Format for Printing

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Table of Contents

Fall 2010 Newsletter in PDF Format for Printing	1
Table of Contents	2
2010 - 2011 Section Officers and Committee Members	4
ERIC STADE of the University of Colorado at Boulder named 2010 Distinguished Teacher	6
Past Burton W. Jones DTA Recipients	7
2011 Distinguished Teaching Award Call for Nominations	8
Section Students Recognized for Mathematics Excellence	8
Attention Putnam Coordinators	9
Chair's Report	9
Governor's Report	10
Section News	11
Arapahoe Community College	11
Black Hills State University	11
Colorado School of Mines	11
Metropolitan State College of Denver	11
South Dakota School of Mines and Technology	12
University of Colorado at Denver	12
University of Denver	12
University of Northern Colorado	12
MAA Service News	13
Student Activities	13
8th Annual Pikes Peak Regional Undergraduate Mathematics Conference United States Air Force Academy Saturday, February 26, 2011	13
Rocky Mountain Section NExt News	14
A Message from Your MAA Higher Ed Liaison to the CCTM	15
The Summer Science Programs at Metropolitan State College	15
The Rocky Mountain Math Teacher's Circle	15
Candidate Information	17
The University of Colorado at Boulder to Host 2011 Meeting	18
2010 Section Meeting Report	19
Undergraduate Student Poster Session Report	19
Contributed Papers - 2010 Section Meeting	20
Combinatorics	20
Contributed Papers	21
Mathematics Education Research	21
History of Mathematics	22
Pure and Applied Mathematics	22
Graduate Student Research	23
Undergraduate Student Research	23
2010 Business Committee Meeting Minutes Saturday, April 17, 2010	25
MAA RMS Budget Report Spring 2010	27
2010 Executive Committee Meeting Minutes Thursday, April 15, 2010	28
MAA Rocky Mountain Section Suggestions for Speakers	30

Grants Available	31
Section Activity Grants Program	31
Student Recognition Grants Program	31
Section Logo Shirts Available	31
About Our Logo	32
Meetings Calendar	32
Burton W. Jones Award Nomination Form	33
Voluntary Section Dues	34
MAA Rocky Mountain Section Voluntary Dues Contribution Form	34
MAA Rocky Mountain Section Mission Statement	35

2010 - 2011 Section Officers and Committee Members

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

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ERIC STADE
of the
University of Colorado
at Boulder
named
2010 Distinguished Teacher

In 1991, the MAA Board of Governors established Section Awards for Distinguished College or University Teaching to recognize excellence in mathematics teaching at the post-secondary level. The Rocky Mountain Section Award is named in honor of Burton W. Jones, a lifelong advocate of excellence in teaching and supporter of the members and programs of the MAA. This year's award winner is Professor **Eric Stade** of the University of Colorado at Boulder. In addition to receiving a certificate and a check, Professor Stade 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.

The criteria for the award are superior teaching effectiveness where "teaching" is interpreted in the broadest sense, ability to generate excitement about mathematics in students, recognition of extraordinary success at the post-secondary level, and influence in teaching both within and beyond the local institution and community. Dr. Stade not only meets, but clearly exceeds the aforementioned criteria in many ways. Dr. Stade's impact on students' lives and on educational practices across the Boulder campus and the State of Colorado are astonishing in breadth.

To say that Dr. Stade is an exceptional teacher in the classroom is an understatement. Not only does he receive instructor ratings that are consistently 1 to 1.5 standard deviations above his comparison group in courses varying from the Spirit and Uses of Mathematics courses for prospective elementary school teachers to graduate classes and numerous courses in between. Meticulous preparation and complete mastery of course material are remarked almost in passing on letters supporting his nomination. However, what stands out even more in the letters is the deep appreciation students have for his passion, both for the subject, and for them as learners. The care and respect he brings to the

teaching practice, even as he demands the highest level of achievement from all, is truly remarkable. Colleagues in the mathematics department describe Eric in the following ways: "The best teacher we have, and the best force and inspiration for teaching.", "My colleagues and I are frankly in awe of Eric's ability to connect with students of varied backgrounds and attitudes", and "He makes each theorem or fact a story, intricately woven into the greater fabric of the course. So the material seems fresh, the approach innovative, and the students leave with the certainty that math is a living, breathing subject, done by humans, and that they are capable of producing and contributing."

Arguably, no one has been more instrumental in guiding the educational course of the mathematics department than Dr. Stade. He has been directly involved in creating or redesigning: Spirit and Uses of Mathematics, Pre-calculus mathematics, Calculus I, Introduction to Statistics, Seminar in Guided Mathematics Instruction, Fourier Analysis (for which he wrote the graduate level text), and Mathematics Teacher Training. In addition, he was instrumental in creating a Secondary Education Track for the Major in Mathematics and a five year concurrent Bachelor's/Masters program.

Dr. Stade's teaching contributions reach beyond the mathematics department and beyond the Boulder campus. In the supporting materials, a professor in the School of Education praises Dr. Stade for collaborative work he does in support of K-12 teacher preparation and writes "Dr. Stade's commitment to embrace teaching in the K-12 environment as part of his mandate of what it means to be a mathematics professor in higher education is notable, laudable, to say nothing of unique." Dr. Stade has two grant applications pending focusing on the Colorado Learning Assistant Model, an initiative that connects upper division mathematics students with entering students, in collaboration with faculty in the departments of Education and Chemistry. Dr. Stade has directed a high school senior to First place in the International Science and Engineering Fair and has chaired a subcommittee of the Colorado Commission on Higher Education (CCHHE) studying Math for Elementary Education courses statewide. As a part of this work, Dr. Stade organized a teacher training workshop for teachers of Math for Elementary Education

courses that was attended by teachers and prospective teachers from across the state. His current outreach work is through the Boulder Valley School District, where students in his Spirit and Uses of Mathematics courses, the course for prospective elementary school teachers, are paired with math classrooms in the Boulder Valley where they help teachers mentor young students. This extension of the learning environment not only benefits the young students, but gives the prospective elementary teachers real hands on experience teaching mathematics.

Dr. John Martin, who nominated Dr. Stade for the award, summarizes Dr. Stade's accomplishments in the following way: "I cannot imagine a candidate more qualified to receive the Burton W. Jones teaching award than Eric. His dynamic and intensely engaging teaching style has impacted the lives of hundreds of students. His curricular reform has redefined the educational perspective of the mathematics department at the University of Colorado. And his reach to colleagues in other departments as well as educators and policy makers around the state and nation position him at the center of a broad network furthering excellence in mathematics education at all levels."

I wish to thank Dr. Martin for his time and effort in putting together the nomination and supporting materials for Dr. Stade, from which the above information was obtained. All of us who have benefited from Dr. Stade's exceptional teaching, including myself, are very pleased to see Dr. Stade rewarded for his efforts by receiving this well-deserved award for distinguished teaching.

Daluss Siewert
Black Hills State University
Chair, Rock Mountain Section

<p>Past Burton W. Jones DTA Recipients</p>

- 1992** John H. "Jack" Hodges
University of Colorado, Boulder
- 1993** Gerald Diaz
United States Air Force Academy
- 1994** A. Duane Porter
University of Wyoming
- 1995** William D. Emerson
Metropolitan State College of Denver
- 1996** Zenas Hartvigson
University of Colorado at Denver
- 1997** Thomas Kelley
Metropolitan State College of Denver
- 1998** Monte Zerger
Adams State College
- 1999** Bill Briggs
University of Colorado at Denver
- 2000** Barbara Bath
Colorado School of Mines
- 2001** Jim Loats
Metropolitan State College of Denver
- 2002** Gene Abrams
University of Colorado at Colorado Springs
- 2003** Hugh King
Colorado School of Mines
- 2004** Don Teets
South Dakota School of Mines and Technology
- 2005** Bryan Shader
University of Wyoming
- 2006** Barbara Moskal
Colorado School of Mines
- 2007** Lynne Ipiña
University of Wyoming
- 2008** Steven Janke
Colorado College
- 2009** Richard Grassl
University of Northern Colorado
- 2010** Eric Stade
University of Colorado at Boulder

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://sections.maa.org/rockymt> and in this newsletter) by **1 December 2010**. **Complete nomination materials** (described on the website) are due **15 January 2011**.

Section Students Recognized for Mathematics Excellence

The American Mathematics Competitions, the MATHCOUNTS Foundation, and the Rocky Mountain Section of the Mathematical Association of America (MAA), and CH2M Hill sponsored the Fifteenth Colorado Mathematics Awards reception and ceremony for fifty-four outstanding Colorado mathematics students. Thirty-seven teachers and coaches were recognized. The event was held at the Grant-Humphreys Mansion in Denver on Tuesday, April 27, 2010.

The American Mathematics Competitions, a program of the MAA and fifteen other professional organizations, sponsors the American Mathematics Contest 8 (AMC 8), the

American Mathematics Contest 10 (AMC 10), and the American Mathematics Contest 12 (AMC 12), and is one of the sponsors of the American Regions Mathematics League (ARML), a nationwide high school team competition. The MAA also sponsors the William Lowell Putnam Mathematical Competition, and is one of the sponsors of the collegiate Mathematical Contest in Modeling (MCM). MATHCOUNTS, a program of the National Society of Professional Engineers and six other professional organizations, sponsors a series of competitions for students in 6th, 7th, and 8th grades leading to a national championship.

The top ten Colorado participants in MATHCOUNTS, the AMC 8, AMC 10 and the AMC 12, the top three Colorado participants in the Putnam Competition, and the members of the top Colorado MATHCOUNTS, AMC 12, ARML, and MCM teams were honored at the reception.

There were two Colorado students in the top 500 of the Putnam Examination participants this year: **Lung Li** (coached by **Stefan Erickson**) at Colorado College and **Jesse Drendel** (coached by **Justin Sawon**) from CSU. CU-Boulder student **Robert Paul Fornia** (coached by **Alexander Gorokhovskiy, Keith Kearnes, and Sergei Kuznetsov**) was a close third.

For the Mathematical Contest in Modeling, nine Colorado teams from seven institutions participated. Worldwide, there were 2,254 from 14 countries. There were (only) 358 teams from the US. Only nine teams worldwide were given the top Outstanding designation – and one of them went to one of the CU-Boulder teams! They also garnered the coveted MAA prize. The team members, coached by **Anne Dougherty**, are **Eric James Benzel, Anil S. Damle, and Colin West**.

We are always looking for sponsors, and are appreciative of the support that the Rocky Mountain Section has provided over the years for this event. This year, finding funding has become even more difficult. The CCTM, one of our main sponsors, is no longer sponsoring such events. If you have any suggestions for possible sources of funding, please contact Dick Gibbs at gibbs_d@fortlewis.edu

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

As I write this chair's report, cool fall weather has arrived in the Black Hills clearly signifying summer is over, a new academic year is underway, and this chair's report will be due soon. I want to begin this report by thanking **Mike Brilleslyper** for his excellent leadership of our section over the past three years as section chair and, in particular, his willingness to serve as chair for the additional year. My term as chair has just begun, but it has been an active few months and I will give you a quick snapshot of a few items that are relevant to the section membership.

The Rocky Mountain Section website is now being hosted by the MAA. The new URL is: <http://sections.maa.org/rockymt/>. At the Section Officer's meeting at MathFest in Pittsburgh in August we were given an update on the opportunity to have our website hosted by national and the RMS-MAA Executive Committee determined that it would be in the best interest of the section to take advantage of this opportunity. I want to thank **Bill Briggs**, our webmaster, for assisting in the moving of our website and his past and present work in keeping our website current and informative.

Another change that you will want to make note of is that the RMS-MAA Executive Committee has approved a few minor changes to the Section Activity Grants. The purpose of the Section Activity Grants is to fund activities that support the mission of the Rocky Mountain Section. There have been two changes to the guidelines for these grants. The maximum amount of the grant has been increased from \$500 to \$750 and the due date for all grant applications is now November 1st of each year. The guidelines for grant applications, as well as

our section mission, are available on the section website and additional information is given in the solicitation of applications for activity grants in this newsletter.

Those of you who were privileged to attend the Spring meeting at Colorado State University in Fort Collins know what a spectacular job **Alexander Hulpke** and the folks at CSU did in organizing the meeting. Over 200 people attended the meeting, which is not only impressive for our section, but is also in the upper quartile when compared to attendance at the Spring meeting for other MAA sections. This spring meeting also marked the beginning of the Rocky Mountain Section Project NExT program. I want to thank the Section NExT-RM committee chair, **Amelia Taylor**, and the rest of the steering committee, for all their hard work in putting together this incredible program. The 2011 spring meeting will be hosted by the University of Colorado at Boulder, April 8-9, 2011. This will be the first time the annual spring meeting will have been in Boulder since 1980 and we are very pleased to be back. Program co-chairs, **Eric Stade** and **Rob Tubbs**, are putting together a fantastic program and I hope all of you will plan to participate in this meeting.

If you have any undergraduate students looking for a place to present their work in a professional setting, I would ask that you encourage them to present at the 8th Annual Pikes Peak Regional Undergraduate Mathematics Conference. This conference is funded partially by the MAA Regional Undergraduate Mathematics Conferences program. We have had a student travel all the way from Spearfish to participate in this conference in a previous year and he found it to be a great experience.

Last, but certainly not least, an item of great importance to our section is the upcoming elections of Section Governor, Secretary/Treasurer, and Chair-Elect. These are important positions for our section. The positions are described in detail in the appropriate section in this newsletter so I will not repeat that here, but I will ask you to carefully consider whether or not you would be willing to serve the section in this manner or if you know someone who would be willing to serve. Our current governor **Kyle Riley** and our current secretary treasurer **Hortensia Soto-Johnson** have done an outstanding job of representing and serving our section so it is clear these will be tough acts to follow.

However, it is equally clear that there are many very talented, organized, and motivated members of our section who would do a fabulous job serving our section in these leadership positions. If you know of a colleague interested in serving in any of these three positions, or if you yourself are interested, please contact the nominating committee chair, **Jeremy Muskat** at jmuskat@western.edu.

Respectfully submitted,

Daluss Siewert, BHSU

Chair, Rocky Mountain Section

Governor's Report

I was able to attend the Board of Governors Meeting on August 4 in Pittsburgh, PA. The Mathfest in Pittsburgh appears to be on track to match the Portland meeting (with 1,516 in attendance Portland was the largest Mathfest we have had). Pittsburgh presented a wonderful venue for a conference. The hotel headquarters was the Omni William Penn and it is simply a wonderful historic landmark. The area around the hotel was quite nice and the only serious drawback I ran into involved the snarling Pittsburgh traffic and the high humidity. The Rockies managed to also visit town in the same weekend and they split their visit with a record of 2 out of 4.

I would like to pass along a few items from the MAA Board of Governors meeting for your consideration. The MAA is looking to pilot a new speakers program for the section meetings. The George Pólya Lecture Program is highly regarded among the MAA sections and the sections have encouraged more programs that would assist with providing good speakers at the section meetings. The MAA would like to pilot a new program where every five years each section would have the chance to invite one of the MAA editors to a section meeting. Of course, the key feature of the program that is of real interest to us is that the travel expenses for this speaker are covered by the MAA national office. The reason this is currently classified as a pilot program is due to the fact that the funds to pay for this travel are not endowed, which is already the case for the Pólya. Our section will be first in line for this program and we hope to be able to invite an editor of one of the MAA journals to speak at our section meeting in 2012.

Another big item is the adoption of the new bylaws. As you may know, the MAA governors have been working through a major revision in the bylaws. Most of the changes relate to changes in the structure of the board. The sections still have the same representation, but there has been a shift to create a more dynamic link between the committee structure and the board. In addition, the bylaws do involve revisions on how the budget is managed and how audits are conducted. All of these items should be an improvement on how things are organized in the national association.

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, New Orleans, January 6-9, 2011

Rocky Mountain Section Meeting, Boulder, April 8-9, 2011

Mathfest, Lexington, KY, August 4-6, 2011.

Join the MAA! If you are already a member, then see if you can recruit your colleagues to join the MAA. The electronic membership is \$190 and with that you get discounts on MAA books, discount registration at all national meetings, and electronic access to all MAA journals for the past three years. In addition, you will be part of an organization that helps promote mathematics at the undergraduate level.

I now enter my last year as section governor. The role as governor has been very rewarding and I have really enjoyed working with both the members of our section and with people at the national level. If you know someone that might be interested in serving as governor (or if you are interested) then please feel free to contact Daluss Siewert or any member of our nomination committee. 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

Mary Sloan has retired and Lane Andrew and Robert Seletsky have left the department. The department welcomes Cathy Schnakenburg, Patricia Anderson, and Russell Ellwood as full-time faculty members. Cathy earned a Master of Science in Applied Mathematics from the University of Colorado At Denver and a Bachelor of Arts in Mathematics from the University of Northern Colorado. She has five years of teaching experience at the University of Colorado at Denver and Denver metro area community colleges. She holds a Colorado Provisional Teacher License in Mathematics at the secondary level. Patricia earned a Master of Science in Mathematics and a Bachelor of Science in Mathematics with a Minor in Business from Northern Arizona University and holds various teaching certificates from the state of Arizona. Prior to joining the Mathematics Department at Arapahoe Community College, she was a full-time mathematics faculty member at the Community College of Aurora for three years. Russell earned a Master of Science in Mathematics from the University of Mississippi, a Master of Science in System Engineering from the Air Force Institute of Technology, and a Bachelor of Science in Mechanical Engineering from the University of Memphis. He served in the Air Force for fifteen years using operational analysis on aircraft and related systems.

The department now offers Fundamentals of Mathematics (MAT 030), Pre-Algebra (MAT 060), and Introduction to Algebra (MAT 090) in the FLEX format. In a cross between traditional class and independent study, students have increased flexibility in deciding when and where they will work and how fast they will complete the course material. Students read the text and complete homework online, visiting the FLEX Lab for personal help when needed. Practice tests with answer keys are provided before each written exam. For more information on the mathematics FLEX classes, email

MathFlex@Arapahoe.edu or call Alexis Venter at 303.797.5929.

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-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 Department has a new Interim Department Head, Dr Tracy Camp. One promotion in the spring: Scott Strong is now a Lecturer. Dr Joseph Fehribach will be on sabbatical in the Department for the whole academic year; he is from the Department of Mathematical Sciences at Worcester Polytechnic Institute.

Metropolitan State College of Denver

The Department welcomes three new faculty members this fall. Dr. **Julie Roy** earned her Ph.D. in Mathematics from the University of Louisiana at Lafayette. Her research interests include global optimization, numerical analysis, and statistics. Dr. **Benjamin Dyhr** was a visiting faculty at Metro in 2009-2010. His research interests include complex analysis, probability and differential equations. Dr. **Mark Koester** has been a middle school and high school

mathematics teacher and administrator in New York and the Denver area for over twenty years.

Don Gilmore and **Lou Talman** were promoted to full professor. **Lindsay Packer** was granted tenure. **Nels Grevstad** was also granted tenure and promoted to associate professor.

Our new department chair is **David Ruch**.

The new wing of the Science building opened in spring 2010. The remodel of the old wing is scheduled for completion this fall and our department is scheduled to move back in December 2010.

South Dakota School of Mines and Technology

There are a few personnel changes that might be of interest to the section. **Chris Konvalin** (a graduate of our M.S. in Computer Science) has been hired to teach some courses for us this year. This fall Chris will be teaching the introduction to programming class and a section of trigonometry. **Brent Deschamp** (graduate from the University of Wyoming) will be teaching this year for us and is scheduled to teach a few sections of Calculus. **Toni Logar** will be serving as interim Dean of Graduate Education for our university. **Karen Braman** has just received the exciting word that her NSF grant proposal, "Eigenvalue Computation via the QR algorithm: Advanced deflation techniques" has been funded.

University of Colorado at Denver

We would like to highlight accomplishments by several of our faculty over the past year.

Associate Research Professor **Loren Cobb** has received two grants. The first, from the NIH (\$313,000 annually) has a special focus on adapting the ensemble Kalman filter to spatial tracking problems in epidemiology, climate sciences, and the social sciences. Loren also has received funding from the US Southern Command to work with spatial simulations of social responses to extreme stress, including pandemic disease outbreaks and ethnic cleansing.

Assistant Professor **Steve Culpepper** was featured in the August 3, 2010 issue of *USA Today* for his research on flaws in the current methods used to detect test bias. This work was recently published in the *Journal of Applied Psychology*.

Assistant Professor **Julien Langou** has recently received two NSF awards. The first *Improvement and Support of Community Based Dense Linear Algebra Software for Extreme Scale Computational Science* (\$400,000) will enable us to continue our LAPACK software activity in a sustainable manner for a three-year period. Julien's second award, with Co-PI professor **Jan Mandel** will enable UC Denver to purchase a state-of-the-art GPU cluster facilitate study of how to best utilize such an infrastructure.

Professor **Jan Mandel** was awarded the campus-wide 2009-2010 UCD award for excellence in research and creative activity. In addition, Jan has been awarded several grants, three of which are funded by the NSF and range in amount from \$613,000 to \$2,796,500. Of regional interest, Jan and CU-Boulder's **Henry Tufo** have acquired funding to purchase a new supercomputer for the Front Range Computing Consortium.

Instructor **Gary Olson** was awarded the 2009-2010 College of Liberal Arts and Sciences (CLAS) award for excellence in teaching (non-tenure track).

Assistant Professor **Diana White** is in the second year of a 5-year Robert L. Noyce Scholarship grant (\$900,000) from the NSF. This scholarship program focuses on connecting and interweaving the content and pedagogical aspects of teacher training.

For more information on our departmental involvement in teacher professional development, see Diana White's article on the Rocky Mountain Math Teacher's Circle in this issue of the section newsletter.

University of Denver

We have a change in our faculty at the Math Dept of the University of Denver as of September of this year. Prof. **Stan Gudder** retired and is now professor emeritus. **Ronnie Pavlov** was hired as a new Assistant Professor.

University of Northern Colorado

We are very pleased to announce that **Michael Oehrtman** and **Gulden Karakok** have been hired as new tenure-track faculty members in mathematics education. Dr. Oehrtman started in August and Dr. Karakok is finishing a post-doc at Umea University in Sweden and will be joining us in January 2011. **Igor Szczyrba** is on sabbatical leave this fall working on his research

project that involves numerical modeling of traumatic brain injuries. We had two faculty members receive recognition in the form of university awards this past April. **Nat Miller** received the Provost's Award for Teaching Excellence in Undergraduate Education. **Hortensia Soto-Johnson** received the Provost's Award for Excellence in Faculty Service. **Shandy Hauk** has resigned her position at UNC and is working at WestEd, a nonprofit research, development, and service agency focused on education.

Four undergraduates at UNC, **Hank Ditton**, **Jeremy Garcia**, **Keatra Nesbitt**, and **Alex Schiff** attended NSF-sponsored Research Experiences for Undergraduates this past summer. UNC's third Las Chicas de Matematicas, a residential Summer Math Camp for mathematically-talented young women successfully ran in June. The one-week residential camp was co-directed by **Horensia Soto-Johnson** and **Cathleen Craviotto**, who are busy making plans to hold the camp again next summer.

UNC, with **Cathleen Craviotto** as a co-PI, recently received a \$1.2 million NSF NOYCE Scholarship Grant to support the preparation of more science and math teachers willing to serve high-need schools when they graduate.

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.

MAA Service News

The MAA Board of Governors has elected **Hortensia Soto-Johnson** from the University of Northern Colorado to serve as a Governor-at-Large for Minority Interests on the MAA Board of Governors.

Student Activities

Students are invited to participate in the MAA Sectional meeting at the University of Colorado at Boulder, April 8-9, 2011. 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

8th Annual Pikes Peak Regional Undergraduate Mathematics Conference **United States Air Force Academy** **Saturday, February 26, 2011**

The 8th annual PPRUMC will be held Saturday, February 26, 2011 from 8:30am – 4:30pm at the United States Air Force Academy in Colorado Springs, CO.

The PPRUMC is a one day conference that provides undergraduate students in the mathematical sciences with an opportunity to speak in a professional conference setting. Student talks on original or expository work, interesting projects, and mathematical history are all highly encouraged. In addition to talks by students, there will be a keynote talk by Professor **Rob Tubbs** (University of Colorado-Boulder) and a panel presentation on the schedule.

There is no registration fee and lunch will be provided in the 4000-seat cadet dining hall. In addition, it will be possible to get a behind-the-scenes tour of some parts of the Academy not open to tourists.

Limited travel reimbursement will be available to student participants based on funding and the number of requests received. Travel reimbursement will only be available to students traveling from outside the immediate Colorado Springs area. Reimbursement forms will be available at the conference. Please bring lodging receipts with you. Receipts for mileage reimbursement are not necessary.

For those requiring lodging, there are seven motels from national motel chains located just

outside the south gate of the Academy (I-25 at exit #150)

Due to security requirements, **it is necessary for all participants to pre-register for the conference.** A valid US Government-issued ID is required for access to the Air Force Academy. Participants who are not US citizens will have additional requirements and should be sure to indicate that they are not US citizens when pre-registering. Vehicles and their occupants entering the Academy are subject to search. Do not bring any weapons, drugs, or alcohol on Academy grounds.

More information including detailed maps showing parking, shuttle bus information, and an updated schedule will be posted on the MAA Rocky Mountain Website at <http://sections.maa.org/rockymt/>

Specific questions or comments may be sent to the conference directors: Dr. **Mike Brilleslyper**
mike.brilleslyper@usafa.edu

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

Rocky Mountain Section NExT News

Project NExT (New Experiences in Teaching) is a national faculty development program for new or recent Ph.D.s in the mathematical sciences. It addresses all aspects of an academic career: improving the teaching and learning of mathematics, engaging in research and scholarship, and participating in professional activities. It also provides the participants with a network of peers and mentors as they assume these responsibilities. Section NExT-RM is smaller scale version of the national Project NExT program, specifically serving the members of the Rocky Mountain Section of the Mathematical Association of America (MAA). The goals of Section NExT-RM are similar to those of the national program, but Section NExT-RM has the additional focus of establishing links between the different types of institutions in the Section. This program also has a broader eligibility than the national program

and provides activities which incorporate issues specific to the Section.

Section NExT-RM is open to non-tenured faculty members in the Rocky Mountain Section who are within the first five years of teaching at a university, or four-year or two-year college within the Rocky Mountain Section of the MAA.

The first meeting for our first 10 Section NExT-RM fellows was at the section meeting in April 2010 at Colorado State University in Fort Collins. We had four great sessions on technology, interactive and student focused learning, tips for tenure, and grant writing.

Our second meeting for the Section NExT-RM Fellows will be part of the MAA section meeting that will be held April 8-9, 2011 at University of Colorado in Boulder. The Section NExT-RM sessions will occur both just prior to and just following the annual section meeting. At this workshop, participants will discuss topics of special relevance to beginning faculty. Section NExT-RM Fellows will remain in contact with one another via an electronic network, and are expected to attend the Spring 2012 Rocky Mountain MAA Section meeting.

Section NExT-RM is a great way for new faculty to become involved in the mathematical community at a regional level by building strong connections with institutions throughout the Rocky Mountain region.

Further information on the program is available at:

<http://faculty1.coloradocollege.edu/~ataylor/SectionNextHomePage.html>

Look for the application for 2011 Section NExT-RM Fellows posted at this website beginning in November. For more information, please contact **Diane Davis**, Chair of the Section NExT-RM steering committee at ddavi102@mscd.edu, or any of the other members of the steering committee:

Bob Cohen (rcohen@western.edu),
Sarah Pauley (spauley@wwcc.wy.edu),
or **Amelia Taylor**
(amelia.taylor@coloradocollege.edu).

A Message from Your MAA Higher Ed Liaison to the CCTM

My name is **Clark Dollard** and I am the MAA/ higher education liaison on the Colorado Council of Teacher of Mathematics (CCTM) board of directors. In this capacity, I am trying to establish better communication between CCTM and the higher education community. In particular, I am creating an email list of higher education faculty who are interested in receiving updates about the implementation of the new Colorado Academic Standards and the national Common Core Standards, as well as other information about current events in the Colorado K-12 mathematics education community. There probably won't be a lot of emails, maybe four to six per year, but they will help keep interested higher education faculty aware of what is happening in K-12 mathematics education at the state level. If you would like to be added to this email list, please contact me at cdollard@mscd.edu.

The Summer Science Programs at Metropolitan State College

An Update: The Summer of 2010

Presentations concerning the Summer Science Institute and the Summer Science Scholars Program at MSCD have been made at the last two Section Meetings. The Summer Science Institute is a two week program for middle school students with selected activities in the science and math disciplines of the College. There are morning and afternoon sessions of the camp and there are eight total weeks at the camp. This summer, we had 197 students attend the program and 64 of them came from Kearney Middle School in Adams 14 School District in Commerce City, Colorado. Others came from every school district in the Denver area. The Program is unique in that faculty members at MSCD teach the activities which are organized into the disciplines of Chemistry, Human Biology, Microbiology, Earth Sciences, Probability and Statistics, Meteorology, Aerospace Science and physics.

This summer was unusual because the media attended the Physics day activities at

Elitch Gardens and the video was featured on many Denver area television stations and on the front page of the Denver Post newspaper.

The Summer Science Scholars Program is a two or three week outreach program for area high school students who are interested in math and science. This past summer, thirty students attended and learned about Mathematics and Biology. The program was taught by Dr. **Hsiu-Ping Liu** of the Biology Department and Dr. **Larry Johnson** in Mathematics.

Both Programs have goals of reaching economically needy students and scholarships are made available through support from NSF, NIH and area foundations including The Xcel Energies Foundation, The Virginia Hill Foundation, the Edward Madigan Foundation and the Kinder Morgan Foundation.

For further information, email Dr. Larry Johnson at johnsonl@mscd.edu or call 303-556-5106.

The Rocky Mountain Math Teacher's Circle

Improving Problem Solving in Colorado's Schools

The Rocky Mountain Math Teachers' Circle (RM-MTC) is a new initiative designed to engage middle-level teachers highly interactive, teacher-centered problem solving sessions facilitated by professional mathematicians and statisticians. Our goal is to increase teachers' critical thinking and problem-solving skills and to better equip teachers to incorporate problem solving into middle-school mathematics classrooms.

After a year of planning by university faculty and secondary school personnel, an inaugural summer workshop was held in July 2010 and brought together 22 teachers from grades 5-9 for an intensive week of mathematical problem solving. In addition to summer workshops, the RM-MTC will hold regular follow-up meetings during the academic year to continue as a community of problem solvers and to discuss pedagogical aspects of implementing problem solving in middle school mathematics classrooms.

Three University of Colorado Denver professors, **Diana White**, **Stephanie Santorico**, and **Mike Ferrara**, all from the Department of

Mathematical and Statistical Sciences, are actively involved in this endeavor. Additionally, Dr. **Richard Grassl** from the University of Northern Colorado led an afternoon session for participants. The RM-MTC was entirely co-developed with the St. Vrain Valley School District (SVVSD), specifically math coordinator **Greg George** and secondary mathematics teachers **Linda Goertz** and **Carmen Rubino**.

Math Teachers' Circles are growing rapidly across the nation. Initially launched in 2006 by the American Institute of Mathematics (AIM), there are now approximately 23 circles in 15 states, with 12-15 circles planning to launch next summer. Most circles begin with a leadership team, consisting of university and district personnel, attending a weeklong training session on "How to run a Math Teachers' Circle." Sponsored by AIM, these workshops receive financial support from the American Mathematical Society, the Mathematical Association of America, the National Science Foundation, and the National Security Agency. After the workshop, teams then spend a year planning and securing local funding to launch their own Math Teachers' Circles the following summer.

This is intended to be a partnership between teachers and mathematicians/ statisticians that is open to teachers from any district and that goes beyond UC Denver faculty. A long-range goal is to expand to problem-solving workshops aimed at elementary and secondary teachers as well. If you are interested in getting involved in the RM-MTC or in facilitating a problem-solving session during the academic year or next summer, please contact Diana White (diana.white@ucdenver.edu). For more information on the RM-MTC, visit <http://rmmtc.ucdenver.edu> and for additional information on the national Math Teachers' Circle Network, visit

<http://www.mathteachercircle.org>



The initial development team at their weeklong training workshop in Summer 2009. Carmen Rubino (SVVSD), Linda Goertz (SVVSD), Greg George (SVVSD), Stephanie Santorico (UCD), Diana White (UCD)



Middle school teacher Linda Goertz shares her experiences as part of the developmental team and how it has impacted how she incorporates problem solving into her classroom.



Participants engaged in animated mathematical discourse with each other and with session facilitator Stephanie Santorico.

Candidate Information

Vice-Chair:

The vice-chair position is a two-year term (2011-2013). This person makes connections with two-year and community colleges, participates in all executive committee meetings, serves on the program committee to help make arrangements for two-year and community college faculty, is a member of the Distinguished Teaching Award Committee, and contributes to the committee on professional linkages.

***Sarah Pauley
Western Wyoming Community College
Rock Springs, WY***

Sarah Pauley received her B.S. in mathematics from Colorado State University in 2002 and her M.S. in mathematics from CSU in 2004. Currently, Sarah is an Assistant Professor of Mathematics at Western Wyoming Community College in Rock Springs, WY. Sarah has served as Vice Chair for the Rocky Mountain Section since Fall 2007. She is also involved with the current creation of the Rocky Mountain Section NExT. Sarah was an AMATYC Project ACCESS fellow in 2005 &

2006 and continues to be involved with the organization.

Statement:

I have had the honor of serving as Vice Chair for the Rocky Mountain Section for almost three years, and I hope to have the opportunity to continue this service in the future. I would like to continue as Vice Chair in order to be involved with the Rocky Mountain Section and its continued journey toward excellence in mathematics education. This section offers unique opportunities to interact with faculty and professionals from all backgrounds and experiences. I feel lucky to have had the chance to serve in a formal position and to participate in the organization, development, and growth of our section. I hope to help spread information about the Rocky Mountain Section and the benefits of being involved. I am dedicated to the position and will fulfill the requirements associated with Vice Chair to the best of my ability. Thank you for your consideration.

The University of Colorado at Boulder to Host 2011 Meeting

The Department of Mathematics at the University of Colorado at Boulder is pleased to announce the 2011 Rocky Mountain Section Meeting to be held in Boulder on April 8 and 9, 2011.

Details of the meeting will be forthcoming.

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 by December 15, 2010.

REGISTRATION AND ABSTRACT SUBMISSIONS

Registration and submission of talks will be available on the web, starting in December 2010 (??). For full consideration, talk abstracts must be submitted by March 1, 2011.

INVITED SPEAKERS

The meeting will feature four invited speakers.

1) The 2010 Burton W. Jones Distinguished Teaching Award Recipient:

Dr. Eric Stade

University of Colorado at Boulder

2) The MAA National featured speakers will be:

Dr. Frank Farris

Santa Clara University
MAA Keynote Speaker

Dr. Edward Burger

Williams College
Featured address

Dr. Joe Dauben

CUNY
Banquet speaker

For any questions or requests, please contact Program Chair **Eric Stade** at stade@colorado.edu

2010 Section Meeting Report

Good weather and a central location led to a record attendance at the 2010 Annual Spring Section Meeting on April 16th and 17th at Colorado State University in Fort Collins. Amongst the 204 registered participants were 47 graduate and 44 undergraduate students, as well as several members of the business, government, and industry sector and several K-12 teachers.

The meeting officially opened on Friday afternoon with a welcome message from card-carrying MAA member and Provost & Executive Vice President of Colorado State University, **Rick Miranda**. The program then started with a presentation by the 2009 Burton W. Jones Distinguished Teacher Award Recipient **Richard Grassl** (University of Northern Colorado) about working with, and motivating students. The president of the MAA, **David Bressoud** (Macalaster College), gave two presentations: His talk on Friday, *Issues of the Transition to College Mathematics*, addressed the issue of college curricula in view of an increasing rate of nominally college level courses in high school. His Saturday keynote, *Proofs and Confirmations*, described the nature of research in mathematics in the example of the alternating sign matrix conjecture.

Friday afternoon also saw an invited talk by **Wade Ellis** (West Valley Community College) on *Effective Learning with Software Tools*.

Friday evening's banquet address was by the 2010/11 Pólya Lecturer, **Judy Walker** (U. Nebraska, Lincoln). Her presentation was entitled *Codes on graphs: Shannon's challenge and beyond* and gave an overview of coding theory from its beginnings to current research.

The contributed paper program on Friday afternoon and Saturday morning included 77 speakers, including 43 undergraduate and graduate students. The program included sessions on *Combinatorics* (splitting on Saturday in a Geometry and a Graph Theory branch to accommodate all submissions), *Mathematics Education Research*, *History of Mathematics*, and *Pure and Applied Mathematics* as well as a general *Contributed Papers* session as well as each an *Undergraduate Research* and *Graduate Research* session.

Other meeting activities included a workshop on Friday morning, conducted by **Stephanie Fitchett** (NSF and University of Northern Colorado) on *Grant applications with the NSF DUE*, a lunch for MAA liaisons and chairs and a MAA Book sales display.

The section would like to acknowledge financial support by the following exhibitors:

- Hardy Calculus, LLC, **Darel Hardy**
- McGraw-Hill Higher Education, **Oliver Tillman**
- Pearson Higher Education, **Lisa Moller**
- Zim Mathematics, **Zim Olson**

Finally, many thanks go to the Colorado State University staff, mathematics faculty and students for their contributions to making this meeting successful!

Alexander Hulpke, Program Chair

Undergraduate Student Poster Session Report

Organized by Carl Lienert, Fort Lewis College

♣ **Kathleen Haus**, Metropolitan State College of Denver, *Aut(S₆) and a bijection*

Contributed Papers - 2010 Section Meeting

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

Combinatorics

Organized by Bryan Shader, University of Wyoming, and Michael Ferrara, University of Colorado, Denver

- ***Mary Allison**, University of Wyoming
Fastest Mixing Markov Chain Problem for the Union of Two Cliques
- **Michael Barrus**, Black Hills State University
Degree Sequences, Vertex Substitutions, and Matrogenic Graphs
- **William Cherowitzo**, University of Colorado Denver
15 Schoolgirls Take a Walk in Space
- ***Shilpa Dasgupta**, UC Denver
Interval Bigraphs with containment restriction
- **Michael Ferrara**, University of Colorado Denver
Saturation Numbers for Families of Ramsey-minimal Graphs
- **Patrick Fleming**, South Dakota School of Mines and Technology
Finite Semifields and Nonsingular n -dimensional Arrays
- ***Colin Garnett**, University of Wyoming
Spectrally Arbitrary Companion-like Matrices
- ***Samantha Graffeo**, UC Denver
Quasi-Sum Graphs
- ***Rodney James**, Colorado State University
Sandpiles on edge-weighted graphs
- ***Cayla McBee**, Colorado State University
Nucleotide Substitution Models and Hadamard Conjugation
- ***Kenneth M Monks**, Colorado State University
Möbius Numbers of Finite Group
- ***Timothy Morris**, UC Denver
Anti-Directed Hamilton Cycles
- ***Reshmi Nair**, University of Wyoming
Acyclic matrices with a small number of distinct eigenvalues
- ***Eric Nelson**, CSU Graduate Student
BLT-sets and Twisted Cubics
- **Stanley Payne**, University of Colorado Denver
Finite Self-Dual Generalized Quadrangles
- ***Craig Tennenhouse**, University of Colorado Denver
Subdivided Cycles and Graph Saturation
- ***Breann Tonnsen**, University of Colorado Denver
 P -interval K -trees
- ***Timothy Vis**, University of Colorado Denver

Fifteen schoolgirls and Forty-Two Ovoids

- ***Cara Wiblemo**, University of Wyoming
Automorphism Decompositions of Graphs
- ***Yang Zhang**, Colorado State University
Continuum Limits of Markov Chains and Network Modeling

Contributed Papers

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

- **Julie Barnes**, USAFA / Western Carolina University
Hosting Math Treasure Hunts
- **Stefan Erickson**, Colorado College
Zeta Functions of Graphs and Hypergraphs
- **Michelle Ghrist**, U.S. Air Force Academy
My Experiences with High School Mathematics Competitions
- **Darel Hardy**, Colorado State University
Some Average Calculus Problems
- **Rick Kreminski**, Colorado State University - Pueblo
3 Easy Pieces: Etudes for Calculus and Complex Variables
- **Erich McAlister**, Fort Lewis College
Further Geometry of Derivatives of Complex Functions
- **Jonathan Poritz**, Colorado State University, Pueblo
On Entropy-Preserving Stochastic Averages
- **Louis Talman**, Metropolitan State College of Denver
Mathematics on the Web

Mathematics Education Research

Organized by Robert Powers, University of Northern Colorado

- **Curtis Card**, Black Hills State University
Increasing the Pass Rates in Developmental Math Classes while Raising the Bar
- **Joe Champion**, University of Northern Colorado
Affecting the Self-Efficacy of Students in Advanced Undergraduate Mathematics
- ***Rebecca Dibbs**, University of Northern Colorado
The Perceived Utility of Precision Teaching Calculus
- **Scott Evans**, Mathematics Tutor
What if Mathematics is a Psychomotor Skill?
- ***David Glassmeyer**, University of Northern Colorado
Message Posted: Prospectives of Formative Assessment within Online Graduate Courses
- **Alexander Hulpke**, Colorado State University
Using Video Solutions in Calculus
- ***Kristin King**, University of Northern Colorado
Active Learning in an Introductory Statistics Course
- **Brian Lindaman**, Montana State University
Infinitely Hard: A Discussion of Calculus Students' Conceptions of Repeating Decimals
- **Gary Olson**, University of Colorado Denver

- *A College Mentoring Experience for Pre-Service Mathematics Teachers*
- **Zim Olson**, Zim Mathematics - Author / Owner
Systems and/or Sub Systems as Mathematical Paradigm - With the Creative Method
- ***Mary E. Pilgrim**, Colorado State University
The Effects of a Concepts for Calculus Intervention in Calculus I
- **Alexandre Probst**, Colorado Christian University / Colorado School of Mines
Assessing Student Improvement in an Introductory Statistics Class to Measure the Effectiveness of Instructional Change

History of Mathematics

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

- **Ginger Anderson**, Pikes Peak Community College
Alice in Matrixland
- **Janet Barnett**, Colorado State University - Pueblo
Abstract Awakenings in Algebra: Teaching and Learning Group Theory through the Works of Lagrange, Cauchy, and Cayley
- **Bill Briggs**, University of Colorado at Denver
The Evolution of Calculus Art
- ***Melody Dodd**, South Dakota School of Mines & Technology
A Comparison of Gauß's and Laplace's Methods for Orbit Determination and the Hunt for Least Squares
- **George Heine**, BL
The Stereographic Projection is Conformal --- An Entertaining Proof
- **Patrick Shipman**, Colorado State University
The Cantor Set and the Analytical Theory of Heat

Pure and Applied Mathematics

Organized by Daniel Bates, Colorado State University

- ***Ryan Croke**, Colorado State University
Generating an Infinite Number of Solutions for 2+1 Soliton Equations
- **Benjamin Dyhr**, Metropolitan State College of Denver
Predicting Random Variables Associated with the Self-Avoiding Random Walk on the Strip.
- **Anton Dzhamay**, University of Northern Colorado
Geometric Configurations Related to Matrix Factorizations
- **R.M. Green**, University of Colorado at Boulder
Polytopal Subcomplexes and Homology Representations
- ***Kristin King**, University of Northern Colorado
Introducing Mathematical Modeling in an Undergraduate Ecology Laboratory
- **Travis Kowalski**, South Dakota School of Mines and Technology
Elementary Proof of the Convergence of Taylor Series Solutions to ODEs
- **Iuliana Oprea**, Colorado State University
A Temporal Period Doubling Route to Spatiotemporal Chaos
- **Ivan Raykov**, Colorado State University, Pueblo

Quasi-Consistent Approximation of Effective Diagonalization Strategies for the Solution of a Class of Optimal Design Problems

- **Daniel Swenson**, Black Hills State University
The Steinberg Complex of an Arbitrary Finite Group
- **Tianyu Zhang**, Montana State University
Phase Model of Biofilm

Graduate Student Research

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

- ***Jeffrey Larson**, UC Denver
Applications and Algorithms for Derivative-Free Optimization
- **Jennifer Maple**, CSU
Steady State Mode Interaction in Anisotropic Systems
- ***Joseph Newhall**, University of Colorado
Convex Cones and Vector Efficiency
- **Chris Smith**, University of Colorado, Colorado Springs
The Matrix Type of Purely Infinite Simple Leavitt Path Algebras
- **Ramin Zahedi**, CSU
A Lexicographic Max-Min Design for Detecting Sparse Signals
- **Yang Zou**, Colorado State University
Is Spatial-Temporal Intermittency a Route to Spatial-Temporal Chaos?

Undergraduate Student Research

Organized by Jonathan Poritz, Colorado State University, Pueblo

- ♣ **Jacob Belka**, USAF Academy
Optimizing GPS Using Mathematical Programming
- ♣ **Andreea Erciulescu**, Colorado State University
Solving Kakuro Puzzles as Linear Minimization Problems
- ***Dan Jones**, Department of Atmospheric Science, Colorado State University
Stability Analysis of the Chaotic Lorenz System with a State-Feedback Controller
- ♣ **Christine Kistler**, U.S. Air Force Academy
Chaotic Behavior of Newton's Method
- ♣ **Eric Kuss**, Fort Lewis College Student
Fibona00i (mod c)
- ♣ **Sara Linville**, Fort Lewis College
Möbius Transformations of Geometric Constructions
- ♣ **Millie Mays**, U.S. Air Force Academy
Game Show Statistics
- ♣ **Michael O'Connor**, U.S. Air Force Academy
FalconSAT-5 Operational Testing, Analysis, and Anomaly Resolution
- ♣ **Mark Pengitore**, South Dakota School of Mines and Technology
Automorphisms of Real Submanifolds in \mathbb{C}^2

- ♣ **Rebecca Rasweiler-Richter**, U.S. Air Force Academy
Mathematics in Molecular Biology
- ♣ **Eric Robinson**, U.S. Air Force Academy
Dividing Products of Differences
- ♣ **Adam Ruff**, University of Colorado Denver
Analyzing Advice Networks of Math and Science Teachers
- ♣ **Daniel Van der Vieren**, Regis University
The Rubik's Cube: A Trans-Composite Cipher

2010 Business Committee Meeting Minutes

Saturday, April 17, 2010

Minutes: MAA Business Meeting

Date: April 17, 2010; 8:00-8:50 am

Location: Lory Student Center, North Ballroom, Colorado State University

1. Mike brought meeting to order and asked that we approve the 2009 RMS MAA business meeting minutes. Kyle moved we approve the minutes from last year's minutes. Stanley Payne seconded. Minutes were approved.
2. Mike Jacobson introduced Sarah Pauley as the candidate for vice-chair (see newsletter for her personal statement.). He opened the floor for other nominations. Stanley made a motion that we close the nominations. Kyle second. This was approved.
3. Tensia gave financial report (Appendix). We also funded PPRUMC and Janet Barnett asked if this was already taken into account in the report. H. Soto-Johnson mentioned that it was. Amelia also mentioned that Section NExT was paid for by National.
4. Mike gave Dick Gibbs' report for the CMA (See newsletter).
5. Mike gave chair's report based on the executive committee meeting and discussed what we might do with the funds that we have on hand. Suggestions are: Project NExT fellow, section activities grants. We also discussed how much money we should keep on hand. Students are active in our session, we only had one poster but there were several undergrads who presented.
6. David Bressoud, MAA President, gave the national report:
 - 29 new books and there are several guide books
 - There is a calculus study and 500 schools will be contacted to see if they will participate in this stratified random sampling
 - AMC: 400,000 students took test
 - Outreach programs include Tensor, SUMMA, Dolciani
 - Public Policy: recruitment and retention to ensure diversity in the STEM Pipeline
 - <http://www.maa.org/sciencepolicy>
 - Bylaw Changes → Starting from scratch and will vote on the changes at MathFest
 - Membership: Electronic memberships, dues will go up by \$2 in 2011
 - Development and Fund Raising: Can still order a brick (MAA RMS has one)
 - Upcoming meetings: PA for MathFest and New Orleans for Joint Meeting
7. Kyle gave governor's report:
 - a. Deadline to submit abstract for MathFest is at the end of the month, registration is open,
 - b. National will host our website which will make things more feasible,
 - c. Possibly able to get some journals paperless and some hard copy,
 - d. Thanked Mike for serving as Chair,
 - e. Let everyone know that this will be his last term as governor and encouraged others to run.
8. Mike announced that Eric Stade was the DTA 2010 recipient.
9. Amelia discussed Section NExT: 14 applicants and accepted 10, got funding from National, departments also contributed, facilitators went well, today they will do some closing activities about grant writing. Amelia and Sarah were thanked for their work.

10. Next year's meeting will be April 8-9, 2011 at CU.
11. NCTM regional meeting, October 6-8 in Denver, We announced other meetings:
 - a. Colomatyc meeting will be the first Friday of March at Pueblo Community College in 2011.
 - b. PPRUMC was the last Saturday of February at CSU-Pueblo and there were 150 participants.
12. Mike announced that Sarah was elected as chair elect.
13. Announced Daluss Siewert as new chair for section.
14. Mike announced that we have 2 people who can sign on the checking account. Currently Daluss and Tensia are on checking account. There will be elections for a governor and secretary/treasurer in 2011. Jeremy Muskat will serve as chair of nominating committee.
15. Mike asked if there were any discussion items. Janet Barnett wanted to discuss the funds, possibly increase the funds for section activities, Hortensia also mentioned having a trophy for the DTA recipient, Section NExT could also use funds in the future. Ipinia mentioned getting funds for teacher circles, Tensia asked about the usefulness of spending funds on grad students. Several commented that this was a good thing for the section.
16. Mike asked if there was anything else. He made a motion to thank Alexander and CSU for their work and passed banner to Eric Stade. He made a motion to adjourn.

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

Appendix: Financial Report

APPENDIX
MAA RMS Budget Report
Spring 2010

Balance on 12/31/08 **\$11,795.84**

Balance on 12/31/09 (gain of \$2,689.13) **\$14,484.97**

Checking Account Transactions from 12/31/09

	Income	Expense	Total
2-Mar-10 Postnet		9.59	6,154.30
7-Mar-10 PayPal	1379.77		7,534.07
10-Mar-10 Linda Sundbye Spring Newsletter		56	7,478.07
12-Mar-10 Registration	486		7,964.07
22-Mar-10 Fort Lewis Foundation (CMA)		250	7,714.07
4-Apr-10 Paypal	3187.15		10,901.22
7-Apr-10 Registration	55		10,956.22
April 11, 2010 Checking Account Balance			10,956.22
March 31, 2010 Savings Account			8,942.34
April 11, 2010 Total			19,898.56

Expenses during 2010 Meeting

1. Graduate Students: \$600.00
2. DTA Prize: \$271.82
3. Banquet:

2010 Executive Committee Meeting Minutes

Thursday, April 15, 2010

Minutes: MAA Rocky Mountain Section Executive Committee Meeting
Date & Time: Thursday April 15, 2010 from 7:00-10:00 pm
Location: Bisetti's; 120 South College Avenue; Fort Collins, CO 80524
Attendance: Mike Brilleslyper, Eric Stade, Daluss Siewert, David Bressoud, Sarah Pauley, Kyle Riley, Alexander Hulpke, Clark Dollard, Amelia Taylor, Hortensia Soto-Johnson

1. Mike brought the meeting to order. Kyle made a motion to accept the minutes. Daluss second. Mike called a vote. Unanimous vote to accept the minutes.
2. Mike began to go through the executive committee agenda (Appendix A), beginning with the opening ceremonies. It was agreed that Alexander would introduce David Bressoud for the Friday keynote. Kyle will introduce David for the Saturday morning session.
3. Banquet must start at 8:15. Janet Barnett will try to do all the door prizes during dinner. Poster results will be at the end as well as the list of membership awardees. Everyone agreed on the business meeting agenda (Appendix B). Hortensia Soto-Johnson will give the abbreviated report for Dick Gibbs. David Bressoud will give national report.
4. The following announcements were made:
 - a. 2011 meeting will be April 8-9 at CU Boulder; Eric Stade (program chair for 2011 meeting) said they just got a bequest and CU will be able to contribute about 2K to the 2011 conference
 - b. Alexander Hulpke provided the status of the 2010 meeting.
 - i. Cost of rooms will be about 2K,
 - ii. Alexander felt that we were even without the exhibitor's money and believed we might be about 600 in the plus.
 - iii. CSU is only using the rooms in the student center for the 2010 meeting
 - iv. Alexander said that we have about 145-150 folks registered for the meeting, not counting CSU. With CSU folks the total is approximately 180. We have 90 tickets for the banquet.
5. Hortensia Soto-Johnson gave financial report → the section is in good financial shape, thus the section needs to consider ways to spend the funds.
 - a. Tensia gave the financial report and asked if we should be doing something with this money. Mike commented that last year we felt we should have reserve funds on hands. Amelia suggested we contribute to the Section NExT. We will get about 3K from National to cover Section Next. Kyle suggested we have a red line as to where we will no longer contribute to other activities. Tensia suggested that we contribute to Project NExT, Alexander said the fixed cost of the meeting would be about 1 thousand. The red line could be 7K since this is about what we spend in one year.
 - b. Kyle suggested we discuss with members how we might spend the funds. Amelia suggested we look at yearly outflow. Alexander suggested we let the chairs know about the grad student session earlier like November. Mike also suggested we give out more section activities grants.
6. Hortensia Soto-Johnson announced there will be a call for a new secretary and governor.
7. Daluss gave awards committee report:
 - a. Eric Stade was the 2010 DTA.
 - b. MAA RMS also funded the PPRUMC.
8. Amelia gave us an update about Section NExT:
 - a. She suggested we have a standard committee for MAA RMS, structured like the nominating committee. We all agreed on this.

- b. There were 14 applicants and 10 were accepted to participate in the Section NExT. Schools include Black Hills SD, Metro, Western, FLC, Montana, USAFA.
 - c. Amelia commented that if we get an AMAYTC section NExT then we could find more candidates for the vice-chair position, who has to be someone from the 2-year institutions.
 - d. Activities for the fellows include, Friday morning breakfast with ice breaker, Bob Cowen will give a session on technology, Sarah Pauly will deliver a session on interactive learning, and a panel will discuss "obtaining tenure. Participants finished off Saturday meeting with Stephanie Fitchett who discussed grant writing.
9. Discussion Items:
- a. We gave \$500 for PPRUMC, \$600.00 for grad student session, \$250.00 for CMA (April 27, 2010).
 - b. We discussed the possibility of advertising for jobs on our website because we were approached by a member of the section to do this. We discussed what we might charge and the potential cost to the section. This might become problematic when national hosts the website. Kyle will investigate how much it would cost to advertise in the newsletter. (We later got word from D. Bressoud that we are not allowed to advertise for jobs b/c this is in competition with National.)
 - c. Checking account: Kyle reported that National suggested we have more than one person on an account. Currently we have Daluss added, but Alexander suggested that the secretary and past-secretary could serve as co-signers. David suggested the bank be close to the secretary. We all agreed and this will be included in the list of duties for the secretary as part of the bylaws.
 - d. Membership Recruitment: Section NExT is a good first effort to recruit into the MAA RMS section. Sarah will look into the AMAYTC group.
 - e. We are now charging \$10/student → Alexander felt this was a good way to get students to commit to attend the conference. Charge was \$30 in advance, \$35 on site, \$10 (\$15 on site) for students and \$10 (\$15 on site) for teachers, new members, 25/50 year members. Kyle moved that this be the same charge for next year. Alexander second – all were in favor.
 - f. Logo shirts: Janet Barnett will be allowed to have a drawing at the book sales and winner must be present to win.
 - g. Kyle & Daluss will be at 2010 Mathfest to be held in Pennsylvania. Hortensia and Kyle will be at Joint meeting in New Orleans.
 - h. Shared future and possible future section meetings:
 - i. April 8-9, 2011 at CU. Eric Stade and Rob Tubbs will be program co-chairs.
 - ii. Metro will be at 2012.
 - iii. Possibly Adams in 2013.
 - iv. 2014 UW possibly
 - v. 2015 Colorado College
 - vi. 2016 Mesa for Intermountain possibly

Respectfully submitted,

Hortensia Soto-Johnson

Secretary/Treasurer of the MAA Rocky Mountain Section

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 Program

The purpose of the Section Activity Grants program is to assist Section members in funding projects in support of Section Mission. These projects must be clearly tied to one or more of the Rocky Mountain Section Mission Goals and the project director must be a member of MAA. Grants will not exceed \$750 per project. Matching funds from host institution are preferred, but not required. To apply for a Section Activity Grant, submit the following to the Section Secretary/Treasurer:

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

If funded, a report on the project will be filed by the Project Director upon completion (no more than one page) and a report will be made at the next meeting of the Section. Complete details on the selection process and application guidelines are posted on the section website. Grants will be reviewed once a year. All application materials are due November 1st of each year.

Student Recognition Grants Program

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.”

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 13-16, 2016

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

Meetings Calendar

Joint Mathematics Meetings; New Orleans, LA
January 6-9, 2011

ICTCM; Denver, CO; March 17-20, 2011

NCTM annual meeting; Indianapolis, IN
April 13-16, 2011

MAA Rocky Mountain Section Meeting
University of Colorado at Boulder
April 8-9, 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

**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)? _____

On a separate page, briefly describe the unusual or extraordinary 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 forms should reach Section Secretary by December 1 of each year.
Complete nomination materials should reach Section Secretary by January 15 of each year.

Section Secretary: Hortensia Soto-Johnson, hortensia.soto@unco.edu
University of Northern Colorado; Dept of Mathematical Sciences; Ross 2240 A; Greeley, CO 80639.

Please consult the Section webpage (<http://sections.maa.org/rockymt>) for complete guidelines.

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.