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

Spring 2019 Newsletter in PDF Format for Printing

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Table of Contents

Spring 2019 Newsletter in PDF Format for Printing	1
Table of Contents	
2018 - 2019 Section Officers and Committee Members	
2020 Distinguished Teaching Award Call for Nominations	
2020 Early Career Teaching Award Call for Nominations	
Chair's Corner	
Newsletter Editor Position	6
24th Annual Colorado Mathematics Awards Ceremony/Reception	7
Section News	
Colorado School of Mines	
Colorado State University - Pueblo	
Metropolitan State University of Denver	
Montana State University	
South Dakota School of Mines and Technology	
University of Northern Colorado	
CCTM News	
Mathematics and Statistics Awareness Month April 2019	
SIAM 15th Annual Front Range Applied Mathematics Conference Universit	
Colorado - Denver March 2, 2019	
Section Nominating Committee Report	
Fort Lewis College in Durango to host the annual Rocky Mountain Section April 5 - 6, 2019	
Student Activities	
History of Mathematics Student Poster Contest	
16 th Annual Pikes Peak Regional Undergraduate Mathematics Conference	
States Air Force Academy Saturday, March 2, 2019	
NSF SIMIODE Summer 2019 Workshops	
SIMIODE Invitation to Host SCUDEM IV	
MAA Rocky Mountain Section Suggestions for Speakers	
Grants Available	
Section Activity Grants Available	
Student Recognition Grants Available	
About Our Logo	
Meetings Calendar	
Burton W. Jones Award Nomination Form	27
Early Career Teaching Award Nomination Form	20
Early Career Teaching Award Guidelines	20
Voluntary Costion Duce	29
Voluntary Section Dues	31
MAA Rocky Mountain Section Voluntary Dues Contribution Form	
MAA Rocky Mountain Section Mission Statement	32

2018 - 2019 Section Officers and Committee Members

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

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 2018 – 2019

Chair Alexander Hulpke alexander.hulpke@colostate.edu

(2017 - 2021) Colorado State University 970-491-4288

Fort Collins, CO 80523

Past Chair Mike Jacobson michael.jacobson@ucdenver.edu

(2015-2019)University of Colorado Denver 303-315-1708

Denver, CO 80217

Vice-Chair Shawna Mahan shawna.mahan@ppcc.edu

(2018-2020)Pikes Peak Community College 719-502-3268

Secretary/ Mona Mocanasu mmocanas@msudenver.edu

Treasurer **MSU Denver** 303-615-0747

(2017-2020) Denver, CO

MAA Debra Carney dcarney@mines.edu

National Colorado School of Mines 303-273-3977

Golden, CO Rep

(2017-2020)

Program Laura Scull scull I@fortlewis.edu Co-Chairs

Veronika Furst furst v@fortlewis.edu Fort Lewis College

Other Committee Members and Representatives

Section Nominating Committee

Kyle Riley (Chair), SDMST kyle.riley@sdsmt.edu Gulden Karakok, UNC gulden.karakok@unco.edu

Greg Oman, UCCS goman@uccs.edu

DTA Awards Selection Committee

Mike Jacobson (Chair), UCD michael.jacobson@ucdenver.edu Jeanne Clelland, UCB jeanne.clelland@colorado.edu

Elizabeth Burroughs, Montana State University burroughs@montana.edu jennifer.holmes@ppcc.edu

Jennifer Holmes, PPCC

ECTA Awards Selection Committee

Mike Jacobson (Chair), UCD michael.jacobson@ucdenver.edu

Ian Pierce, USAFA ian.pierce@usafa.edu

Elizabeth Burroughs, Montana State University burroughs@montana.edu Jennifer Holmes, PPCC jennifer.holmes@ppcc.edu **Section Awards Coordinator**

(2017-2020) Jeremy Muskat, Western State Colorado University jmuskat@western.edu

Section Student Activity Coordinator

(2017-2020) Beth Schaubroeck, USAFA beth.schaubroeck@usafa.edu

Higher Education Representative on CCTM Governing Board

(2016-2019) Heather Johnson, UCD heather.johnson@ucdenver.edu

Section Book Sales Coordinator

(2015-2018) Janet Heine Barnett, CSU - Pueblo janet.barnett@csupueblo.edu

Section NExT Committee

(2016-2019) Rebecca Swanson, Colorado School of Mines swanson@mines.edu

Amanda Schaeffer-Fry, MSU Denver aschaef6@msudenver.edu

Public Information Officer and Section Liaison Coordinator

(2017-2020) Mona Mocanasu, MSU Denver mmocanas@msudenver.edu

Website Editor

(2015-2018) George Heine, Math and Maps gheine@mathnmaps.com

Newsletter Editor

(2016-2019) Linda Sundbye sundbyel@msudenver.edu

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Denver, CO 80217-3362

2020 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*e check. All nominators also receive a certificate of in recognition of their efforts to support the section mission of promoting excellence in teaching; nominators and nominees both receive free meeting registration at the next section meeting.

To begin the nomination process for an outstanding teacher that you know, simply submit the one-page nomination form (available at our website: http://sections.maa.org/rockymt and in this newsletter) by 15 December 2019. Complete nomination materials (described on the website) are due 15 January 2020.

2020 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 onepage 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 2019. Complete nomination materials (described on the website) are due 15 January 2020.

Chair's Corner

Dear Section.

Let me start with belated best wishes for the New Year.

Deep in Winter (well, this being Colorado there are still students walking around in shorts), thoughts turn to our spring meeting, which will happen April 5/6 in Durango, chaired by **Laura**

Scull and **Veronica Furst**. With Durango being far from many places (or, as Laura prefers: many places being far from Durango) we are looking at a slightly shifted schedule that will allow many of us to travel on Friday after daybreak, and still make it for the meeting's opening. I am looking forward to seeing many of you there. As usual, you will find more about the spring meeting later in this newsletter.

Speaking of travel times reminds me of the large geographic extent of our section. The Executive Committee (EC) is certainly aware of this, and we try to offer equal opportunities to all section members, but we cannot change geography or invent faster modes of travel, nor can we conjure events out of thin air. I would like to encourage you to propose section meetings (we still are looking for a venue for our 2020 sectional meeting), or other section-sponsored activities: We have an activity grant program with proposals due annually on November 1, and we would love to see more proposals. Chances of funding have been excellent in the past years. If vou are interested, but would like advice, contact me by email, or talk to me at the sectional meeting!

I also would like to encourage all of you to consider serving in one of our many officer roles (https://na01.safelinks.protection.outlook.com/?u rl=http%3A%2F%2Fsections.maa.org%2Frocky mt%2F2019 Officers.php&data=02%7C01 %7Csundbvel%40msudenver.edu%7C1e53e99 89bd44cd20d0c08d67b3338ee%7C03309ca417 334af9a73cf18cc841325c%7C1%7C0%7C6368 31857266230119&sdata=aWAIARf5PkoVT RSwqHbEOYcivb76wS0Zs7N9%2Bz5k8D4%3D &reserved=0) without which our section could not work. Some of these positions are elected, and we have a hard-working nomination committee (thank you Kyle Riley, Gulden Karakok, and Greg Oman for your work) who look for candidates for these elections. If you are interested in serving in future in one of the elected please contact the nominating positions. committee.

There are also other positions (such as being on the nominating committee...) that are not elected, but to which members (according to our bylaws) will be named by the elected officers. The common-sense mandate we have from the national organization is to have these roles, in particular, the nomination and awards committees, filled from members selected equally from the membership. The naive solution —

picking members by random from the member roll—however is clearly not a good option, as we cannot force anyone to serve in an officer role. I therefore would like to encourage you to think about serving in some of these roles, and to talk (or email) to me (or other EC members) if you could be interested. This is not a burden: The time commitment for the awards committees, for example, is probably less than half a day per year. Serving on such a committee also might help you with your own nominations or grant proposals in the future.

Some of the named positions take significantly more work, and I would like to thank the incumbents for their contribution to the section, in particular our long-time newsletter editor Linda Sundbye, our Section NExT committee Rebecca Swanson and Amanda Schaeffer-Fry, and our new CCTM representative Heather Johnson.

Finally, I would like to thank my predecessor, **Michael Jacobson**, who in the (definitely not ceremonial, but hard-work) role of past chair has helped us enormously and is still doing so until the election of the new chair-elect following the spring meeting.

Amongst the changes that happened over the last year is that the deadline for the Spring Newsletter moved earlier to January 15. I'm thus writing this before flying off to Baltimore for the Joint Meetings. Don't forget that the 2020 Joint Meetings will be on our home turf in Denver. The deadline for proposing special sessions for this event will be April 2.

Wishing You an Excellent Spring Term, Alexander Hulpke, CSU Chair, Rocky Mountain Section

Newsletter Editor Position

After 15 years serving as Newsletter Editor, I am retiring from this position. I have certainly enjoyed this work over the years, but it is time to let someone younger and more energetic takeover. If you are interested in this position, please contact one of the members of the Executive Committee.

Best wishes to all,

Linda Sundbye

Metropolitan State University of Denver Rocky Mountain Section Newsletter Editor

24th Annual Colorado Mathematics Awards Ceremony/Reception

Plans are underway for CMA XXIV -- the 24th Colorado Mathematics Awards Ceremony and Reception to be held on Tuesday, May 7 at the Grant - Humphreys Mansion in Denver. At the school level we'll be recognizing the top ten participants on MATHCOUNTS, the AMC 8, 10, and 12 contests, and the members of the 2018 Colorado American Regions Mathematics League team. At the collegiate level we'll be recognizing all Section Putnam scorers in the top 500, and the top team(s) on the Mathematical Contest in Modeling. We expect to recognize between 50 and 60 winners. With the winners, parents, and teachers, we expect between 120 and 130 to attend the event.

We appreciate the support that the Rocky Mountain Section has provided for this event over the years.

Other sponsors of the Colorado Mathematics Awards the Professional Engineers of Colorado, and individual and past members of the Colorado Mathematics Awards Steering Committee.

Suggestions for additional sources of funding are always welcomed. Please contact me at gibbs_d@fortlewis.edu.

Thank you,
Dick Gibbs
Co-Chair CMA Steering Committee
Emeritus Professor of Mathematics
Fort Lewis College

Section News

Colorado School of Mines

The Colorado School of Mines Applied Mathematics and Statistics department welcomes new faculty members:



Douglas Nychka is a statistical scientist whose areas of research include the theory, computation and application of curve and surface fitting with a focus on geophysical and environmental applications. His statistical expertise is in spline and spatial statistical models, especially as applied to large geophysical data sets and numerical models. Nychka joins Mines from NCAR where he most recently served as director of the Institute of Mathematics Applied to Geosciences.



Dorit Hammerling is a statistical scientist interested in spatio-temporal statistical methods applied to the geosciences, with a focus on massive data from satellites and climate models. Hammerling comes to Mines from NCAR where she was most recently a Project Scientist II in the Analytics and Integrative Machine Learning Group.



Assistant Professor Cecilia Diniz Behn was selected as the winner of the 2017- 2018 Mines Teaching Award for Tenure-Track Faculty. She has introduced two courses focused on mathematical biology into our curriculum: Mathematical Biology and Mathematical and Computational Neuroscience. She is also an important player in the interdisciplinary MS and PhD degree programs in Quantitative Biosciences and Engineering. Diniz Behn has strong research ties: while continuing her own research in the Math Biology field, she also assists graduates and undergraduates with research. Her mentorship has led to three successful master's students and an active research group. She is a regular participant in SWiM (Society for Women in Mathematics) and an active member of AWM (Association for Women in Mathematics)

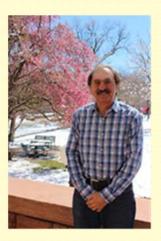


Teaching Professor **Gus Greivel** was selected as the winner of the 2017-2018 Mines Teaching Award for Teaching Faculty. Greivel is not only an AMS alum but he has also been a member of the Mines faculty since 1996, teaching over 20 different courses and 7,000 students in a wide variety of courses. He led the development

of significant curriculum changes in the mathematical and computer sciences degree program from 2005 to 2008, work that now serves as the framework for three undergraduate degree programs. This award recognizes the quality, quantity and diversity of his instructional contributions to Mines, his continued pursuit to improve the undergraduate experience, and his leadership among the Mines teaching faculty.



Adjunct faculty member, **Jane Walker**, received the 2018 Mines' Blue Key Outstanding AMS Faculty Award.



William Navidi received the 2017 Outstanding AMS Faculty Award by the Mines' Class of 2017 Graduating Seniors.



Program Manager **Jaime Bachmeier** received the 2018 Mines' Blue Key Outstanding AMS Staff Award.

Faculty Grants:



Mahadevan Ganesh (PI): National Renewable Energy Laboratory (NREL), "Adaptive Power Reduction and Uncertainty Quantification Algorithms"



Soutir Banyopadhyay and **Willy Hereman (Co-Pls):** State of Colorado, "Flowline Risk Review"

Soutir Bandyopadhyay (PI) and Dorit Hammerling (PI): National Science Foundation (NSF), "Collaborative Research: Theory and Methods for Highly Multivariate Spatial Processes with Applications to Climate Data Science"

Cecilia Diniz-Behn (co-PI): National Science Foundation (NSF), "RAISE-TAQS: Entanglement and information in complex networks of qubits.

Congratulations to **Soutir Bandyopadhyay** on being selected as Web Editor for the Bernoulli Society and as an Associate Editor for Statistics and Probability Letters.



PhD Candidate, Katy Martinez' research was featured in an online article on the American Geophysical Union's website, following the 2018 AGU Fall Meeting, Martinez's research is building a numerical model that predicts areas in Brazil at risk for mosquito-borne disease outbreaks. Unlike other models that make outbreak predictions based solely on climate factors, Martinez's model also incorporates how human demographics, such as the percentage of people living in poverty or how many households had a garbage collection service, impact the spread of mosquito-borne diseases. She hopes that taking human demographics into account will improve risk predictions, helping policymakers make decisions to stop the spread of potentially deadly mosquito-borne diseases.

Student Awards:



PhD Candidate **Nicholas Fisher** received the annual 2018 Graduate Teaching Award.



PhD Students **Nora Stack** and **Nick Danes** received the inaugural Graduate Research Awards.



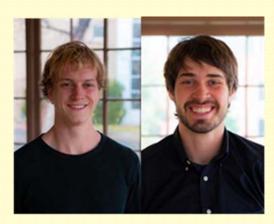
Erica Dettmer-Radtke (STAT) & Clayton Kramp (CAM) received the Spring 2018 Outstanding Graduating Senior Awards.



John Alley (STAT) and **Matthew Baldin** (CAM) received the December 2018 Outstanding Graduating Senior Awards.



Jaden Davidson received the 2017-2018 Ryan Sayers Memorial Scholarship.



Nathanael Smith and **Connor Mattes** received the 2017-2018 Ryan Sayers Memorial Award.



Kaitlyn Mobley received the 2017-2018 Edays Award.



Nicholas Rummel is the recipient of the 2018 Professor Everett Award in Mathematics. The Award is given to a senior who demonstrates scholarship, leadership, community service and potential for the innovative application of mathematics to mineral engineering.

Daniel Mendoza (not pictured) received the 2018 AMS Honors Fund to Honor Excellence in Teaching and Learning Award.

Colorado State University - Pueblo

Janet Nichols led CSU-Pueblo's (and her!) *41st Math Day*, November 15, 2018, for over 200 students and their teachers from 19 Colorado High Schools. See

https://www.chieftain.com/news/20181119/math-students-shine-at-csu-pueblo-event for more information.

James Louisell again wrote the Swanson Competition Exam, his 22nd since 1995.

Paul Chacon and **Igor Melnykov** collaboration with others CSU-P faculty lead to the 2018 publication: "Distribution of the internal and external rates of return in a partially stochastic 'oil pump problem'". *Engineering Economist.*

https://doi.org/10.1080/0013791X.2018.1468945

Jonathan Poritz is currently serving full time

as Director and Data Analyst in the Center for Teaching and Learning at CSU-Pueblo. He also serves at the Chair of the Colorado OER Council through the Colorado Department of Higher Education. His piece "Blockchain Pixie Dust," appeared on *Inside Higher Ed.* September 12, 2018.

Paul Chacon began his third stint as Department Chair in May 2018. He is also designing and leading a major revision of our entry level and remedial mathematics curriculum.

Bruce Lundberg's term as Chair ended May 5, 2018, but he now serves as Physics Program coordinator. After a three-year hiatus, he returned summer 2018 (his 20th) to full-time summer consulting in optimization of spacecraft trajectories.

Travis Hurst joined our Department as a tenure-track assistant professor of physics. His specialty is dark matter research.

Darren Funk-Neubauer is teaching a special seminar in combinatorics Spring 19. Over 2018 Thanksgiving break, he climbed the highest 4 volcanos in Mexico: 15,354; 17,126; 18,045 and 18,406 feet high.

Igor Melnykov is teaching a special seminar in regression Spring 19, along with his regular graduate course in Statistics for Biology and Chemistry Master's students.

Metropolitan State University of Denver

Student Ahern Nelson participated in the Budapest Semester Abroad in Mathematics. And Elizabeth Foster participated in the Undergraduate Student Poster Session at the JMM, presenting her team's work from the previous summers' REU at Boise State.



Montana State University

Montana State University welcomes two new faculty members to the Department of Mathematical Sciences.



Katharine Banner is an Assistant Professor of Statistics. She believes that statisticians have a responsibility to not only develop methodology for addressing specific research questions, but to also provide tools for assessing when those methods are appropriate to use. She is interested in developing tools and guidelines (e.g., R packages for visualizing data/results) for practitioners to aid in understanding complex (and often popular) methods so that they can make informed decisions about when to use them



Derek Williams is an Assistant Professor of Mathematics Education. Williams is interested in students' experiences while learning mathematics; relationships between affect and cognition; students' understanding of concepts central to calculus and precalculus; and students' mathematical reasoning with technology.

South Dakota School of Mines and Technology

There have been many changes this year for our department at the South Dakota School of Mines & Technology. The decision has been made to split the department so there will be a new department in Computer Science and Engineering while the mathematics portion of our mission will live on in the Department of Mathematics. Kyle Riley has stepped down from the position of Department Head and Travis Kowalski has stepped up to the position of Interim Department Head. Last year, Martha Garlick was granted promotion to Associate Professor and awarded tenure. The math major has been doing well and we have enjoyed an increasing number of graduates in recent years. We hope to continue this trend with our new department.

University of Northern Colorado

We are very excited to welcome Virgil Pierce, Neil Hatfield, and Shweta Naik to our department.



Virgil Pierce, our new director, served as Associate Dean for Student Success in the College of Sciences at the University of Texas Rio Grande Valley. His research interests are applied mathematics, mathematical and statistical physics, combinatorics, and probability. In addition, he has been focusing on placement and college readiness issues from mathematics education and administration perspectives.



Neil Hatfield is a visiting assistant professor of mathematics education. His research interest is the teaching and learning of undergraduate mathematics and statistics with primary focus on how students develop their understandings of distribution in statistics.



Shweta Naik is a post-doctural research assistant fellow working on an NSF grant entitled *Initiating a Foundational Research Model for Secondary Mathematical Knowledge for Teaching (INFORMS MKT)*. She received her PhD from the University of Michigan and her research interests are in the area of teaching and studying teachers learning to teach mathematics.

The Howard Hughes Medical Institute awarded UNC a five-year, \$1 million dollar grant to develop a classroom model and establish a new center to engage more students from all backgrounds, in the sciences. **Jodie Novak** serves as Co-Project Director for Improving Classroom Culture to Support Intrinsic Motivation as a Pathway to STEM Inclusive Excellence grant.

Katie Morrison, in collaboration with Carina Curto of Pennsylvania State University, received a \$1.1 million dollar NIH Brain Initiative grant to

support research on mathematical models of neural activity with an aim toward understanding how neural connectivity shapes the patterns of activity observed in different brain regions.

Hortensia Johnson is the MAA's new Associate Secretary and started her position on August 15, 2018. Nathaniel Miller was recently elected as the Chair-Elect of the MAA SIGMAA on Inquiry Based Learning (IBL). Nate Eldredge was tenured and promoted to Associate Professor. Igor Sczcyrba retired in May 2018.

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

CCTM News

- Submit a manuscript proposal to the Colorado Math Teacher Journal (CMT). Finished CMT articles should be between 800-1200 words, including titles, tables, figures, and references. Authors should write for a broad audience of people invested in mathematics education. For information about the submission process, visit:
 - https://www.cctmath.org/cmt-submit/
- The Colorado Council of Teachers of Mathematics' (CCTM) Annual Conference will be held at the University of Denver on July 29-30, 2019. The CCTM Board of Directors is soliciting ideas for encouraging preservice teacher participation at the conference. To contact the CCTM Board of Directors, visit: https://www.cctmath.org/contact-cctm/

Happy New Year!

Heather Johnson, UCD

CCTM Rep

Mathematics and Statistics Awareness Month April 2019

Information for this year's Mathematics and Statistics Awareness Month will be available soon at:

http://www.mathaware.org

SIAM 15th Annual Front Range Applied Mathematics Conference University of Colorado - Denver March 2, 2019

For more information, visit: https://www.colorado.edu/amath/2019-siam-front-range-student-conference

Conference Keynote Speaker:

Jan S. Hesthaven, École Polytechnique Fédérale de Lausanne, Switzerland Title of Talk: How to Predict a Tsunami

Abstracts due February 22, 2019. Submit to: FRAMSC.abstracts@gmail.com

Section Nominating Committee Report

The nominating committee is pleased to report that we currently have two candidates nominated for the position of chair-elect. As you may know, the chair-elect is a very important position in leadership for the Rocky Mountain Section.

The chair-elect serves one year as chair-elect, two years as chair of the section, and one year as past-chair. In the first and fourth year the position includes the role of chairing our teaching awards committee and also being chair of the section activity grant award committee. As chair, the person elected would lead the executive committee and preside over all business meetings for the section. The chair is also responsible with appointing committee members to the standing committees.

As you may recall, this is our first election under our revised by-laws, which means the actual vote will occur electronically. The nomination committee will continue to accept nominations and all nominated candidates will be presented at our next section business meeting, April 6 in Durango, CO. At the business meeting, we will also accept nominations from the floor and then close nominations. The actual election will be held electronically with section members contacted via email to vote following the same procedures that are used for the elections conducted for our congressional representative.

If you have anyone you would like to nominate then please feel free to contact any member of the nominating committee:

- Gulden Karakok, (University of Northern Colorado) Gulden.karakok@unco.edu
- Greg Oman, (University of Colorado, Colorado Springs) goman@uccs.edu
- Kyle Riley, Chair (South Dakota School of Mines and Technology) Kyle.Riley@sdsmt.edu

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

Respectfully submitted, The Nominating Committee

NOMINEES FOR CHAIR-ELECT:



Jonathan Poritz
Associate Professor, CSU-Pueblo

BIO:

Dr. Poritz has been at Colorado State University-Pueblo for about thirteen years, but before that he was one of those tattered minstrel mathematicians one sees wandering dusty backroads with nothing but a piece of chalk and a box of Springer-yellow textbooks to his name. In total, he was a student or faculty member at around a dozen universities in every time zone in the contiguous 48 and two in Europe. During breaks in the mathematical wandering, he also worked in various IT firms, from start-ups to multi-nationals, doing things like: Al, cryptography, and consulting on public policy towards technology. His research has studied a variety of pure and applied problems, but his recent focus has been on pedagogy. He has written a couple of textbooks and recently became the director of the Center for Teaching and Learning on the CSU-Pueblo campus. He is also working at the state level in Colorado to get more open educational resources to students in higher education as chair of the state OER Council created last year by the Colorado legislature. More information is available on his website poritz.net/jonathan.

POSITION STATEMENT:

If elected, there are many things I would like to pursue under the umbrella of all of the wonderful work that the MAA already does. Here are three specifics:

- 1) OER: I've been working on my campus and at the state level in Colorado to promote the use of "Open Educational Resources" in higher ed. These include free, and freely customizable, textbooks and other written materials, but also go much farther. For example, another OER is the amazing tool WeBWorK, an open-source online homework system supported by the MAA and developed with support from the NSF, which uses a Perl-like language to build sophisticated, customized problems for a range of mathematical topics. OER can improve students' lives by lowering part of the high financial barrier imposed by today's funding model of higher ed, while improving faculty members' lives by giving us greater control over the educational content and approach used in our classes as realized by the materials [such as textbooks] we use. In the same way the MAA has supported WeBWorK, it can support OER more generally, and this would be something I would very much like to facilitate.
- 2) Pedagogy: These are exciting times for mathematical pedagogy, with new results of careful studies coming out about what makes for effective instruction, as well as new tools (many technological) allowing new pedagogical methodologies. The MAA can share information, bring in speakers, run workshops to share these developments.
- 3) Research: It is an even more exciting time for pure mathematical research, of course: in recent years and months we've had a new Mersenne prime, controversies about the Riemann Hypothesis and the ABC Conjecture, and advances towards the twin prime conjecture, just to name a few things it is fairly easy to discuss with a wide audience. It is also a moment, in the larger sense, that mathematics is relevant to so many fields, from astrophysics to cryptocurrencies to topologies of social networks to machine learning -- it's all math! The MAA can help to spread the joy of mathematical discovery to a wider audience, to the general public, to our students, and to the professionals in so many fields who now use quite sophisticated mathematics in everything they do.



Dan SwensonAssociate Professor, Black Hills State University

BIO:

Dr. Swenson received a B.S. in Mathematics and a B.A. in Philosophy from Iowa State University in 2003. He went on to study Mathematics at the University of Minnesota (Twin Cities), where he completed an M.S. in 2007 and a Ph.D. in 2009. Since August 2009 he has been a faculty member at Black Hills State University in Spearfish, SD, where he currently holds the rank of Associate Professor. Some of his current interests include the study of political redistricting (gerrymandering), math education, and any kind of puzzles or games.

POSITION STATEMENT:

I have been actively involved in the MAA since moving to the Rocky Mountain Section. I have attended and delivered a talk at every section meeting since the spring of 2010. I was also fortunate to be named a Section NExT fellow in 2010-2011, and I felt that that experience was helpful to me in many ways as a new faculty member. Quite a few of us from that cohort are still active in the section, and I enjoy re-connecting with them at least every year at the section meeting.

One thing that makes the MAA an especially valuable and important organization for me is its commitment to excellence in teaching mathematics at all levels, especially through its excellent publications and conferences. In particular, the Pikes Peak Regional Undergraduate Mathematics Conference and the annual Section meeting are valuable opportunities for our undergraduate Mathematics and Mathematics Education students to directly experience new and exciting mathematics, here in our own geographic region. I have repeatedly seen our students get inspired by a talk they attended, or a conversation with someone they just met, at these events. Ensuring robust participation in our section and at our meetings is and will be a significant challenge, but it is critical to our success as a section.

I am proud to be a part of the Rocky Mountain Section, and I look forward to continuing to work with the section in the future. Thank you!

Fort Lewis College in Durango to host the annual Rocky Mountain Section Meeting April 5 - 6, 2019



The 2019 Rocky Mountain Section meeting will be held April 5-6, 2019 on the campus of Fort Lewis College in Durango, CO. The conference will begin late Friday afternoon and run all day Saturday. The meeting promises two days of engaging speakers, student activities, book sales, and more.

Plenary Speakers for the meeting will include:

- Dr. Rachel Levy
 MAA Deputy Executive Director
- Dr. Jeanne Clelland

University of Colorado at Boulder; Rocky Mountain Section's 2018 Burton W. Jones Distinguished Teaching Award recipient.

Dr. lan Pierce

United States Air Force Academy; Rocky Mountain Section's 2018 Early Career Teaching Award recipient

The program will also include a Friday evening banquet, and the return of Student Jeopardy. Additionally, we invite members to consider submitting abstracts to speak in sessions on History of Math, Math Ed, General Math and of course our Student Talks.

Registration and information on abstract submission will be available soon at: http://www.fortlewis.edu/maa-rms2019

The deadline for abstract submission is March 8.

For more information, contact the Program Co-Chairs:

Laura Scull (scull l@fortlewis.edu)
Veronika Furst (furst v@fortlewis.edu)

Student Activities

Please join us at the Rocky Mountain Section Meeting in April. Enjoy these great activities!

Give a talk! This conference is a great place to give a talk to fellow students and faculty members. Prepare your talk and sign up to present in a student session. Sign up at the conference website.

Present a Poster! Present a poster in the inaugural History of Mathematics Student Poster Contest. More information on the next page of this newsletter.

This is Jeopardy! Come to compete or to cheer on your favorite team! Get together a team of 4-5 students from your school or sign up to be put on an "inter-school" team. There is a limited number of teams; they will be entered in the competition on a first-come, first-served basis. There is also a limit of 5 students on the inter-school team, so register early! Details will be available at the conference website.

Free lunch after Jeopardy on Saturday! On Saturday after Jeopardy, there is a free student lunch (pizza for most; allergen friendly food available, especially if you email me with specific allergies). *Note that the student lunch is on Saturday, not Friday as in recent years.* Please come and join us!

Please direct questions to **Beth Schaubroeck**, <u>beth.schaubroeck@usafa.edu</u>.

History of Mathematics Student Poster Contest

The Rocky Mountain Section History of Mathematics Special Interest Group of the Mathematical Association of America (HOM SIGMAA) is pleased to announce its first annual:



History of Mathematics Student Poster Contest

Rocky Mountain Section Annual Meeting Fort Lewis College, Durango CO April 5 – 6, 2019

Students at any stage of their undergraduate education are encouraged to participate!

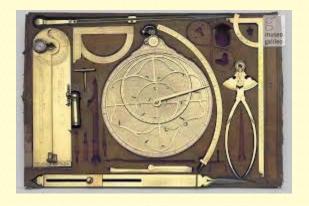
Posters will be judged by a panel of specialists for content, originality and presentation.

Prizes for winning posters will be awarded at the meeting.

Contest Guidelines

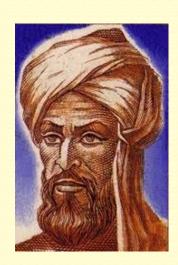
- Topics can be drawn from any field of mathematics.
- Posters can address a single person or topic, or be an historical survey of a culture or topic.
- Posters must include a full reference list and an acknowledgement of any outside help.
- Posters should not draw too heavily from web sources.
- Posters must be the sole production of students who are enrolled as undergraduates at a school that lies within the geographic area of the Rocky Mountain Section.
- At least one author of each poster must register for and attend the Section Meeting in Durango. For meeting registration details, visit http://sections.maa.org/rockymt/.
- A poster abstract (up to 250 words) must be submitted on or before March 22.

Please also include the poster title, the names and school affiliations of its author(s) and the name and e-mail address of the poster's faculty sponsor.



Poster construction details and further information on evaluation criteria to be announced at a later date.

Poster abstracts and questions may be directed to: janet.barnett@csupueblo.edu.



16th Annual Pikes Peak Regional Undergraduate Mathematics Conference United States Air Force Academy Saturday, March 2, 2019





Save the Date! The 16th Annual Pikes Peak Regional Undergraduate Mathematics Conference (PPRUMC) will be hosted in Polaris Hall at the United States Air Force Academy on Saturday March 2, 2019. Please note the date change to the first Saturday in March instead of the last Saturday in February. We are looking forward to hosting this conference in Polaris Hall, USAFA's newest building, which is easily accessible to visitors. As in past years, registration will be free and lunch will be provided. We ask that you pre-register so that we can plan appropriately for lunch.

Please visit the conference website at: http://sections.maa.org/rockymt/PPRUMC/PPRUMC 2019.html for additional information. If you would like to give a talk, we welcome your abstract and title submissions by February 22nd.

If you have questions, please contact our conference director: **Shelby Stanhope**, at shelby.stanhope@usafa.edu.

NSF SIMIODE Summer 2019 Workshops





Announcing and Inviting Applications for NSF SIMIODE Summer 2019 Workshops Sponsored by the National Science Foundation and SIMIODE July 2019 at George Fox University, Newberg OR USA

18-21 July 2019 4-Day Intensive SIMIODE Developer's Workshop

Those with experience and ideas for writing differential equations modeling scenarios for classroom use are encouraged to apply. DEMARC (Differential Equations Model and Resource Creators) Fellows who are selected for this workshop are fully funded, including travel up to \$600, room & board, and a stipend up to \$600. Applicants are asked to provide evidence of successful modeling scenario development. The workshop will provide training and support for creating new modeling scenarios. See simiode.org/nsf2019devworkshop for complete information and application process.

21-26 July 2019 5-Day SIMIODE Practitioners Workshop

Ideal for those who would like to learn more about how to foster a modeling-first approach in the classroom. Workshop includes hands-on demonstration, group discussions, and activities facilitated by experienced faculty. MINDE (Model INstructors in Differential Equations) Fellows selected for this workshop have a \$300 registration fee and are provided all materials and room & board for 5 days. See simiode.org/nsf2019pracworkshop for complete information and application process.

To learn more about SIMIODE – Systemic Initiative for Modeling Investigations and Opportunities with Differential Equations visit https://www.simiode.org. All is FREE at SIMIODE.

SIMIODE Invitation to Host SCUDEM IV





Invitation to Host Student Challenge

We invite faculty and schools to serve as local site host coordinators for SCUDEM IV - SIMIODE Challenge Using Differential Equation Modeling on Saturday, 9 November 2019. Complete details about SCUDEM and hosting are available at simiode.org/scudem. There are materials from past events and convincing videos from student participants. Registration for SCUDEM IV 2019 opens 1 September 2019 and there are stipends for hosts, dependent upon the number of schools visiting each local site – basically half the total registrations.

Student teams access online three modeling problems on Friday, 1 November 2019; select one problem to work on at home institution; and prepare an Executive Summary and a 10-minute Presentation are delivered and judged at a local host site of their choice on 9 November 2019.

Local Site Host Coordinator Responsibilities:

- Secure rooms for meetings (about 12 total); 6 with computer projection.
- Determine parking area and contact food service that extra guests will buy their lunch.
- Secure visitor Wi-Fi access for all visitors.
- Promote SCUDEM IV 2019 at local site through curated email lists and outreach materials provided by SIMIODE and self-generated contacts.
- Offer modest arrival refreshments and conduct opening and closing ceremony.
- Keep to schedule during Challenge Saturday or make local adjustments as appropriate.
- Lead two session Faculty Development workshop sessions with scripted materials supplied by SIMIODE. First session engages faculty and students in Modeling Scenario.
- Conduct MathBowl materials and script completely supplied by SIMIODE.
- Print out registration materials/forms for coach and team provided by SIMIODE.
- Record scores, challenge results, and award information and send to SIMIODE.
- Prepare all team award certificates SIMIODE provides forms.
- Accept a check from SIMIODE for half of the registration fees at local site.

SIMIODE will do everything else, including handle all finances, create all materials, promote local site visiting teams, provide emails and materials to recruit locally, and conduct pre- and post-event surveys. This is a great opportunity for your school to host colleagues in your area, to build networks, and to enable student growth in modeling. Please let us know if you are interested in hosting SCUDEM IV 2019 on 9 November 2019 and we shall add your school to our growing list of local host sites. Questions? Contact Director@simiode.org. SIMIODE is a 501(c)3 non-profit organization funded by the National Science Foundation

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 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 post-secondary institutions within 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

 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:
- 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;
- Include the criteria under which superior achievement in mathematics is to be recognized, together with the time and the manner of such recognition;
- 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 beautiful formulas in among the most mathematics. It connects the five most important constants of mathematics with the three most important operations - addition, multiplication, and exponentiation. These five constants symbolize the four major branches of classical mathematics: arithmetic, represented by 0 and 1; algebra, by i; geometry, by π ; and analysis, by e. (Quoted from Eli Maor's e, The Story of a Number). I chose to portray this equation as a train because rail has historically been the life blood of the American West, and trains are complementary to any mountain scene."

Meetings Calendar

ICTCM; Scottsdale, AZ March 14-17, 2019 NCTM annual meeting; San Diego, CA

MAA Rocky Mountain Section Meeting; Fort Lewis College, Durango, CO, April 5-6, 2019

MAA MathFest; Cincinnati, OH; July 31-August 3, 2019

April 3-6, 2019

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

NCTM Centennial Meeting; Chicago, IL April 1-4, 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

Joint Mathematics Meetings; Seattle, WA January 5-8, 2022 MAA MathFest; Washington DC; August 3-6, 2022

Joint Mathematics Meetings; Boston, MA January 4-7, 2023 MAA MathFest; Tampa, FL; August 2-5, 2023

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

me of Nomineerst name first)	
nail Address	
llege or University Affiliation	
llege or University Address	
City State Zip	
he nominee a member of the MAA?	
mber of years of teaching experience in a mathematical science	
s the nominee taught at least half time in a mathematical science the past three years (not counting a sabbatical period)?	
a separate page, briefly describe the unusual or extraordinary personal and professional qualitie minee that contribute to her or his extraordinary teaching success.	s of the
me of Nominator)	
dress of Nominator	
nail Address	
lephone: Work Home Fax	
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Nomination forms should reach Section Awards Coordinator by December 15 of each year. Complete nomination materials should reach Awards Coordinator by January 15 of each year.

Jeremy Muskat, Section Awards Coordinator, 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 Affilia	ition				
College or University Addre	ess				
	City	State	Zip		
Is the nominee a member	of the MAA?				
Has the nominee taught at for at least two but not mor		matical science			
On a separate page, briefly nominee that contribute to			sonal and pro	fessional qualities of th	E
Name of Nominator) _(First name first)					
Address of Nominator _					
Email Address					
Telephone: Work _	Home _		Fax		
Nominator's Signature					

Nomination forms should reach Section Awards Coordinator by December 15 of each year. Complete nomination materials should reach Section Awards Coordinator by January 15 of each year.

Jeremy Muskat, Section Awards Coordinator, 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 recognized 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 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

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.)

- o Two letters from the nominee's present or former students.
- o 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.

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.

MAA	Rocky Mountain Section Voluntary Dues Contribution Form
Name	
Address	ZIP
Please inc	dicate 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)
Mona MAA Metro Depai Camp	ake check payable to: MAA Rocky Mountain Section and return to: Mocanasu Rocky Mountain Section Treasurer/Secretary politan State University of Denver rtment of Mathematical and Computer Sciences bus Box 38; PO Box 173362 er, 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.