



# FALL 2016 NEWSLETTER

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

**Fall 2016 Newsletter in PDF Format for Printing**

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# Table of Contents

<b>Fall 2016 Newsletter in PDF Format for Printing</b> .....	1
<b>Table of Contents</b> .....	2
<b>2016 - 2017 Section Officers and Committee Members</b> .....	4
<b>Hortensia Soto-Johnson from the University of Northern Colorado named 2016 Distinguished Teacher</b> .....	6
<b>Rebecca Swanson from the Colorado School of Mines awarded the first annual 2016 Early Career Teaching Award</b> .....	6
<b>2017 Distinguished Teaching Award Call for Nominations</b> .....	7
<b>2017 Early Career Teaching Award Call for Nominations</b> .....	7
<b>Past Burton W. Jones DTA Recipients</b> .....	8
<b>Past Early Career Teaching Award Recipients</b> .....	8
<b>Chair's Report</b> .....	8
<b>Governor's Report</b> .....	9
<b>21<sup>st</sup> Annual Colorado Mathematics Awards Ceremony/Reception</b> .....	9
<b>14<sup>th</sup> Annual PPRUMC Colorado College</b> .....	10
<b>Saturday, February 25, 2017</b> .....	10
<b>Section News</b> .....	11
<b>Colorado School of Mines</b> .....	11
<b>Metropolitan State University of Denver</b> .....	12
<b>South Dakota School of Mines and Technology</b> .....	12
<b>University of Colorado at Boulder</b> .....	12
<b>University of Colorado Denver</b> .....	12
<b>University of Wyoming</b> .....	13
<b>RMS Members invited to Make (Use of ) History with TRIUMPHS</b> .....	14
<b>Section Nominating Committee Report</b> .....	15
<b>Colorado Council of Teachers of Mathematics (CCTM) News</b> .....	16
<b>Colorado State University - Pueblo to Host the 100<sup>th</sup> Anniversary Meeting of the Rocky Mountain of the MAA April 21-22, 2017</b> .....	17
<b>Student Activities</b> .....	18
<b>13<sup>th</sup> Annual Pikes Peak Regional Undergraduate Mathematics Conference Report</b> .....	19
<b>PPRUMC Contributed Papers</b> .....	20
<b>2016 Section Meeting Report</b> .....	21
<b>Contributed Papers - 2016 Section Meeting</b> .....	21
<b>Classroom Innovations</b> .....	21
<b>Mathematics Education</b> .....	21
<b>Dynamical Systems</b> .....	22
<b>The History of Mathematics and Poincare's Other Conjecture</b> .....	23
<b>Regional Mathematics Experiences in Business, Industry and Government (BIG)</b> .....	23
<b>Inquiry-Based Learning Methods in the Classroom</b> .....	24
<b>Teaching Modeling across the Curriculum: Mathematical Biology Labs for the Math Classroom</b> .....	24
<b>General Contributed Paper Session</b> .....	24
<b>Graduate Student Paper Session</b> .....	25
<b>Student Paper Session</b> .....	26
<b>2016 Business Meeting Minutes Saturday, April 9, 2016</b> .....	28
<b>2016 Executive Committee Meeting Minutes Thursday, April 7, 2016</b> .....	30

<b>MAA Rocky Mountain Section Suggestions for Speakers</b> .....	32
<b>Grants Available</b> .....	33
<b>Section Activity Grants Available</b> .....	33
<b>Student Recognition Grants Available</b> .....	33
<b>About Our Logo</b> .....	34
<b>Meetings Calendar</b> .....	34
<b>Burton W. Jones Award Nomination Form</b> .....	35
<b>Early Career Teaching Award Nomination Form</b> .....	36
<b>Voluntary Section Dues</b> .....	39
<b>MAA Rocky Mountain Section Voluntary Dues Contribution Form</b> .....	39
<b>MAA Rocky Mountain Section Mission Statement</b> .....	40

# 2016 - 2017 Section Officers and Committee Members

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

## Section Executive Committee Officers for 2016 – 2017

<b>Chair</b>	Mike Jacobson University of Colorado Denver Denver, CO 80217	michael.jacobson@ucdenver.edu 303-315-1708
<b>Past Chair</b>	Kyle Riley South Dakota School of Mines and Technology Rapid City, SD 57701	kyle.riley@sdsmt.edu 605-394-2471
<b>Vice-Chair</b>	Shawna Mahan Pikes Peak Community College	shawna.mahan@ppcc.edu 719-502-3268
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<b>Program</b>	Janet Barnett CSU - Pueblo	janet.barnett@csupueblo.edu 719-549-2540

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## Other Committee Members and Representatives

### Section Nominating Committee

Gus Greivel (Chair), Colorado School of Mines	ggreivel@mines.edu
Bruce Lundberg, CSU-Pueblo	bruce.lundberg@csupueblo.edu
Gulden Karakok, University of Northern Colorado	gulden.karakok@unco.edu

### Awards Selection Committee

Kyle Riley, (Chair), SDSMT	kyle.riley@sdsmt.edu
Shawna Mahan, PPCC	shawna.mahan@ppcc.edu
Hortensia Soto-Johnson, UNC	hortensia.soto@unco.edu
Carl Leinert, Fort Lewis College	lienert_c@fortlewis.edu

### Section Student Activity Coordinator

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### Higher Education Representative on CCTM Governing Board

Erica Hastert, Early College of Arvada	ehastert@ecarvada.org
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### Section Book Sales Coordinator

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### Section NExT Committee

Rebecca Swanson, Colorado School of Mines	swanson@mines.edu
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**Hortensia Soto-Johnson  
from the  
University of Northern Colorado  
named  
2016 Distinguished Teacher**

The MAA Board of Governors established Section Awards for Distinguished College or University Teaching, in 1991, in order to recognize excellence in mathematics teaching at the post-secondary level. The Rocky Mountain Section Award is named in honor of Burton W. Jones, who was a lifelong advocate of excellence in teaching and supporter of the members and programs of the MAA. In addition to receiving a plaque and a check, award recipients deliver the opening address at the following year's spring Rocky Mountain Section MAA 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). Awardees are expected to be outstanding teachers, widely recognized both within and beyond their institution for extraordinary success in teaching mathematics.

The 25<sup>th</sup> recipient of the Burton W. Jones Distinguished Teaching Award is Hortensia Soto from the University of Northern Colorado. As noted in the nominating package, Dr. Johnson has exhibited enormous success educating learners ranging from K-12 students, pre-service teachers, undergraduate mathematics majors, in-service mathematics teachers to graduate students. The breadth of the university courses that Tensia has taught range from Calculus through Graduate Complex Analysis. She is known for looking at ways to challenge her students in order to push them to their best while helping them to make connections between course content and their future work, whether it be as mathematicians or mathematics educators. Regardless of whom she teaches, she infuses high level of content through carefully designed lessons, activities and projects. Her ultimate teaching goal is to challenge the learners to achieve their best. As one of her student states, "I like that I was challenged and Dr. Soto pushed me to do my best." Of special note is her work with Las Chicas de Matematicas, an outreach program she runs for high-school girls. There, she exposes her Chicas to high level

of mathematics while encouraging them to become life-long mathematics learners. Dr. Soto's impressive record of teaching at all levels is a tribute devotion to the profession and commitment to mathematics learning and instruction. Special thanks to **Gulden Karakok** for the time and effort she devoted to preparing the nomination documentation for Professor Soto.

*Mike Jacobson  
Chair, Awards Committee of the RMS-MAA*

**Rebecca Swanson  
from the  
Colorado School of Mines  
awarded the first annual  
2016 Early Career Teaching  
Award**

In 2015, the Rocky Mountain Section approved a new teaching award, in order to recognize faculty early in their career. The award was inspired by the National MAA, Henry Adler Award, which has been active since 2004. The establishment of this award affords the section the opportunity to recognize faculty members that are MAA members, teaching at Rocky Mountain Sections Institutions of Higher Education and are early in their career. The section sees this as a wonderful companion to the section Distinguished Teaching Award.

The 1<sup>st</sup> recipient of the Rocky Mountain Section of the MAA – Early Career Teaching Award is Rebecca Swanson from the Colorado School of Mines. Dr. Swanson has taught courses ranging from Calculus to a graduate level course in Applied Topology, consistently earning high student evaluations. Dr. Swanson is a Project NEXT fellow and participated in workshops and meetings relating to pedagogy and teaching. In the very short time that she has been at Mines, Rebecca has been able to initiate several curriculum development projects and has served in important leadership roles related to teaching. She is the co-creator and co-advisor of the Society for Women in Mathematics (SWiM) at Mines was awarded the Martin Luther King Jr. Award for her efforts in mentoring women in mathematics. Additionally, Dr. Swanson already has a national outreach presence as an invited member of the MAA Council on Outreach and as a mathematician in residence for three summers

at the Summer Math Program for Women held at Carleton College. These activities indicate Professor Swanson's strong commitment to student learning, and enhancing their mathematics experience. Special thanks go to **Willy Hereman** for the time and effort he devoted to preparing the nomination documentation for Professor Swanson.

**Mike Jacobson**

**Chair, Awards Committee of the RMS-MAA**

**2017**

## **Distinguished Teaching Award Call for Nominations**

Each year since 1992, 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 is eligible to be 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 \$100\* check. All nominators also receive a certificate of 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 **15 December 2016**. **Complete nomination materials** (described on the website) are due **15 January 2017**.

**2017**

## **Early Career Teaching Award Call for Nominations**

The Rocky Mountain Section of the MAA approved in 2015 a new teaching award for faculty early in their career. The award was

inspired by the Henry Adler Award, which has been active at the national level since 2004. We hope to use this section program as an opportunity for recognition for faculty members that are early in their career and this program makes a wonderful companion to the section Distinguished Teaching Award. To be eligible the candidate must:

- Hold a doctorate degree
- Be college or university teachers who have held a full-time faculty appointment in a college department of mathematical sciences in the Rocky Mountain Section for at least two, but not more than seven, years since receiving the doctorate. A nominee who has just started the eighth year of teaching at the time of the application is still eligible for the award. If a nominee has held his or her doctorate for more than seven years, then the nominator must indicate on the nomination form the times that the nominee was not teaching. Common exceptions to the 7-year limit are maternity, paternity, family, or medical leaves. Sabbaticals and postdoctoral fellowships are exceptions only if they involved no teaching and the application does not include accomplishments made during these times.
- Hold membership in the Mathematical Association of America

Nominees should be recognized for excellence in teaching at the undergraduate level and have a demonstrated influence outside their own classrooms. The award includes a small cash prize and a plaque, plus the person will also be recognized at the next section meeting. This is an excellent opportunity for you to get recognition for the excellent teachers in your department and also for the mathematics community to recognize the teaching contributions people can make early in their career.

Complete nomination guidelines and the one-page nomination form are included in this newsletter. 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 **15 December 2016**. **Complete nomination materials** (described on the website) are due **15 January 2017**.

## 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 University of Denver
- 1996 Zenas Hartvigson  
University of Colorado Denver
- 1997 Thomas Kelley  
Metropolitan State University 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 University 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 Marlow Anderson  
Colorado College
- 2014 Anne Dougherty  
University of Colorado at Boulder
- 2015 Janet Barnett  
Colorado State University – Pueblo

- 2016 Hortensia Soto-Johnson  
University of Northern Colorado

## Past Early Career Teaching Award Recipients

- 2016 Rebecca Swanson  
Colorado School of Mines

## Chair's Report

Greetings Rocky Mountain MAA Sectioners - I have been thinking quite a bit about a message that I would like to include as part of my first Chair's Report. And since it is my first, I would like to start off thanking **Kyle Riley** for his leadership over the last several years and guidance, as I look to take on this role. I look forward to working to continue to move the section ahead – and find ways to encourage an active dialogue in the section of improving mathematics and mathematics education across all grades.

As it seems to always happens; there's Mathfest, in August, and then the whirlwind of the start of the semester begins to build, and here it is five weeks into the semester. This year Mathfest was in Columbus Ohio, personal observation – it was very hot (and humid) outside and COLD (too cold) inside. But that chill kept everyone awake during a wonderful range of talks, including many about innovative approaches to improving undergraduate mathematics instruction, hopefully leading to improved student learning. I won't give specifics, but a highlight for me was that **Art Benjamin** (the math magician – google it!!) organized a wonderful session on Mathematics and Magic.

As a way to continue the interest of exploring ways to improve student learning, I want to inform everyone about a continued quest by the White House - through its Office of Science and Technology Policy to try to encourage faculty in the STEM disciplines to use High Impact Practices and Active Learning, in particular. Here's some information about **ActiveLearningDay** which will take place on **Tuesday, October 25, 2016**.

<https://www.whitehouse.gov/blog/2016/09/09/honoring-nations-leading-science-and-mathematics-teachers-and-announcing-active>

I'm happy to pass this information on, and hope that you read about ActiveLearningDay and even take the "pledge" to employ creative active learning approaches to instruction in your classes on the 25th.

I hope that you are all looking forward to the Rocky Mountain Section's 100<sup>th</sup> anniversary meeting **April 21–22, 2017**, at Colorado State University Pueblo, which should be one that will meet the excitement of such a prestigious event.

Respectfully submitted,

**Michael Jacobson, UC Denver**  
**Chair, Rocky Mountain Section**

## Governor's Report

At the Board of Governor's meeting in Columbus, Ohio, the board voted unanimously to approve the new Bylaws for the MAA. With possibly minor editing, the Bylaws will be submitted to the membership for a final vote at the Business Meeting of the MAA at the Joint Math Meetings in Atlanta, GA in January of 2017. All members of the MAA will be allowed to vote at the Business Meeting and a two-thirds majority is required to make changes in the Bylaws. The Articles of Incorporation for the MAA are under the Illinois Act of 1986 and reflect what lawyers feel best meets a minimal bare-bones approach that still meets the legal requirements of Illinois. For example, the Congress established under the Bylaws will contain a representative from each section but no mention is made for representatives to represent special interests such as minorities, industry, high school etc. In fact, the current Bylaws do not mention Governors for these special interests either. I am hoping that the Bylaws will be available for members to consider before the JMM. I've heard that there will be material in the fall Focus magazine about these issues. We will be electing a new Governor for the Rocky Mountain Section this spring but this person will become a member of the Congress under the new Bylaws (assuming they pass at the Business Meeting). Current plans are for the Congress to meet twice a year at Math Fest and at JMM, just as the Board of Governors does currently.

One interesting bit of information came out during the Board meeting in August: over forty percent of the MAA membership is over the age of 60. I would like MAA members at all of our

institutions and elsewhere to encourage younger people to become members. Increasing and sustaining membership is an important facet of the MAA maintaining a healthy future.

Respectfully submitted,

**Bill Emerson, MSU Denver**  
**Governor, Rocky Mountain Section**

## 21<sup>st</sup> Annual Colorado Mathematics Awards Ceremony/Reception

Reception/Ceremony was held on Tuesday, May 17 at the Grant-Humphreys Mansion in Denver. Organized by **Dick Gibbs**, Emeritus Professor of Mathematics at Fort Lewis College, and **David Carlson**, adjunct faculty of the Josef Korbel School of International Studies at the University of Denver and the Iliff School of Theology, the event recognized Colorado students and teachers from junior and senior high schools, and colleges and universities in Colorado for outstanding performances on eight national and international mathematics competitions: MATHCOUNTS, the American Mathematics Contests 8, 10 and 12, the high school team Moody's Mega Math Challenge, the William Lowell Putnam Mathematical Competition, the collegiate team Mathematical Contest in Modeling, and Interdisciplinary Contest in Modeling. The fifteen members of the Colorado American Regions Mathematics League high school team were also recognized.

We were very pleased and honored to have Colorado First Lady **Robin Pringle Hickenlooper**, give the opening remarks.

The AMC 8, AMC 10, AMC 12, and Putnam Competitions are sponsored programs of the national MAA, which also provides support for MATHCOUNTS and the Mathematical Contest in Modeling (MCM).

The Rocky Mountain Section of the MAA is an educational sponsor of the Colorado Mathematics Awards. Section Governor, Professor **Bill Emerson** was on hand to recognize Prof. **Hortensia Soto-Johnson**, recipient of this year's Burton W. Jones Teaching Award and Prof. **Rebecca Swanson**, recipient of this year's Early Career Teaching Award. Section Chair, **Mike Jacobson** was present to hand out the collegiate awards.

Special thanks to **Silva Chang** from Boulder for maintaining CMA information on her website:

[cma.coloradomath.org](http://cma.coloradomath.org). Pictures of this year's event (and of prior years) can be found there.

Colorado student teams excelled in this year's Mathematical Contest in Modeling and Interdisciplinary Contest in Modeling.

Of the 7,421 teams participating in this contest, only thirteen received the top "Outstanding" designation. One of them was the CU-Boulder team:

**Jordan Deitsch, Matthew Hurst, and Nathan Yeo**, coached by **Prof.'s Bengt Fornberg and Anne Dougherty**.

(Note: this same team was one of nine awarded an Outstanding designation in the 2015 MCM!)

Of the 5,025 teams participating worldwide in the Interdisciplinary Contest in Modeling, only fourteen received the top "Outstanding" designation. One of them was the CU-Denver team:

**Robert Lewis, Samuel Loos, and Lawrence Pelo**, coached by **Prof. Gary Olson**.

Students from 11 Colorado colleges and universities participated in the William Lowell Putnam Mathematical Competition. There were two Colorado students among the top 500 scorers:

**Samuel Reinehr** from CSM coached by **Professors Rebecca Swanson and Steve Pankavich** and **Gavin Stewart** from the CSU coached by **Professor Henry Adams**.

Special thanks to the CMA Steering Committee for identifying and recognizing these outstanding young mathematicians and their faculty. And thanks to the MAA Rocky Mountain Section for supporting the Colorado Mathematics Awards these many years.

Plans are already under way for the 22<sup>nd</sup> Colorado Mathematics Awards Reception/ Ceremony to be held again at the Grant-Humphreys Mansion on Thursday, May 18, 2017.

**Dick Gibbs**

*Emeritus Professor of Mathematics  
Fort Lewis College*

**14<sup>th</sup> Annual PPRUMC  
Colorado College  
Saturday, February 25, 2017**



Mark your calendars now 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.

Pending funding, there will again no registration or lunch fees for the conference; financial reimbursement for student travel expenses may also be available. However, the NSF grant to the MAA which previously provided the majority of funding for PPRUMC has officially ended. The PPRUMC Steering Committee, together with the Rocky Mountain Executive Committee, is therefore exploring a variety of fundraising options to support this wonderful student opportunity. **If you have suggestions regarding potential financial contributors or if you would like to personally make a donation in support of PPRUMC, please contact:**

**Michael Penn**

[michael.penn@coloradocollege.edu](mailto:michael.penn@coloradocollege.edu).

**In the meantime, please begin now to encourage your students both to attend and to make a presentation!** Presentation topics could include the results of class-room 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, 2016.**

**Conference Program will include:**

- Friday evening activities organized by the CC chapter of SIAM:
  - Pizza
  - Games
  - An Integration Bee
- A keynote speaker
- Student presentations
- A panel discussion on careers and graduate school

**Organizing Committee:**

**Michael Penn** – Colorado College  
[michael.penn@coloradocollege.edu](mailto:michael.penn@coloradocollege.edu)

**Stefan Erickson** – Colorado College  
[stefan.erickson@coloradocollege.edu](mailto:stefan.erickson@coloradocollege.edu)

## **Funding Arrangement between RMS and PPRUMC**

**Section membership approves funding arrangement between RMS and PPRUMC: Make your tax deductible donation to PPRUMC now!**

As a means to enhance the long-term financial stability of PPRUMC, the RMS membership approved a financial arrangement in April 2016 that will establish a mechanism independent of the host institution for processing institutional/business sponsorships and private donations to PPRUMC. In this arrangement, the PPRUMC Steering Committee will continue to be responsible for conference fund-raising by seeking donations from a variety of sources. However, the donations themselves will be made payable to the Rocky Mountain Section, and clearly designated to support only costs associated with PPRUMC. Because of the status of the MAA-RMS as a non-profit organization, all private donations to PPRUMC will thus be tax deductible. Any unspent funds on deposit with RMS following each year's PPRUMC will then roll forward for use when it is needed in the future. In the unhappy event that PPRUMC should ever discontinue operation, any funds remaining on deposit would be released into the general operating budget of the Rocky Mountain Section. The PPRUMC Steering Committee is grateful to the Section and its memberships for supporting the continued welfare of the conference by approving this financial arrangement.

**Individuals and institutions interested in making a donation to RMS in support of PPRUMC should contact**

[janet.barnett@csupueblo.edu](mailto:janet.barnett@csupueblo.edu).

## **Section News**

### **Colorado School of Mines**

Mines has a new department head, a new assistant professor, and a new teaching faculty. Descriptions below. There is also a new grant description and a description of the MAA award—which I'm sure you know about.

**Gregory Fasshauer**  
Professor and Department Head, Applied  
Mathematics and Statistics  
PhD Vanderbilt University

Fasshauer spent the last 19 years at the Illinois Institute of Technology in Chicago, where he was a professor and associate department chair of applied mathematics. While there, he helped create an environment for excellence in teaching and learning as the Director of Undergraduate Studies in the Applied Math Department and as a Distinguished Teaching Fellow of the College of Science. Fasshauer holds Diplom and Staatsexam degrees in mathematics and English from the University of Stuttgart in Germany, as well as a MA and PhD in mathematics from Vanderbilt University. Fasshauer also spent two years as a visiting assistant professor in the mathematics department at Northwestern University. Fasshauer's research interests lie in computational mathematics with a particular focus on the theory and applications of kernel-based approximation methods.

**Karin Leiderman Gregg**  
Assistant Professor, Applied Mathematics  
and Statistics  
PhD University of Utah

Karin Leiderman joined the faculty as an assistant professor in the Department of Applied Mathematics and Statistics. She worked as an assistant professor of applied mathematics in the School of Natural Sciences at the University of California Merced for the past four years. Prior to joining the faculty at UC Merced, she was a visiting assistant professor in the Department of Mathematics at Duke University and received her PhD in mathematics from the University of Utah. For her PhD thesis, she developed a spatial-temporal mathematical model of the formation of blood clots under flow and was awarded the SIAM student paper prize for this work. For her postdoc, she worked to develop numerical methods for fluid/structure interaction problems involving low Reynolds number and porous media flow. Leiderman's research aims at understanding biological systems through the use of mathematics, mathematical modeling and numerical computation. She also has general interest and expertise in computational modeling of blood clotting, biological fluid dynamics, biomechanics, biochemistry, flow through porous materials and scientific computing.

**Ashlyn Munson**  
Teaching Associate Professor, Applied  
Mathematics and Statistics  
PhD Colorado School of Mines

Munson completed her PhD in statistics at Mines, with a focus on efficient methods of case-control sampling under the advisement of Dr. William Navidi. She spent the last seven years as an assistant professor in the mathematics department at Pacific Lutheran University in Tacoma, Washington, where she advised the statistics minor within the natural sciences. While at PLU, her research efforts mainly focused on the assessment and development of new curriculum methodology in the STEM disciplines.

The following are our grant announcements: Assistant Professor **Stephen Pankavich** (PI) and Professor **Barbara Moskal** will coordinate a \$300,000, three-year grant from the National Science Foundation to enrich the Mines AMS doctoral program.

Teaching Associate Professor **Rebecca Swanson** is the recipient of the first annual 2016 Early Career Teaching Award from the Rocky Mountain Section of the Mathematical Association of America (MAA).

### **Metropolitan State University of Denver**

**Jim Loats, George Donovan** and **Jean Ethredge** retired last spring.

**Ben Dyhr, Mark Koster** and **Wieying Zhu** were tenured and promoted to Associate Professor.

The Department welcomes new faculty in applied mathematics **Brendan Fry** and **Henricus Bouwmeester**.

Three Metro students competed in COMAP's Mathematical Contest in Modeling: **Cody Griffith, Danielle Compton, and Charles Tucker**. They earned a 'Meritorious Winner' for their solution in 2016 (top 10% of solutions to problem A). Advised by Metro faculty member, Dr. **Shelley Rohde**.

### **South Dakota School of Mines and Technology**

Our university President managed to get a significant boost in funding this year to elevate student success in mathematics on our campus. As a consequence, we have two new people added to the faculty: **Tristin Lehmann** and **Roben Rudy-Hinker**. Both are alumni of the university with Tristin returning with her graduate degree from South Dakota State University and she also served as an instructor for SDSU at their satellite campus in Pierre. Roben was a part-time

instructor last year and has accepted a position as a full-time instructor this year. If we can manage to build a convincing program of promoting student success in mathematics then there is a good chance the state will let us retain the funding as a permanent component of our budget. The department also hired Dr. **Lisa Rebenitsch** for our Computer Science position to replace Dr. Logar who retired last May. Dr. Logar has returned to work for us this fall, but her real target is getting Rapid City ready to host the World Finals of the International Collegiate Programming Contest (ICPC) next May. We are very excited to have the ICPC coming to town next year and it will be a very exciting year.

### **University of Colorado at Boulder**

The University of Colorado, Boulder, has just been awarded an NSF grant to study the implementation of sustainable active learning strategies in the sequence of courses Precalculus, Calculus 1, and Calculus 2. This \$3,000,000, five-year award is a collaborative grant involving UCB, the University of Nebraska, San Diego State University, and the APLU. **Rob Tubbs** is the UCB PI with co-PIs **David Grant** (Math) and **David Webb** (School of Education). The awardees first will study and document the characteristics of six departments that are already employing sustainable active learning strategies in the Precalc-Calc 2 sequence, including UCB. They will then solicit applications from, and award funding to, up to nine other institutions to support their attempts to introduce active learning into Precalc-Calc 2 in a sustainable way. A major focus of the grant is to study how these nine institutions adapt to accommodate these changes.

### **University of Colorado Denver**

With the beginning of the Fall semester, the Department of Mathematical & Statistical Sciences welcomes **four new hires**:

**Erin Austin** - Assistant Professor - received his PhD in Biostatistics with an emphasis in statistical genetics from the University of Minnesota in 2014 and completed a postdoctoral fellowship at the Mayo Clinic College of Medicine prior to joining UC Denver. His research focuses on developing novel penalized regression dependent statistical tools and methodologies to advance risk assessment and classification, genome region

analysis, and the discovery of unknown subpopulations.

**Steffen Borgwardt** - Assistant Professor - received his PhD in 2010 from TU Munich and completed his habilitation in 2015. He works in optimization and operations research. His favorite application is the redistribution of farmland, for which he headed a government project in Bavaria, Germany. The joint work on this project was recognized by the European Excellence in Practice Award 2013. Steffen is a Humboldt fellow and held visiting positions at TU Braunschweig and UC Davis before coming to Denver. He has nine years of teaching experience and received several teaching awards.

**José Mijares palacios** – Instructor - received his PhD in 2007 from the Central University of Venezuela under the guidance of Stevo Todorčević and Carlos Di Prisco. He was a Postdoctoral Scholar and Teaching Assistant Professor at the University of Denver and has taught at universities in Venezuela and Colombia. The main focus of his research is Topological Ramsey Spaces and is primarily interested in connections between Ramsey Theory, Set Theory, Topology, Analysis and Combinatorics and connections to Constraint Satisfaction Computational Problems.

**Mehdi Nikipour**- Instructor - earned his Ph.D. degree in *Function-Theoretic Operator Theory* under the supervision of Dr. Željko Čučković at the University of Toledo, he also has an M.Sc. in Theoretical Physics from Shiraz University, Iran and a B.Sc. in Electrical Engineering from the University of Tehran, Iran. Mehdi has more than ten years of teaching experience to an extremely diverse student body in terms of academic preparations, interests, and ethnicity background, in three countries, including the USA. Mehdi also had the opportunity to be part of the training program to prepare the Iran International Mathematics Olympiad Team (1996-1998), and the Shiraz University team for the Iran National Mathematics Competition for university students (1999-2000).

**Awards:** Professor **Julien Langou** with coauthors won the SIAM Activity Group on Supercomputing - *Best Paper of the Year Award* - for their paper "Communication-Optimal

Parallel and Sequential QR and LU Factorizations"

Lead by faculty advisor: **Gary Olson**, a team of undergraduates: **Robert Lewis**, **Samuel Loos**, and **Lawrence Pelo**, submitted one of the five (out of 3209 submissions) *outstanding papers* for the CoMAP Interdisciplinary Contest in Modeling.

**Meetings;** For the third consecutive year, the SIAM Front Range Student Conference was hosted by our Student Chapter on March 5, 2016 and plans are being made for the 2017 meeting also to be hosted spring 2017 at CU Denver.

Finally, this year the department is looking to **hire a replacement** for long-time faculty member **Lynn Bennethum**, who has taken a Professorship at Washington State University. The department will be searching in Applied/Computational Mathematics.

### **University of Wyoming**

Professors **Sylvia Hobart** and **Chanyoung Shader**, and Lecturer **Cyndi Vandais** retired, and their contributions to the department were honored by the department at a reception in May.

**Eric Quade** (PhD, University of Wyoming) started as a new Assistant Lecturer in Fall 2016.

**Tyrrell McAllister** (PhD, UC-Davis) and **Zhuang Niu** (PhD, University of Toronto) were tenured and promoted to the rank of Associate Professor.

The department is deeply involved in two major infrastructure grants. Professors **Myron Allen** and **Greg Lyng** are leading the effort on the Front Range Applied Mathematics Exchanges & Workshops (FRAMEWORK) project. The goal of the project is to transform doctoral training in the mathematical sciences by incorporating writing, presentation, and research activities that provide Ph.D. students with marketable skills and technical tools to further their non-academic career opportunities. Notably the project will leverage complementary resources at both the University of Wyoming (UW) and the Colorado School of Mines (CSM), to sustainably expand capacity, support enriched, non-academic and academic experiences for students, and allow trainees to participate in broadening activities early in their graduate careers, saving later years for intensive work on dissertation projects. The project started off this summer with a boot camp

in August that helped prepare incoming graduate students for their first year of course work.

Professors **Lynne Ipin** and **Dan Stanesco**, along with Professor **Ruben Gamboa** of UW's Computer Science Department, lead the NSF funded *CS 10K: Beauty and Joy, Adapted and Adopted: Building a Computational Teaching Cadre* from within Wyoming Schools grant. The goal of the project is to bring AP Computer Science Principles (AP CSP) to students throughout Wyoming. Over the summer, teachers were introduced to the Snap! programming language and its development environment, and the details of preparing students for the AP CSP examination. Further PD opportunities will take place throughout the school year in the form of one-on-one peer mentoring and online teacher circles. Similar activities will occur each of the next two years.

UW hosted the Rocky Mountain Mathematics Consortium Summer School from June 12 to June 17. The invited speakers, **Don Estep** (Colorado State University), **John Shadid** (Sandia National Laboratories), **Ciprian Crainiceanu** (John Hopkins University) and **Armin Schwartzman** (University of California, San Diego) provided the couple of dozen graduate students and faculty with a general overview, as well as a glimpse at the forefronts of Functional Analytic and Statistical Methods in Error Prediction with Applications. Slides from the lectures are available at

<http://www.mgnet.org/~douglas/math/rmmc2016.html>

The workshop was organized by Professors **Victor Ginning**, **Ekaterina Smirnov** and **Farhad Jafari** of UW. The 2017 RMMC Conference tentatively scheduled for mid-June 2017 will be on Boolean Function and their Applications. Principal speakers have been contacted but we do not have confirmations at this stage.

The Rocky Mountain-Great Plains Graduate Research Workshop in Combinatorics was held July 17-29 at the University of Wyoming. Experienced graduate students and postdocs from all areas of combinatorics worked in collaborative groups with faculty and postdocs on research problems from across the discipline the workshop also included professional development workshops to prepare students and postdocs for the job hunt and their transition to academia or industry. UW's Professors **Tyrrell McAllister** and **Jason Williford** were the local organizers.

UW will host the 24th West Coast Operator Algebra Seminar on the weekend of Oct 15–16, 2016. **Zhuang Niu** is organizing this meeting.

### **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. [sundbyel@msudenver.edu](mailto:sundbyel@msudenver.edu)

## **RMS Members invited to Make (Use of) History with TRIUMPHS**

As mathematics instructors, it seems natural for us to try to provide students with clear and precise presentations, both in our teaching and in the textbooks we select. But just as water filtration, intended to remove impurities, can remove healthy minerals and interesting tastes, efforts to remove potential impediments to learning can strip a subject of its context, motivation and direction. One means of restoring these ingredients is to go back to the source from which the subject originally sprang .... precisely what the *Transforming Instruction in Undergraduate Mathematics via Primary Historical Sources* (TRIUMPHS) project aims to do!

A national, seven-university collaboration, TRIUMPHS has been awarded funding from the NSF to develop, test, and evaluate classroom materials based on primary sources for teaching undergraduate mathematics courses ranging from pre-calculus and elementary statistics to abstract algebra, analysis and topology.

These materials will allow instructors to replace standard classroom lectures on core topics with "primary source projects" (PSPs) that directly engage students with the mathematics they are studying. Each PSP will focus on a particular mathematical concept or procedure as it was developed by a historic mathematician. Students read source documents by the original author, and through a series of exercises that are woven throughout the project, develop a fuller understanding of the mathematics they are studying as they react to the historical source, organize their thoughts about the mathematical ideas in the source, and rediscover groundbreaking ideas for themselves.

With two of the team's PIs residing in our section - **Janet Barnett** (CSU-Pueblo) and **Diana**

**White** (CU Denver) - RMS faculty are especially well-placed to participate in the site-testing opportunities that the grant will provide. Additionally, **Dave Ruch** (Metro) will be developing and testing several Analysis projects as an external author for TRIUMPHS. The TRIUMPHS team also plans to offer a second training workshop for faculty and graduate students in Denver. Our first workshop held at CU Denver on September 8-10, 2016 was a tremendous success!

Other members of the TRIUMPHS PI team teach at Central Washington University, Florida State University, New Mexico State University, Ursinus College in Pennsylvania, and Xavier University in Ohio. The team received a total of \$1.25 million from the NSF, most of which will be used for the project's evaluation-with-research and faculty training components.

**Mathematics instructors at all RMS universities and colleges are cordially invited to collaborate with the TRIUMPHS team by site-testing projects developed by its authors in your own classrooms, or by working with a grant team member to develop a project of your own.** Site tester support available now through the end of the grant in August 2020 includes a small stipend, as well as travel funds for a consultation visit to one of the PI sites, or to have a grant team member visit your home institution.

For more information, please contact [janet.barnett@csupueblo.edu](mailto:janet.barnett@csupueblo.edu) or [Diana.White@ucdenver.edu](mailto:Diana.White@ucdenver.edu) or visit the TRIUMPHS website: <http://webpages.ursinus.edu/nscoville/TRIUMPHS.html>

## Section Nominating Committee Report

The nominating committee is seeking strong leaders with a desire to serve the MAA to run for **Chair Elect**, **Secretary/Treasurer**, and **Governor** of the Rocky Mountain Section.

All of these positions are vital to the organization and operation of the Rocky Mountain Section.

The **Chair Elect** serves a one-year term (typically preceding a two-year term as Chair) and is expected to perform the following duties:

1. Watch and learn.
2. Attend all Executive Committee Meetings.

3. Act in place of Chairperson if that officer cannot fulfill his/her position.
4. Serve on Program Committee
5. Chair the Distinguished Teaching Award Committee

The **Secretary/Treasurer** serves a three-year term and is expected to perform the following duties:

1. Making all the officers aware of their duties.
2. Assisting officers in the performance of their duties.
3. Responsible for Section funds and preparation of reports.
4. Responsible for preparing and distributing minutes of all Section and Executive Committee meetings.
5. Help with call-for-papers and other mailings.
6. Preparation and distribution of Section Newsletter
7. Archivist for Section.
8. Serve on Program Committee
9. Handle details not assigned to other officers.
10. Serve as co-signer for bank account once one is past secretary.

The **Governor** serves a three-year term and is expected to perform the following duties:

1. Attend Summer and Winter Meetings of Governors. (In conjunction with the Annual Joint Meetings of the AMS/MAA, approximately 1/2 of airfare is paid by MAA. ) This involves a study of a lengthy agenda prior to the meetings. The meeting is normally an all-day affair, 9 to 4. (The governor gets good insight into the internal workings of the MAA. It can be a very rewarding experience.)
2. Represent Section with national MAA.
3. Represent national MAA to Section.
4. Appoint Higher Education Representative to CCTM Governing Board (2 year term).
5. Prepare and give Governor's report at Annual Business Meeting.
6. Attend Executive Committee meetings.

If you have an interest in running for Vice-Chair or would like to nominate a colleague who would be an outstanding candidate, please contact any member of the nominating committee:

**Gus Greivel** (Colorado School of Mines),  
ggreivel@mines.edu

**Gulden Karakok** (UNC),

Gulden.Karakok@unco.edu

**Bruce Lundberg** (CSU-Pueblo),

bruce.lundberg@csupueblo.edu

Elections will be held during the business meeting at the MAA Rocky Mountain Section annual meeting to be held at Colorado State University-Pueblo, April 21-22, 2017.

Note: Elected officers of the section must be members of the MAA.

*With Gratitude,*

*The Nominating Committee*

## **Colorado Council of Teachers of Mathematics (CCTM) News**

We had a board meeting on August 6th, and the annual conference will be held September 22-23, 2016 at the Denver Mart:

<http://www.cctmath.org/conference/>

*Erica Hastert, Early College of Arvada*

*CCTM Representative*

**Colorado State University - Pueblo  
to Host the  
100<sup>th</sup> Anniversary Meeting  
of the  
Rocky Mountain of the MAA  
April 21-22, 2017**



Mark your calendar now for the festivities to take place in Pueblo as the Rocky Mountain Section celebrates its founding in 1917! The 100<sup>th</sup> Anniversary meeting will be held **April 21-22, 2017**, and promises **two days of** engaging speakers, student activities, book sales, and more.

Plenary Speakers for the meeting will include:

- **Dr. Hortensia Soto-Johnson**, Professor of Mathematics at University of Northern Colorado and the Rocky Mountain Section's 2016 Burton W. Jones Distinguished Teaching Award recipient.
- **Dr. Timothy Chartier**, MAA Second Vice President and Professor of Mathematics at Davidson College.
- **Dr. Brian Hopkins**, Editor of *College Mathematics Journal* and Professor of Mathematics at Saint Peter's University.

The weekend's agenda will once more include a Friday Pre-Conference Workshop, a Friday evening banquet to be held at Pueblo Community College. Other tentative happenings include a return of Student Jeopardy, door prizes from generous vendors, and special networking opportunities.

On-line registration and other information will be available via the meeting website later this fall. In the meantime, please send your suggestions for special sessions or panel themes, workshop topics or presenters, and other party ideas to **Janet Barnett** at [janet.barnett@csupueblo.edu](mailto:janet.barnett@csupueblo.edu)

## Student Activities

Jeopardy winners! The Rocky Mountain Section MAA team won Jeopardy at last spring's section meeting! The team consisted of **Robert Sellers** (U.S. Air Force Academy), **Geoff Howard** (Western State Colorado University), **Nicolas Guerrero** (U.S. Air Force Academy), and **Christina Harich** (Black Hills State University), and is shown holding up their winning T-shirts.



**Students and Advisors:** Attending the section meeting is a great way to meet students from other schools, attend talks where you may learn some new and interesting mathematics, and present the results of your own research! Start thinking now about a presentation topic for the April 2017 conference at CSU - Pueblo.

Feel free to contact Beth ([beth.schaubroeck@usafa.edu](mailto:beth.schaubroeck@usafa.edu)) with any questions.

## **13<sup>th</sup> Annual Pikes Peak Regional Undergraduate Mathematics Conference Report**

Nearly 150 students, faculty and other mathematical enthusiasts came together on Saturday, February 27, 2016 for an exciting day of mathematics at the 13<sup>th</sup> Annual PPRUMC. Hosted by Colorado State University – Pueblo, the site of the very first-ever PPRUMC in 2004, this year's event attracted 120 student participants with representation from 14 different schools. A Friday Evening Social also attracted about a dozen students for an evening of pizza, conversation and games.

Prof. **Dave Ruch** of Metropolitan State University of Denver opened Saturday's program with his Keynote Address *Digital Explorations with the Discrete Wavelet Transform*. A versatile tool for digital image processing, wavelets are quite accessible to undergraduates with only a calculus background and light acquaintance with matrices. Dave's talk developed the discrete wavelet transform in the context of applications to image compression and digital edge detection, and featured some recent undergraduate research projects using wavelets. His lively and entertaining introduction to wavelets set the tone for the remainder of this one-day conference which featured 16 contributed talks presented by a total of 22 undergraduate mathematics students in the Pikes Peak region. A list of all talks and their presenters is included below.

The day's events also included a conference luncheon, followed by a panel presentation entitled *What Next? Beyond the Undergraduate Mathematics Major*. Panelists **Tracey Blanco** (University of Wyoming / CSU-Pueblo), **Graham Harper** (CSU-Fort Collins), **Caroline Kellacky** (Raytheon), **Molly Moran** (Colorado College) and **Shane Swearingen** (Transportation Technology Center) shared their personal experiences working within various professional and educational settings, and offered participants advice concerning graduate school and career opportunities in mathematics.

This year's conference was again offered at no cost to participants, thanks to generous funding from the MAA Rocky Mountain Section, CSU-Pueblo (College of Science and Mathematics and Department of Mathematics and Physics), the University of Colorado at Colorado Springs (College of Letters, Arts and Sciences), and a number of private donations. CSU-Pueblo mathematics professor **Paul Chacon** also donated three fractal images to the collection of door prizes awarded at the closing ceremony. Additional door prize and other participant goodies were donated by the Mathematical Association of America Programs Division and by the CSU-Pueblo Admissions Office, Athletics Program, External Affairs Office, and University Bookstore. The PPRUMC Steering Committee is also grateful to the CSU-Pueblo local organizing committee (**Janet Barnett, Janet Nichols** and **Jonathan Poritz**), and to all the faculty who contributed their time and expertise to preparing student presenters, recruiting student participants and moderating sessions at the conference.

## PPRUMC Contributed Papers

**Zach Bridwell, Haven Hall, Angie Justus, Derek Moore & James Todd**, CSU-Pueblo  
*Success in College Algebra through Group Learning*

**Christopher Botica**, USAFA  
*A problem of max's and min's applied to pizza slices*

**Naiche Downey**, University of Colorado at Boulder  
*Diffeomorphisms of the Two-Sphere*

**Rachel Eaton**, USAFA  
*Numerical Semigroups and the Sylver Coinage Game*

**Gereltuya Erdenejargal**, University of Colorado at Boulder  
*Modeling Spread of Infectious Disease*

**Geoff Howard**, Western State Colorado University  
*The geometry of points of finite order on an elliptic curve*

**Brady Gartman**, USAFA  
*(Mis)Calculating the Reliability of Redundant Systems*

**Cody Griffith & Aaron Parker**, Metropolitan State University of Denver  
*An Exploration of Iterative Matrix Transformations*

**Courtney Kunselman**, USAFA  
*Using Theon's Ladder to Approximate the Roots of Cubic Polynomials*

**Taylor McMillan**, University of Northern Colorado  
*Computing Planarity in Computable Planar Graphs*

**Walter Jonathan Ramirez**, Pike's Peak Community College  
*Euler's Formula and Its Application in Trigonometry and Quantum Mechanics*

**Connor Reilly & Katie Burnham**, USAFA  
*A Prime Labeling for a Family of Unicyclic Graphs*

**Matthew Shisler & Dominick Speranza**, USAFA  
*Matching Modified Greek Ladders to Continued Fractions*

**Yichun Shi**, Colorado College  
*An Investigation of Bullying in Social Networks*

**Brandon Shuck**, Western State Colorado University  
*An Application of Geophysical Inverse Theory: Cross-well Tomography Model*

**James Todd**, CSU-Pueblo  
*On Stable Orbits of Circumbinary Planets*

## 2016 Section Meeting Report

The 2016 Joint Meeting of the Intermountain and Rocky Mountain Sections of the MAA was held at Colorado Mesa University in Grand Junction, CO on April 8<sup>th</sup> and 9<sup>th</sup>. There were 182 registered conference participants and 88 contributed talks, including 29 student talks, as well as an exciting student *Jeopardy!* Tournament featuring teams from each section!

There was a fantastic Dynamical Systems pre-conference workshop led by Joshua Garland from University of Colorado at Boulder. The meeting also featured four excellent plenary speakers:

- **Bob Devaney**, Professor of Mathematics at Boston University and immediate past-president of the MAA, was our Section Visitor from the national leadership and gave the Friday afternoon talk.
- **Janet Heine Barnett**, Professor of Mathematics at Colorado State University – Pueblo, is the Rocky Mountain Section's 2015 Burton W. Jones Distinguished Teaching Award winner and gave the opening talk.
- **Robin Wilson**, Professor Emeritus at Open University, UK and Visiting Professor at Colorado College gave the Banquet Talk.
- **Bob Palais**, Associate Professor of Mathematics at Utah Valley University; Research Professor, Pathology at University of Utah gave the Saturday morning talk.

After the meeting, some conference participants took advantage of a scenic tour of the Colorado National Monument.

## Contributed Papers - 2016 Section Meeting

### Classroom Innovations

**Kyle Riley**, South Dakota School of Mines and Technology  
*An Online Review System to Promote Student Success*

**Micahel Ferrara**, University of Colorado Denver  
*The Impact of Organizing K-12 Outreach on Undergraduate STEM Majors*

**Michael Dorff**, Brigham Young University  
*PIC Math – A Course for Undergraduate Students to do Research on Actual Problems from Industry*

**Gus Griewel**, Colorado School of Mines  
*Multivariate Calculus in the SCALE-UP Environment*

**Gary Olson**, University of Colorado Denver  
*A Modeling Approach to Graduate Teacher Training*

### Mathematics Education

**Gulden Karakok**, University of Northern Colorado

*Explicitly Valuing and Enhancing Undergraduate Students' Mathematical Creativity*

**Ginger Anderson**, Pikes Peak Community College  
*Saving Stats Students*

**Dan May**, Black Hills State University  
*The House Mortgage Game: An Example of Project Based Learning in Quantitative Literacy*

**Danae Romrell**, Brigham Young University - Idaho  
*The Importance of Learner Readiness in Helping Students Learn Calculus*

**Janet Nichols**, Colorado State University - Pueblo  
*Technology has Invaded My Classroom!*

**Ian Pierce**, United States Air Force Academy  
*Math Placement Adventures: Not Ready for Calculus?*

**Luke Nelson and Gary Olson**, University of Colorado Denver  
*College Algebra Tactivities*

**Jeffrey King**, University of Northern Colorado  
*Students' Social Adaptation to Mathematical Tasks*

**Travis Kowalski**, South Dakota School of Mines and Technology  
*Assessment as Learning: An Experiment with Abilities-Based Grading, Part 3*

**Craig Larson**, United States Air Force Academy  
*Bending the Learning Curve: Teaching Technology Use in Multivariable Calculus*

**Beth Schaubroeck**, United States Air Force Academy  
**Hortensia Soto**, University of Northern Colorado  
*Developing Dynamic Geometric Reasoning in Complex Analysis*

**Darren Gemoets**, Colorado Mesa University  
*From Pencils through Calculators to Software: Teaching Introductory Statistics using Google Sheets*

**Gulden Karakok, Alees Seehausen and Katie Morrison**, University of Northern Colorado  
**Diana White**, University of Colorado Denver  
*Principle to Actions in Action at the 2015 Summer Math Teachers' Circle Workshop*

## **Dynamical Systems**

**Joshua Garland**, University of Colorado at Boulder  
*Exploring the Topology of Dynamical Reconstructions*

**Jacob Duncan**, Utah State University  
*Predicting Invasion Speed of Invasive Plants on Realistic Landscapes*

**Jianlong Han**, Southern Utah State University  
*Numerical Analysis of a Nonstandard Viscous Cahn-Hilliard System*

**Nathan Guillery**, University of Colorado at Boulder  
*Action Drift in Volume-Preserving, Non-Symplectic Maps*

**T H Steele**, Weber State University  
*Attractors of Discrete Dynamical Systems*

**Rebecca Mitchell**, University of Colorado at Boulder  
*Optimizing Mixing of Area Preserving Maps*

## **The History of Mathematics and Poincare's Other Conjecture**

**Marlow Anderson**, Colorado College  
*Colin Maclaurin's "A Treatise of Fluxions"*

**Robin Wilson**, Colorado College  
*Euler's Number Theory*

**George Heine**, Math and Maps  
*Mathématiques: Une Promenade Parisienne*

**Bill Cherowitzo**, University of Colorado Denver  
*Yo Bro! You'll Never Guess What I Know...*

**Shahar Boneh**, Metropolitan State University of Denver  
*The Lady Tasting Tea and Fisher's Exact Test*

**Don Teets**, South Dakota School of Mines and Technology  
*Bessel's Solution (almost!) to Kepler's Equation*

**Troy Goodsell**, Brigham Young University - Idaho  
*Recent Results in Babylonian Calculus*

**Janet Barnett**, Colorado State University - Pueblo  
*Dedekind's Ideals: Prime Mathematics for Today's Students*

**William Weber**, University of Wyoming  
*Archimedes: How to Weigh a Parabola*

**Lynne Ipina**, University of Wyoming  
*Breaking a Cycle of Failure: Learning Colonial Arithmetic*

**Dave Ruch**, Metropolitan State University of Denver  
*A Student Project using Primary Resources from Bolzano's Work on Least Upper Bounds*

## **Regional Mathematics Experiences in Business, Industry and Government (BIG)**

**Stephanie Fitchett**, Neptune and Company, Inc  
*What Might a Mathematician do in Industry?*

**Rebecca Jones**, Raytheon Missile Systems  
*Is the Sky Really the Limit? Exploring Math Careers in Space*

**Kate Stadelman**, Rocky Mountain Health Plans  
*A Math Major in the Workforce*

**Stephan Pankavich**, Colorado School of Mines  
*Introducing Industrial Problems via Capstone Experience*

**Panel Session: Regional Mathematics Experiences in BIG**

## **Inquiry-Based Learning Methods in the Classroom**

**Allegra Reiber**, University of Denver  
*Get Up and Find the Graph Theory: IBL Activities in a Flipped Liberal Arts Math Course*

**William Nesse**, University of Utah  
*Connecting Inquiry-Based Math Labs to Learning Assessment in University of Utah's Engineering Mathematics Program*

**Violeta Vasilevska**, Utah Valley University  
*Flipping the College Algebra Classroom*

**Daniel Shultz-Ela**, Colorado Mesa University  
*Approaches for Liberal Arts Mathematics*

## **Teaching Modeling across the Curriculum: Mathematical Biology Labs for the Math Classroom**

**Andrea Bruder**, Colorado College  
*Laboratory Experiences in Mathematical Biology in Undergraduate Mathematics Education*

**Brynja Kohler**, Utah State University  
*Leaky Bucket Lab: Challenging Torricelli's Law*

**Brynja Kohler**, Utah State University  
*Diffusion Lessons via Sea Monkeys*

**Andrea Bruder**, Colorado College  
*Coffee to Go! A Lab for Multivariable Calculus*

**Matt Lewis**, Utah State University  
*Yeast for Mathematics: A Ferment of Discovery*

**Brynja Kohler**, Utah State University  
*Teaching Students Creativity through Data-Based Mathematical Modeling Challenges*

## **General Contributed Paper Session**

**Colin Garnett**, Black Hills State University  
*Combinatorial Structures that Preclude SAP*

**Dick Gibbs**, emeritus Fort Lewis College  
*Scoring the Office Tournament Brackets Pool*

**Dan Swenson**, Black Hills State University  
*Proposed Tweak to Tiebreaker Rules for the NFL and Other Leagues*

**Bruce Lundberg**, Colorado State University - Pueblo  
*Sample of One*

**Erik Packard**, Colorado Mesa University  
*Perfect Shuffles*

**Mike Brilleslyper**, United States Air Force Academy  
*Shoelaces and Prime Labelings*

**Karen Braman**, South Dakota School of Mines and Technology  
*Understanding Rings of  $n$ -tuples with Element-Wise Addition and Multiplication via Convolution*

**Eric Miles**, Colorado Mesa University  
*Nice Ellipses and Hyperbolas give Projective Moduli Spaces*

**Timothy Trujillo**, Colorado School of Mines  
*Alpha-Ramsey Theory*

**Derek Hein**, Southern Utah State University  
*New Constructions for Decompositions of  $\Lambda K_n$  into  $LW$  and  $OW$  Graphs*

**Martha Lee Kilpack**, Brigham Young University  
*Puzzles, Riddles, ... Math Contest*

**Dale Peterson**, United States Air Force Academy  
*Global Positioning System (GPS) Satellite Configurations and their Astrodynamic and Algebraic "Orbits"*

**Julie Chan**, Weber State University  
*Scientific Reproducibility and Most Powerful Tests*

**Seth Armstrong**, Southern Utah State University  
*A Nonstandard Approximation to a Lotka-Volterra System with Diffusion*

**Martha Garlick**, South Dakota School of Mines and Technology  
*Using Homogenization to Estimate Random-Walk Motility from GPS Collar Data in Variable Landscapes*

**Kay Litchfield**, The Boeing Company  
*Improved Line Search for Polynomial Systems Linear in each Variable*

## **Graduate Student Paper Session**

**Melody Alsaker**, Colorado State University  
*Going Backward: The Mathematics of the Inverse Problem*

**Lauren Nelson**, University of Denver  
*Color-Blind Index of Graphs*

**Jesse Hicks**, Utah State University  
*Identification of Lorentzian Lie Algebra-Subalgebra Pairs in a Computer Algebra System*

## **Student Paper Session**

**Sean Conte and Eric Smith**, Fort Lewis College  
*Developing an Image Search Engine for Wavelets*

**Veronica Currie and Wayne Yandell**, Fort Lewis College  
*Application of the Haar Wavelet to Hide Text in Medical Images*

**Allyson Dell'Amico, Olivia Goldberg and Levi Kurlander**, Fort Lewis College  
*Anonymizing Medical Audio Databases through Steganographic Concealing of Confidential Information*

**Rashyll Leonared**, South Dakota School of Mines and Technology  
*A Simple Model for Chronic Wasting Disease in Moose*

**Geoffrey Howard**, Western State Colorado University  
*Elliptic Curves: Points of Finite Order*

**Ryan Waggener**, South Dakota School of Mines and Technology  
*Differential Equations, Celestial Mechanics and Bessel Functions*

**Jesse Battles**, Colorado Mesa University  
*The Elliptic Curve Digital Signature Algorithm*

**McKay Visser**, Brigham Young University - Idaho  
*Investigating a  $(0,1)$  – Matrix Problem*

**Nicolas Guerrero**, United States Air Force Academy  
*The Maximal Distance Function of Graphs in 2-Space*

**Connor Mattes and Zachary Chaney**, Colorado School of Mines  
*Triangular Ramsey Numbers*

**Caitlin Taggart**, South Dakota School of Mines and Technology  
*Scorigami*

**Stina Nyhus**, Utah Valley University  
*Creating Math-Art Designs using Origami and Conic Sections*

**Victoria Conklin and Ian Kesler**, Southern Utah University  
*Study of a Mathematical Model for the Growth of Micoorganisms*

**Robert Sellers**, United States Air Force Academy

*Missile Trajectory Simulation and Estimation using Chebyshev Polynomials*

**Said Bahi and Kadin Farnsworth**, Southern Utah University

*Random Walk Hypothesis: An Investigation of Developed and Developing Stock Markets Efficiency*

**David Wagner**, United States Air Force Academy

*Belief, Probability, and Bayesian Networks: A Comparison of Inference Techniques*

**Matthew Shisler**, United States Air Force Academy

*From Simple Continued Fractions to General Greek Ladders*

**Matthew Dyke**, South Dakota School of Mines and Technology

*Different Species of Fibonacci's Rabbits*

**Sarah Weller**, Colorado Mesa University

*On the Sums of Sines and Cosines*

**Shanna Hoopengardner**, Colorado Mesa University

*Herbrand Structures and the Completeness Theorem for First-Order Logic*

## **2016 Business Meeting Minutes**

### **Saturday, April 9, 2016**

**Minutes:** MAA Rocky Mountain Section Annual Business Meeting  
**Date:** Saturday, April 9, 2016 at 8:00 am – 8:50 am  
**Location:** University Center 221, Colorado Mesa University, Grand Junction, Colorado

1. Kyle Riley called the meeting to order at 8:00am. Minutes from the 2015 meeting and current agenda were approved.
2. Gus Greivel announced Shawna Mahan as the single candidate for Vice-Chair and offered her the chance to speak. Shawna said it was an honor to be nominated. Leadership and local organization are important and hard work needs to be done. She said she enjoys networking and meeting people and that she has a lot of contacts in the two-year college community. She is active in COADE and AMATYC. A motion was made to elect Shawna by acclamation. The motion was seconded and all present approved.
3. Reports:
  - a. Heidi Keck gave the financial report. Last year's spring meeting generated some income, but subvention is down, so overall finances are stable. She also explained the new financial arrangement with the Pikes Peak Regional Undergraduate Mathematics Conference (PPRUMC) steering committee. Opportunity for discussion of this is a later agenda item.
  - b. Dick Gibbs reported on student competitions in the Colorado. Because of the relatively early meeting this year, most competitions have not announced winners yet. Dick thanked the section for the ongoing financial support.
  - c. Bill Emerson gave the governor's report. The structure of the Governors group is changing (read more details in the newsletter). In short, the group is too large and unwieldy. The new structure will aim for a smaller board that can get things done more effectively. The new bylaws will be voted on at Mathfest this summer and then be sent to the membership for a vote.

Bill also encouraged people to serve on national committees. There are a wide variety of tasks and time commitments. Tensia Soto-Johnson added that some committees include travel funds and reiterated the variation in workload of the committees. These nominations are due in March every year, so start thinking ahead.

Tensia also reminded people that there are new MAA policy documents: 2015 CUPM Curriculum Guide, Common Vision, and Instruction Practices that can help faculty with local policy making ammunition. They include policy statements on the qualities of first year courses and the qualifications of the people necessary to teach these courses.
4. Beth Schaubroeck reported that a student lunch was hosted on Friday and suggested that we try to attend part of the Jeopardy game on Saturday morning. If it is successful, maybe we should consider adding this to our student activities at the meeting. Concerns are the expense of the buzzer system, effort required to write questions, and student participation.
  4. Announcements
    - a. Mike Jacobson announced Tensia Soto-Johnson from UNC as the 2016 DTA winner and Rebecca Swanson from Colorado School of Mines as the 2016 ECTA winner. The criteria for the ECTA need minor modifications and clarifications that the committee will work on before the next round. There was general discussion of how the ECTA winner should participate in the next meeting. Any suggestions should be sent to Kyle Riley or Mike Jacobson.
    - b. We need to find a replacement for the MAA representative to the CCTM. Gulden Karakok described the job as follows: attend four meetings, help with workshop decisions, help with the

higher ed part of the fall conference, encourage higher ed to write for journals, bring MAA guidelines to CCTM for discussion.

- c. Various upcoming meetings were listed in the agenda, and people were referred to the list.
5. Discussion Items:
- a. The section executive committee agreed to act as “the banker” for the PPRUMC this year, as they now have to solicit donations and need a single place to save and spend from. Kyle Riley asked that the members decide whether or not this is a good idea. Bill Cherowitzo supported the idea, saying that this is the type of program we want to support and this is an easy way to help by providing infrastructure. A question was asked about activity grants and whether we agree to automatically award one. Answer is no. The PPRUMC will be responsible for applying for grants and securing other funds. Jim Loats made a motion: The section is happy to support the PPRUMC in the current manner and is eager to support other conferences in a similar manner. Mike Jacobson seconded the motion and it was approved unanimously.
  - b. Strategic Planning meeting held Friday brought up these topics:
    - Should the meeting be moved from spring to fall? The survey last year showed no overwhelming support either way on this. There were good arguments for both moving and not moving. Kyle suggests the only way to know if a fall meeting will work it to try having a fall meeting. Anyone interested trying to host should step up!
    - Should the Secretary/Treasurer position be split? General discussion of what the job entails, and how a piece of it could be a smaller, self-contained task. Heidi suggested the teaching award paperwork has gotten larger with two awards, but is a good job for a coordinator as nominations roll forward and requires coordination with a national award. Jim Loats made this motion: The RMS should create the position of awards coordinator to coordinate the awards process. The position would begin in spring 2016 and would be chosen by and work closely with the secretary/treasurer. Janet Barnett seconded. Question as to whether this required a change to the by-laws? Motion was modified to specify that this person is not an additional person on the selection committee. Approved unanimously.
    - Can and should Section NExT be revived? Overall support of the idea. Becky Swanson volunteered to lead this effort. Again, all interested in helping should contact Becky.
6. Kyle Riley thanked Tracii Freidmann, Lisa Driskell, and Cathy Bonan-Hamada for hosting such a well-run joint meeting. The Intermountain people were also very impressed with the quality of the meeting. Applause from all! Next year is the 100th anniversary of the section. The meeting will be at CSU-Pueblo. Janet Barnett is the lead program chair and is looking for suggestions on how to celebrate.
7. Meeting was adjourned at 8:50am.

Respectfully submitted,

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

# **2016 Executive Committee Meeting Minutes**

## **Thursday, April 7, 2016**

**Minutes:** MAA Rocky Mountain Section Executive Committee Meeting  
**Date & Time:** Thursday, April 7, 2016, 7:00—9:00 pm  
**Location:** Il Bistro Italiano, 400 Main St, Grand Junction, CO  
**Attendance:** Kyle Riley, Erica Hastert, Bill Emerson, Bill Cherowitzo, Mike Jacobson, Heidi Keck, Tracii Friedman, Lisa Driskell, Cathy Bonan-Hamada, Janett Barnett, George Heine, Kathy Andrist

1. Kyle Riley called the meeting to order at 7:45 pm. Minutes from the 2015 meeting and current agenda were approved. Agendas for banquet and business meeting were confirmed. Specific tasks were reviewed and order of events confirmed. Suggestions were given for organizing new networking breaks. People will propose topics when picking up packets and discussions tables will be created. Bob Devaney may not make the business meeting as he must also attend the Intermountain meeting. This meeting has 179 preregistered participants and 90 talks.
2. Reports
  - a. Heidi Keck gave the financial report. The section has about \$12,000 on hand. Subvention is down, but last year's meeting made money. CMU expects this meeting will make a modest profit as well due to generous donations. Activity grants and sponsored graduate student speakers have been fewer, which limits our expenses.
  - b. Next year we will need to elect three people: Chair-Elect, Governor, and Secretary/Treasurer. These are all important and difficult roles, so we need to start work on this now. Gus Greivel leads this committee. Again discussion centered on how to better communicate with members to alert them to these issues.
  - c. Only one section activity grant was awarded in fall 2015. The PPRUMC was awarded \$750.
  - d. Mike Jacobson spoke for the awards committee. As usual the decision was difficult. It would be nice to help our nominee prepare for the Haimo award nomination, but no one had experience to volunteer.
3. Discussion and action items
  - a. Graduate Student Speaker program is not flourishing. Description of process currently used was given. Potential problems and solutions were discussed: Maybe the money is not enough? Maybe we should use the money elsewhere? Lack of connection with graduate chairs and lack of clear grad student research focus is problematic. This helps us connect to research institutions, so worth keeping the program.
  - b. Colorado Math Awards (Dick Gibbs) was awarded \$250 (Bill E motion, Mike second, unanimous approval)
  - c. Books for door prizes (Janet Barnett) was awarded \$150 (Bill E motion, Tracii second, unanimous approval)
  - d. Big question is how does the section connect with high schools, two-year colleges, and research institutions?
4. Representative for MathFest and Joint Meeting is Mike Jacobson.

5. Future Section Meetings: General discussion about moving location for ease of majority of members with recognition that no location will be convenient for everyone. Reminder that before agreeing to host, the prospective program chair must ask about local usage fees. It is now very common for institutions to charge for rooms and IT services.
  - a. 2017 CSU-Pueblo is confirmed. Janet Barnett will be program chair
  - b. 2018 UNC in Greeley is confirmed. Oscar Levin and Nathaniel Miller will chair.

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

## **MAA Rocky Mountain Section Suggestions for Speakers**

The Rocky Mountain Section would like to offer the following suggestions, especially to first-time speakers, regarding preparation of a talk at the conference.

1. The standard talk length is 20 minutes, (with longer times available upon request, subject to the limitations of the program). Thus, you should prepare your presentation to fit the time allotted. If possible, plan to leave a few minutes at the end of your presentation for questions.
2. A moderator will be assigned to facilitate each session of presentations. The moderator 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 moderator prior to the beginning of the session including your talk. Plan to bring about 35 handouts and be prepared to give attendees your e-mail 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 include too much detailed technical material in your presentation. Focus on providing the audience with insight into your topic and its key notions. Remember that most members of the audience will not be experts in the field you are discussing, and that the audience is likely to include students.
5. All session rooms will be equipped with a projector and a laptop hook up. Accordingly, you can present your talk using Power Point slides, PDF, or similar, which will greatly enhance the pace of a presentation. However, make sure that notes on the slides or transparencies are typed in a font big enough and with spacing adequate to be seen clearly 50 to 100 feet away.

## Grants Available

### Section Activity Grants Available

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 1<sup>st</sup> of each year.

### Student Recognition Grants Available

The establishment of a Student Recognition Grant Program was approved by the section membership at the 2003 Annual Business Meeting. In support of this program, the Section will set aside \$500 every calendar year. From these monies, the Section will make grants for the purpose of recognizing superior achievement in mathematics on the part of (1) students enrolled in post-secondary institutions within the geographic region served by the Section and (2) high school students whose school districts, or other appropriate political subdivisions, substantially intersect the geographic region served by the Section.

Proposals for such grants must

1. Originate from a member of the Rocky Mountain Section of the Mathematical Association of America on behalf of an agency, institution, or organization whose stated purposes are consistent with recognizing or encouraging superior

academic achievement at the high school level;

2. Be in the hands of the Chair of the Rocky Mountain Section no later than March 15 of the year in which the proposed recognition is to be made;
3. Include the criteria under which superior achievement in mathematics is to be recognized, together with the time and the manner of such recognition;
4. Report, insofar as possible at the time of the proposal, other potential sources of support together with proposals or requests made or intended; and
5. Be limited to a maximum amount of \$250.

The Executive Committee will review all proposals for grants under this policy and will make such grants as, in its sole judgment, it deems proper. In keeping with the section mission, funding priority will be given to grants that include recognition of undergraduate students. Funding decisions will be announced no later than the Annual Business Meeting of the Section. Monies not expended during any particular year shall revert to the Section's general fund.

## 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  $\pi$ ; and analysis, by  $e$ . (Quoted from Eli Maor's *e, The Story of a Number*). I chose to portray this equation as a train because rail has historically been the life blood of the American West, and trains are complementary to any mountain scene.”

## Meetings Calendar

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

ICTCM; Chicago, IL, March 9-12, 2017  
NCTM annual meeting; San Antonio, TX  
April 5-8, 2017

**MAA Rocky Mountain Section Meeting;  
Colorado State University - Pueblo  
Grand Junction, April 21-22, 2017**

MAA MathFest; Chicago, IL; July 26-29, 2017

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

MAA Rocky Mountain Section Meeting;  
University of Northern Colorado, April 2018  
NCTM annual meeting; Washington DC  
April 25-28, 2018

**MAA MathFest; Denver, CO; August 1-4, 2018**

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

NCTM annual meeting; San Diego, CA  
April 3-6, 2019

MAA MathFest; Cincinnati, OH;

July 31-August 3, 2019

**Joint Mathematics Meetings; Denver, CO  
January 15-18, 2020**

NCTM annual meeting; St. Louis, MO  
October 21-24, 2020

MAA MathFest; Philadelphia, PA;  
July 29-August 1, 2020

Joint Mathematics Meetings; Washington DC  
January 6-9, 2021

NCTM annual meeting; Atlanta, GA  
September 22-25, 2021

MAA MathFest; Sacramento, CA;  
August 4-7, 2021

**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)

Email Address \_\_\_\_\_

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 15 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.

**The Rocky Mountain Section of  
The Mathematical Association of America**

**Early Career Teaching Award  
for Excellence in Teaching in the Mathematical Sciences**

**Early Career Teaching Award Nomination Form**

Name of Nominee \_\_\_\_\_  
(First name first)

Email Address \_\_\_\_\_

College or University Affiliation \_\_\_\_\_

College or University Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Is the nominee a member of the MAA? \_\_\_\_\_

Has the nominee taught at least half time in a mathematical science  
for at least two but not more than seven years? \_\_\_\_\_

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 15 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.

## Early Career Teaching Award Guidelines

Part of the core mission for the Rocky Mountain Section is to provide recognition for quality mathematics teaching. The Early Career Teaching Award was established to recognize excellence in teaching in the mathematical sciences for faculty that are early in their career.

### Eligibility

Nominees must:

- Hold a doctorate degree
- Be college or university teachers who have held a full-time faculty appointment in a college department of mathematical sciences in the Rocky Mountain Section for at least two, but not more than seven, years since receiving the doctorate. A nominee who has just started the eighth year of teaching at the time of the application is still eligible for the award. If a nominee has held his or her doctorate for more than 7 years then the nominator must indicate on the nomination form the times that the nominee was not teaching. Common exceptions to the 7-year limit are maternity, paternity, family, or medical leaves. Sabbaticals and postdoctoral fellowships are exceptions only if they involved no teaching and the application does not include accomplishments made during these times.
- Hold membership in the Mathematical Association of America

### Guidelines for nomination

Nominees for the award may be made by any member of the Rocky Mountain Section of the MAA.

Nominees should:

- Be recognized as extraordinarily successful in their teaching
- Have effectiveness in teaching undergraduate mathematics that can be documented
- Have had influence in their teaching beyond their own classrooms
- Foster curiosity and generate excitement about mathematics

Nomination form is due December 15

Complete nomination packet is due January 15

### Nomination Packet

A complete nomination packet should consist of the following documentation as it is described below.

1. **Nomination Form and One-Page Summary** - Describe the unusual and personal and professional qualities of the nominee that contribute to his or her extraordinary teaching success, and attach to this completed nomination form.
2. **Narrative (Up to 2 pages)** - Describe the nominee's extraordinary success in teaching by providing a narrative of the nominee's background, experience, teaching style, special contributions, other teaching awards, and any additional evidence of the nominee's unusual achievement in teaching. Note especially effectiveness in teaching undergraduate mathematics and influence beyond the nominee's own classrooms. The narrative should not exceed two single-spaced pages.
3. **Additional Documentation (Up to 2 pages)** - Submit no more than two pages of further evidence to document the nominee's extraordinary teaching success. This documentation will vary greatly from institution to institution, but may include summaries of peer or student evaluations, comments on teaching, possible increases in numbers of majors in mathematics (with clear evidence of the nominee's substantial responsibility for them), possible student success in mathematics competitions (with clear evidence of the nominee's substantial responsibility for them), success in research in mathematics conducted by undergraduate students under the direction of the nominee, production of superior quality honors theses by undergraduate students under the direction of the

nominee, development of curricular materials successfully used by colleagues, adoption of the nominee's teaching methods or techniques by experienced colleagues, service as a respected adviser for a student group, etc.

Nominators should bear in mind that the selection committee for the award might view a nomination more positively if it is accompanied not just by carefully chosen testimonials from a few selected students and faculty, but also reports comments and criticism which is representative of the whole spectrum of opinion among students and faculty on the nominee's teaching.

**4. Letters of Recommendation (Each letter is one page. Maximum of 5 letters.)**

- Two letters from the nominee's present or former students.
- One letter from the nominee's colleagues (could be the department chair).
- At most two additional letters from anyone qualified to comment on the nominee's extraordinary teaching success, including additional students and/or colleagues.

## 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.