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MINI-FOCUS

THE NEWSLETTER OF **THE GOLDEN SECTION** OF THE MAA

Elaine Kasimatis Wins Section Teaching Award

Elaine Kasimatis, of CSU, Sacramento, won the 2020 MAA Golden



Section's Distinguished College or University Teaching of Mathematics Award. The award was presented at the 2020 Golden Section Meeting at Mills College in Oakland, California, on February 29, 2020. (See Elaine Kasimatis' [complete award citation](#) online.) Elaine Kasimatis often supervises pre-service student teachers: here are some of their reports. "Dr. K is an amazing observer and noticed a lot of things I needed to change that I wasn't aware of. She has a great, very constructive style for building up a new teacher." "To say that she is the hardest worker I have ever known is an understatement. She plans for hours...focusing on pedagogy, planning every detail, and anticipating our respons-

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Kimberly Seashore Wins Section Award for New Teachers

Kimberly Seashore, of San Francisco State University, won the 2020



MAA Golden Section's Distinguished College or University New Teacher of Mathematics Award. The award was presented at the 2020 Golden Section Meeting at Mills College in Oakland, California, on February 29, 2020. (See Kimberly Seashore's [complete award citation](#) online.) Students report, "By far the best calculus teacher—maybe even math professor—I've had. She understands that some students do struggle and is always willing to make

adjustments;" and "Loved this class! I'm not a math person but she made me enjoy this class.... She created a great learning environment due to her upbeat attitude, and was very understanding of each student's needs."

Kim earned BA and MA degrees in mathematics from Harvard in 1991 and San Francisco State University (SFSU) in 2007, respectively, and a PhD in science-and-mathematics education from the University of California, Berkeley, in 2015. She has served as a San Francisco high-school teacher and as Coordinator of Public Programs at Berkeley's Lawrence Hall of Science. Kim joined SFSU as assistant professor in 2015. She

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Kasimatis: Teaching Award

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es.” “She always suggested teaching strategies that address students who are immersing themselves in English, students with special of improvement. She cares for her students; she cares for their students.” Elaine earned BS and PhD degrees in pure mathematics, and an MAT degree and teaching credential, all from the University of California at Davis, then joined the Sacramento State faculty in 1986. For a decade, that department had sought a faculty member with a strong mathematics background and extensive experience in mathematics education. That person should become an outstanding teacher, model effective instructional techniques for the department, modify and develop the mathematics curriculum for elementary and secondary teachers, and mentor them. With Elaine, the department struck gold! She applied her deep interest in mathematics education to begin an adventure in innovating curriculum. Immediately, she displayed outstanding teaching ability and commitment, introducing problem-solving strategies through in-class group activities. By her second year, she was presenting faculty seminars on her course designs and teaching methods. Soon she took the primary role in fulfilling the department’s new responsibility for supervising student teachers.

Elaine challenged her future teachers to explore, conjecture, and prove, setting a high standard for instruction in her department. With colleagues, she designed a course to support students who tutor and teach on campus, and a capstone course that related real analysis and abstract algebra to secondary-school curricula. Elaine also helped develop the first “blended” teacher-education program in California. During the 1990s, with Tom Sallee and Judy Kysh, she created the College Preparatory Mathematics program, a curriculum and teacher-support system devoted to improving mathematics instruction in grades 6–12 Nationwide. Abroad on sabbatical leave, she helped establish the Rwamagana Lutheran School in Rwanda. The Golden Section congratulates Elaine Kasimatis, an exceptionally effective mathematics educator.

Seashore: New Teachers Award

(continued from previous page)

is an exceptional and inspiring teacher and mentor, working tirelessly to make her department a better place. Her teaching has received high praise. A colleague wrote, “Not many professors manage to keep more than thirty students actively participating for the whole session. She gives just the right amount of prompts for group work, she is gently in charge of the class, and her board work is impeccable.” Kim has formally supervised five Master’s theses, has three more underway, and has mentored many other students.

Kim’s leadership in revamping SFSU’s undergraduate mathematics curriculum included overseeing the design of new elementary courses and the process for placement in Calculus I. She initiated group discussions of teaching practices in Calculus I and the “proofs” course: faculty observed each other’s lectures and considered deeply what ought to be happening. Kim has contributed lots of ideas, advice, and material, and is an exemplary implementer of the those generated by others. Kim established MERGE (Mathematics Education Research Group for Equity) at SFSU to focus instructional concerns of students. She obtained and administers multi-year NSF Noyce and S-STEM student-scholarship grants totaling more than \$1.5 million. She organized the regional conference, Promoting Active Engagement in the Mathematics Classroom, and a special session, on Social Change in and through Mathematics and Education, for the American Mathematical Society’s 2018 Western Sectional Meeting. With these achievements, she has become an educational force. The Golden Section congratulates Kimberly Seashore, an extraordinarily effective and inspiring new teacher.



Ed Keppelmann and Kimberly Seashore

Teaching Awards:
Call for Nominations

2021 MAA Golden Section Distinguished College or University Teacher of Mathematics Award (General)
&

2021 MAA Golden Section Distinguished College or University New Teacher of Mathematics Award

The MAA has two awards for distinguished college or university teaching of mathematics: the Deborah and Franklin Tepper Haimo Award (instituted in 1991) and, for beginning college or university teachers of mathematics, the Henry L. Alder Award (instituted in 2003). The recipient of the Golden Section Teaching Award (General) is nominated by the Section for the MAA Haimo Award. The recipient of the Golden Section New Teaching Award is nominated by the Section for the MAA Alder Award if the recipient holds a Ph.D. The Golden Section has a two-step nomination process that consists of (i) the initial nomination, and (ii) the full nomination. The initial nomination is very simple and requires the filling out of a one-page form together with a one-page summary that supports the nomination. After screening the initial nominations, the Teaching Awards Committee will invite the nominators of clearly competitive nominations to submit full nominations. Members of the Golden Section are encouraged to nominate their exceptional colleagues for the two Golden Section Distinguished Teaching Awards (New Teacher and General). The formal Call for Nominations and the Nomination Form files are available through the Golden Section webpage. These files describe the award and eligibility requirements. The initial nomination deadline is

May 31, 2021

Please direct questions to [Elizabeth Gross](#), Teaching Awards Committee Chair, University of Hawai‘i at Mānoa



Previous General Teaching Award Winners

An asterisk precedes names of those who went on to win a national Haimo Award.

- 1992 G. D. Chakerian, UC Davis
- 1993 *Paul R. Halmos, Santa Clara Univ.
- 1994 Jane Day, San José State University
- 1995 *Edward M. Landesman, UC Santa Cruz
- 1996 G. Thomas Sallee, UC Davis
- 1997 Jean J. Pedersen, Santa Clara University
- 1998 Donald C. Pfaff, University of Nevada, Reno
- 1999 *Leonard F. Klosinski, Santa Clara University
- 2000 *Evelyn Silvia, UC Davis
- 2001 Wade Ellis, Jr., West Valley College
- 2002 *Paul Zeitz, University of San Francisco
- 2003 Peter Tannenbaum, Fresno State
- 2004 *Gerald L. Alexanderson, Santa Clara Univ.
- 2005 Russell Merris, Cal State East Bay
- 2006 Tatiana Shubin, San José State University
- 2007 William Fisher, Chico State University
- 2008 John B. Thoo, Yuba College
- 2009 *Allan J. Rossman, Cal Poly San Luis Obispo
- 2010 Dennis Smolarski, Santa Clara University
- 2011 Joseph Conrad, Solano Community College
- 2012 *Matthias Beck, San Francisco State Univ.
- 2013 Steven Blasberg, West Valley College
- 2014 Duane Kouba, UC Davis
- 2015 Michelle Manes, Univ. of Hawai‘i at Mānoa
- 2016 Serkan Hoşten, San Francisco State Univ.
- 2017 Jesús De Loera, UC Davis
- 2018 Frank Farris, Santa Clara University
- 2019 *Federico Ardila, San Francisco State Univ.
- 2020 Elaine Kasimatis, Sacramento State Univ.

Previous New Teaching Award Winners

An asterisk precedes names of those who went on to win a national Alder Award.

- 2016 Martha Shott, Sonoma State University
- 2018 Elizabeth Gross, Univ. of Hawai‘i at Mānoa
- 2019 Jordan Schettler, San José State University
- 2020 Kimberly Seashore, San Francisco State Univ.



Remembering Gerald L. Alexanderson

by Frank Farris, Santa Clara University; photo by Leonard Klosinski, Santa Clara University

Gerald L. Alexanderson (1933 - 2020), long-time leader and former president of MAA and professor of mathematics at Santa Clara University (SCU), Gerald L. Alexanderson, died on Wednesday, December 16, 2020. Born into a California family in Idaho on November 13, 1933, Alexanderson received his education at the University of Oregon and Stanford University before joining the faculty of SCU in 1958. He often cited the influence of his mentors: Ivan Niven when an undergraduate, George Pólya when a graduate student, and A. P. Hillman when a beginning faculty member.

Upon his retirement in 2018, after 60 years of service to SCU, the department established the Alexanderson Lecture to commemorate Alexanderson's extraordinary contributions to the communication of mathematics. Many in the department credit Alexanderson's generous mentorship; he is particularly remembered for the breadth of his knowledge and the sharpness of his wit. A common sentiment among faculty and alumni alike is, "I am the mathematician I am today because of Jerry."

Known as an effective and respected teacher, Alexanderson also served SCU as a long-time administrator—35 years as chair of the Department of Mathematics (later the Department of Mathematics and Computer Science), and nine years as Division Director of Physical Sciences and Mathematics. During his long tenure at Santa Clara, he served on many committees and presided over several administrative units, ranging from College and departmental committees to University-wide roles, such as directing the University's Honors Program and serving on the University Board of Trustees. University honors include being named the inaugural Faculty Senate Professor in 1990 and receiving the first Joseph Bayma Award for Scholarship in 1996. From 1979 to 2016, he held an endowed chair and was named Michael and Elizabeth Valeriote Professor.

Alexanderson made memorable contributions to mathematics through the governance of regional and national mathematical organizations. He served on

the Board of Governors of the Mathematical Association of America (MAA) for a record setting total of 24 years over a span of 30 years. For the MAA, he also served as First Vice-President, Secretary, and eventually as President (1997-1998). In 2005, he received the MAA Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching in Mathematics, as well as the MAA Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics.

Alexanderson also served for twelve years as a member of the Phi Beta Kappa Senate, the national governing board for Phi Beta Kappa, the most venerable of academic honorary societies, established in 1776. (He was not, contrary to rumors, one of the founding

members of Phi Beta Kappa!)

More significant than these administrative assignments, Alexanderson wrote and edited extensively, writing 19 books, often with coauthors, the two most recent published by the Princeton University Press and the Cambridge University Press. He also authored or coauthored approximately 200 mathematical papers, articles, and reviews. Over various periods he edited Mathematics Magazine and served as associate editor of The American Mathematical Monthly and the

College Mathematics Journal. For 18 years Alexanderson was editor of the Spectrum Book Series for the MAA. He was active in promoting various mathematical problem competitions, including long service as Associate Director of the prestigious William Lowell Putnam Mathematical Competition. He was active too in the establishment of the American Institute of Mathematics (AIM), in collaboration with a former SCU student, Brian Conrey and John Fry. AIM has established the Alexanderson Prize, awarded annually for the best piece of mathematical research published during the previous year and at least in part produced with AIM support. Alexanderson's own mathematical work was in combinatorics, especially that motivated by geometry, and in number theory.

Outside the strict confines of mathematics, Alexanderson was known as a significant collector of rare books and mathematical art. He published in the Bulletin of the American Mathematical Society, over a peri-



od of 12 years, a series of about 25 historical-mathematical articles, each highlighting a work from his own collection. Professor Alexanderson is survived by his friend and former Putnam Director Professor Emeritus Leonard Klosinski, numerous colleagues and close friends, as well as several first, second, and third cousins. At his request there will be no services of any kind. Contributions may be made to the Alexanderson Lecture Fund at Santa Clara University or to the Mathematical Association of America. Contact Frank Farris (ffarris at scu.edu) for further information.

News from the Section

Compiled by Walden Freedman, Mini-Focus Editor

Editor's Note: News is included from institutions who replied before the deadline. This year, the call for news was made via MAA Connect with the Golden Section Digest sent by email. To avoid being left out next year, please look for the call for news each fall season.

California State University, East Bay, Hayward, CA

Cal State East Bay was delighted to welcome two new tenure line faculty this fall, Dr. Ryan Moruzzi, Jr. and Dr. Simone Sisneros-Thiry. Dr. Moruzzi received his PhD from UC Riverside on representations of infinite dimensional Lie algebras. His focus at East Bay will include a continuation of his work on infinite-dimensional Lie algebras, along with exploring other projects to engage students of varying levels in mathematical research. Dr. Sisneros-Thiry received her PhD from University of Illinois at Urbana-Champaign on combinatorial number theory and math education. Her focus at East Bay will be developing lower division undergraduate courses, graduate teaching associate training, and the intersection of these in building inclusive math spaces. In other news, Dr. Kathy Hann was awarded the Rosemary and Matthew Spitzer Distinguished Science Faculty Award at Cal State, East Bay. Dr. Hann also serves as PI for our \$1.2M Robert Noyce grant (Supporting Excellence, Effectiveness and Diversity in STEM Teacher Education) which provides significant support to future STEM educators. We are excited about our California Learning Labs funded "Precalculus, What's the Big Idea" grant through which we have formed the Bay Area Math Collaborative (BAM-C) working across sectors to improve student success in

the STEM pathway. Last, but not least, Cal State East Bay is also home to the Research for Undergraduates on the Mathematics of the Bay Area (RUMBA) program sponsored by an MAA Tensor-SUMMA grant. RUMBA consists of collaborative projects which unite students (undergraduate and graduate), faculty, and Bay Area groups, to use mathematics to study the cultural, political and social systems in the Bay Area.

Humboldt State University

The Mathematics Department welcomed a new tenure-track faculty member, Dr. Kamila Larripa, who previously served as a lecturer for several years. She has hit the ground running. She and Dr. Borbala Mazzag each received a [PUMP grant](#) to financially support and mentor undergrads in research. You can [watch a video](#) by the students working with Dr. Larripa summarizing their work on viral infections and the immune system. Dr. Larippa and undergraduate student Bridget Opperman had a poster accepted at the National Conference on Undergraduate Research on virus-immune dynamics, with the meeting happening virtually in April 2021. Dr. Larippa is organizing a Special Session on at the JMM titled "Understanding COVID-19: Mathematical Models to Address the Global Pandemic". In addition, she has [four recent publications](#) in mathematical biology with a variety of coauthors.

Dr. Peter Goetz has a new publication [Graded Coherence of Certain Extensions of Graded Algebras](#) in the journal Communications in Algebra.

Santa Clara University

It has been quite a year of comings and goings in our Department of Mathematics and Computer Science. June 2020 saw two retirements: Leonard Klosinski and Jose Barria now both enjoy the title of Professor Emeritus. These departures were balanced by four new arrivals: Two new assistant professors, Smita Gosh and Mustafa Hajij, and two new lecturers, Linda Burks and Josh Grice, joined our ranks in September. Linda Burks had been serving as Director of our Mathematics Learning Center (MLC) in a post-doctoral position; this new appointment is an opportunity to continue her excellent work with our MLC. We did our best to welcome our new department members by Zoom and some socially distanced walks, but we very much look forward to more in-person activities.

The SCU Mathematics Colloquium had surprisingly good attendance in its new virtual format this

fall. BAMA, our lecture series for mathematically inclined high school students, run jointly with SJSU, went virtual as well, with two talks this fall by Edmund Harriss (University of Arkansas) and Steve Trettel (Stanford University). We expect to continue virtual meetings through spring.

Tamsen McGinley spearheaded a departmental Teachers Circle, meeting every other week to share ideas about online instruction. Natalie Linnell led a group to promote antiracist practices in the department; this fall, we read Kendi's popular book, *How to Be an Antiracist*. In support of these efforts, we collected data for a departmental climate survey and are now digesting the results.

Finally, we are sorry to report the death of Jerry Anderson. His long and deep service to mathematics was largely responsible for the current quality of our department. He did much to build our Golden Section as well. More about Jerry's extraordinary contributions appears earlier in this newsletter. According to his wishes, there will be no memorial service of any kind.

Santa Rosa Junior College

Dean Gooch reports that the Mathematics Department has moved to a new building, Jeff Kunde Hall. It took three years to finally tear down the old building, Shuhaw Hall. A new Science Center building will be built in on the site of the old building.

In the last five years, some new instructors have been hired:

2015: Greg Morre, from Sonoma, attended Santa Rosa Junior College, with PhD from the University of New Mexico.

2017: Courtney Schultz, from Southern California, with MS degree from CSU Long Beach.

2018: Salvador Rico, from El Salvador, with MS degree from CSU East Bay.

2018: Elhadji Gaye, from Senegal, with MS degree from the University of Cincinnati.

2018: Hannah Winkler from Petaluma, with MA degree from San Francisco University.

2020: Kruti Darji from Gujarat State in India, with PhD from Veer Narmad South Gujarat University, Surat, and an MS in Mathematics Education from the University of Wisconsin in Oshkosh.

2020: Justin Davis from Santa Rosa, with MA degree from San Francisco State University and PhD from UC Riverside.

We have had a number of recent retirements due to illness, the fires, online teaching and getting old. Here are the most recent retirees: Michael Ichikawa (Has moved to Portland and teaches for us online for now.); John Martin; Deb Bryant; Bic Ha Do Van; Gale Bach; Dan Munton; Dave Ohlsen; George Sturr.

University of San Francisco

Paul Zeitz retired from USF in June 2020. Paul is a past winner of the Section's teaching award and went on to win the Haimo Award at the national level in 2003. He has also spoken at the section's yearly conference before (most recently, the 2018 meeting at CSU East Bay).

Golden Section By-Laws Discussion

by Ed Keppelmann, Secretary/Treasurer

In a move which joined us to the modern era we changed our long held one-page bylaws through a Board of Governor's approval at the MathFest of 2014 which was in Portland. Well, as of 2020, the MAA Committee on Sections (COS) tells us that it is time to update once again. The current bylaws and a first draft of changes are posted on our website. Below is a gentle discussion of some of the issues that COS wants us to consider. The executive committee would love to hear your thoughts and comments on anything mentioned here or other aspects of our bylaws that you think we should consider.

ZIP CODES & COUNTIES

In the last round of bylaw updates it became fashionable to specify section boundaries using zip codes. I would suggest that because these are not constant in time that this is perhaps not the best way to do it. I understand that the national office might need to keep track of our sections using zip codes but I don't think these should be part of the bylaws. Traditionally, our boundaries were determined in terms of states and counties and I would like to see us return to that. For example, here are some problems with zip codes that have occurred in the case of the Golden Section. The current bylaws say that for California we should have codes 934XX and 936XX to 961XX. This unfortunately does not include the towns of Huron (93234) and Coalinga (93210) which are in Fresno County and therefore should belong to us. (Of course I don't know that we have any MAA members there now but even if we don't, that could change at anytime!). In

the case of Nevada our bylaws state that we would have 893XX to 898XX but this leaves out some 12 Nevada towns or CENSUS DESIGNATED PLACES in the Nevada counties of Lincoln, Nye, and Esmeralda. These all have the form 890XX ranging from 89001 for Alamo to Tonopah with 89049. However, you cannot say that we get all of 890XX since for example Searchlight, Nevada (89039 & 89046) and Sandy Valley 89019 belong to Clark County and are therefore part of the Southern California section. The Southern California section has taken an extreme approach – their current bylaws give a list of 923 different zip codes that they own. Fortunately, they don't claim anything we own but I believe they are omitting some cities and towns (and parts of these) in their list to which they are entitled. The USPS has gaps in their list of used zip codes precisely because I think they are trying to predict and prepare for future areas of growth. It is true that in some states there are a huge number of counties so some sections might find themselves having to list many of these although in our case, in the cases of Nevada and California, we can list the relatively small number of counties that we don't own.

QUORUM FOR BUSINESS MEETINGS

In accordance with a long ago suggestion from COS our current bylaws state:

“The quorum for a business meeting shall consist of not fewer than eight members of the section including at least three members of the executive committee. No business may be validly transacted at business meetings where less than a quorum is present.”

As for myself I must admit that in the past seven years we have violated this constraint in a large number of business meetings. The section usually holds these in April after the annual meeting and in October as we finish planning the next annual meeting. While I for one, and I am sure my colleagues agree, would love to have large numbers at these meetings, it has just not been realistic in recent years. I think we have almost always had all four or five executive committee members (this varies when the governor is or is not already an executive committee member) except when we had a rash of resignations of our vice chairs and then we definitely had three plus a few other members.

Thinking about this more deeply though I find that I am quite a bit troubled by even the nature of this

clause. What does it mean to say that “NO BUSINESS MAY BE VALIDLY TRANSACTED” without a quorum? Does that mean that we cannot even decide when we will meet again and try to get a quorum? Or that we cannot take the opportunity to ask a great speaker if they would agree to talk at our next annual meeting before their schedule gets filled? Or still look over the facilities of the campus we are at to think about meeting logistics when we are there and have someone to guide us around campus? Can we discuss what went well at the last meeting and what didn't while this is still fresh in our minds? Are virtual attendees okay to meet the quorum? (I sure hope so because lately we are all virtual! – Is voice-only attendance okay or must cameras be on?) I can understand that perhaps certain decisions about say, proposed bylaws or committee or executive committee membership should perhaps not be finalized without a quorum, but I think that most of the work of these business meetings involves identifying good people to be considered for all sorts of roles and ironing out the logistics of section operations, part of which is certainly figuring out how to improve business meeting attendance. Remember though, if you do come to a business meeting watch out because we might put you to work! (Pardon my attempts at humor here where I know this is supposed to be a serious discussion!)

AVOIDING IMPLICIT BIAS

In their generic suggested bylaw revisions, COS says the following: “Describe how you work to avoid implicit bias in appointing committees, and in how committees carry out their work. For instance, the Committee is unlikely to approve bylaws in which a teaching awards committee is composed entirely of previous winners. See the MAA document for selection committees for guidance. “

While I guess we could say we avoid implicit bias in the selection of our teaching award committee – we do in fact carry an explicit bias towards membership in the teaching committee for those who are previous winners. In fact, we have always tried to appoint solely these people because of several obvious reasons. For one, we do want all members to help by soliciting nominations (always a very difficult task) and we don't want them trying to nominate themselves. For a second reason we feel that great teachers know a lot about fantastic teaching! It all helps us maintain our standards! However, I think if you examine our past

winners (all 33 of them) you will see both genders (although only nine women overall even though four of the last six have been women) with a variety of institutions and ranks represented. In other areas of our work, say the slate of speakers at our annual meetings, the institutions we meet at, and the membership of our executive committee, we always have been very diverse although there are certainly institutions that have historically been involved more with section governance than others. The bottom line here is that I for one am open to whatever the section wants to put here but I think whatever we use should actually guide our future considerations and not overly hamper them. I also understand, however, that since our executive committee has a very high turnover rate (by design with three of the five positions changing every year) it could not hurt to have such language to keep everyone reminded about the importance of being as inclusive as possible.

Thanks to everyone in advance for all your input to these important discussions! Please [contact me](#) with your thoughts and feedback!

MAA Congress Report

by Walden Freedman, Congressional Representative

As the section's new congressional representative, I would like to thank outgoing representative Ed Keppelmann for his service. I am honored to be the section's representative and will do my best to be a good listener and a strong advocate for the section's needs.

Due to the Covid-19 pandemic, the Congress of the MAA met virtually on Zoom for two hours a day (12 noon to 2 pm PT) on each of July 29, 30 and 31, 2020. Each day saw more than fifty participants. The October/November issue of MAA Focus is on diversity, so there was a good deal of discussion of that topic. Each day, members met in breakout rooms to get to know each other better and discuss a variety of issues. Minutes were recorded/compiled by Therese Shelton, MAA Congress Recorder, and some are selectively incorporated here.

Before the first day's meeting, we were asked to read the [2019 Impact Report](#). Kristen Vu, Senior Director of Development, and Communications and Kaylynn Yankovich, Communications and Marketing Manager, provided a background for, and gave an overview of, the Report.

We were asked about what we learned or what surprised us or what we learned otherwise in the report. For me, I was impressed by the amount (\$1.4 million) awarded by the MAA to different grant-funded programs, and the number of math competitions: 14, but nine main ones.

We were also asked about how the MAA has impacted us and read the following BLOG posts of D. Bressoud about "talking about leaving" revisited:

[Talking About Leaving Revisited 1](#)

[Talking About Leaving Revisited 2](#)

A couple of excellent resources mentioned:

Francis Su (former MAA Pres) on Mathematical Microaggressions from MAA Focus, [Oct/Nov 2015](#) and [Dec 2015/Jan 2016](#)

[Article by Sylvia Bozeman](#) (2019 Impact Awardee) and others on history of the MAA Southeast Section and how African Americans were not welcome at meetings.

There was a presentation on being a Diversity Advocate by Jacqueline Jensen-Vallin, editor of MAA FOCUS. Some ideas discussed: "Step forward, then step aside." For example, when someone asks you to give a talk, you could politely decline and then recommend an alternative speaker from a more diverse group. Committee and departmental membership is often a result of self-selection and well-entrenched feedback loops. So it may be helpful in these settings to not only listen to all the voices in the room, but to ask "who is not in this room?" and actively seek them out.

On our second day of meeting, we had been asked to meet with constituents earlier to determine needs of the MAA. One goal of the day was to generate actionable recommendations.

MAA President Michael Dorff gave an update. Topics included the impact of the Covid-19 pandemic on promotion and tenure; immigration policy of the White House and its impact on STEM research and on higher education. Racism and the [Black Lives Matter statement](#) from the MAA. President Dorff recommends patience with one another.

The congress voted with the following election results: Vice Chair of the Congress - Melissa Erdmann; Officer at Large - Emille Lawrence; Congress Elections Committee - Martha Abell, Edray Goins, and Karen Stanish.

Information on elections and diversity and planning of meetings was shared with us by Hortensia Soto; one of the readings we were assigned was "[What it Will Take to Improve Diversity at Conferences](#)" by Ruchika Tulshyan, Harvard Business Review, Sept 2019.

Some highlights from the ensuing discussion were:

We should be careful not to always enlist people of color to speak about diversity issues.

Pass the baton so that others may serve.

Don't only look for experts by title

Ask for speaker recommendations from a diverse slate of people

Refuse to speak at or attend an event with a homogeneous lineup.

On the third day, we had a budget update by Jim Daniel, MAA Treasurer. Investments of over \$9M have been managed by TIAA Trust, have realized a 7.43% annualized return. Some deficits in operating budget, in 2016-2017 about \$1M deficit per year. In 2018 there was an operating gain. We would like to see operating surplus of \$200K per year to make up for continued deficits. We anticipate \$150K deficit budget for 2020. Ann Butler will succeed Daniel as Treasurer in February.

We had some discussion of reading Michael Pearson's: "Thinking Forward: The MAA in 2025" on broadening and encouraging participation in the AMC competitions and broaden engagement in interesting mathematics. The new [M-Powered website](#) is an initial step towards presenting high quality content for high school students and teachers in a more-inclusive framework. We need to consider additional steps to reposition MAA competitions for the future.

In the afternoon, we heard about Micro-Volunteering from (former MAA President) Deanna Haunsperger. Ideas for micro-volunteering needs/offers include:

- Need feedback on a paper
- Have a math idea and would like to collaborate
- Need someone to look over an online class page before it goes live
- Want faculty to attend a virtual student poster session later in the semester
- Give a new talk to student clubs, or discuss graduate school opportunities

Interested? See the MAA Micro-Volunteering Community on MAA Connect.

Tim Chartier, who is the President of the Congress, left us with some parting thoughts:

Continue discussions about diversity as well as about reaching out to those who are not in or who have left the MAA.

Return to groups we represent, share with them, and then listen. Think of how to engage them.

The MAA is about mathematics, people, and our lives in the context of what we do with mathematics.

Our diversity gives us strength and our community gives us endurance.

As the section's new congressional representative I hope this summary reflects some of the spirit of Tim's inspiring parting thoughts. Reach out to me with your ideas, your feedback, and/or concerns. I look forward to hearing from you.

Report on the Section Meeting at Mills College, February 29, 2020

by Ed Keppelmann, photos by Jonathan E. Shapiro

On the beautiful campus of Mills College in Oakland, California, the section met for the second time in its history on a leap year day Saturday. Since these only happen once every 28 years such meetings are not easy to accomplish. The previous such event did indeed occur 28 years before on 02/29/1992 at the University of the Pacific in Stockton, California. This was just before yours truly (Secretary/Treasurer Ed Keppelmann) attended his first meeting in the spring of 1994. While I am still checking my appointment calendar for 2/29/2048 (registration is not yet open!), there are quite a few of us who did indeed register (not necessarily attended) for both meetings and can claim status as what I would like to call the GOLDEN LONGTIME LEAPER DOUBLES or GOLLD for short: (apologies for affiliations which once were and are not now or vice-versa!)

Russell Merris*, California State East Bay

John Sawka, Foothill College

Stan Isaacs, Hewlett Packard

Thomas Rike, Oakland High School

James T. Smith, San Francisco State University

Vladimir Drobot, San José State University

Bob Bekes, Frank Farris*, Peter Ross, and Dennis Smolarski*, Santa Clara University

Dean Gooch, Santa Rosa Junior College (and as a stu-

Mathematical Monthly paper “A Proof of the Sheldon Conjecture” (Vol 126, 2019 - no. 8), is that this is indeed the only prime pair with this property. In fact, if you know where to look (and part of this is blocked by a character at a weird angle) you can actually see part of their proof on a whiteboard on the set of an episode of the show.

We closed the day with a fun lecture by **Jay Cummings** of CSU, Sacramento. Jay is a Ph.D. student of Ron Graham (MAA President 2003-2004) whose work in combinatorics is legendary. While there are many notations for juggling notation, Jay focused on the siteswap notation of repeating digits. The standard cascade of juggling where one throws three balls



between hands in such a way that at any moment in time one ball is in the air, and the other two are in opposite hands of the juggler, has siteswap notation 3 (or 333 for 3 balls in action which is assumed to repeat forever). This means that after each object is thrown (and including that throw itself) there are three throws or beats before the object is thrown again. In the cascade pattern, which has notation 51, the ob-

jects flow in a circular pattern where one hand makes high tosses and the other short tosses between hands. Siteswap notation doesn't tell you how the hands will cooperate or cross over in order to implement a given notation. For example, in a pattern called Mills Mess, which also has notation 333, there is a complicated pattern of hands crossing and uncrossing to throw the balls in groups of three away and towards the center of the pattern.

One fundamental question of siteswap mathematical juggling is when a given pattern can be implemented. This is of course a mathematical question and doesn't pretend to say how good the juggler must be. In some very complicated patterns, the juggler must throw the objects to different heights so that they stay aloft for the required number of beats. [Wikipedia](#) has some nice illustrations of these patterns along other

kinds of juggling notation that depict other features of a given trick. Enthusiasts of the Golden may recall Pólya lecturer Erik Demaine from MIT who told us about his many fonts. Erik has a [juggling font](#) which no doubt employs some of these same ideas.

We had these student poster presentations (you can find the official [abstracts here](#)).

High School Student Health and Wellness Survey

Yiwen Yang, Boston University; **Zhuotong Xian**, Los Gatos High School; **Serena Mao**, Mission San Jose High School; **Haiyang Luo**, Penn State University; (Supervisor: Dr. XiaoYan Liu, University of La Verne)

In an attempt to study the reasons for and how to treat youth depression in teenagers due to stress and anxiety in their educational experience, the authors wrote and implemented a 25-question online survey for high school students mostly in the Bay Area but also across the USA. A variety of statistical tools and display methods were employed. Preliminary results show that all kinds of supports can make a difference in helping teens cope and greatly reducing the likelihood of clinical depression and suicide.

Polyhedral Symmetry from Ribbons and Tubes

By **Wilder Boyden** (Supervisor: Frank Farris), Santa Clara University



Using linear algebra, group theory and parameterized surfaces, the authors studied the subgroups of tetrahedral, octahedral, and icosahedral groups and their associated cosets to classify all the symmetries possible from ribbons and tubes. At the top of the next page is an example of their work.



Decay of Solutions to the Inhomogeneous Wave Equation on FLRW Spacetimes



Branndon Mariscal, Sonoma State University (Supervisor: Jesus Oliver, Cal State East Bay)

On large (i.e., cosmological) scales, Einstein's general theory of relativity allow one to view space and time uniformly and to examine the wave equation in this setting. The authors consider the Cauchy equation in hopes of gaining some powerful insights on the nature of our universe.

Blow up of Nonlinear Wave Equations in Cosmological Spacetimes

Gregory Mwamba (Supervisor: Jesus Oliver), California State East Bay



In an attempt to study how light waves travel in an expanding universe the authors look for solutions to the wave equation using the Robertson Walker wave operator on spacetimes of dimension n .

Pattern of the Last Digits of Consecutive Primes

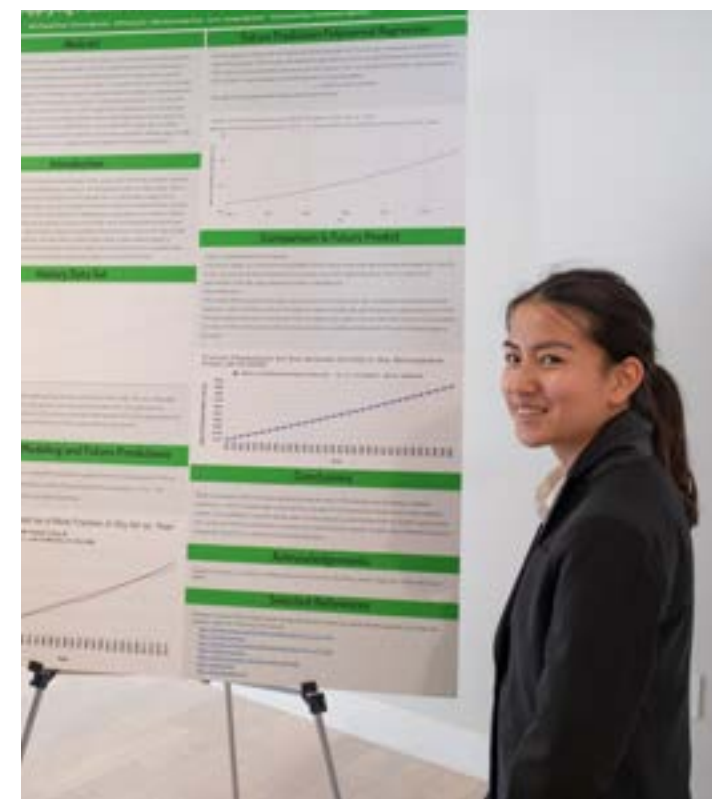
Kate Johnson (Supervisor: Ling Huang), Sacramento City College

Using the first 100 million primes the authors study, for a fixed value of x , the number of primes in the residue class of $a \bmod q$ for $a \in \{1,3,5,7\}$ and $q = 10$. There are some big surprises when this analysis focuses on consecutive primes and we allow x to increase.

Applying Mathematical Modeling on Global Climate Change

Alice (Jiaying) Zhong, Carlmont High School; **Will (Peihong) Wu**, Valley Christian High School; **Zeru Li**, Saratoga High School; **Cindy (Jingru) Wang**, Palo Alto High School; (Supervisor: Dr. XiaoYan Liu, University of Laverne)

Using data from the NASA Global Climate Change Website the authors construct two regression models through the year 2050. Their analysis shows a 58% increase in CO2 as a function of time from 1959 to study CO2 levels as a mole fraction in dry air. This is significant and alarming and we are urged to act in significant ways now to prevent this disaster.





While compared to recent years the total attendance of 148 (with slightly more than 40% students) was pretty good (up 4 from 144 at AIM in 2019). However, this is still small compared to the great old days of 251 at UC Davis in 2016 and 237 at MSRI in 2012. However, upon deeper reflection I now think in this time of the Global COVID-19 pandemic and severe lockdowns we were all fortunate indeed to have gotten together in person on a beautiful day in such a beautiful place.



Students from Cal Poly with Professor Sheldon Axler of San Francisco State University enjoying no social distancing at the end of the meeting.

And here finally, the answers to the math movie quiz!



Mathematical Art Exhibition

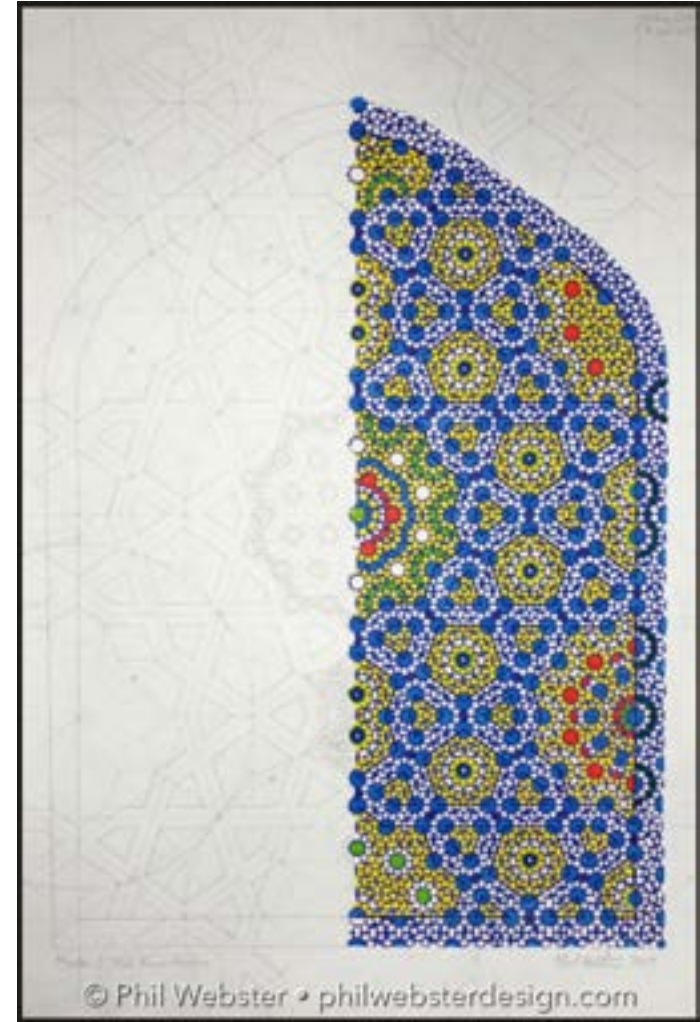
by Stacy Speyer, images by the artists

The 2020 Meeting of the Golden Section marked the fifth year that the meeting included an exhibition of mathematical art. Participating in the Mathematical Art Exhibition were Phil Webster, Dan Bach, Frank A. Farris, and myself, Stacy Speyer. Here are some of the entries in the show with artists’ descriptions of their work.



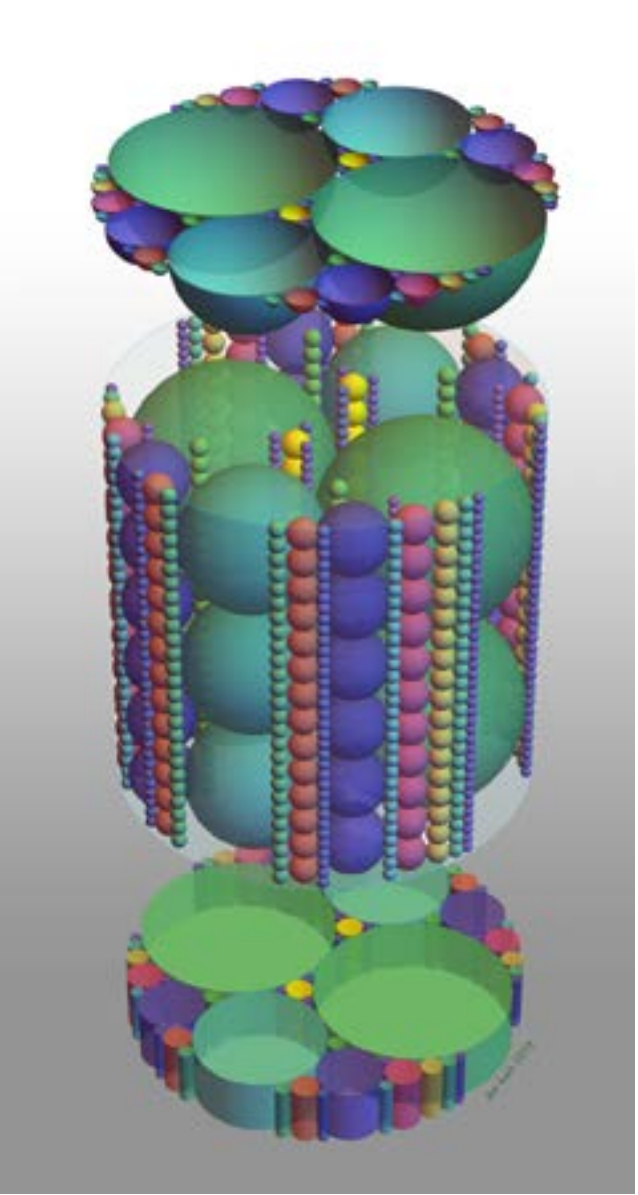
Artist: [Frank A. Farris](#)

My art represents an effort to show what mathematics would look like if it entered the physical world. I like to make it seem as if mathematics is both approachable and mysteriously beautiful. My process leads me to apply mathematical knowledge to create art that could not be made without mathematics. This sampler shows nine ways to create polyhedral symmetry from bands placed in space. The top row shows tetrahedral shapes “woven” from three, twelve, and four bands. The middle row holds configurations with octahedral symmetry and the bottom row holds icosahedral complexes. A paper (with SCU student Wilder Boyden) on this method has been submitted to the Journal of Mathematics and the Arts.



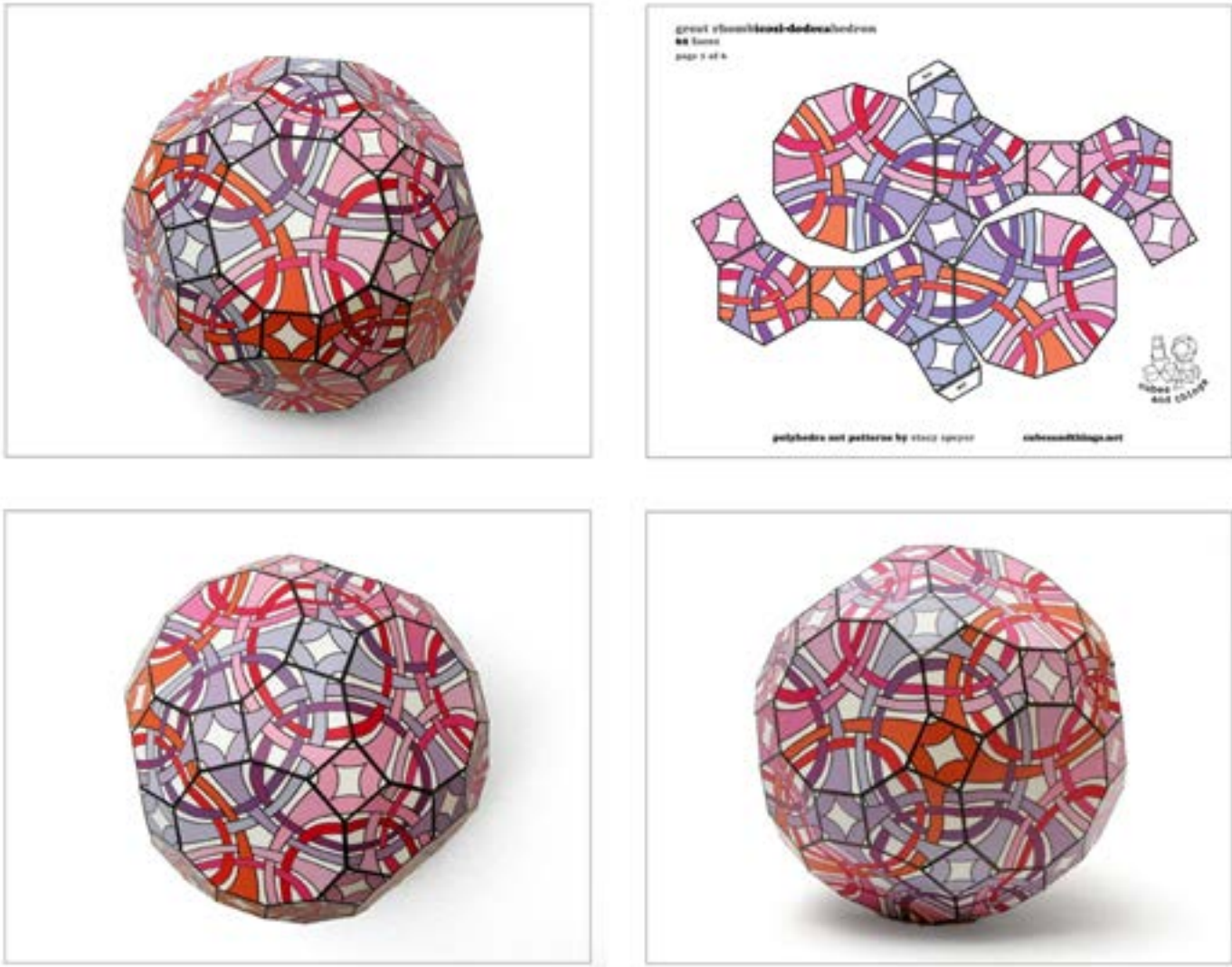
Artist: [Phil Webster](#)

I’ve had a life-long love affair with geometry, and my sweet spot is taking ancient geometric traditions – particularly, in recent years, Islamic geometric patterns – and combining them with modern mathematical concepts. I love making art that captures ancient traditions with a modern twist, and that brings order, beauty, and peace into peoples’ private spaces. This work is a manual re-creation of an especially elegant two-level Islamic geometric pattern found at the Madrasa Madar-i-Shah in Isfahan, Iran. The piece was drawn using nothing but pencil, straightedge, and compass. One half is fully complete and colored, while the other was left partially constructed to highlight the construction process.



Artist: [Dan Bach](#)

I am a former college mathematics teacher from California. I have used Mathematica for over a quarter century: in the classroom, for teacher workshops, and at conference talks. My students, over the years, created mathematical graphics, movies, and sounds; these were done either as class assignments or purely for pleasure. These days I’m a 3D math artist and interactive book author. The Apollonian gasket shown here has nested circles of sizes formulated by Fermat in 1637. The radii of all circles in the standard gasket are unit fractions, and I wanted to show this using spheres that stack up to the exact height of the big cylinder. The number of spheres in each stack is the reciprocal of the radius, also known as the curvature!



Artist: [Stacy Speyer](#)

I’m a teacher, student, and artist. I have a Masters in Fine Arts and I am currently working on a degree in Mathematics. The image on the top right is one of 6 pages, from book #4 of my series of 3D coloring books “Cubes and Things - Woven Twists,” used to make the great rhombicosidodecahedron shown in the other 3 pictures. The pattern is composed of 6 ‘chains,’ each in a different color, that follow the line of great circles around the shape. The development of this pattern began with many hand drawn sketches to find the right balance of playfully askew with the inherent symmetry to give a lively feel to the completed form.

Interested in serving in a leadership role? (Chair cycle, Teaching Award Cmte, etc.)

Interested in hosting the section meeting?

Please contact one of the officers listed on the cover for more information.

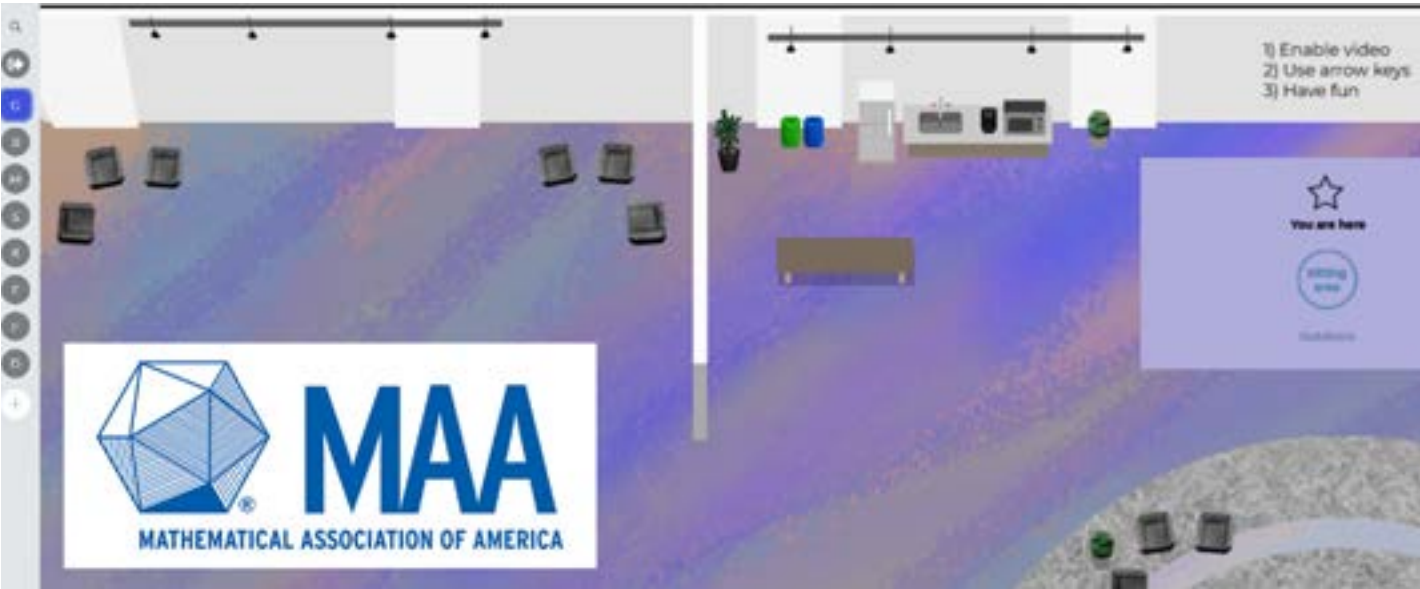
We want you!

The Mathematical Association of America -- Golden Section
Friday & Saturday, February 26 & 27, 2021
Free Virtual Meeting on [gather.town](#) and [zoom.us](#)
[Register Online](#)

Due to the COVID-19 pandemic, the annual meeting of the Golden Section will be held entirely online. We offer two ways to connect to the meeting: Gather Town and Zoom. Most people are probably familiar with Zoom, but maybe not Gather Town.

Gather Town is like a mash-up of Zoom and an ‘80s video game. You move your avatar around the conference space and can only see/hear people whose avatars are near to yours. You’ll be able to enjoy the chance interactions you would experience with a face-to-face section meeting. You will be able to join the Zoom meetings for the Invited Addresses and navigate through the Poster Session and Art Exhibition, interacting with the presenters. We’ll have a virtual MAA Press booth, where Steve Kennedy, MAA Press Acquisitions Consultant, will hold office hours.

If you like to try things out in advance, visit [gather.town](#). It’s very easy to set up your own space. If you wish, you can even click into the conference site. It is always open, although things might not work perfectly before the conference, because we will be paying for a dedicated server during the meeting itself. If you don’t wish to use Gather, you can still see the Invited Addresses with the Zoom links provided. Note that Gather does not work with mobile devices (such as phones and iPads) and does not support the Safari browser.



Here are answers to some FAQs from the [gather.town](#) website:

What is the difference between global chat and local chat? Local chat goes to the people you are currently video chatting with. Global chat goes to all the people in your map.

Can I private message someone? Yes! You can find them in the participant list and click their name. This will bring up the option to locate (for video based communication) or chat with the person (for text based communication).

I have someone specific I want to connect with, how can I find them? If you find their name in the participant list, on the right hand side, you can click on them and then select “locate” and a line will appear from your location to theirs. Once you arrive, you can select “stop locating” on the right side of the screen.

How many people can be in one conversation at once? More than you will probably want to have in one conversation. We’ve noticed than in groups larger than 6 people, there is a natural tendency to break off into smaller conversations.

THE MATHEMATICAL ASSOCIATION OF AMERICA – GOLDEN SECTION

Free Virtual Annual Meeting online in Gather Town (gather.town) and Zoom

Two Days: Friday & Saturday, February 26 & 27, 2021

[Register online](#)

Friday, Feb. 26		
6:30-7:30 pm	Social time in Gather Town -- Join us!	
7:30 - 8:30 pm	Steve Trettel , Stanford University <i>Ray optics, geodesics, and curved space</i>	Presider: Frank Farris
Saturday, Feb. 27		
9:30 - 10:00 am	Social time in Gather Town -- Join us!	
10:00-10:15 am	Golden Section Business Meeting: Vice-Chair nomination and vote	Presider: Walden Freedman
10:15-11:15 am	Martin Weissman , UC Santa Cruz <i>The modern life of ancient fractions</i>	Presider: Julie Simons
11:15 am - 12:45 pm and 12 noon - 1:30 pm	Student Poster Session & Mathematical Art Exhibition	Presider: Kristen Beck Presider: TBA
12:45 - 1:45 pm	Steve Kennedy , Acquisitions Editor, MAA Press available at MAA Bookstore in Gather	
1:30 - 2:00 pm	Break	
2:00-3:00 pm	Hortensia Soto , Colorado State University <i>Intentionally bringing diversity awareness into the classroom</i>	Presider: Ed Keppelmann
3:00 - 3:45 pm	Break	
3:45 - 4:00 pm	Teaching Award Presentation	Presider: Cornelia Van Cott
4:00 - 5:00 pm	Emily Clader , San Francisco State Univ. <i>Why twelve tones? The mathematics of musical tuning</i>	Presider: Dean Gooch

Program Abstracts

Steve Trettel, Stanford University, *Ray optics, geodesics, and curved space*



Abstract: To a first approximation, the behavior of light appears quite simple: it always travels in a straight line from the source to the viewer. But upon deeper inspection, various surprising effects - from mirrors to mirages - show the need for a more sophisticated theory. These seemingly disparate phenomena are consequences of a single underlying principle: in every circumstance light endeavors to take the most efficient path between two points, or the path of least flight time. From this observation springs forth a deep connection of the theory of ray optics to differential geometry, modeling the trajectory of light in a varying medium as the shortest path - or geodesic - in an abstract curved space. In this talk we will demonstrate the power of this viewpoint, producing computer simulations of lenses and mirages by solving for geodesics in the appropriate metric. Finally, we investigate telltale signs of curvature in the real world — including ring-like mirages appearing in images from the Hubble space telescope, and consider Einstein’s great insight: gravity is not a force, but just a consequence of living in a curved world.

Marty Weissman, UC Santa Cruz, *The modern life of ancient fractions*

Abstract: The history of fractions - written with one whole number over another - can be traced back over 2000 years to the study of arithmetic in China. Sadly, when we study numbers in school, we leave fractions too soon in favor of decimals. We look at 20th century research on fractions, including “mediant fractions” and “kissing fractions” and “Ford circles”. This brings geometry into the mix, and allows us to “see” the best rational approximations to irrational numbers.



Hortensia Soto, Colorado State University, *Intentionally bringing diversity awareness into the classroom*
Abstract: We are in an era where we are intentionally trying to address the need to embrace diversity, especially in the STEM disciplines. Initiatives to address this need include hiring faculty of color, inviting speakers of color to national meetings, having mission statements that address diversity, etc. These are all wonderful efforts that support diversity. In my presentation, I discuss the value of identifying with others, looking inward, and reflecting on how our own experiences can be used to support diversity in STEM disciplines. Specifically, I will share my efforts to do this with my history of mathematics students, who are prospective secondary teachers and have an opportunity to influence generations to come.

Emily Clader, San Francisco State University, *Why Twelve Tones? The Mathematics of Musical Tuning*

Abstract: If you’ve played a musical instrument, you may remember that Western music is based on a scale with twelve notes: C, C#, D, D#, and so on. But why divide the scale into twelve steps, rather than some other number? We will answer this question purely mathematically by encoding a “scale” as a set of numbers of a particular form and proving via the mathematics of continued fractions that certain scale sizes - including size twelve - are as close as possible to evenly distributed. No prior knowledge of music will be assumed.



Call for Mathematical Art Exhibits

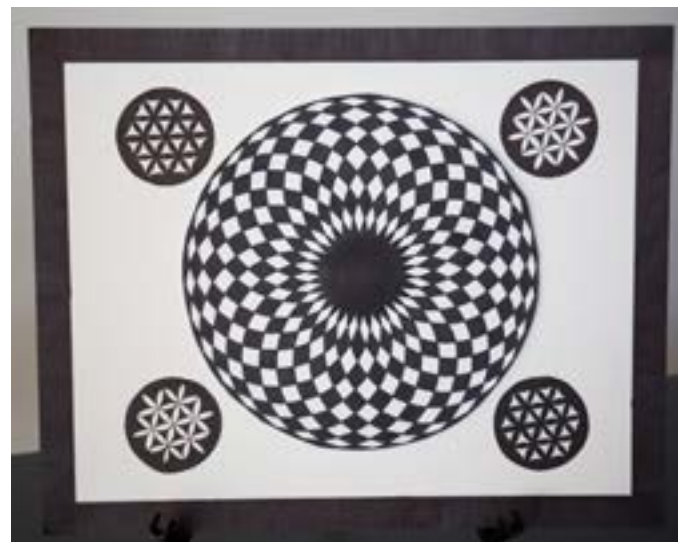
The Golden Section will host its sixth mathematical art exhibition, but this time virtually. The exhibition will take place in Gather Town (gather.town) and Zoom on Saturday, February 27, 2021. The exhibition organizer is [Dan Bach](#). During the period from 12 noon to 1:30 pm, artists are expected to be present to discuss their works with meeting participants. If you know anyone who produces art with a strong mathematical theme or content, please encourage them to submit their piece for consideration in the exhibition. Artists are expected to register for and attend the (free) meeting.

Deadline to submit mathematical art works: Monday, February 1, 2021

To submit a piece for consideration in the Mathematical Art Exhibition, fill out the [Google Form](#) by February 1, 2021. Artists can upload their images there along with brief descriptions of the pieces and a biography. Each artist can submit up to three pieces for consideration. Here are some images from previous exhibitions!



Red Mandala, Artist: Frank Farris



Artist: Navneet Kaur



Dodecahedral-Cluster of 25 Klein-Bottles
by Carlo H. Séquin (pictured) at AIM, Feb. 2019

Call for Student Posters

Who, When and Where

All undergraduate and graduate math students, on Saturday, February 27, 2021, at the virtual annual meeting of the MAA Golden Section online in Gather Town, an avatar-based virtual meeting place.

What

Poster presentations of research, new approaches to old problems, solutions to problems from mathematics journals, results of class projects or mathematical modeling contests, historical investigations in pure and applied mathematics, mathematical topics outside the standard curriculum, or mathematical investigations arising from internship experiences.

Why

The meeting provides a great opportunity to learn about interesting and entertaining areas of mathematics, as well as to network with other students and professors. Student presenters receive a free one-year membership to the MAA or (for those who are already MAA members) a free book.

Details

Participants must have an email address, possibly through a faculty mentor, where they can be contacted. All posters should be typeset using either the Beamer or Tikzposter LaTeX document class, with landscape orientation and size a0. Posters will be on display throughout the entire meeting. Presenters will be expected to be available to discuss their posters during the scheduled poster session (11:15-12:45 PST on Saturday). More information about the meeting can be found at the [meeting homepage](#).

Deadline to submit an abstract: Monday, February 1, 2021



To submit an abstract, [fill out the form](#) or scan the QR code to the right. If you have questions (e.g., whether your idea is appropriate for presentation or what size font to use on your poster), contact Professor Kristen Beck by [email](#).

