

Spring 2022

Allegheny Mountain Section of the Mathematical  
Association of America

## Allegheny Mountain Section Newsletter



FAIRMONT STATE  
UNIVERSITY™



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## SPRING SECTION MEETING APRIL 1st AND 2nd HOSTED BY FAIRMONT STATE UNIVERSITY

Due to the ongoing Coronavirus pandemic, the Allegheny Mountain section Executive Committee decided to hold our Spring Section Meeting virtually on April 1-2, 2022. Even though we won't be gathering in person, we have three excellent guest speakers lined up: **Hortensia Soto** from Colorado State University who is currently serving as the Associate Secretary of the MAA and is our Section Visitor this year, **Marissa Kawehi Loving** from Georgia Tech and **Sam Hansen** from the University of Michigan, Ann Arbor and the host of the podcast [Relatively Prime: Storytelling in the Mathematical Domain](#). You can find their talk titles and abstracts on page 8 in this newsletter.

Since our meeting will be virtual, the registration fee is a flat rate of \$10.00. The registration fee helps us to support honorariums, Section NExT workshops, and many other endeavors. As always, students can attend for free. You can register for the meeting by clicking [https://docs.google.com/forms/d/e/1FAIpQLSetcAFh4MybRP8x6wt1eE\\_xOxL7NMjVyj7cxhojQ27DvW-CkQ/viewform](https://docs.google.com/forms/d/e/1FAIpQLSetcAFh4MybRP8x6wt1eE_xOxL7NMjVyj7cxhojQ27DvW-CkQ/viewform) no later than March 31, 2022. The Meeting Zoom links will be emailed separately after you register. You can find the schedule of events on page 9.

We urge all MAA members to attend our Section Business Meeting Saturday morning. It's a wonderful, fun, and easy way to contribute to our section.

## SECTION REPRESENTATIVE TO THE MAA CONGRESS: Kim Roth



**Kim Roth of Juniata College,  
Representative to the MAA  
Congress**

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*“... we are talking  
about having a watch  
party with students for  
the conference...”*

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Greetings from unseasonably warm central Pennsylvania. I am sure there is more winter left, but I am reminded of the spring to come.

I hope to see all of you at the virtual Allegheny Mountain Section meeting April 1<sup>st</sup> and 2<sup>nd</sup>. Here at Juniata we are talking about having a watch party with students for the conference, especially for the plenaries, in a classroom with snacks. Maybe your department or math club could organize something similar.

Hopefully MathFest will be in-person this summer August 1<sup>st</sup> through 3<sup>rd</sup> although there is a virtual component planned already for remote attendance. Since it is in Philadelphia this summer it is closer to the section than usual and I hope you will consider attending in person. I will be there. MathFest has a great line up of

invited speakers announced.

The MAA also offers some great inexpensive virtual professional development opportunities as well. The upcoming virtual programs for spring include Careers in the Nonprofit Sector, A Journey to Selecting and Using Statistical Software for our Introductory Statistics Courses, and Best Practices in Faculty Recruitment, for the 2020's. I have attended some of the virtual programming in the past semesters and got lots of information.

Another resource of the MAA I have been using is MAA connect. Whether you are looking for a new textbook, wanting to discuss teaching in pandemic times, or wanting to see what new math opportunities are available, it is a place to discuss and learn.

May spring semester go well for you both mathematically and personally!



## FROM THE CHAIR: Shelly Bouchat

This spring semester has brought on its challenges. With the rise of yet another variant of Covid-19, Omicron, we have all felt challenges that we had hoped had passed us by. With many of the colleges and universities in our Section placing restrictions on gathering and traveling based on local infections, the Section Officers made the difficult decision to move this year's Section Meeting on April 1st and 2nd online. Like last year, we will hold the conference using Zoom, sending out the meeting links to all who have registered for the conference. One important change this year is that registration for attending the conference will close on March 31st, i.e., you will not be able to register the day of the conference. The reason for this change is that it presented challenges to make sure that everyone received the Zoom links for the conference.

Even with the challenges brought on by Omicron, the Allegheny Mountain Section still remains active. On February 7th, Dr. Stephen Deterding of West Liberty University presented "Pell's equation and the Chakravala method" as another installment of the new colloquium series. This colloquium series was the brainchild of Dr. Tom Cuchta, and we are very thankful for the new opportunities presented by the great talks in this series.

It is very interesting to me the number of innovations that colleagues around me have come up with during the pandemic. I just mentioned the development of the Allegheny Mountain Section's Colloquium Series, but

I am also surrounded by new approaches to teaching, new ventures in research, and new attempts at making our classrooms more inclusive.

All of these accomplishments of our colleagues should be celebrated, and I want to highlight a great way to do so through our three Section Awards: the Teaching Award, the Mentor Award, and the Service Award. If you know a colleague who you think has done an exceptional job teaching, who has done a wonderful job mentoring students, or who has made significant contributions of service to the Allegheny Mountain Section, please nominate them. It is as simple as sending an email to the corresponding award's chair and describing why that person should be considered for the award. I would like to challenge each of you to nominate one of your colleagues for an award.

Lastly, I would like to challenge each faculty member reading this to think about ways to make their classroom more inclusive to all students. One way to do so would be to attend Hortensia Soto's talk at the Section Meeting, where she will illustrate ways that we can help students whose first language is not English more easily learn mathematics.

In closing, let's prioritize the mental health of ourselves, our students, and our colleagues and support each other through another challenging semester.



**Shelly Bouchat of Berea College, Section Chair**

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*"...I would like to challenge each faculty member reading this to think about ways to make their classroom more inclusive to all students."*

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## SEEKING NOMINATIONS FOR AWARD RECIPIENTS

### 2022 Allegheny Mountain Section Distinguished Teaching Award

The criterion for the Annual Allegheny Mountain Section Distinguished Teaching Award is a record of extraordinary success in teaching, a record of teaching effectiveness that can be documented, and an ability to foster curiosity and generate excitement about mathematics. It is preferable to have an award recipient whose teaching influence extends beyond their own institution. The nominee should be a member of the MAA, must teach at an institution within the section, and should have at least five years of teaching experience in a mathematical science.

Teaching is to be interpreted in its broadest sense, not necessarily limited to classroom teaching (it may include activities such as preparing students for mathematical competitions at the college level, for example, the Putnam Prize Competition or the Mathematical Contest in Modeling, or attracting students to become majors in a mathematical science or to become Ph.D. candidates).

Please send your nomination, with a description of how the nominee meets the criterion, by March 4, 2022 to:

Rich Marchand, Slippery Rock University  
[richard.marchand@sru.edu](mailto:richard.marchand@sru.edu)



### 2022 Allegheny Mountain Section Service Award

The criterion for the Annual Allegheny Mountain Section Service Award is a consistent record of excellence in service to the section over a period of time. In this context "service" is interpreted in a broad sense to include holding office, coordinating contests, organizing sessions, acting as a panelist, speaking at sessions, acting as the coordinating host for a meeting, or participating in any other activity that contributes to the well-being of the Section. Please send your nomination, with a description of how the nominee meets the criterion, by March 4, 2022 to:

Kristen Pueschel, Penn State New Kensington  
[klp65@psu.edu](mailto:klp65@psu.edu)

### 2022 Allegheny Mountain Section Mentor Award

The Mentor Award has been a part of the Allegheny Mountain Section since the year 2000. A nominee should have made significant contributions to the development of undergraduate students in mathematics as scholars. This includes, but is not limited to, encouraging student participation in MAA activities and advising students who make presentations at the Section meetings. Please send your nomination with a description of how the nominee meets the criteria, by March 4, 2022 to :

Lyn Miller, Slippery Rock University  
[lyn.miller@sru.edu](mailto:lyn.miller@sru.edu)

## SECTION NExT REPORT

Kristen Pueschel, Penn State New Kensington and John Tolle, Penn State DuBois

The Spring Section NExT workshop will take place 2:00-3:30 PM on Saturday, April 2, after the close of the Allegheny Mountain Section spring meeting. The title is "Embodied Cognition: Movement to Diversity, Equity, Inclusivity, and Social Justice (DEIJ)". Hortensia Soto of Colorado State University will join us for a session extending the ideas and practices of the talk on embodied cognition she will give in the spring meeting as an invited address. As part of the workshop, participants will be given a

task to do in breakout groups. With full awareness of Zoom fatigue affecting us all, the workshop will adjourn promptly at 3:30.

If you are interested in attending a future meeting or you have a new colleague in mathematics whom you'd like to receive emails about future meetings, email Kristen Pueschel ([klp65@psu.edu](mailto:klp65@psu.edu)) or John Tolle ([jut14@psu.edu](mailto:jut14@psu.edu)).

## SECTION EXECUTIVE COMMITTEE ELECTION

The section's Nominating Committee for 2021-22 consists of Tom Cuchta (chair), Kuei-Nuan Lin, and Duane Farnsworth. Elections will be conducted online this year. MAA members in the section will receive their ballot via email before the spring section meeting. Voting will close after the meeting. Reminders will be posted on MAA Connect and the results will be announced there as well. The Nominating Committee is pleased to present the following slate of candidates.

### Chair Elect

Daniel Shifflet

### Second Vice-Chair

Sam Fuller

Rich Ligo

Heather Muchowski

Jeffrey Musyt



## CANDIDATE BIOGRAPHIES

### **Daniel Shifflet, Clarion University of Pennsylvania — Candidate for Chair Elect**

Daniel (or Dan) Shifflet is a Professor of Mathematics at Clarion University of Pennsylvania. As an undergraduate he attended Wittenberg University before earning his Ph.D. from Bowling Green State University in 2011. Once an active student member of the Ohio Section of the MAA, Dan joined the Allegheny Mountain Section directly after graduate school. Since then he has served on (and chaired) multiple section award committees, attended every spring meeting, many Section NExT meetings, and worked closely with the section treasurer to run the (now defunct) book sale. Beginning in 2015 he became a member of the section executive committee by serving as Coordinator of Student Programs. Through this service Dan has learned a great deal about the inner-workings of the Allegheny Mountain Section of the MAA and would appreciate the opportunity to serve as its chair. When not writing short biographies, Dan enjoys working with students on Algebra, Number Theory, and Game Theory, telling corny math jokes in class, and practicing inquiry-based learning in upper-level courses.

### **Sam Fuller, Penn State University, Altoona — Candidate for Second Vice Chair**

Sam Fuller has been an instructor at Penn State Altoona since fall 2016. She enjoys teaching a wide variety of lower-level math courses. She has been the primary instructor of a general education course, Math 35, that introduces students to varied topics such as set theory and graph theory. She also enjoys working with Business Calc students, surprisingly! Outside of mathematics, she has been an advisor for New Student Orientation at Penn State Altoona for the past two years. She received her masters degree from The University of Minnesota and her bachelors degree From Penn State, both in mathematics.

### **Rich Ligo, Gannon University — Candidate for Second Vice Chair**

Rich Ligo is an assistant professor at Gannon University. He studied undergraduate mathematics at Westminster College before completing a Ph.D. in Differential Geometry at the University of Iowa in 2017. Rich is a fellow of the 2018 Project NExT cohort and has been an MAA member since 2016. He enjoys designing and authoring various course materials using LaTeX, WeBWork, Desmos, and Geogebra to serve as replacements for traditional textbooks and problem sets. His work thus far includes course manuals and/or problem sets for Gannon's calculus sequence, linear algebra, differential equations, real analysis, and math for business.

### **Heather Muchowski, Westminster College — Candidate for Second Vice Chair**

Heather is an Assistant Professor in the Math and Engineering Departments at Westminster College where she teaches a variety of courses in math and support classes for engineering physics. This year, she is participating as part of the gold '21 cohort of Project NExT and has been actively using this experience to adapt her teaching. Prior to Westminster, she received her Ph.D. from Iowa State University in Applied Mathematics and Mechanical Engineering. Her current research focuses on numerical methods for solving computational bio-medical engineering applications. She is excited for the opportunity to become more involved in the MAA!



## ALLEGHENY MOUNTAIN SECTION COLLOQUIUM SERIES

The Colloquium Committee (Tom Cuchta, Kristen Pueschel, and Tim Flowers) is pleased to report a great colloquium on 7 February 2022 by Dr. Stephen Deterding of West Liberty University who spoke about "Pell's Equation and the Chakravala Method". We currently have Dr. Florian Frick of Carnegie Mellon University lined up to speak in Fall 2021, date and topic currently undetermined.

We are always seeking future speakers for the Allegheny Mountain Colloquium, so if you are interested in giving a talk or know of someone in our section who might give a great talk, then please contact Tom Cuchta at [tcuchta@fairmontstate.edu](mailto:tcuchta@fairmontstate.edu). Stay tuned and check our Section webpage for more details (<https://www.alleghenymtn.maa.org/colloquium>).

If you would like to be part of our email list to receive infrequent emails about future Allegheny Mountain Colloquium events, then please sign up at this link: <https://forms.gle/jT1zNrxoEzcvZRA5A>

## UPCOMING MEETING — MATHFEST

Philadelphia, PA, August 3-6, 2022

You can see the exciting lineup of speakers with their talk titles and abstracts on the MAA website by using the link <https://www.maa.org/node/3406135/>.



## INVITED SPEAKERS: TALK TITLES & ABSTRACTS



### Hortensia Soto

**Title:** Embodied Cognition: What is it? How Does it Involve Mathematics?

**Abstract:** Embodied cognition is a philosophy that claims that learning is body-based. One might ask how that has anything to do with teaching and learning mathematics. In this talk, I will illustrate ways in which this lens can facilitate learning especially for students whose second language is English. I argue that most faculty probably already adopt aspects of embodied cognition into their courses and my hope is to help make faculty more aware of how they do this. Please bring your fun meters so we can experience some of these ideas together.

### Marissa Kawehi Loving

**Title:** Surfaces: BIG and small

**Abstract:** As a geometric group theorist, my favorite type of manifold is surface and my favorite way to study surfaces is by considering the mapping class group, which is the collection of symmetries of a surface. In this talk, we will think bigger than your average low-dimensional topologist and consider surfaces of infinite type and their associated “big” mapping class groups.



### Sam Hanson

**Title:** Stories as a Tool for Belonging in Mathematics

**Abstract:** There is a sense of belonging problem in Mathematics. The sad truth is that a large number of people do not feel that they are included and are accepted as a part of the mathematical domain. This is especially true for people with identities that have been historically excluded from participation in mathematics such as BIPOC, women, and queer people. There is evidence of interventions that can help people feel that they belong more fully in the field of mathematics. These interventions include things like: the shifting of stereotypes, the normalization of struggle, and a focus on a growth mindset. There are many different ways the field of mathematics can begin to implement these interventions in order to increase the sense of belonging for people of all identities. In this talk I will focus on the one which I believe has the chance to have the broadest possible impact: Mathematical Storytelling. I will discuss the ways in which storytelling can help foster a sense of inclusion in mathematics, cultivate a growth mindset, and show how struggle and uncertainty is normal in mathematics. I will also discuss some ways to think about how to tell stories in mathematics, and some of the mathematical storytelling tools I have developed in my years as a mathematical communicator.





## VIRTUAL SPRING MEETING SCHEDULE



ALLEGHENY MOUNTAIN SECTION, MAA  
Annual meeting, April 1 & 2, 2022

### Schedule of Events

#### Friday, April 1, 2022

2:30 – 3:30	Section Officer's Meeting
3:55 – 4:00	Welcome from Fairmont University
4:00 – 5:00	Invited Address <b>Sam Hanson, University of Michigan</b> <i>Stories as a Tool for Belonging in Mathematics</i>
5:00 – 6:30	Break for Dinner
6:30 – 7:45	Student Talks

#### Saturday, April 2, 2022

8:00 – 8:45	Section Business Meeting
9:00 – 10:00	Invited Address <b>Marissa Loving, Georgia Tech</b> <i>Surfaces: BIG and small</i>
10:15 – 11:30	Faculty Talks
11:45 – 12:45	Invited Address <b>Hortensia Soto, Colorado State University</b> <i>Embodied Cognition: What is it? How Does it Involve Mathematics?</i>
12:45 - 12:50	Closing Remarks and Section Awards



## ALLEGHENY MOUNTAIN SECTION SOCIAL MEDIA ACCOUNTS

Don't forget about our Allegheny Mountain Section presence on social media! Please follow our Twitter account (@alleghenymaa or at <https://twitter.com/alleghenymaa>) and our Facebook page (at <https://www.facebook.com/alleghenymaa/>). Additionally, we would like everyone to use the hashtag #AlleghenyMAA for discussion about our section.

Content for reposting to our social media accounts is always welcome -- please send any ideas to our Director of E-Communications, Tom Cuchta ([tcuchta@fairmontstate.edu](mailto:tcuchta@fairmontstate.edu) or <http://tomcuchta.com>).

## FOUND MATH



### MAA Found Math Photo:

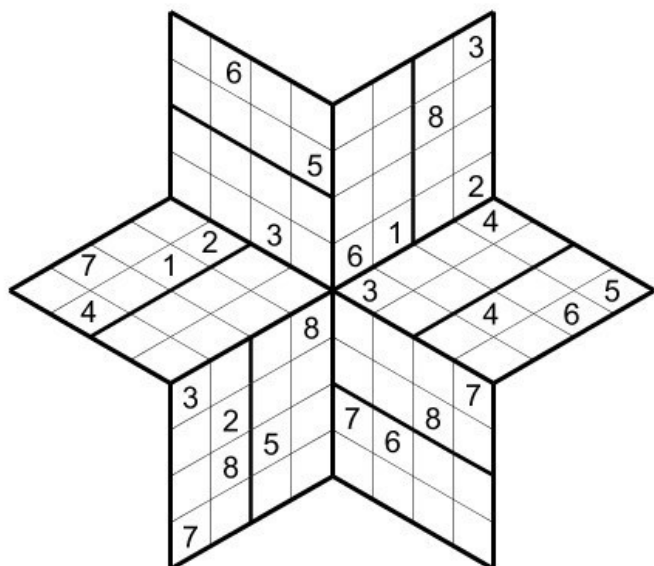
Photo by Roger Nelson formerly of Lewis & Clark College

A polyhedral spiral found on the campus of Istanbul Technical University, Istanbul, Turkey

Found Math is a photo gallery of mathematical images on the MAA website.

<https://www.maa.org/community/columns/maa-found-math>

## SPRING PUZZLE SPARK SUDOKU



Fill each rectangular region with the numbers 1 through 8 so that no number repeats in any given region, "row" or "column".

Puzzle from <http://innoludic.com/>

Do you have any exciting news you would like to share? If so, please send it to me! We would love to hear what you and/or your students are doing within our section.

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