ROCKY MOUNTAIN SECTION OF THE MATHEMATICAL ASSOCIATION OF AMERICA

$$\forall \varepsilon \exists \delta \ni$$
$$e^{i\pi} + 1 = 0$$

Fall 2012 Newsletter

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

Fall 2012 Newsletter in PDF Format for Printing

Click on the following link for PDF document that is formatted for printing.

http://rowdy.msudenver.edu/~sundbyel/maanews/fall2012news.pdf

Table of Contents

Section Executive Committee Officers for 2012 – 2013

Chair	William Cherowitzo University of Colorado Denver Denver, CO 80217	william.cherowitzo@ucdenver.edu 303-556-8381
Past Chair	Daluss Siewert Black Hills State University Spearfish, SD 57799	daluss.siewert@bhsu.edu 605-642-6209
Vice-Chair	Sue Norris Northwest College Wyoming Powell, WY 82435	sue.norris@northwestcollege.edu 307-754-6283
Secretary/ Treasurer	Heidi Keck Western State Colorado University Gunnison, CO 81231	hkeck@western.edu 970-943-3167
Governor	Mike Brilleslyper USAFA Colorado Springs, CO 80840	mike.brilleslyper@usafa.edu 719-333-9514
Program Co-Chairs	Matt Ikle Stephen Aldrich Adams State University Alamosa, CO 81101	moikle@adams.edu, 719-587-7791 saldrich@adams.edu

_____

Other Committee Members and Representatives

Section Nominating Committee

Cathy Bonan-Hamada (Chair), Colorado Mesa University   cbonan@coloradomesa.edu
Lynne Ipina, University of Wyoming   ipina@wyo.edu
Jeff Berg, ACC   jeff.berg@arapahoe.edu

Awards Selection Committee

Daluss Siewert, (Chair), BHSU   daluss.siewert@bhsu.edu
Sue Norris, Northwest College Wyoming   sue.noris@northwestcollege.edu
Janet Nichols, CSU-Pueblo   janet.nichols@colostate-pueblo.edu
Stan Payne, UCD   stan.payne@ucdenver.edu

Section NExT Committee

Diane Davis (Co-Chair), MSU Denver   ddavi102@msudenver.edu
Bob Cohen (Co-Chair), Western State Colorado University   rcohen@western.edu
Dan Swenson, BHSU   daniel.swenson@bhsu.edu
Kim Fix, Western State Colorado University   kfix@western.edu
John Carter, MSU Denver   jcarte11@msudenver.edu

Section Book Sales Coordinator

Janet Heine Barnett, CSU - Pueblo   janet.barnett@colostate-pueblo.edu

Section Student Activity Coordinator
> Carl Lienert, Fort Lewis College　　　　　　　lienert_c@fortlewis.edu
> Beth Schaubroeck, USAFA　　　　　　　　　beth.schaubroeck@usafa.edu

Higher Education Representative on CCTM Governing Board
> Gulden Karakok, University of Northern Colorado　gulden.karakok@unco.edu

Public Information Officer and Section Liaison Coordinator
> Heidi Keck, Western State Colorado University　hkeck@western.edu

Website Editor
> Bill Briggs　　　　　　　　　　　　　　　william.briggs@ucdenver.edu
> University of Colorado Denver

Newsletter Editor
> Linda Sundbye　　　　　　　　　　　　　sundbyel@msudenver.edu
> Metropolitan State University of Denver　　303-556-8437
> Department of Mathematical and Computer Sciences
> P. O. Box 173362, Campus Box 38　　　　FAX: 303-556-5381
> Denver, CO 80217-3362

Janet Nichols
of
Colorado State University
- Pueblo
named
2012 Distinguished Teacher

"Through her actions, words, and dedication, Janet Nichols shows on a daily basis what it means to be an exceptional mathematics teacher" opines one of her former students, while another states that, "Her love of teaching math and passion for students separate her from most in her field. She continues to make a difference today …" It comes then as no surprise that the 2012 Burton W. Jones Distinguished Teaching Award was presented to Professor Janet Nichols of Colorado State University - Pueblo at the MAA Rocky Mountain Section meeting in April 2012 on the Auraria campus (CCD-Metro-UCD).

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

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

The evidence of Professor Nichol's teaching effectiveness is manifold. Her course teaching evaluations are exemplary with many scores among the best in the school, including those for making good use of class time, encouraging critical thinking, maintaining high standards and facilitating class participation. She has consistently attracted large numbers of students to her classes despite, or perhaps because of, her high expectations. Outside of the classroom she advises students, especially those math majors seeking a secondary teaching license and represents the program on the University Teacher Education Board. She leads the remedial mathematics instructors group and mentors junior (and senior) faculty. She was awarded the 2011 University Faculty Excellence in Teaching Award.

For 34 years, MATH DAY has been a highly successful staple event at CSU-Pueblo. Professor Nichols created the event and has organized it continuously since its inception. High schools from across southeastern Colorado attend on a yearly basis. In 2010 almost 300 students attended the event. Many of the attending high school math club sponsors are high school mathematics teachers that had Professor Nichols as an instructor. To a person, they credit Professor Nichols for making a difference in their own mathematics programs.

Her other activities at the regional level would necessitate a lengthy list that we shall forgo, but to sample just one: During 2004-2006, Professor Nichols was a co-principal investigator for the *Colorado State University – Pueblo: the Education of Teachers for Elementary Teachers* project, funded by the NSF and the MAA Preparing Mathematicians to Educate Teachers Grant program. Activities included the development and implementation of a new problem solving capstone course. As part of the project, she co-authored a problem solving collection with Drs. **Janet Barnett** (CSU-Pueblo) and **Hortensia Soto-Johnson** (UNC) that is now used as the textbook in the course: Problem Solving for K-6 Teachers. In recent years, she has led presentations about this course at national and regional meetings of the MAA.

In summary, Janet Nichols is an extraordinary individual whose contributions as a teacher of post-secondary mathematics and lifelong advocacy of excellence in teaching fully deserve the recognition of the Burton W. Jones Teaching Excellence Award.

Our special thanks go to **Frank Zizza** (CSU-Pueblo) for the time and effort he put into preparing the dossier for Professor Nichols upon which we have heavily relied in preparing this report.

Bill Cherowitzo
University of Colorado Denver
Chair DTA Selection Committee

Past Burton W. Jones DTA Recipients

1992 John H. "Jack" Hodges
University of Colorado at 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 Denver
1997 Thomas Kelley
Metropolitan State College of Denver
1998 Monte Zerger
Adams State College
1999 Bill Briggs
University of Colorado 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 Rich Bogdanovich
Community College of Aurora
2012 Janet Nichols
Colorado State University - Pueblo

2013 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 2012**. **Complete nomination materials** (described on the website) are due **15 January 2013**.

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

Participate

As any other organization, we need to grow. This means reaching out to non-members and making our activities more attractive to different stake holders while keeping our core programs

vital and rewarding for our current membership. Economic trends indicate that more and more college students will be pipelined through the community college system before landing in the math classrooms of the four year colleges. First contact with a college math instructor, an important inspiration for so many of us, is becoming the bailiwick of our two-year institutions. While we have a number of faculty at community colleges in our ranks, there are many more who find that the combination of heavy workloads and low pay make the MAA a luxury item in their lives. We need to change that. We need to foster stronger ties with the community college faculty. We need to provide programs which are both interesting and useful to these faculty and this should be done *in situ*, we go to them rather than having them come to us. Some efforts in this direction have already been started. **Sue Norris** of Northwest College (Powell, WY), the new vice-chairperson of our section, has sent a newsletter with lots of MAA information out to her WYMATC mailing list. I will visit any community college in our region and discuss possibilities with the local faculty (just let me know that you are interested: William.Cherowitzo@ucdenver.edu).

Other ideas are needed, please send them to me.

Investigate

We do a good job encouraging students to present their work at conferences around the section (in fact, much better than some other, larger sections). But due to the large geographic region of our section this involves much travel and expense. To encourage more of this we need to develop very regional mini-conferences, aimed mostly at students and not competing with our other programs. Perhaps devoted to "how to" topics with speakers from our own section such as: "How to start an REU program", "How to develop a strong math competition team", "How to get a math club going", or "How to give a good math talk". If you are interested in developing this idea please contact a member of the Executive Committee.

Educate

Do you want to know how to get a roomful of math minded folks hot under the collar? Just write a New York Times opinion piece titled "Is Algebra Necessary?" a couple of days before MathFest. **Andrew Hacker**, an emeritus

professor of political science and co-author of the book "Higher Education? How colleges are wasting our money and failing our kids – and what we can do about it" did just that on July 28 this year. Rebuttals to Hacker's piece flew hot and heavy at the MAA-AMS special session on "What Mathematics should Every Citizen Know – and How Does K-16 Get Us There? at MathFest on August 3rd. This session, organized by **David Mumford** (Brown University) and **Solomon Garfunkel** (COMAP), well before Hacker's article appeared, was centered around the Common Core State Standards and featured talks by **William McCallum, Lynn Steen, Hyman Bass, Joseph Malkevitch** and **Solomon Garfunkel**. Everyone seemed to have a need to express their disapproval of Hacker's pronouncements. Politicians who are shaping the nature of the academic endeavor with their insistence on high stakes testing fared no better than Hacker. A positive theme that did develop in this session was a call for more emphasis on modeling (real modeling and not just textbook style modeling as is called for in the Common Core) as the basis on which to build a mathematical curriculum for everyone.

"Participate, Investigate, Educate" (π, i, e) is the new focus (slogan) of the MAA and you will be seeing that in several forms on all new MAA communications. I decided to try it out as the outline of this, my first report to the members of the Rocky Mountain Section of the MAA. I hope it worked.

> *Bill Cherowitzo, UCD*
> *Chair, Rocky Mountain Section*

Governor's Report

I recently returned from Mathfest in Madison, WI. It was an outstanding meeting with a diverse mathematical program and city full of interesting restaurants (the combination Turkish-Italian was delicious). The day before Mathfest kicked off, the Board of Governors (BoG) gathered to discuss the business and the future of the MAA. The BoG agenda cut a wide swath across issues ranging from the very practical budgetary considerations to the far-reaching ethical issue of doubly blind review for print journals. I will summarize the main themes and directions from the meeting, but first a very important announcement:

In an almost non-existent campaign, highlighted by no negative ads, no scandals, and no speeches, our own **Hortensia Soto-Johnson** (University of Northern Colorado) won election as the MAA's next associate treasurer and chair of the budget committee. Congratulations Tensia! She will officially take over the job on Feb 1st, but will spend the next few months getting up to speed. We know that Tensia will do great work for the MAA, just as she has for many years in the section.

Michael Pearson, MAA Executive Director since January, kicked of the BoG meeting by introducing the new Associate Executive Director**, Linda Braddy**. Dr. Braddy is the Dean of Mathematics and Natural Sciences at Tarrant County College in Ft. Worth TX. She brings a wealth of educational and administrative experience to the job. She has a long history of working with the NSF and in administering large grants. She will be a valuable addition to the MAA staff as the organization seeks to secure and better use multiple funding resources.

Among the many staff changes that have occurred recently, the MAA welcomed the new director of meetings, Mr. **Peter Smith**. As a welcome to the job, Mr. Smith took the reins for Mathfest and pulled together a wonderful meeting on short notice. It is clear he will do a great job. The MAA also welcomed Mr. **John Wyatt** as the new Chief Operating Officer on July 1st.

Among many other changes, one that will be very obvious to the members is the redesign of the MAA webpage. The new page promises to have sleeker, more polished look, while also providing quicker access to the vast resources of the MAA. Members have often complained about the difficulty in navigating the MAA website. The new design is a comprehensive effort to address those concerns. The new page will launch in April, 2013.

The MAA continues to search for the optimal position with regard to publishing. Journals, books, and e-books will always to be an important part of the MAA. The landscape is changing and the MAA wants to find new markets and niches where the mathematical expertise of the editors and staff can truly be leveraged. While the primary mission of the MAA is to focus on the undergraduate level, the secondary school market presents a possibly lucrative area for MAA published materials.

Related to this is the new way in which the MAA will market books to its members. Beginning in January, the MAA will email a discount code to members that will change each month. Using the discount code will allow members to receive special rates and opportunities. The discount prices and other specials will not appear on the website, but will only be known to the members after they enter their code. Watch your inbox for a special message from the MAA regarding these changes.

In my previous Governor's report, I commented on the MAA task force report on implicit bias. At this meeting, the BoG voted to endorse the guidelines for avoiding implicit bias in the determining awards and prizes. The MAA is now on record as endorsing these guidelines and other professional societies are now using these guidelines. The guidelines focus on items such as having a diverse selection committee, generating a large and diverse pool of nominees, publicizing the award among underrepresented groups, and periodically reviewing the process and procedures for advertising and giving the award.

Along these same lines, there was a lengthy and very thoughtful discussion about the use of doubly blind review of papers submitted to MAA print journals. The issue is subtle and more complex than is obvious. While doubly blind review is the norm in some fields, it is a mixed bag in the mathematical disciplines. Nevertheless, the BoG voted to have MAA print journals move towards a system of doubly blind review. The actual statement that was voted on would exempt current editors and would still give future editors wide latitude to work for the best interest of the journal. However, in the issue of creating a level playing field and judging work solely on its merit, the BoG felt that doubly blind review should be the standard.

As most of you know, the MAA has been wrestling with financial issues for the past several years. While the situation is not dire, we are still running operating deficits and this cannot continue. Cost cutting measures and revenue generating plans are in the works. Michael Pearson spoke at length about "investing for the future." Of course there is some risk in entering new markets and making substantial staff and organizational changes, but the Executive Committee is well-informed and believes the risks are worth the potential future

financial security that would come from these successful ventures. The MAA is well-positioned to impact collegiate mathematics and to provide valuable resources for its members for many years to come.

On a couple of unrelated number-intensive items from the meeting, **Paul Zorn** reported the Putnam Exam (an MAA program) was taken by a record 4400 students. As usual, the median score was 0 and the average this year was 4.3. A score of greater than 13 was needed to crack the top 500 and the high score was 91 out of 120. Also, a new attendance record for Mathfest was set with over 1550 attendees.

Finally, MAA President, Paul Zorn, reminded the Governors that Board meetings are open to the general membership of the MAA. The BoG meetings provide a unique insight into how and why the MAA operates the way it does. So, if you arrive in San Diego for the Joint Meetings a day early skip Sea World and the Wild Animal Park and join us for a daylong meeting of policy statements and votes. Admission is free!

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

17th Annual Colorado Mathematics Awards Ceremony/Reception

The 17th annual Colorado Mathematics Awards (CMA) Reception/Ceremony was held on Tuesday, May 22 at the Grant-Humphreys Mansion in Denver. Organized by **Dick Gibbs**, Emeritus Professor of Mathematics at Fort Lewis College, and **David Carlson** of the Colorado Department of Agriculture (retired), this event recognized 51 Colorado students and 31 teachers from junior and senior high schools, and colleges and universities in Colorado for outstanding performances on six national mathematics competitions: MATHCOUNTS, the American Mathematics Contests 8, 10 and 12, the William Lowell Putnam Mathematical Competition, and the Mathematical Contest in Modeling.

The AMC 8, AMC 10, AMC 12, and Putnam Competitions are sponsored programs of the national MAA, which also provides support for the other two competitions. **Mr. Jeff Abbate**, Manager of Engineering, CH2M HILL, spoke to the gathering before awards were given.

The Rocky Mountain Section of the MAA is an educational sponsor of the Colorado Mathematics Awards. Other MAA members on the CMA Steering Committee include **David Larue** (Mines) and **Lou Talman** (MSU Denver). Special thanks to **Silva Chang** from Boulder for maintaining CMA information on her website: **cma.coloradomath.org**. Pictures of this year's event (and of prior years) can be found there.

Two teams from University of Colorado-Boulder excelled in the Mathematical Contest in Modeling. This year nearly 3,700 teams from 16 countries submitted solutions. Only ten teams worldwide received a rating of Outstanding, including two from the University of Colorado-Boulder! Members of these two teams, both coached by Prof. **Anne Dougherty**, Dept. of Applied Mathematics, are: **Christopher Corey**, **Stephen Kissler**, and **Sean Wiese;** and **Christopher Aicher**, **Tracy Babb**, and **Daniel Sutton**.

The top Colorado student in the Putnam Mathematical Competition was **Marshall Carpenter** from the University of Colorado Boulder, coached by Profs. **Alexander Gorokhovsky**, **Keith Kearnes**, and **Sergei Kuznetzov**. Three other CU-Boulder students— **Christopher Aicher**, **Keegan Boyle**, and **Alec Jenkins,** coached by the same professors—tied for 2nd place, along with **Max Roschke**, University of Denver, coached by Prof. **Ronnie Pavlov**, and **Steven Wray**, Metropolitan State University of Denver, coached by Prof. **Bill Emerson**.

Also recognized at the ceremony was Prof. **Janet Nichols** from Colorado State University-Pueblo as the recipient of the 2012 Burton W. Jones Distinguished Teaching Award.

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

Plans are already under way for the 18th Colorado Mathematics Awards Reception/ Ceremony to be held again at the Grant-Humphreys Mansion on Thursday, May 16, 2013.

Dick Gibbs
Emeritus Professor of Mathematics
Fort Lewis College

Colorado School of Mines

Professor **Willy Hereman** starts his 24th year at the Colorado School of Mines as the Head of the Department of Applied Mathematics and Statistics (AMS).

Teaching Professor **Gus Greivel** continues to serve as Assistant Department Head and Professor **Barbara Moskal** (Director of the Trefny Institute for Educational Innovation) continues as liaison with the MAA.

This fall, **Steve Pankavich** joined the department as an Assistant Professor. Steve received his B.S. (2000), M.S. (2001), and Ph.D. (2005) degrees in Mathematical Sciences from Carnegie Mellon University. Steve held positions at both Indiana University and the United States Naval Academy. His work is on differential equations with applications to plasma dynamics, virology, and multiscale problems in biophysics and chemistry. With previous funding from NSF, Steve is supporting Postdoctoral Fellow **Nicholas Michalowski** who was Visiting Assistant Professor at Oregon State University.

The department also welcomes **Deb Carney**, **Mike Nicholas**, and **Rebecca Swanson** as Teaching Associate Professors. They bring the department to a total of 19 faculty members.

Deb Carney received her B.S. in mathematics from the University of Vermont. In 1998, she received her Ph.D. in Mathematics in the area of mathematical logic from the University of Maryland in College Park. Deb was most recently at the University of Denver where she was recognized as for her innovation in the classroom, including the use of technology and teaching in online/hybrid learning environments. Deb is looking forward to expanding upon these skills at Mines.

Mike Nicholas received bachelor's degrees in mathematics and physics from the University of Utah. He received a Ph.D. in applied mathematics from Duke University in 2007. Mike was a post-doc at Tulane University and comes to Mines most recently from Carthage College where he was an assistant professor. Mike has research interests in numerical boundary integral equations, and is working in curriculum development for calculus and scientific computing.

Rebecca Swanson received her Ph.D. in Mathematics from Indiana University in 2010. Her thesis work was in Combinatorics but her research interests include Topological and Algebraic Combinatorics as well as Graph Theory. Before joining Mines, Rebecca was an Assistant Professor at Nebraska Wesleyan University where she taught a variety of mathematics courses and advised the Math Club. Rebecca looks forward to continued involvement with the MAA, as she is a Project NExT Blue10 Dot and begins service on the MAA's Council for Outreach in January.

In other faculty news, Professor **Mahadevan Ganesh** was awarded a $210,000 grant from NSF for research on parameterized systems and Assistant Professor Assistant Professor **Steve Pankavich** received a $100,000 NSF award for a study of kinetic equations. Professor **Barbara Moskal** secured $130,000 in matching funding for a Bechtel Educational Excellence Grant.

Assistant Professor **Jon Collis** received a $101,000 grant from the Office of Naval Research to study ocean acoustics. Assistant Professor **Amanda Hering** received $50,000 in research support from Northrop Grumman. Both faculty members also secured financial support for graduate students from NREL.

Teaching Assistant Professor **Holly Eklund** received the Outstanding Faculty Award from the Multi-cultural Engineering Program.

Teaching Associate Professor **Terry Bridgman** received the Alumni Teaching Award.

Teaching Professor **Gus Greivel** received the campus-wide Afred E. Jenni Award to support the development of interactive materials that connect topics from the calculus curriculum to applications in upper-division course work and research across the campus. Professor **Paul Martin** was named the AMS Faculty of the Year and was elected as a Fellow of the Institute of Mathematics and its Applications (U.K.)

In student news, doctoral student **Ashley Bell** (supervised by Assistant Professor **Amanda Hering**) was awarded a 3-year NSF Graduate Research Fellowship. **Michael Kasberg** was the Outstanding Graduating Senior in December 2011. **Michael Firmin** received the Professor Everett Award and **Sara Clifton** was the Outstanding Graduation Senior in May 2012 and also recipient of the Ryan Sayers Memorial Award.

Metropolitan State University of Denver

Our college name change to Metropolitan State University of Denver is now official. All MSU Denver email now ends with @msudenver.edu. Please update your contact lists!

Diane Davis was granted early tenure and promoted to associate professor of mathematics. Computer science professor **Noel LeJeune** retired in May 2012 and named Professor Emeritus.

Our 25th annual Math Day was held in April 2012. High school students from twelve Denver area high schools participated in the event.

South Dakota School of Mines and Technology

This is an exciting time at the South Dakota School of Mines & Technology. Enrollment is up and the campus has worked very hard to increase research activity across all the departments. Our graduates continue to enjoy strong placement and competitive salaries. We have revised our Masters program to be an M.S. in the Computational Sciences and Robotics, which should be easier to market and provides a better focus and mission of the program. We dedicated a new research laboratory, the L-3 Communications Embedded Systems and Robotics Laboratory. This new lab is the recognition of the strong support our new

program has received from L-3 Communication Systems West (based in Salt Lake City).

We have a couple of retirements to announce: **Laura Geary** and **John Lofberg** have both joined the growing list of friends and colleagues that are retired. We also have several new hires: Dr. **Martha Garlick Grieve** is a new Assistant Professor in Mathematics from Utah State University; Dr. **Larry Pyeatt** is a new Associate Professor in Computer Science from Texas Tech University; **Michelle Richard** is a new Mathematics Instructor that graduated from Montana State University (and comes to us from a position in Texas); **Peter Grieve** is a new Mathematics Instructor from Utah State University; and **Christer Karlsson** will be a new Assistant Professor in Computer Science who will be coming to us in January from the Colorado School of Mines.

United States Air Force Academy

The Department of Mathematical Sciences is pleased to welcome Dr. **Jeff Leader** (Rose-Hulman University) as our Distinguished Visiting Professor for the 2012-13 academic year. Dr. Leader brings a wealth of teaching and research experience to our department and we look forward to his contributions. We also said goodbye to Dr. **Jim Rolf** after 12 years of service to the Air Force Academy. Jim accepted a position at Yale University and we wish him and his family well in their new endeavors. Jim's departure means that we are hiring a fulltime civilian at the assistant professor level. The job notice can be found on Mathjobs.org, the EIMS site, and on USAJobs.gov (deadline to apply is Nov 30, 2012). We are also working on introducing a new major in applied mathematics that will have an interdisciplinary component as the center-piece of the program of study. The new degree strongly supports the STEM requirements of our modern Air Force. Finally, several of our 2012 mathematics majors have gone on directly to graduate school and are now working on Master's degrees at MIT, Rice University, and the Air Force Institute of Technology (AFIT).

University of Colorado at Boulder

We have two new tenure-track faculty members who joined us this past summer, Dr. **Katherine Stange** and Dr. **Jonathan Wise**.

Dr. Stange is a number theorist who received her Ph.D. at Brown University under the direction of **Joseph Silverman** in 2008.

After spending a year at Harvard University as a NSF postdoctoral fellow, she moved to the Pacific Northwest to continue her NSF Fellowship as well as enjoying the support of a NSERC/PIMS fellowship at Simon Fraser University during the period 2009--2011. She then joined Stanford University for her final year of NSF postdoctoral support in 2011--2012 before joining our Department this past July.

Dr. Wise is an algebraic geometer who also received his Ph.D. at Brown University in 2008, under the direction of **Dan Abramovich**. He also received a NSF postdoctoral fellowship, which he spent at Stanford University and then the University of British Columbia from 2008-2011. He then was a postdoctoral fellow at Stanford University once again during 2011-2012 before joining us this past July.

In early 2012, the autobiography of Dr. **Karl Gustafson**, entitled *The Crossing of Heaven: Memoirs of a Mathematician*, was published by Springer. Dr. Gustafson gave a reading from his book at Boulder Book Store on June 20, 2012.

We are very pleased to announce that colleagues **Su-Ion Ih** and **Nathaniel Thiem** were promoted to associate professor, and that **Markus Pflaum** was promoted to full professor in the Department, effective for the 2012-2013 academic year.

In Fall 2012, Dr. **Jeanne Clelland** was awarded a 3-year NSF research grant for her project entitled *"Isometric Embedding and other Problems in Geometry and Differential Equations."*

University of Colorado Denver

First and foremost, the department would like to thank and honor Dr. **Rich Lundgren**, who retired in May 2012 after 31 years of contributions to CU Denver. After receiving his Ph.D. from Ohio State University in 1971, Rich taught at Allegany College for ten years before joining the CU Denver faculty in 1981. He served as chair of the department on two separate occasions for a total of nine years, and, perhaps most notably, he led the department effort to develop its Ph.D. program, which began in 1986. Rich supervised 13 Ph.D. students and wrote over 80 research papers in the areas of finite simple groups, graph theory, and combinatorial matrix theory. We deeply thank

Rich for his dedication to the department, college, and university, and wish him a wonderful retirement.

In other faculty news, Dr. **Jan Mandel** is our new department chair, while our former chair, Dr. **Mike Jacobson**, is in residence for the year at the National Science Foundation as a Program Director in the Division of Undergraduate Education. Drs. **Mike Ferrara** and **Julien Langou** received the teaching and research excellence awards, respectively, within the College of Liberal Arts and Sciences in May 2012. **Gary Olson** has returned from spending, and Dr. **Alex Engau** has departed to spend, a year teaching in China as part of the CU Denver International College of Beijing (ICB) program.

In addition to many ongoing grants and contracts in the department Dr. **Jan Mandel,** Dr. **Loren Cobb,** and former postdoc Dr. **Jon Beezley** received an NSF grant to study data assimilation for tracking wildfires.

Dr. **Stephanie Santorico** was asked to serve as a Member of the Genomics, Computational Biology and Technology Study Section for the National Institutes of Health, while Dr. **Diana White** is on the advisory committee of the National Association of Math Circles and president of the Rocky Mountain Association of Mathematics Teacher Educators.

The department eagerly welcomes several new faculty:

Dr. **Florian Pfender,** specializing in graph theory and extremal combinatorics, joins the faculty as an assistant professor. He earned his Ph.D. from Emory University in 2002, and has recently been working as a junior professor at the University of Rostock in Germany.

Dr. **Martin Vejmelka,** is a postdoc working with Dr. **Jan Mandel** in the area of data assimilation for wildfire models. He joins the department from the Institute of Computer Science in the Academy of Sciences of the Czech Republic.

Dr. **Baha Alzalg** is a postdoc working with the operations research group. He received his PhD in Mathematics from Washington State University in 2011, and then spent a year as a Postdoctoral Research Scholar in the Department of Electrical and Computer Engineering at the University of California Davis. His research interests include Continuous Conic Optimization (Applications and Algorithms).

The department will miss the following faculty: Dr. **Leo Franca** is now in a research

staff position at IBM Research in Brazil, Dr. **Steven Culpepper** is now an assistant professor at the University of Illinois at Urbana-Champaign, Dr. **Andrew Knyazev** is now a Distinguished Member of the Research Staff at Mitsubishi Electric Research Laboratories in Massachusetts, and **Joe Bilello** has resumed teaching high school. Additionally, former postdoc Dr. **Jonathan Beezley** is now a researcher with Meteo France and CERFACS.

In student news, **Tim Morris** is teaching in Beijing this fall as part of the aforementioned ICB program and **Jennifer Diemunsch** received the outstanding Master of Science award from the College of Liberal Arts and Science in May 2012.

The department congratulates its four new Ph.D. recipients: **Morgan Rodgers**, advised by Dr. **Stan Payne**, **Kannanut Chamsri**, advised by Dr. **Lynn Bennethum**; **Shilpa Das Gupta**, advised by Dr. **Rich Lundgren**; and **Jeff Larson**, advised by Dr. **Steve Billups**, who was awarded a postdoctoral research position at the Royal Institute of Technology in Sweden.

University of Colorado –Colorado Springs

UCCS hired full time Math Instructor **James Parmenter**. James graduated with honors in the B.S. Mathematics program at University of California, Davis, and recently completed the M.S. in Applied Mathematics at UCCS. James has a strong interest in Algebra and is a contributor to the Rings and Wings seminar in the Math dept. Also this year Dr. **Barbara Prinari** was promoted to Associate Professor with tenure.

University of Northern Colorado

We have some faculty transitions to report. **Richard Grassl** retired this summer. We are very pleased to announce two new hires. **Katie Morrison** is a new tenure-track faculty member in mathematics. She received her Ph.D. from the University of Nebraska-Lincoln and her research area is coding theory. **Nathan Lindzey** is in a lecturer position in computer science this year. He has an M.S. in computer science from Colorado State University. In other faculty news, **Anton Dzhamay** is on sabbatical leave for the academic year with a visiting appointment at Columbia University where he is working on his research in discrete integrable systems. **Michael Oehrtman** was promoted to associate professor

with tenure and **Nat Miller** was promoted to professor.

The Northern Colorado Math Teachers' Circle, an organization of middle school math teacher and professional mathematicians, is planning to launch its 2012-13 program with the inaugural dinner problem solving session on October 8th. Las Chicas de Matematicas, a residential summer math camp for mathematically-talented young women successfully ran again in June. We are gearing up for the 21st Annual UNC Math Contest for students in grades 7-12 throughout the state.

Hortensia Soto-Johnson was elected as the MAA's next associate treasurer and chair of the budget committee. She will officially take over the job on the national MAA Executive Committee in February.

University of Wyoming

Last year, we hired Drs. **Nathan Clements** and **Zhuang Niu** in the Math Department at the University of Wyoming.

Dr. Niu is a C*-algebraist who graduated from U. of Toronto, Canada, in 2006, under the supervision of Professor **George Elliot**. He was a postdoctoral fellow at the University of Oregon from 2006-2008, and held an Assistant Professorship at the Memorial University of Newfoundland in St. John for the past four years. Dr. Niu is the husband of Dr. **Rongsong Liu**, a Mathematical Biologist, who has been on our faculty since 2009.

Dr. Clements is an analyst who just finished his DA (Doctor of Arts) at Idaho State University. He was hired as our Calculus Coordinator. We are hoping that Nathan will put our Calculus program on the map, by not only developing optimal ways of delivering our 22 sections of calculus, and mentoring instructors, but by organizing workshops and conferences on Calculus in the Front Range and developing common cores.

The Summer 2013 RMMC has been scheduled. The topic for the upcoming summer will be Algebraic Graph Theory and Combinatorics. Professors **Chris Godsil** (Waterloo) and **Bill Martin** (Delaware) will be among the lecturers. Dr. **Jason Williford** (jwillif1@uwyo.edu) will be our local organizer.

Western State Colorado University

This past summer, Western State Colorado University welcomed eleven junior high school

students to participate in its first annual summer camp. The camp was held from July 23 -27, 2012 and lead by Professors **Kimberly Fix** and **Jeremy Muskat** with assistance from four undergraduates: **Marc Ditmore**, **Hanna Ensley**, **Emily Jackson**, and **Mike Stoner.** Students explored topics on cryptography, proportions, spherical geometry, the Golden Ratio, and fractals. In addition to their academic explorations, students enjoyed several outdoor activities that the Gunnison country provides. Through Western's Wilderness Pursuits program, students were able to participate in rafting, hiking, climbing, and mountain biking, just to name a few.

Western State Colorado University will be holding it second annual math camp July 22 -26, 2013. Anyone entering grades 6 through 9 are welcome to apply. For more information, applications, and scholarships please see our website:
http://www.western.edu/academics/math/math-camp

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.

10ᵗʰ Annual
Pikes Peak Regional
Undergraduate Mathematics
Conference
CSU - Pueblo
Saturday, February 23, 2013

Please mark your calendars for the next PPRUMC! The focus of this one-day conference is to give undergraduate mathematics students an opportunity to present their work in a professional, supportive setting. It is also an occasion for students to become acquainted with other students from the region, and to learn more about the mathematics profession, including graduate school and career opportunities.

The conference program will feature talks by students, a keynote speaker, and a panel discussion on careers and graduate school. Based on recent attendance, we expect several dozen student presenters and over one hundred attendees from Colorado, Wyoming and other neighboring states. There are no registration fees, lunch will be provided, and some financial reimbursement for student travel expenses will be available. A free pre-conference social event featuring pizza and games is also planned for Friday evening prior to Saturday's full-day conference.

Please begin now to encourage your students both to attend and to make a presentation. Presentation topics could include the results of classroom or independent study, as well as REU or other research projects. Both research and expository topics are welcome. Each student presenter will give a 20-minute talk. The deadline for submitting an abstract will be approximately **February 1, 2013**.

Further details and registration information will be available later this fall through a conference website. Information is also available by contacting Prof. **Janet Barnett**, janet.barnett@colostate-pueblo.edu or (719) 549 - 2540.

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

RUME Conference
February 21 – 23, 2013
Denver, CO

Are you interested in what is being discovered through cutting-edge research on teaching and learning mathematics at the collegiate level? Do you conduct research in undergraduate mathematics education? The Special Interest Group of the Mathematical Association of American on Research in Undergraduate Mathematics Education (SIGMAA on RUME) will hold its sixteenth Conference on Research in Undergraduate Mathematics Education in Denver, CO February 21-23, 2013.

The SIGMAA on RUME hosts an annual conference as part of its on-going activities to foster high-quality research in undergraduate mathematics education and the dissemination of such research. This conference is a forum for participants to share results of current research, contemporary theoretical perspectives and

research paradigms, and innovative methodologies and analytic approaches as they pertain to the study of undergraduate mathematics education. The program will include plenary addresses by current leaders in the field, and we invite individuals and collaborative research projects to submit proposals to present completed research as contributed papers.

The SIGMAA on RUME also seeks to support the development of new researchers and new research ideas and foster an interconnected research community. We encourage graduate students, new PhDs, undergraduate mathematics educators and experienced researchers to present preliminary reports on ongoing research projects in early stages of analysis. To strengthen specific areas of interest, encourage collaboration among researchers and provide further opportunities for networking and mentoring, we solicit proposals for working groups. These special research groups will meet at the start of the conference to provide opportunities for collaboration not available during the regular conference program.

Proposals for contributed and preliminary reports are due on October 8, 2012. Proposals for working groups are due on November 5, 2012. Please visit the conference website for more extensive and updated information at http://sigmaa.maa.org/rume/crume2013.

The University of Northern Colorado is serving as the host institution for this year's conference.

2013 SIAM Front Range Applied Mathematics Student Conference March 2, 2013

The SIAM student chapters of Colorado (CU Boulder, CU Denver, UCCS, Mines, CSU) will host their ninth annual regional student conference on applied mathematics on Saturday, March 2, 2013. This event will allow students from Front Range colleges and universities to present their research and learn what is being done by their peers. There will also be a special session for teams from the Mathematical Contest in Modeling to present their results. All undergraduate and graduate students are welcome.

FRAMSC will be held at the University of Colorado Denver. The keynote address will be given by Professor **Loren Cobb**, also from CU Denver. Additional information will be posted online (http://amath.colorado.edu/cmsms/index.php?page=conference) and sent to area universities later in the year.

Rocky Mountain Section NExT News

Project NExT (New Experiences in Teaching) is a national faculty development program of the MAA 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 a smaller scale, regional, 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 who are within their first five years of teaching at a two-year college, four-year college, or university within the Rocky Mountain Section of the MAA. We encourage all interested and eligible faculty members to apply!

Our next meeting for the Section NExT-RM Fellows will be part of the MAA section meeting that will be held April 26-27, 2013 and hosted by Adams State University in Alamosa, CO. 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 suggested by, and of special relevance to beginning faculty. Section NExT-RM Fellows will remain in contact with one another via an electronic network and will

continue to strengthen new ties through future annual section meetings.

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

Further information on the program will be available at http://faculty1.coloradocollege.edu/~ataylor/SectionNextHomePage.html

Look for the application for 2013 Section NExT-RM Fellows posted at this website later in the semester.

For more information, please contact members of the steering committee:

Bob Cohen (rcohen@western.edu),
Kim Fix (kfix@western.edu),
John Carter (jcarte11@msudenver.edu),
Diane Davis (ddavi102@msudenver.edu), or
Dan Swenson (Daniel.Swenson@bhsu.edu).
Diane Davis and Bob Cohen
Section NExT Co-Chairs

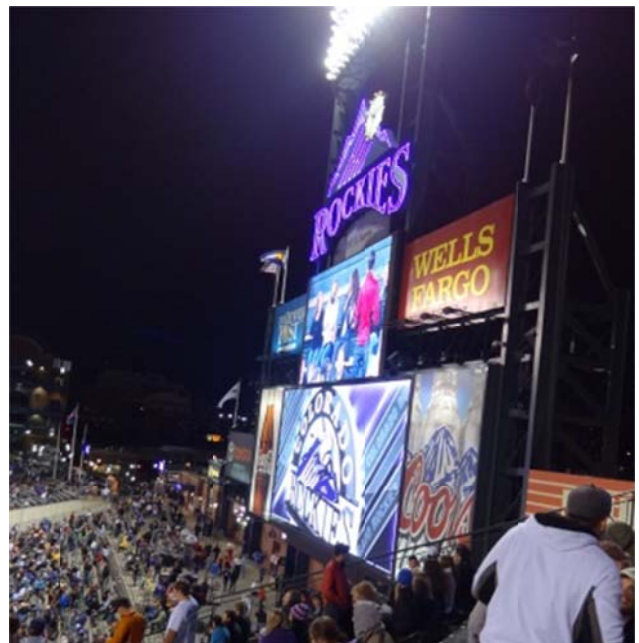## A Message from your MAA Higher Ed Liaison to the CCTM

Colorado Council of Teachers of Mathematics (CCTM) continues to provide great opportunities for both pre- and in-service teachers! Here are some important headlines from CCTM:

1) There will be no CCTM annual meeting this year, and the next CCTM meeting will be in October 2013.
2) CCTM is helping to host the NCTM national conference, which will be in Denver on April 17-20, 2013. The focus of the NCTM national conference is *Reasoning and Proof: Is it true? Convince me!* CCTM needs volunteers to help with this great event. **This is a great opportunity for pre-service teachers to volunteer and learn more about CCTM and NCTM.** Volunteers are able to register for the entire conference at the member rate, which could save you up to $76, and will get free t-shirt! Student volunteers will have an opportunity to get one free day at the conference (on the day that they volunteer). Volunteers will ask to devote a 4-hour block of their time to oversee meeting rooms or direct conference

attendees around the convention center. **For more information on volunteering contact Diane Weaver (**weavcctm@aol.com) or check NCTM website (http://www.nctm.org/conferences/forms.aspx?ekfrm=33382)

3) Colorado Council of Teachers of Mathematics (CCTM) in cooperation with Colorado Department of Education continues to present regional workshops to support teachers adapting the new Colorado Academic Standards (CAS). The fall regional workshops will be held on October 6, 2012 across the state. The focus of the workshop will be on algebra and the following key question will be addressed: **What Does Algebra (ECE-12) Look Like in the Colorado Academic Standards?** The workshop registration information and locations can be found at CCTM website: www.cctmath.org.

Walk-ins are welcome, however for food ordering purposes it would be better to register in advance.
Gulden Karakok, CCTM Liaison

Student Activities

The 2012 Rocky Mountain Section MAA meeting was certainly a rousing success. Students were well-represented at the conference, with 25 undergraduate talks and 19 graduate student talks. That accounts for more than half of the content of the parallel sessions! Students also gathered for games and lunch to kick off the conference.

Come join the fun next April 26-27, 2013 at the section meeting at Adams State University in Alamosa - start thinking now about your presentation topic!

Beth Schaubroeck, USAFA
Carl Lienert, Fort Lewis College
Section Student Activity Coordinators

Fifteen students and faculty members also attended the Rockies baseball game, though few stayed till the bitter end to see the Rockies make a late comeback against the Diamondbacks. It was cold but we had fun!

Adams State University to Host the 2013 Meeting

The 2013 Rocky Mountain Section Meeting will be held at Adams State University on April 26 and 27, 2013. Alamosa is at 7544 ft and spring weather is extremely unpredictable, be prepared for both warm and cold weather!

Details of the meeting will be forthcoming.

SESSION PROPOSAL SUBMISSIONS

An invitation to attend the meeting and contribute is extended to all mathematicians and anyone interested in mathematics, particularly mathematics teachers at all levels including middle school, high school and college, as well as undergraduate and graduate students.

We are currently inviting proposals for organizing parallel sessions and/or panel discussion topics in all areas of Mathematics. A typical session will consist of 4-9 talks of 20-25 minutes each.

Anyone interested, please submit session and panel discussion topic proposals to **Stephen Aldrich** at saldrich@adams.edu

REGISTRATION AND ABSTRACT SUBMISSIONS

Registration information will be forthcoming.

For full consideration, talk titles and abstracts should be submitted by April 5, 2013. Please submit by e-mail to **Stephen Aldrich** at saldrich@adams.edu

INVITED SPEAKERS

1) **Janet Nichols,** Colorado State University - Pueblo
       The 2012 Burton W. Jones Distinguished Teaching Award Recipient.

2) **Michael Pearson**, Executive Director of the MAA

For any questions or requests, please contact one of the Program Co-Chairs:

   Stephen Aldrich at saldrich@adams.edu

   Matt Ikle at moikle@adams.edu

2012 Section Meeting Report

The 2012 Annual Meeting of the Rocky Mountain Section of the MAA was held on April 13 and 14, 2012, at the Auraria Campus in Denver. The meeting was hosted jointly by the three institution of the Auraria campus - Metropolitan State College of Denver (MSCD) (now Metropolitan State University of Denver), University of Colorado Denver (UCD), and the Community College of Denver (CCD). The meeting organizers were **Shahar Boneh** and **John Ethier** (MSCD), **William Cherowitzo** (UCD), and **Jean Hindie** (CCD). Nearly 200 people attended the meeting, including more than 80 graduate and undergraduate students. Other participants included academic faculty members, K-12 teachers, and several members of the business and industry sector.

The meeting officially opened on Friday at 1:00 PM, with a welcome message from Mr. **Cliff Richardson**, president of CCD. The program then started with a lecture by the 2011 Burton W. Jones Distinguished Teacher Award Recipient, **Richard Bogdanovic** (Community College of Aurora), entitled '*That Will Be the Day*'. Later on Friday afternoon, Dr. **Robin Wilson** (Open University, UK) gave the Zenas Hartvigson Memorial Lecture entitled '*The Great Mathematicians*'. On Friday evening, the meeting participants enjoyed a fabulous dinner banquet at the Curtis Hotel in downtown Denver, while many of the student participants enjoyed a baseball game in Coors Field. After dinner, Dr. **Douglas Ensley** (Shippensburg University), Second Vice President of MAA gave an entertaining talk entitled '*Invariants under Group Actions to Amaze Your Friends.*'

The meeting resumed on Saturday morning with a sectional business meeting, followed by an invited talk by **Walter Stromquist**, Editor *of Mathematics Magazine* on '*The Mathematics of Three-Candidate Elections*.' The meeting concluded with another invited talk by **Michael Dorff** (Brigham Young University) entitled '*Black-Scholes, the Iron Man Suit and an Advisor to the President of the United States*'.

The contributed paper sessions on Friday afternoon and Saturday morning included more than 70 talks, many of which were given by undergraduate and graduate students. Besides the general sessions which encompassed a variety of topics, there were several specialized sessions on topics such as Combinatorics, Mathematics Education, History of Mathematics, Graduate Student Research, Undergraduate Research, Probability and its Applications, and Math Club Activities.

Other meeting activities included a workshop on Friday morning, conducted by Dr.'s **William Emerson** and **Louis Talman** (MSCD) on *Using WebWork in Mathematics Courses*, a Chair's and MAA Liasion's Luncheon, and a student social event which included lunch for students and mathematical games.

A book and software exhibit has operated throughout the meeting. We would like to acknowledge and thank the exhibitors who participated:

> **Jennifer Jaenicke** from Cengage
> **Donna DePaulis** from Pearson (Note: a different rep came to the conference)
> **Barbara Aaker**, a math teacher from CCD
> **Oliver Tillman** from McGraw-Hill
> **Zim Olson** from Zim Mathematics
> **Janet Barnett**, representing MAA
> MSCD's Women in Math Club

Finally, this meeting could not have been as successful as it was without the massive help of the faculty, staff and students of MSCD, UCD and CCD. Many thanks to all those who helped organize this event.

We also want to thank Mr. **David Romero** of the 5th Street Café for the excellent catering throughout the meeting.

Contributed Papers - 2012 Section Meeting

Π = Graduate Student
Ω = Undergraduate Student
A = High School Student

Combinatorics

Phil DeOrsey Π**,** University of Colorado Denver
What is a Bent Function?

Jennifer Diemunsch Π**,** University of Colorado Denver
Rainbow Matchings in Properly Edge-Colored Graphs

Emily Hill Ω, Metropolitan State College of Denver
Sudoku Hypercubes: Construction and Bounds

Michael Melcher Π**,** University of Colorado Denver
Monochromatic Sinks in Arc-Colored Tournaments

David Brown, Utah State University
Regularity and Biclique Cover Number of Tournaments

Rodney James, University of Colorado Denver
Riemann-Roch Theory on Finite Sets

Sarah Mousley Π, Utah State University
Estimates on the Size of the Cycle Spectra of Hamiltonian Graphs

Michael Barrus, Black Hills State University
Two-Switches and Isomorphism Classes

Tim Morris Π, University of Colorado Denver
Forbidden Subgraphs for Disjoint Matching

Sudipta Mallik Π**,** University of Wyoming
On Characterization of Graphs of Minimum Skew Rank Four

Catherine Erbes Π**,** University of Colorado Denver
A Generalization of Ramsey Numbers to Degree Sequences of Graphs

Oscar Levin, University of Northern Colorado
How (Not) to Compute Domatic Partitions of Graphs

General Session

Jason Hill Π**,** University of Colorado at Boulder
Group Theory of the Rubik's Cube

Camilo Mesa Π**,** University of Colorado at Boulder

Getzler Symbol Calculus via Deformation Quantization

Eric Quade [π], University of Wyoming
New Construction of Detonation Profiles for the Reactive Navier-Stokes Equations

Colin Day, Denver School of Nursing
Geometric Integration

Travis Kowalski, South Dakota School of Mines and Technology
The Only Multivariable Counterexample You Ever Need to Know

Mahadevan Ganesh, Colorado School of Mines
A Model Reduction Algorithm for Computational Electromagnetics

Richard Krantz, Metropolitan State College of Denver, Physics Dept.
Continued Fractions and Musical Scales

Saroj Aryal [π], University of Wyoming
Sparse Moment Sequences

Ricardo Diaz, University of Northern Colorado
The Inverse Function Theorem: A Shocking Proof

Ivan Raykov, CSU – Pueblo
Necessary Conditions for a Fixed Point of Maps in Non-Metric Spaces

Yang Zou [π], Colorado State University
Spatiotemporal Chaos Induced by In-Out Intermittency

Bradley Warner, United States Air Force Academy
Integer Sequences: Ideas about Growth Functions and Growth Limits

Mathematics Education Research

Cara Wiblemo [π], University of Wyoming
Mathematics Outreach Activities with Middle School and High School Students

Laura Stone, Front Range Community College
How to Flip Your Classroom

Travis Kowalski, South Dakota School of Mines and Technology
A Mobile-Learning Experience in the Calculus Classroom

Mona Mocanasu, Metropolitan State College of Denver
Using Clickers in Your Classroom - A Beginner's Guide

Thomas Boushell, United States Air Force Academy
Results of a Novel Approach to Building Fundamental Calculus Skills

Jerry Dwyer, Texas Tech University
Self-Determination and Perceptions of Teaching in Noyce Scholars

John Carter, Clark Dollard, Mark Koester, Patricia McKenna, James Loats, Don Gilmore

and Brooke Evans, Metropolitan State College of Denver
Using Lesson Analysis to Improve Teaching

Stephanie Anderson [π], University of Northern Colorado
In-Service High School Mathematics Teachers' Understandings & Representations of the Complex Number System

Soofia Malik [π], University of Northern Colorado
Undergraduate Students' Perceptions of Statistics Anxiety in an Introductory Statistics Course

Gulden Karakok, University of Northern Colorado
Evaluation of an Introduction to Proofs Course

Melissa Goss [π], University of Northern Colorado
Mathematical Experts' Tools and Reasoning Techniques in Constructing Proofs

Dale Peterson, United States Air Force Academy
Oral Exams: Eight Years of Experience and Evidence of Additional Learning

Robert Raish, University of Northern Colorado
Guided Reinvention of the Formal Definition of Convergence of a Sequence

Rebecca-Anne Dibbs [π], University of Northern Colorado
Metacognition in Statistics after a Traumatic Brain Injury: A Case Study

Kristel Ehrhardt, Black Hills State University
How Can We Make Mathematics Accessible to Remedial Math Students?

Steven Benoit, Colorado State University
David Anton, University of Wyoming
Proctored and Unproctored Placement Testing Tailored to Curriculum

Curtis Card and Daluss Siewert, Black Hills State University
Multi-Tiered Systems of Support in Developmental Math

Ralph Boedigheimer, United States Air Force Academy
My Biggest Bang Theory

History of Mathematics

Janet Heine-Barnett, Colorado State University – Pueblo
A Brief History of Quotient Groups

George Heine, Math and Maps
Euler and the Figure of the Earth

Robin Wilson, Open University
Euler's Combinatorics

Mike Siddoway, Colorado College
Ibn al-Haytham, Lunes and the Quadrature of the Circle

William Cherowitzo, University of Colorado Denver

What is Written over the Door of Plato's Academy?

Probability and Its Applications

Kyla Caudle, South Dakota School of Mines and Technology
Searching Algorithms Using Bayesian Updates

Ben Dyhr, Metropolitan State College of Denver
Variations of the Simple Random Walk on Z2 and Questions about Scaling Limits

Kevin Lenth π, University of Wyoming
Application of a Perturbation Method to Nonlinear Parabolic Stochastic PDEs

Roger Johnson, South Dakota School of Mines and Technology
"Toss Up" Strategies

Dan Swenson, Black Hills State University
Best Stategies in the Price is Right Showcase Showdown (and a Related Game)

Math Clubs and Student Activities

Christianna Brown, Susannah Coates, Emily Hill, Fulton Jackson, Jennifer Maxwell and Nathan Nicklas, Metropolitan State College of Denver
Metro Women in Mathematics: Empowering Women in Math

Levi Johnson π, Texas Tech University
From Grass Roots to World Wide: The Texas Tech Math & Science Club

Undergraduate Student Research

Travis Myers Ω, United States Air Force Academy
Calculating Mean Positions on the Surface of the Earth

Michael MacAndrew Ω, United States Air Force Academy
Applications of Mathematics to the Stock Market

William Fulton Ω, Regis College
Elephants: Too Few and Too Many? Modeling Population Growth and Management for Sustainability

Michael Snyder Ω, South Dakota School of Mines and Technology
Probabilities in Yahtzee

Taylor Ramsey Ω, Regis College
Symmetrical Summations Involving Nim Piles of Four

Tyler Wendell Ω, Black Hills State University
The Easy Strategy for the Lights Out! Game

James Keisel Ω, Black Hills State University
The BCS Debate

Dennis Garcia [Ω], Fort Lewis College
Predicting Baseball Outcomes using Neural Networks

Zachary Ahlers [Ω], Regis College
An Improbable Fish Tale: Assumptions in Statistical Modeling

Mary Rose Paiz [Ω], Fort Lewis College
The Geometry and Statistical Analysis of Music

William Fey [Ω], Metropolitan State College of Denver
Surfaces in Cages

Christopher Pierce [Ω], Fort Lewis College
Understanding a Falling Cat: An Exploration into Higher Dimensional Geometry and Physics

Sarah Terrill [Ω], Fort Lewis College
Jamison's Conjecture over Convex Hulls

Susannah Coates and Alees Seehausen [Ω], Metropolitan State College of Denver
Investigation and Classification of 7-Edge Polygonal Chains, Stuck Unknots and Stuck Trivial Chains

Stephen Wakefield [Ω], United States Air Force Academy
The Feasibility of Determining Satellite Composition and Orientation using Slitless Spectroscopy, Part I

Shannon Young [Ω], United States Air Force Academy
The Feasibility of Determining Satellite Composition and Orientation using Slitless Spectroscopy, Part II

Tyler Bongers [Ω], CSU - Pueblo
Optimal Transfer Orbits in 3-D Astronomical Systems

Keith Wyman [Ω], United States Air Force Academy
Modeling of Phase Conjugation by Degenerate 4-Wave Mixing in Phase Conjugate Materials

Nels Leonard [Ω], South Dakota School of Mines and Technology
Object Recognition using Tensor linear Discriminant Analysis

Casey Horgan [Ω], United States Air Force Academy
Using Greek Ladders to Approximate Roots of Monic Quadratic Polynomials

Tristan Lehmann [Ω], South Dakota School of Mines and Technology
A Strange Least Square Phenomenon

Jennifer Johnson [Ω], Black Hills State University
Generating Cwatsets from Multiple Graphs

Gerri Roberts [A], Poudre Valley High School, University of Northern Colorado
Counting Liars and Truth-Tellers

Minutes: MAA Business Meeting
Date: April 14, 2012; 8:00-8:50 am
Location: Metropolitan State College of Denver, Science Building, Room 1011

1. Daluss Siewert called the meeting to order. He requested that the agenda be rearranged slightly, as paper copies of the minutes had not been distributed yet. There were no objections.
2. Heidi Keck gave the Student Math competitions announcement for Dick Gibbs. Lynne Ipina added the Wyoming AMC competition results.
3. Daluss gave the Chair's Report. The executive committee decided to keep meeting fees the same for next year. He explained the new process for nominating someone for the national Haimo teaching award. The intent is to give nominees a longer opportunity to put together a packet. Doug Ensley clarified that not all nominees need to come from the section.
4. Beth Schaubroeck gave the student activities report. The lunch and social on Friday were well attended, although it was hard to anticipate attendance. The baseball game was also a successful outing.
5. Mike Brilleslyper reported that the newsletter was entirely electronic now and that Linda is doing a great job.
6. Doug Ensley reported the main news from the national level was a new executive director Michael Pearson. His first goal is to figure out how to not have a budget deficit. There will be staff and reorganization issues. They are currently advertising for a Deputy Director to run programs, grants and budget. There is also a search for an Associate Treasurer, which is a five year term. This person chairs the budget committee and is a "regular" person, not someone in D.C. The year 2013 is the Year of Mathematics for Planet Earth. There will be thematic sessions and events throughout the year. Sections are encouraged to consider this for local meetings. He also reported that it is as yet unknown what impact the MAA/NCTM joint statement on calculus will have. Mike Brilleslyper asked about budget issues for section officer travel. Doug explained the issue and its history. He said national believes it is important, but that it is not required in the by-laws. Michael Pearson wanted to have it reinstated but it is unknown what happened. He suggested Mike should ask someone higher in the organization.
7. Lynne Ipina led the election for the Vice Chair position. She introduced Sue Norris and directed people to the bio and statement in the packet. Sue thanked people for the opportunity to serve. She hopes to get more involvement at the community college level and believes that if people know about the organization they will join. Daluss thanked Sarah Pauley for her work as outgoing Vice-Chair. Lynne reported that the election was a unanimous vote for Sue. Daluss reminded people that next year the Chair-Elect position will be open and that Bill Cherowitzo is taking over as chair.
8. Sarah Pauley made a motion to approve the minutes from last year, Bill Cherowitzo seconded, all approved.
9. Linda Sundbye reported that the newsletter deadlines are September 15 and February 15. Only 4 paper copies are sent out, the rest are electronic.
10. Mike Brilleslyper gave the governor's report. Budget issues at the national level affect the sections, especially the lack of travel support for officers. Any ideas about how to deal with these issues can be directed to him to send to national. Doug reminded us that sections can send officers using their own funds. Mike would like a clearer picture of the national budget before using our own money.
11. Announcements:

- Daluss announced Janet Nicholls as the 2012 DTA winner
- Michael Barrus explained that there were no applicants for Section NExT this year. At the Friday meeting, the leaders decided to have a two-year fellow cycle. The original grant is over and they are looking for new funding sources.
- Next year's meeting will be at Adams State College in Alamosa.
- Gulden Karakok spoke about the upcoming national NCTM meeting in Denver and is looking for volunteers. Lynne Ipina announced that WCTM meetings have moved to October.
- Daluss reminded people that the abstract deadline for Math Fest is April 30.
- Tensia Soto-Johnson gave details on the RUME conference. The deadline for abstracts is October 8, and pointed out that there is a heavy math research component.

12. Lynne Ipina asked about the process for applying for Section NExT fellowships. Michael gave details. Doug Ensley asked about local attendance and registration figures. Bill Cherowitzo estimated 170 preregistered people with an additional 30 walk-ins.

13. Daluss brought up the DTA discussion from the executive committee meeting about splitting the DTA award into a junior and senior faculty. Bill explained the Award Committee's dilemma of trying to determine which type of person should be rewarded, when both should be honored. A younger faculty award could take pressure off making that distinction. Janet suggested the junior award could be every other year. Questions on what constitutes junior were raised. Doug Ensley suggested that it could help promote the national Alder award which uses a seven year cut off. He supported the alternate year idea.

14. Janet Barnett promoted the MAA book sales booth and reminded people that money comes back to the section. And shouldn't we be spending this money on something? Maybe more section grants? Doug Ensley suggested using money to sponsor a project NExT fellow. Asked to clarify, he said that in addition to the cost born by the institution, it costs about $2500 per fellow. The Exxon Mobile grant is done, the Dolciani funds cover 10 fellows, national has committed to find funds for 80 total.

15. A motion was made and seconded to thank MSCD, UCD, CCA and to pass the banner to Adams State. No faculty from Adams State were present so Heidi Keck took the banner.

16. Meeting was adjourned at 8:48 am.

Respectfully Submitted,
Heidi Keck, Western State Colorado University
Secretary/Treasurer of the MAA Rocky Mountain Section

2012 Executive Committee Meeting Minutes
Thursday, April 12, 2012

Minutes: MAA Rocky Mountain Section Executive Committee Meeting
Date & Time: Thursday, April 12 at 8:00 – 9:00 pm and Friday, April 13 at 10:00 – 11:30am.
Location: Metropolitan State College of Denver, Science Building, Room 1007
Attendance: Bill Cherowitzo, Daluss Siewert, Shahar Boneh, Jean Hindie, Sarah Pauley, John Ethier, Mike Brilleslyper, Heidi Keck

1. Daluss Siewert called the meeting to order. Bill Cherowitzo made a motion to accept the minutes and Mike Brilleslyper seconded the motion. There was no discussion and the minutes were accepted unanimously.
2. Daluss went through the executive committee agenda starting with the opening ceremony and banquet. Jean said that the welcoming remarks would be given by Cliff Richardson, President of CCD. Bill will introduce Robin Wilson for the Zenas Hartvigson Memorial Lecture. No Membership Anniversary Certificates were sent this year.
3. Shahar announced that Dave Ruch, MSCD department chair, would host the chair and liaison lunch. A theme for discussion was planned. The student lunch had 47 people sign up. The baseball game had 15. Tickets are still available.
4. The business meeting agenda was approved unanimously.

    (Meeting was ended at 9:00 pm to be continued at 10:00 am Friday morning)
    Attendance: Bill Cherowitzo, Daluss Siewert, Sarah Pauley, John Ethier, Mike Brilleslyper, Heidi Keck

5. Heidi gave the financial report. Mike mentioned that the PPRUMC felt the money was well spent on this activity grant.
6. Daluss spoke for the nominating committee. There is only one nomination for Vice Chair. Next year we will need to find nominees for Chair Elect. This will require some effort, and Daluss asked that people start thinking about it now.
7. Bill gave the awards committee report. There were two section awards at $750 each. There was discussion on how the activities support section goals. Bill suggested the application form should include obvious place to show MAA membership. The DTA was difficult to decide as the committee deliberated on "lifetime achievement" or "up and coming" purpose of the award. Heidi asked about the possibility of creating an early career award similar to the national award structure. Bill suggested this be brought up at the business committee meeting. Discussion followed on whether a simplified process would attract more nominations. Since the nomination process for the Haimo Award at national has changed, Bill wondered how we were going to change our process.
8. Heidi reported that Section NExT had no applicants this year and they are considering going to a two year cycle.
9. Heidi presented a request for $250 to support the Colorado Math Awards. Bill moved to accept the request, Sarah seconded, it was approved unanimously. Heidi presented a request from Janet Barnett for MAA books as student prizes. Bill moved to fund up to $100, Sarah seconded, all approved.
10. Daluss reported that National would like Sections to sponsor Project NExT Fellows at $2500 each. Discussion followed on the purpose of the funding and the state of the budget at National. The program is considered valuable by everyone. The topic will be brought up with Doug Ensley to clarify.

11. Daluss reported that support for section chairs to attend Mathfest has been cut. Mike reported that similar cuts have been made for other section officers to attend national meetings. Mike explained the budget issues that National is trying to resolve around deficit spending and reserve amounts. Both felt that without support less section officers would attend national meetings. Various cost sharing ideas have been suggested. Mike will ask this to be on the Governor's agenda at Mathfest.
12. Daluss asked if we had a policy on use of chair and liaison email lists. Heidi reported that our working policy is to not share the lists. People may send things to the secretary and have them sent out.
13. Daluss explained the new policy for Haimo nominations is to allow the nominee a year to put together a packet. Discussion followed on how we would transition to the new process. Daluss suggested that this summer (2012) the executive committee look at the past 5 years of DTA winners to find a nominee for 2013 Haimo. Our 2013 DTA winner would be part of the nomination for Haimo in 2014. Mike moved to approve this suggestion, Sarah seconded, all voted to approve.
14. Mike, Daluss, and Bill will all attend Mathfest. Mike and Bill will attend the Joint Meetings in San Diego.
15. Bill suggested that the section could be more proactive in furthering its goals. In particular, he wondered what we could do to make two-year college faculty feel more welcome. Mike would like to see the section parallel the national theme—perhaps this could be a session at the spring meeting. Heidi will try to coordinate this with Adams State for next year.
16. Daluss reports that the history of the section idea keeps coming up. Nothing seems to be happening. He has asked Janet Barnett and Jeff Berg if they would start writing, but they have not agreed yet. Discussion followed on purpose of the history.
17. Bill explained the online registration issues for the meeting registration. There is a flat $4/person charge, plus fee for credit cards. He asked if national couldn't take over this aspect. Mike and Daluss confirmed that it has been discussed. Fees for 2013 were tentatively set at the same as this year with the understanding that they could increase slightly if Adams has significant room rental fees. ($30 in advance; $35 on site; $10 students, teachers, new members, 25/50 year members; DTA nominators and awardee get free banquet and registration)
    a. 2013 Adams State University
        i. Program Chairs: Stephen Aldrich and Matt Ilke
        ii. Dates: April 26 and 27, 2013
    b. 2014 University of Wyoming (confirmed)
    c. 2015 Colorado College (tentative)
    d. 2016 Colorado Mesa University (joint with Intermountain Section, tentative)
    e. 2017
    f. 2018 Fort Lewis (tentative)

Respectfully submitted,
Heidi Keck, Western State Colorado University
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.

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.

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."

Joint Mathematics Meetings; Baltimore, MD
 January 15-18, 2014
MAA Rocky Mountain Section Meeting
 University of Wyoming; April 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

Joint Mathematics Meetings; San Diego, CA
 January 10-13, 2018

Joint Mathematics Meetings; Baltimore, MD
 January 16-19, 2019

Meetings Calendar

Joint Mathematics Meetings; San Diego, CA
 January 9-12, 2013
SIGMAA – RUME, Hosted by UNC, Denver, CO
 February 21 – 23, 2013
10th Annual PPRUMC, CSU – Pueblo
 February 23, 2013
SIAM FRAMSC, Auraria Campus,
 March 2, 2013
ICTCM, Boston, MA
 March 21-24, 2013
MAA Rocky Mountain Section Meeting
 Adams State University
 April 26-27, 2013
NCTM annual meeting; Denver, CO
 April 17-20, 2013
MAA MathFest; Hartford, CT; August 1-3, 2013

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: Heidi Keck, hkeck@western.edu
Western State Colorado University; Hurst Hall; Gunnison, CO 81231.

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: Heidi Keck, MAA Rocky Mountain Section Treasurer/Secretary: Western State Colorado University, Hurst Hall; Gunnison, CO 81231

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.