

Fall 2021

Allegheny Mountain Section of the Mathematical
Association of America

Allegheny Mountain Section Newsletter



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FAIRMONT STATE
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SPRING SECTION MEETING APRIL 2022

Fairmont State University will be hosting our annual Spring Section Meeting April 1 - 2, 2022. We are all looking forward to meeting in person (fingers crossed!). Any changes to meeting in person will be communicated in our spring 2022 newsletter.

Our three invited speakers are: **Hortensia Soto** from Colorado State University who is our Section Visitor this year and is currently serving as the Associate Secretary of the MAA, **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 biographies on pages 9 and 10 in this newsletter.

We will have a free pizza dinner for students in addition to our banquet dinner. The student problem-solving session will follow the pizza dinner.

Given that we haven't met face-to-face for some time, we are going to try to get a group photo on Friday right after our first plenary talk before everyone heads to dinner.

Don't forget to like us on Facebook (<https://www.facebook.com/alleghenymaa/>) and follow us on Twitter (<https://twitter.com/alleghenymaa>).

REPORT FROM OUR MAA SECTION CONGRESS REPRESENTATIVE: Kim Roth



Kim Roth of Juniata College,
MAA Congress Representative

I hope your semester is going well and you are staying healthy.

The MAA Congress met at the virtual MathFest in August. We discussed how to make the MAA more inclusive and we are looking for ideas on how to make new people feel welcome and included in the sections meetings. Also the MAA has a [code of conduct](#) for meetings including section meetings.

We discussed the things the MAA did in 2020 and you can see some of them in the [MAA Impact Report](#). Check it out! One new thing the MAA is doing is more [virtual programming](#).

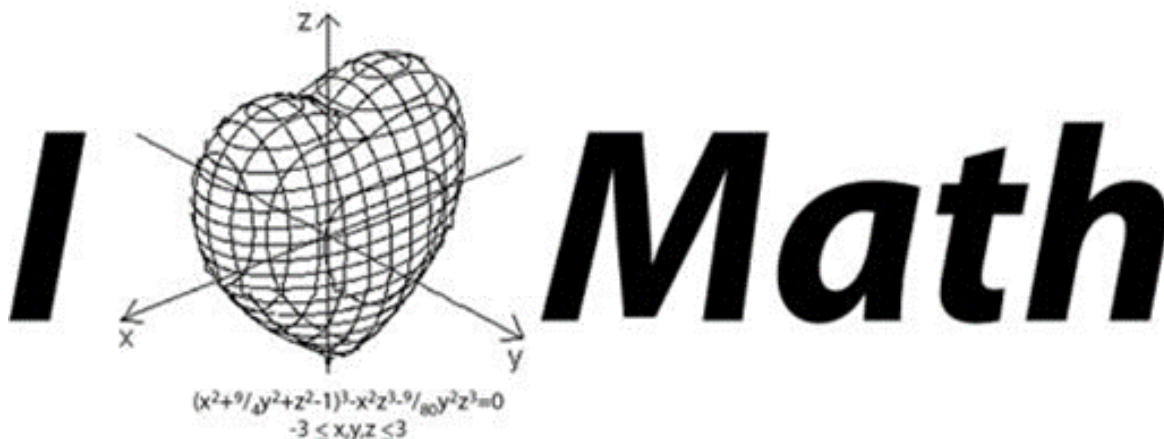
Hope to see you at the Spring Section Meeting in April and at MathFest in August. Hopefully we will be able to return to in person meetings in 2022, but we will have to wait and see!

“...we are looking for ideas on how to make new people feel welcome and included...”



MAA

MATHEMATICAL ASSOCIATION OF AMERICA



FROM THE CHAIR: Shelly Bouchat

Hello, and welcome to the Allegheny Mountain Section of the MAA! For those who didn't know, I was actually a member of this section from 2000 to 2003, when I was an undergraduate at Pitt Johnstown. Through my career, I have reaped the benefits of our Section as both a student and as a faculty member; and I am honored to be able to serve the Section as the new Chair. Although I worked in the Section for 13 years, at both Slippery Rock University and Indiana University of Pennsylvania, I recently left the Section geographically to join the faculty at Berea College in Kentucky beginning this fall. However, I am grateful to the MAA for letting me continue to be a part of the wonderful Allegheny Mountain Section that I have grown up (as a mathematician) in and, geographically, I am just next door, in a neighboring state of the Section!

I hope everyone is settling into the fall semester. Whether you have been at your institution for many years or whether this is your first year, we are all experiencing some sort of transition from the past year. It sure is nice to be teaching and learning in a face-to-face environment, but we are still facing many struggles as we continue to live, learn, and teach in the midst of a global pandemic. At this point, the majority of us have known at least one person who has had covid-19. Moreso, all of us are dealing with daily decisions as to what risks we are willing to take, causing some of us to have heightened levels of anxiety. For these reasons, I propose we think of this academic year as the year of empathy and understanding, and I hope you will approach your interactions with your colleagues, your students, and your peers with this in mind.

Despite all of the odds seemingly stacked against us, the Allegheny Mountain Section is letting our grit, determination, and love of mathematics shine through. On September 13th, we had another installment of the new Colloquium Series with Dr. Kuei-Nuan Lin presenting "Blow up chemical reaction networks," and on November 15th there will be another great talk in this Colloquium Series ... mark your calendars! On September 25th, our Section NExT program met in a hybrid format (allowing participants to join either in-person or virtually). At the Section NExT workshop, Russ deForest shared about a quantitative literacy course that he developed on Mathematics for Sustainability and after lunch there was a panel discussion on teaching lower-level courses. On top of those two great programs, many of you are working on research projects with undergraduate students, some of which we will hear about at our spring Section meeting.

Currently, we are hoping to have an in-person Section meeting on April 1-2 at Fairmont State University. Keeping in mind that we are still very much dealing with a global pandemic, the Executive Committee wants to make sure that we are not putting undue risk on our Section membership, so we will be monitoring the local situation, following CDC guidelines, and understanding the local policies at Fairmont State University. We will make a decision regarding an in-person versus an online Section meeting by the end of January 2022. Until then, I hope everyone stays healthy and safe and continues to learn lots of lovely mathematics!



Shelly Bouchat of Berea College, Section Chair

"...I propose we think of this academic year as the year of empathy and understanding..."

SECTION NEXt REPORT

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

The Fall Section NExT workshop was held Saturday, September 25. It was hosted by Stephen Deterding of West Liberty University. This was our first ever hybrid workshop, with some participants joining in-person and others joining over Zoom. In the morning session, Russ deForest, Penn State University, led a workshop on the quantitative literacy course that he developed called Math for Sustainability. We looked at example class activities, from estimating the carbon dioxide emissions of people travelling to Penn State games to tipping points in phosphorous concentration in lakes. Russ also discussed course objectives and goals for quantitative literacy courses.

The afternoon session was a panel on lower-level teaching by Jenna Cook, West Liberty University, and Lori Ogden, West Virginia University. Both discussed how much they had changed

their courses over the years, and especially the recent change in their departments to remove pre-requisites and instead offer courses that either moved more slowly or had an extra credit of support time available.

The Spring Section NExT workshop is tentatively scheduled for 1:30-3:30 PM on April 2, after the close of the Allegheny Mountain Section spring meeting at Fairmont State University. Hortensia Soto of Colorado State University will discuss supporting diversity in our classrooms and among faculty.

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) or John Tolle (jut14@psu.edu).



SEEKING SECTION NEXt CO-COORDINATOR

The Allegheny Mountain Section is seeking a co-coordinator for Section NExT. If you are interested please contact Shelly Bouchat at bouchatr@berea.edu.

CALL FOR NOMINATIONS

The Executive Committee is looking for MAA Allegheny Mountain Section members to fill the following positions; Chair-Elect and Second Vice-Chair .

All section officers participate in three Executive Committee meetings each year. One meeting is held at the Spring Section Meeting, usually in early April. Another meeting is held in summer, typically in May or June, and the third meeting is in Fall semester, usually held in early October. Section officers are also expected to attend the Business Meeting which is conducted the Saturday morning of the Spring Section Meeting. Section officers often serve in other ways as well, such as serving on committees or assisting with the events of the Spring Section Meeting. In addition, all section officers contribute to e-mail discussions about Section business throughout the year.

Please consider nominating one of your Allegheny Mountain Section friends or colleagues for one of these service positions. Self-nominations are welcomed. All nominations should be sent by February 1, 2022 to:

Tom Cuchta, Fairmont State University
tcuchta@fairmontstate.edu

EXECUTIVE COMMITTEE POSITION DESCRIPTIONS

Chair-Elect

The Chair-Elect serves for one year before beginning a two-year term as Chair. The Chair-Elect has no specific duties other than to serve on the Executive Committee and to prepare to become Chair. The Chair prepares meeting agendas with input from the other officers and presides at the Business Meeting and the three Executive Committee Meetings each year. The Chair is generally responsible for the operations of the Section throughout the year which include setting dates for future section meetings, giving opening and closing remarks at the section meeting, writing a message from the chair for each newsletter and being a contact between the section and the MAA. After completing the two-year term, the Chair becomes Past Chair for one year to maintain continuity in the Section leadership. During the years of being Chair, most of the work occurs right before and after Executive Committee Meetings with the largest amount being before and during the Spring Section Meeting. The term of the position is four years (one year as chair-elect, two as chair, and one as past chair).

Second Vice-Chair

The primary duty of the Second Vice-Chair is to organize the faculty contributed talks at the Spring Section Meeting. This includes collecting the faculty talk registrations (typically sent by e-mail), coordinating with the host institution, scheduling times and rooms, and finding moderators for talks. Much of this work is done in the weeks directly preceding the Section Meeting. After one year, the Second Vice-Chair becomes the First Vice-Chair for one year. The First Vice-Chair acts as the contact person for the three invited speakers for the Spring Section Meeting. Duties include inviting the speakers who have been determined by the executive committee (usually during the summer) and confirming travel, lodging, and registration with the invited speakers. The First Vice-Chair also finds people to meet the speakers when they arrive at the meeting and to introduce the speakers. This work occurs mostly in the summer and in the month before the section meeting. The term of the position is two years total.

FROM THE DIRECTOR of E-COMMUNICATIONS: Tom Cuchta

The MAA has asked sections to migrate their section webpages to a new platform. We are happy to announce our new webpage at <https://www.alleghenymtn.maa.org/> which will contain all section information moving forward. All future information for the section will be posted there, including the webpages for future section meetings, information about our Section NEXT workshops, and information about our future colloquia.

Please contact the Director of E-Communications Tom Cuchta at tcuchta@fairmontstate.edu if you encounter any problems or have any suggestions pertaining to the section webpage.



ALLEGHENY MOUNTAIN COLLOQUIUM SERIES

The Colloquium Committee (Tom Cuchta, Kristen Pueschel, and Tim Flowers) is pleased to report a great colloquium on 13 September 2021 by Dr. Kuei-Nuan Lin of Penn State Greater Allegheny who spoke about "Blow Up Chemical Reaction Networks". Our second and final colloquium of Fall 2021 will be by Dr. Rob Muth on 15 November 2021 at 4PM (zoom link: <https://bit.ly/3DnwUBA>) on "Art galleries and sleepy guards". Hope to see you there!

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. 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 FALL COLLOQUIUM SPEAKER

Allegheny Mountain



Colloquium



Speaker: Dr. Rob Muth
(Washington & Jefferson College)

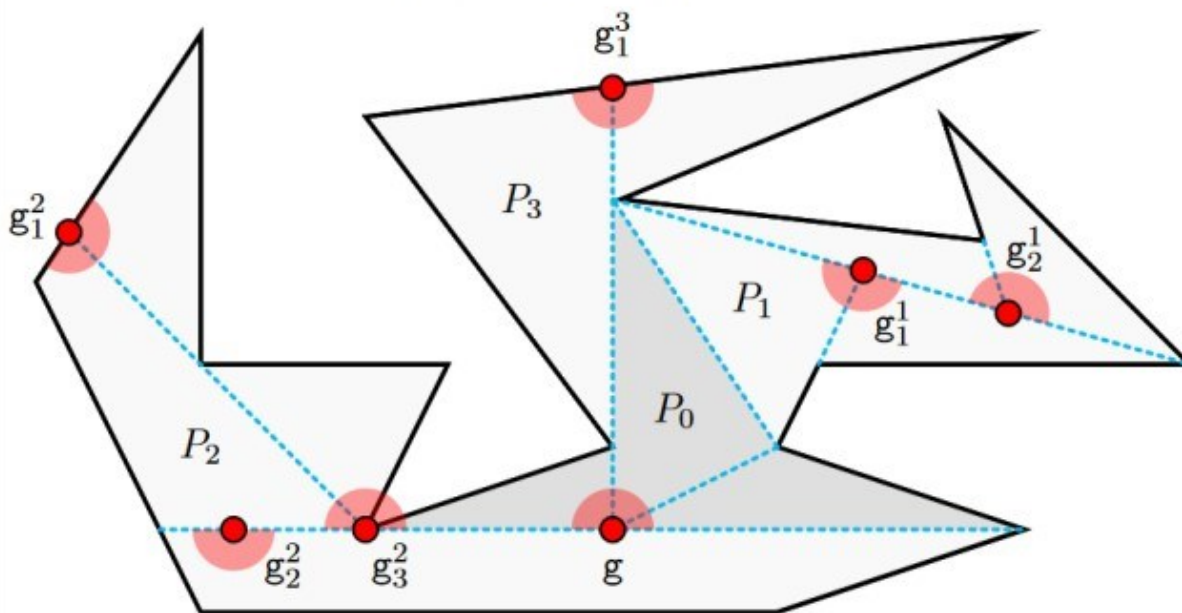
Date: 15 November 2021, 4PM–5PM

Zoom link: <https://bit.ly/3DnwUBA>

Title: Art galleries and sleepy guards



Abstract: How many security guards does it take to protect an art gallery? In 1975, Chvátal showed that $n/3$ stationary guards are capable of monitoring any art gallery that has a polygonal floor plan with n walls. I'll present Fisk's proof of this fact, which elegantly distills this geometric question into a discrete one about graphs and combinatorics. I'll discuss some applications connected to the art gallery problem, as well as some interesting modifications, such as: What if the guards have a restricted range of view? What if they're prone to sleeping on the job? What if both? This talk assumes no prior knowledge and should be accessible to first-year students. Portions of the talk will feature joint work with W&J students Daniel Florentino and Ethan Moy.



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 11, 2022 to:

Rich Marchand
Slippery Rock University
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 11, 2022 to:

Kristen Pueschel
Penn State New Kensington
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 criterion, by March 11, 2022 to:

J. Lyn Miller
Slippery Rock University
lyn.miller@sru.edu

MEET OUR SPRING 2022 INVITED SPEAKERS



Hortensia Soto is a Professor at Colorado State University. She has published in various areas of mathematics education including assessment, mathematical preparation of elementary teachers, outreach efforts for high school girls, and especially in the area of teaching and learning of undergraduate mathematics. Her current research efforts are dedicated to investigating the teaching and learning complex analysis, where she adopts an embodied cognition perspective and is part of the [Embodied Mathematics Imagination and Cognition](#) community. Since her days as an undergraduate student, Hortensia has mentored young women and promoted mathematics via summer outreach programs. She has also been involved with facilitating professional development for K-16 teachers in Nebraska, Colorado, and California. As a result of this work she received the MAA Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics.

Hortensia is a working member of the Mathematical Association of America and currently serves as the Associate Secretary and is an editor of the *MAA Instructional Practices Guide*. She is also the next MAA President-Elect.

In her spare time, she enjoys hiking, practicing yoga, meditating, reading, and most of all spending time with her son Miguel.



Marissa Kawehi Loving is an NSF Postdoctoral Research Fellow and Hale Assistant Professor in the School of Math 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 and completed her undergraduate studies 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.

MEET OUR SPRING 2022 INVITED SPEAKERS

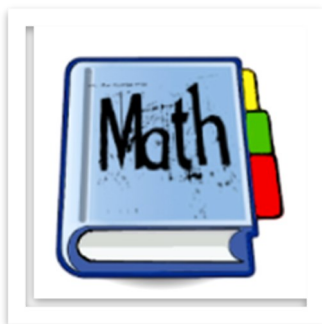
Sam Hansen (They/Them) is the mathematics and statistics librarian for the University of Michigan, Ann Arbor and the host of the podcast [Relatively Prime: Storytelling in the Mathematical Domain](#). Their [research](#) is in the dynamics of citation aging, with a particular focus on the differences citation behavior between mathematical and natural sciences, and they are one of the authors of the [Issues in Science and Technology Librarianship](#) (ISTL) column Science Librarianship and Social Justice Concepts ([1](#), [2](#), [3](#)). They also work as a database developer for the digital humanities projects [PodcastRE](#) and [Media History Digital Library](#). When not working or podcasting Sam spends as much time as possible cycling and nerding out about coffee (decaf only).



UPCOMING MEETINGS

Allegheny Mountain Section Spring Meeting 2022
April 1 - 2, Hosted by Fairmont State University

MAA MathFest 2022
Aug. 3 - 6, Philadelphia, PA

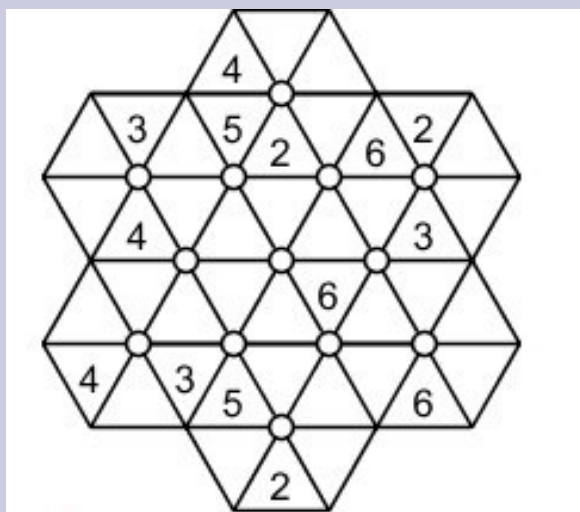


FOUND MATH



A Fibonacci spiral located at the entrance of the Colorado Women's College on the campus of the University of Denver.

Photo by Jenna Carpenter.



FALL PUZZLE Snowflake Sudoku

Fill each hexagon with the numbers 1 through 6 so that no number repeats in any given hexagon.

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.

Newsletter Editor

Kim Jones

Washington & Jefferson College

kjones@washjeff.edu