# SPRING 2024 Newsletter

Section Website:  https://www.rockymountain.maa.org/

**Note: The 2024 Rocky Mountain Section Meeting**
**April 19-20, 2024**
**Host:  Colorado College**

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# 2023 – 2024 Section Officers and Committee Members

**Section Website**

**Current term of service in parentheses; The Chair serves for 4 years – one as Chair Elect, two as Chair, one as Past Chair; All other positions are 1-year terms unless otherwise noted.**

**Section Executive Committee Officers for 2023 – 2024**

| | | |
|---|---|---|
| **Chair**<br>(2022-2024) | Gulden Karakok<br>University of Northern Colorado | gulden.karakok@unco.edu |
| **Chair Elect**<br>(2023-2024) | Beth Burroughs<br>Montana State University | bburroughs@montana.edu |
| **Vice-Chair**<br>(2022-2024) | Carol Kuper<br>Morgan Community College | carol.kuper@morgancc.edu |
| **Secretary/<br>Treasurer**<br>(2023-2026) | Becky Swanson<br>Colorado School of Mines | swanson@mines.edu |
| **MAA<br>National<br>Rep**<br>(2023-2026) | Anne Dougherty<br>CU Boulder | anne.dougherty@colorado.edu |
| **Program<br>Co-Chairs**<br>(2023-2024) | Luis David Garcia Puente<br>Molly Moran<br>Colorado College<br>Colorado Springs, CO | lgarciapuente@coloradocollege.edu<br>mmoran@coloradocollege.edu |

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**Other Committee Members and Representatives**

**Section Nominating Committee**

| | | |
|---|---|---|
| (2022-2025) | Michael Jacobson (Chair), UC Denver | Michael.jacobson@ucdenver.edu |
| (2021-2024) | Janet Heine Barnett, CSU - Pueblo | janet.barnett@csupueblo.edu |
| (2023-2026) | Martha Garlick, SDSMT | Martha.Garlick@sdsmt.edu |

**DTA Awards Selection Committee**

| | | |
|---|---|---|
| (2023-2024) | Beth Burroughs, Montana State University | burroughs@montana.edu |
| (2023-2025) | Debra Carney, Colorado School of Mines | dcarney@mines.edu |
| (2023-2024) | Mike Siddoway, Colorado College | msiddoway@coloradocollege.edu |
| (2022-2024) | Brittni Lorton, CCD | Brittni.lorton@ccd.edu |

**ECTA Awards Selection Committee**

| | | |
|---|---|---|
| (2023-2024) | Beth Burroughs, Montana State University | burroughs@montana.edu |
| (2023-2024) | Shelby Stanhope | Shellby.stanhope@afacademy.af.edu |
| (2023-2025) | Debra Carney, Colorado School of Mines | dcarney@mines.edu |
| (2022-2024) | Brittni Lorton, CCD | brittni.lorton@ccd.edu |

**Section Awards Coordinator**
(2023-2026)   Kyle Riley, SDSMT                                    Kyle.Riley@sdsmt.edu

**Section Student Activity Coordinator**
(2023-2026)   Vacant

**Higher Education Representative on CCTM Governing Board**
(2023-2025)   Liz Arnold                                          liz.arnold@colostate.edu

**Section Book Sales Coordinator**
(2021-2024)   Janet Heine Barnett, CSU - Pueblo                   janet.barnett@csupueblo.edu

**Section NExT Committee**
(2022-2025)   Rebecca Swanson, Colorado School of Mines           swanson@mines.edu

              Mandi Schaeffer Fry, MSU Denver                      aschaef6@msudenver.edu

**Public Information Officer and Section Liaison Coordinator**
(2020-2026)   Rebecca Swanson                                     swanson@mines.edu

**Website Editor**
(2021-2024)   Oscar Levin, University of Northern Colorado        Oscar.Levin@unco.edu

**Newsletter Editor**
(2024-2025)   Maila Hallare, USAFA                                maila.hallare@afacademy.af.edu

# Chair's Corner

Greetings to all of you in the Rocky Mountain Section of the MAA!

I hope that 2024 is off to a great start for you and look forward to seeing you at this year's Section meeting. The meeting will be held at Colorado College on April 19-20. Program co-chairs, Luis David Garcia Puente and Molly Moran, are busy finalizing the program as well as registration set up. See their section in this newsletter for additional details about the great program we've got lined up! Check the website for registration and abstract submission: https://www.rockymountain.maa.org/events/2024-section-meeting

Speaking of our Section meeting, we're still looking for a location for the 2025 meeting. We'd love to find a host in the greater Denver area. Are you able to enlist your department to host a Section meeting? Get in touch!

Planning a Section meeting is both challenging and rewarding. Trends in higher education funding, and the increasing demands on our time as faculty members, seems to be increasing the "challenging" part of that equation. So, as a Section, I hope we can find ways to increase the "rewarding" side of the equation as well. Please think about the professional value of our meeting, and ways that we, as a community, can leverage our Section for the future. You can volunteer to serve on one of our committees such as Section Grants, Nomination, and Teaching Awards.

In that regard, MAA's new strategic plan, introduced to the Congress at MathFest last summer, is to build bridges with our pre-college colleagues (see Feb/March 2024 Focus issue for more information on this). As you know, there are serious concerns about the state of mathematics education, at all levels. Developing a shared understanding of the challenges we face collectively can only help us as we make a case for the value of our work – and demonstrate our commitment to improve our practice for the benefit of the many constituents we serve.

I think the Rocky Mountain Section is already well-positioned to be an example in this strategic priority. We have long appointed a higher education representative to the Colorado Council of Teachers of Mathematics (CCTM) board. Liz Arnold at CSU-Fort Collins currently holds that position, and I expect this position to become more important to our work as we seek to strengthen our bridges. Please check out Liz's report in this newsletter and we are excited to see CCTM board members at our 2024 meeting.

We have an upcoming election to fill the vice chair position. I want to thank the Nominations Committee (Michael Jacobson-chair; Janet Barnett, Martha Garlick). Anticipate an email with an electronic ballot after the section meeting and check the website for the candidate statements.

Do you have an idea for carrying out outreach activities, and need funding to make your idea a reality? The MAA has a number of grant opportunities to support outreach. Deadlines for these programs are in February. I encourage you to consider applying.

In other news around the Section, I note that the 21st Annual Pikes Peak Regional Undergraduate Mathematics Conference will take place on Saturday March 2, 2024 at U.S. Air Force Academy in Colorado Springs. Registration is already open: https://www.rockymountain.maa.org/events/pprumc-2024

I also would like to thank Wesley Martsching, a doctoral student at the University of Northern Colorado for helping

me to complete this newsletter. We are excited for Maila Hallare from USAFA to take over the newsletter editor position. Please send the newsletter items to her for Fall 2024 newsletter by September 15, 2024.

I know we all share a vision for improving the quality of mathematics at all levels across the Rocky Mountain Section. I look forward to seeing you at the Section meeting in April, where we can learn from and with each other, and strengthen our community as we join to support the mission of the MAA: "to advance the understanding of mathematics and its impact on our world."

Gulden Karakok,
University of Northern Colorado

## Congressional Representative Report

The congress will meet at 2024 MathFest and new report will be shared in 2024 Fall Newsletter. If you have any questions, please don't hesitate to contact our representative:

Anne Dougherty
University of Colorado Boulder
Anne.dougherty@colorado.edu

# Section News

## Montana State University

Montana State University will host its annual DataFest the weekend of April 12-14, 2024. DataFest is a 48-hour data competition for undergraduate and graduate students. Students wishing to register can visit https://andyhoegh.github.io/MSUDataFest/ for more information.

Beth Burroughs
Montana State University

## University of Northern Colorado

The Department of Mathematical Sciences welcomes Dr. Hammad Mazar.



Dr. Mazar received his PhD. in Computer Science from the University of Iowa and has joined UNC right after. Hammad's research interests revolve around the Internet, with focus on security and privacy in areas such as networks and Internet of Things (IoT) systems, utilizing methods from formal verification and policy enforcement. Hammad is further interested in understanding how people interact with different applications that aim to provide computer security, such as applications that require users to set policies. In his spare time, Hammad enjoys video games focusing on local community presence in the Fighting Game Community (FGC), raising his new pet cat with his wife, and exploring national parks.

We are also excited about our two new BS degrees: Computer Science and Statistics, in addition to our existing BS degree in mathematics in five different concentrations: Pure & Applied Mathematical Sciences, Secondary Teaching, Middle School Teaching, Computer Science and Statistics & Data Science Concentrations. The new B.S. in Computer Science program focuses on the design of computers, computational processes for problem-solving, and information transfer and transformation, with an emphasis on improving software and system quality, security, performance, and usability. The program supports the evolution of the computing and informatics disciplines, and the integration of computer and information sciences with other

disciplines in the sciences. The BS Statistics major provides students with instruction in the basic techniques, applications, and theories of statistics, including the design and analysis of statistical models, in a wide variety of settings such as biology, business, criminal justice, earth sciences, geography, medicine, law, psychology and other social, natural and health sciences. Expanded computational, scientific, and statistical knowledge, combined with growing needs in technology, have created increased demands for individuals trained in statistics.

Gulden Karakok
UNC

**Is news from your school missing? Send your news to your department liaison now with a request to forward it to the Maila Hallare, Newsletter Editor, for inclusion in the next issue: maila.hallare@afacademy.af.edu**

# Mark Your Calendars!

Submissions to the Fall 2024 Newsletter are due September 15, 2024. Contact Maila Hall, maila.hallare@afacademy.af.edu if you have any questions.

# Rocky Mountain Section Grant Activity Report

The Pikes Peak Regional Undergraduate Mathematics Conference, held at the U.S. Air Force Academy, and the Celebration of Mind Mathematics Festival, held at the University of Northern Colorado, have each been selected to receive Section Activity Grants.

Rocky Mountain Section members who would like to plan events that advance **the goals of the Rocky Mountain Section** are encouraged to apply for next year's funding. Grant applications are due before November 1, 2024. Information about the grant program is available on page 17 of this newsletter and available at https://www.rockymountain.maa.org/section-activities-grant.

Beth Burroughs (committee chair)
Montana State University

# Rocky Mountain Section Teaching Awards

## 2023 Burton Jones Award for Distinguished College/University Teaching of Mathematics Recipient: Mike Siddoway, Colorado College
**Nominated by Molly Moran, Colorado College.**



The Rocky Mountain Section recognizes Dr. Siddoway for his excellence in teaching, his commitment to ethics and social justice, and his influence in spreading the joy and beauty of mathematics in the Rocky Mountain region and beyond. For the schedule and abstract of Dr. Siddoway's talk at 2024 section meeting visit the meeting's website: https://www.rockymountain.maa.org/events/2024-section-meeting

## 2023 Early Career Teaching Award for Excellence in Teaching in the Mathematical Sciences
## Recipient: Shelby Stanhope from the U.S. Air Force Academy
**Nominated by Col. Scott Williams**

The Rocky Mountain Section recognizes Dr. Stanhope for her excellent use of innovative teaching methods, her commitment to students and learning, and her record of service to the mathematical community in the Rocky Mountain region and beyond. For the schedule and abstract of Dr. Stanhope's talk at 2024 section meeting visit the meeting's website: https://www.rockymountain.maa.org/events/2024-section-meeting

**COLORADO COLLEGE**

The meeting will officially begin on Friday, April 19th at 1:00 pm. There will be a pre-conference workshop on AI in the classroom which will start around 9:00am (for more details check the website), and a chair/liaison lunch and a student lunch event at 11:30am. The conference will wrap-up at about 1:00pm on Saturday, April 20th.

Meeting Webpage: Hotel information, registration links, talk submission links, and other meeting information will be posted to the meeting webpage soon so please check the meeting webpage for updates: https://www.rockymountain.maa.org/events/2024-section-meeting

# Plenary Speakers

**MAA-AWM Speaker: Marissa Kawehi Loving, University of Wisconsin-Madison**



Marissa Kawehi Loving is an Assistant Professor of Mathematics and a Nellie Y. McKay Fellow at the University of Wisconsin-Madison. Previously, Marissa was an NSF Postdoctoral Research Fellow and Visiting Assistant Professor in the School of Mathematics at Georgia Tech. She graduated with her PhD in mathematics in August 2019 from the University of Illinois at Urbana-Champaign where she was supported by an NSF Graduate Research Fellowship and an Illinois Graduate College Distinguished Fellowship. Marissa was born and raised in Hawai'i where she completed her B.S. in Computer Science and B.A. in Mathematics at the University of Hawai'i at Hilo. She is the first Native Hawaiian woman to earn a PhD in mathematics. Her research interests are in geometry/topology, especially mapping class groups of surfaces (of both finite and infinite type). Marissa is also deeply invested in making the mathematics community a more equitable place. Some of her work includes mentoring undergraduate research (through

programs such as Summer@ICERM, MSRI-UP, and the Georgia Tech School of Math's REU) and co-organizing initiatives like SUBgroups and paraDIGMS.

*Title:* From dimension 2 to 3 and back again

*Abstract:* In this talk I'll begin by telling a little bit of Thurston's beautiful story connecting the dynamics of *finite-type surface* homeomorphisms with the geometry of 3-manifolds. I will then share some more recent work of myself and others which connect the dynamics of *infinite-type surface* homeomorphisms with the geometry of 3-manifolds. My aim is for the talk to be accessible to a broad audience with many illustrations to help us build our intuition without getting too far into the technical weeds.

**Section Visitor: Adriana Salerno, Vice President of MAA, Bates College**



Adriana Salerno is originally from Caracas, Venezuela, where she received her undergraduate degree in mathematics from the Universidad Simon Bolivar in 2001. She then went on to earn her PhD at the University of Texas. While completing her doctorate in mathematics, Salerno was also selected as the AMS-AAAS Mass Media Fellow in the summer of 2007; as such, she wrote articles for the Voice of America. Salerno's main research area is Number Theory, in particular the intersections of number theory with geometry, physics, and cryptography. She is also very interested in the communication and teaching of mathematics to create a more inclusive and equitable STEM workforce. She is an alum of the Linton-Poodry SACNAS Summer Leadership Institute, and the SACNAS-HHMI Advanced Leadership Institute, and is committed to increasing the representation of minorities and women in the mathematical sciences. She is a proud member of AWM, SACNAS, MAA, and AMS. Salerno was visiting mathematician at the Mathematical Association of America's headquarters in Washington, D.C., from September to November 2016.

*Title:* Arithmetic Geometry: From Circles to Circular Counting

*Abstract:* In this talk, I will show you a glimpse of one of the most exciting facets of research in modern number theory: arithmetic geometry. We will start with a (gentle) introduction to this area of research through some familiar examples. Then we will move on to a not so familiar example where we count solutions of equations mod p. I will end by answering two of the oldest and most mystifying questions in mathematics: how does this work fit into the bigger picture, and who cares?

**Guest Speaker: Jason Rosenhouse, James Madison University Distinguished Visiting Professor, United States Air Force Academy**



Jason Rosenhouse is a professor of mathematics at James Madison University, Harrisonburg, VA. For the 2023-2024 academic year, he is the Distinguished Visiting Professor in the Department of Mathematical Science at the U. S. Air Force Academy, Colorado Springs, CO. He received his PhD in mathematics from Dartmouth College, Hanover, NH in 2000, specializing in number theory and combinatorics. He is the author or editor of nine books on topics such as recreational mathematics and evolution vs. creationism. Currently, he is the Editor of *Mathematics Magazine*, published by the MAA. When not doing math, he enjoys chess, cooking, and reading locked-room mysteries.

*Title:* Dirichlet's Theorem and the Rise of Analytic Number Theory

*Abstract:* In 1837, Peter G. L. Dirichlet proved the following theorem: If a and d are relatively prime positive integers, then the arithmetic progression a, a+d, a+2d, . . . contains infinitely many prime numbers. His proof ushered in a revolution in number theory because it relied in a critical way on complex analysis. The use of analytic methods to solve problems in number theory was a tremendous innovation at the time. We shall consider some of the details of Dirichlet's proof, focusing on understanding why there is a deep connection between these seemingly unrelated branches of mathematics.

**2023 Burton Jones Award for Distinguished College/University Teaching of Mathematics: Mike Siddoway, Colorado College**



Mike Siddoway is a professor of mathematics at Colorado College. He received his PhD in mathematics from Tulane University and began teaching at Colorado College in 1988. Mike's research interests are in commutative algebra, module theory, and history of mathematics. Mike has been recognized on many occasions for his excellence in teaching and commitment to

social justice issues, and was most recently awarded the 203 Burton Jones Award from the MAA Rocky Mountain Section.

*Title:* Ideals in Lessons, Lessons in Ideals

*Abstract:* In my nearly four decades at Colorado College I've gleaned a deep unstated principal of blended devotion to students and mathematics from my extraordinary colleagues. This is a common experience throughout the member colleges and universities of the Rocky Mountain MAA. I wonder if there is a way to be more intentional about this blending and to be more supportive of different approaches to our commitments to students, teaching and research? How do we bring our broad reading and study to our students, how do we act/teach on what we've come to know inside and outside of mathematics? How do our life-learned ideals enter our lessons? Is there a "dual" to this question? Are there hints about how we can make the world a better place, be better teachers and mathematicians, offered by the structure of ideals in the sense of Dedekind, Kummer and Noether?

# Parallel Sessions

### History of Mathematics at Colorado College and Beyond: Janet Barnett (Colorado State University-Pueblo) and George Heine (Math and Maps)

In his seminal work *A History of Mathematics*, Florian Cajori remarked that "The history of mathematics may be instructive as well as agreeable; it may not only remind us of what we have, but may also teach us to increase our store" (p. 1). Cajori, who wrote these words during his time on the faculty at Colorado College, was the first of several historians of mathematics who have been associated with our host institution over the years. This session invites speakers to share reminiscences of those individuals, as well as other agreeable and instructive tales from the history of our discipline. Talks that suggest ways in which that history can be used in courses outside the history of mathematics as a means to increase the mathematical store of today's students are especially encouraged.

### Research in Undergraduate Mathematics Education (RUME): Gulden Karakok (University of Northern Colorado) and Liz Arnold (CSU Fort Collins)

In this session, we invite mathematics education researchers to share their research that focus on teaching and learning of mathematics courses at the undergraduate level. In particular, we welcome presentations of research studies that are relevant to research-based reform efforts of undergraduate mathematics programs and course sequences as well as other research studies that explores teaching and learning mathematics through an anti-deficit and equity-minded frameworks.

### Curriculum Redesign: Kristin Kang and Robert Powers (University of Northern Colorado), Robert Benim and Daniel Seneca Lindsey (University of Colorado-Boulder)

There are many important discussions happening and questions arising surrounding undergraduate mathematics curriculum redesign. For example, how much and what statistics should be taught in a mathematics department? The MAA's CUPM Curriculum Guide poses this question in its Statistics Program Area Study Group Report. The report acknowledges that "as technology has enabled … more varied and more sophisticated [data] analyses, which may not rely on calculus or advanced probability, it has become clear that colleges and universities need

to better prepare students for jobs in data analysis…" (p. 2). Or, what are departments doing to address difficulties students face in the Precalculus and Calculus courses? In this session, we invite contributions on these questions and others related to undergraduate curriculum redesign.

### Innovations in Teaching with OER: Oscar Levin (University of Northern Colorado) and Patricia A. McKenna (MSU Denver)

Use of Open Educational Resources, including open textbooks and software can have impacts beyond just saving students money.  OER gives instructors opportunities to implement innovative pedagogical approaches to teaching.  We invite presentations that share instructor experiences using OER and how it has impacted the teaching and learning in their classroom.

### Developments in Operator Algebras: Alfonso Delfín (University of Colorado-Boulder) and Menevse Eryuzlu (University of Colorado-Boulder)

This special session aims to provide a comprehensive exploration of recent advancements and current research trends in the diverse field of Operator Algebras. This session will encompass a broad spectrum of topics within the realm of Operator Algebras including C*algebras, von-Neumann algebras, L^p-operator algebras, operator spaces, C* correspondences, and operator algebras arising from dynamical systems and groupoids.

### Random Matrices and Free Probability Theory: Kyle Luh (University of Colorado Boulder), Sean O'Rourke (University of Colorado Boulder), Ping Zhong (University of Wyoming)

Free probability theory was introduced by Dan Voiculescu in the 1980s to address the free group factors isomorphism problem.  Later, it was shown that the limiting distribution of the eigenvalues of many random matrix ensembles can be described by the machinery of free probability theory.  Since then, the two fields have developed in tandem.  However, there have not been many opportunities for practitioners from both fields to meet in person.  The goal of this session is to bring together researchers from both fields in an in-person setting.  There have been many exciting developments from both camps and new students would benefit from seeing the connections between the fields as well as the latest techniques.  For example, the recent work of Bordenave and Collins that appeared in the Annals of Mathematics in 2019 develops connections amongst several areas of mathematics, including free probability theory, graph theory and random matrices.

### Undergraduate Research

Undergraduate students are encouraged to present in the areas of mathematics, mathematics education and the history of mathematics. Presentation topics could include the results of classroom or independent study, as well as REU or other research projects while the student was an undergraduate. Both research and expository topics are welcome.

### General Session

Talks not fitting into the sessions above are encouraged. Please submit abstracts to the general session.

Luis Garcia Puente and Molly Moran,
2024 Rocky Mountain Section Meeting Co-organizers.
lgarciapuente@coloradocollege.edu, and mmoran@coloradocollege.edu

# 21ˢᵗ Annual Pikes Peak Regional Undergraduate Mathematics Conference

The registration link is now live for the Pikes Peak Regional Undergraduate Mathematics Conference hosted at the **US Air Force Academy on March 2, 2024**. If a student is interested in presenting, they will indicate so on this form. A separate email will be sent to those interested in presenting to gather title and abstract information. The registration deadline is February 20, 2024. The deadline for titles and abstracts is a few days later on February 23ʳᵈ.

The focus of this one-day conference is to give undergraduate mathematics students an opportunity to present their work in a professional, supportive setting. Students throughout the Pikes Peak region and beyond are strongly encouraged to present in the areas of mathematics, mathematics education and the history of mathematics. Presentation topics could include the results of classroom or independent study, as well as REU or other research projects. Both research and expository topics are welcome.

PPRUMC 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. Based on past attendance, we expect a full day of student presentations and attendees from Colorado, Wyoming and other neighboring states. The program will also feature a Keynote Speaker and a panel on graduate school and career opportunities.
     **The registration link can be found here: https://www.usafa.edu/pprumc/**

If you or a student has questions about the conference or the registration form, please reach out to Ms. Rayne Mendez at rayne.mendez@afacademy.af.edu.

<div align="right">

Rayne Mendez
Maila Hallare
United States Air Force Academy

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# Nominating Committee Report

The nominating committee is soliciting nominations for the position of 2024–2026 Section Vice Chair. This position on the Executive Committee is reserved for a faculty member, associated with a two-year school, within the Rocky Mountain Section. In addition to acting as a contact between the Executive Committee and the two-year colleges within the section, duties of the Vice Chair include serving as a member on the Program Committee. This individual also appoints individuals to serve on the Teaching Awards Selection Committee and as the Section Student Activities Coordinator. Details of the duties for this position are described in the Section Procedures Handbook. Only members of the MAA are eligible to serve, but self-nomination is permitted and encouraged. Voting will be held electronically following the 2024 Section Business Meeting in April.

For more information or to make a nomination, contact any member of the Nominating Committee.

<div align="right">

Michael Jacobson (committee chair), michael.jacobson@ucdenver.edu
Janet Heine Barnett, janet.barnett@csupueblo.edu
Martha Garlick, martha.garlick@sdsmt.edu

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# Colorado Council of Teachers of Mathematics (CCTM)

The Colorado Council of Teachers of Mathematics (CCTM), is a professional organization that provides networking, advocacy, and support for teachers across the state of Colorado. Through its newsletter, you can learn more about CCTM activities, upcoming events, hear teachers' voices, learning about practical practices, spotlight Colorado mathematics educators and teams, and more.

We are pleased to announce that Dr. Joseph Bolz, current Treasurer of CCTM and mathematics teacher at George Washington High School in Denver, is a candidate for the National Council of Teachers of Mathematics (NCTM) Board of Directors for High School Mathematics (elections open February 12th). Below is a message from Joe:

> I'm hoping for all you members of NCTM, and those looking to become one, I can have your support in these upcoming elections. Here are a few facts about the position as well as why we need someone from Colorado on this Board:
> — The NCTM represents well over 25,000 math teachers - the biggest organization of its kind.
> — Being nominated was a huge honor, but from the nomination they only select two candidates, so making it this far has been incredibly humbling (and only a few select make it this far)
> — The makeup of the board is predominately people outside of the classroom - my involvement would help to bring balance back to the voice of teachers
> — Colorado is an amazing state with much to contribute, yet they have only had one Board member this century (Cathy Martin) and before that, we have to go back to the 1950s to find Colorodans who served on the board of NCTM
> — Denver is hosting the 2026 National Conference - this term would include that conference! It would be great having someone local working with the NCTM to help host this event
>
> So, two asks:
> 1.  Check out my bio and information at the Board website: NCTM 2024 Candidates
> 2.  If you are able, VOTE when it opens (February 12th).
>
> If you have any questions for me, feel free to reach out directly at joseph_bolz@dpsk12.net.

CCTM is excited to offer a **free** virtual book study on *Teaching for Thinking* for the 2023-2024 school year, and it's not too late to join! The study is running through May 2024. Two sessions (Tuesday afternoon and Thursday evening) will be offered each month to offer flexibility for attendance.  Attendance is not required from one month to the next unless you would like to apply for college credit in the spring of 2024. CCTM members who participate in the book study will have access to continuing education hours, book study resources, and session recordings. Optional college credit is available for an additional fee from Colorado Mesa University. You can sign up for the book study here.

Save the date! CCTM will be holding its next in-person, annual conference on **June 13-14, 2024**; many details to come. Visit Upcoming CCTM Events for additional details and to view other upcoming opportunities that are being offered by CCTM.

CCTM has its own peer-reviewed, open access journal, Colorado Mathematics Teacher, hosted by the University of Norther Colorado Libraries. Consider writing an article and encourage teachers to submit an article. We would love to hear about the amazing work that teachers are doing!

Liz Arnold, CSU Fort Collins
Higher Education Representative
CCTM Board of Directors

## Meetings Calendar

MAA MathFest; Indianapolis, IN,
   August 7-10, 2024
      To register: https://maa.org/meetings/maa-mathfest
NCTM Annual Meeting, Chicago, IL
   September 25-28, 2024: https://www.nctm.org/annualmeeting/
AMATYC Annual Conference, Atlanta, GA
   November 14-17, 2024: https://amatyc.org/page/2024ConfHome

Joint Mathematics Meetings, Seattle, WA
   January 8–11, 2025
MAA Rocky Mountain Section Meeting,
   TBD, April, 2025
MAA MathFest; Sacramento, CA
   August 6-9, 2025
AMATYC Annual Conference, Reno, NV
   November 13-16, 2025
NCTM Annual Meeting, Chicago, IL
   October 15-18, 2025

Joint Mathematics Meetings, Washington, DC
   January 4-7, 2026
MAA MathFest; Boston, MA
   August 5-8, 2026

# MAA Rocky Mountain Section
# Guidance for Speakers

The Rocky Mountain Section would like to offer the following suggestions regarding preparation of a talk at the conference.

## Presentation Length

All contributed talks will be placed in 20-minute time slots, ideally, approximately 15 minutes for the presentation with a few minutes at the end available for questions. Please prepare your presentation to fit the time allotted.

A moderator will be assigned to facilitate each session of presentations. The moderator will introduce the speaker, act as "host" for the session, signal the end of the presentation, and ask for questions from the audience.

You can present your talk using Power Point slides, PDF, or similar, which will greatly enhance the pace of a presentation.

## Presentation Tips

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.

Please make sure that the slide content is typed in a font big enough and with spacing adequate to be seen clearly. We recommend including only a small amount of text on each slide.

# 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 1st 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.

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

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For information on the Burton W. Jones Award for Distinguished College or University Teaching of Mathematics, check out https://www.rockymountain.maa.org/s/BWJones_nomination_form-2dge.docx

Nomination forms should reach Section Awards Coordinator, **Kyle Riley, Kyle.Riley@sdsmt.edu**, by December 15 of each year. Complete nomination materials should reach Awards Coordinator by January 15 of each year.

Please consult the Section webpage (http://www.rockymountain.maa.org) for complete guidelines.

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# The Rocky Mountain Section of
# The Mathematical Association of America
# Early Career Teaching Award
# for Excellence in Teaching in the Mathematical Sciences

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For information on the Early Career Teaching Award, check out:
https://www.rockymountain.maa.org/s/EarlyCareer_nomination_form-tz6b.docx

Nomination forms should reach Section Awards Coordinator, **Kyle Riley, Kyle.Riley@sdsmt.edu**, by December 15 of each year. Complete nomination materials should reach Awards Coordinator by January 15 of each year.

Please consult the Section webpage (http://www.rockymountain.maa.org) for complete guidelines.

# Voluntary Section Dues

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.

Contributions may also be made in support of the Pikes Peak Regional Undergraduate Mathematics Conference; simply choose "Other" on the coupon below and specify "PPRUMC" in the space provided.

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.

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## 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 |
| _____ | Teaching Award Fund (Burton W. Jones DTA and ECTA) |
| _____ | 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:
   Mona Mocanasu
   MAA Rocky Mountain Section Treasurer/Secretary
   Metropolitan State University of Denver
   Department of Mathematical and Computer Sciences
   Campus Box 38; PO Box 173362
   Denver, CO 80217

# 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.

# 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 $e^{ip} + 1 = 0$ 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 p; 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."