Mathematical Association of America History of Mathematics Special Interest Group

HOM SIGMAA News

Volume XIV, Number 2 September 2024

Greetings from the HOM SIGMAA Chair

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Beginning in October we will have a great slate of speakers for our MAA Virtual Speaker Series on the first Friday of each month at 2pm Eastern Time. More information will be shared through MAA Connect:

October 4: Aditya Kolachana (Indian Institute of Technology, Madras)
November 1: Ken Monks (College of Southern Nevada)
December 6: Heidi Meyer (Independent Scholar, formerly of Modesto Junior College)
February 7: Alicia Zelenitsky Hill (Simon Fraser University)
March 7: E.A. Hunter (University of Chicago)
April 4: Dr. Ciarán Mac an Bhaird (Maynooth University)

If you have any suggestions for speakers for our Virtual Speaker Series, please contact Abe Edwards at aedwards@msu.edu, the HOM SIGMAA Program Coordinator. Our Electronic Resources Coordinator, Antonia Cardwell, is soliciting History of Mathematics Course Outlines and library resources for the HOM SIGMAA page.

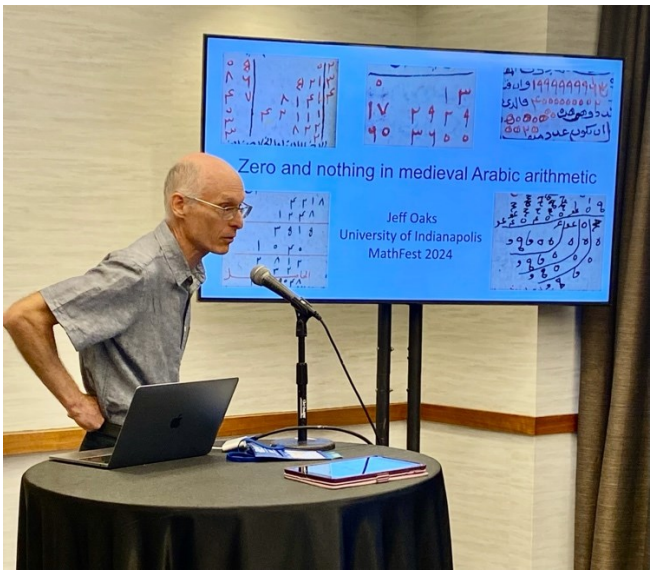
This fall (October) will be our elections for two executive positions: Chair and Electronic Resources Coordinator (website guru). If you are interested in either of these positions, or would like to nominate someone, please contact Amy Shell-Gellasch at ashellge@emich.edu by mid-September for more information. Please consider joining the SIGMAA governance team, we are constantly looking for people to be involved.

At MathFest 2024 in Indianapolis, IN, August 7-10, History of Mathematics was present in numerous events including talks, sessions, workshops, prizes and awards, panels, readings, a business meeting, and a trivia contest. You can find a detailed listing on page 9 of this newsletter.

Some pictures at MathFest 2024:

HOM SIGMAA Business meeting

Chair Greetings Continued...



Jeffery Oaks, our HOM SIGMAA guest speaker

The HOM SIGMAA officers

History of Math Trivia Contest

William Dunham, George Pólya Award, photo courtesy of Adam Coffman

Melissa Desjarlais and Rick Gillman, Special Session organized by the Indiana Section, photos courtesy of Adam Coffman

Best regards from Ximena

HOM SIGMAA VIRTUAL SPEAKER SERIES

I am very excited to share information about the virtual speaker series in the history of mathematics. For the upcoming academic year, talks will occur on selected Fridays. The tentative schedule is below. I will send more information about the speakers, and an abstract of their talk, prior to each meeting. We anticipate that each session will last one hour, including time for Q&A.

October 4 (11:00 a.m. PDT / 2:00 p.m. EDT / 18:00 GMT): Aditya Kolachana, Indian Institute of Technology, Madras

November 1 (11:00 a.m. PST / 2:00 p.m. EST / 19:00 GMT): Ken Monks (College of Southern Nevada)

December 6 (11:00 a.m. PST / 2:00 p.m. EST / 19:00 GMT): Heidi Meyer, Independent Scholar, formerly of Modesto Junior College

February 7 (11:00 a.m. PST / 2:00 p.m. EST / 19:00 GMT): Alicia Zelenitsky Hill, Simon Fraser University

March 7 (11:00 a.m. PST / 2:00 p.m. EST / 19:00 GMT): E.A. Hunter, University of Chicago

April 4 (11:00 a.m. PDT / 2:00 p.m. EDT / 18:00 GMT): Ciarán Mac an Bhaird (Maynooth University)

Each meeting will be held on Zoom, using the link and passcode below:

Link: https://msu.zoom.us/j/94740679958

Meeting ID: 947 4067 9958

Passcode: Cardano

Looking forward to seeing many of you later this year,

Abe Edwards
Michigan State University
aedwards@msu.edu

HOM SIGMAA Elections

Every fall the members of HOM SIGMAA elect at least one new member to our Executive Board. Each of these executives – Chair, Secretary/Treasurer, Program Coordinator and Electronic Resources Coordinator – serve a three-year term, appropriately staggered so as to preserve continuity of governance. We need to elect a Chair and an Electronic Resources Coordinator this fall, as their terms are set to expire at the conclusion of 2024. Elections will take place in October and will be administered by MAA staff as has happened in recent years.

The Chair presides at all HOM SIGMAA business meetings, organizes and directs the activities of the SIGMAA, acts as its chief spokesperson, and is the liaison with the MAA Committee on SIGMAAs and with other organizations. Ximena Catepillan is now completing her first term as Chair.

The Electronic Resources Coordinator is responsible for dissemination of information to the HOM SIGMAA membership, primarily through electronic media, assisting the Secretary/Treasurer in recording and disseminating activities of the SIGMAA with the membership. Antonia Cardwell, our current coordinator, is completing her first term in this position, and does not plan to run again.

Please contact Past-Chair Amy Shell-Gellasch, ashellge@emich.edu, with names of candidates you think would be ideal to stand for election to these posts by September 25. Self-nominations are also welcome.

2024 HOM SIGMAA Executive Committee

Chair: Ximena Catepillán, Millersville University

Email: Ximena.Catepillan@millersville.edu

Secretary/Treasurer: Cynthia Huffman, Pittsburg State University

Email: cjhuffman@pittstate.edu

Program Coordinator: Abe Edwards, Michigan State University

Email: aedwards@msu.edu

Electronic Resources Coordinator: Antonia Cardwell, Millersville University

Email: Antonia.Cardwell@millersville.edu

Past Chair: Amy Shell-Gellasch, Eastern Michigan University

Email: ashellge@emich.edu

Winner of the 2024 Student Writing Contest

First place in the 2024 HOM SIGMAA Student Writing Contest goes to Mithra Karamchedu (Harvey Mudd College) for “A Mind, a Machine, and a Game in Between” (about Claude Shannon).

Second place went to Y. Shane Wang (University of Toronto) for “Theories on the Origins of the Sexagesimal System”.

Honorable Mentions go to David Forson (University of Missouri-KC), “Sangaku: The Mathematical Art of the Edo Period” and David Freeman (Lee University), “Deconstructing Descartes: An Analysis of the Mathematical Influences of Descartes' Philosophy”.

Copies of winning papers are available on the HOM SIGMAA website: https://homsigmaa.net/

You can also find winning papers on Convergence: https://old.maa.org/press/periodicals/convergence/hom-sigmaa-2024-student-paper-contest-winners .

Congratulations to our winners and all students who submitted to the contest.

Thank you to Amy Shell-Gellasch for running this year’s contest and to the contest judges for your service!

The flyer for this academic year’s contest can be found at the end of the newsletter.

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Convergence Calendar

Visit https://old.maa.org/press/periodicals/convergence/convergence-calendar for a list of events and meetings around the world which relate to the History of Mathematics.

Save these dates for future MathFests!

2025	Sacramento, CA	August 6-9
2026	Boston, MA	August 5-8
2027	New Orleans, LA	August 4-7
2028	San Diego, CA	August 2-5

Small grants for the history of mathematics classroom

HOM members who need some help to purchase items for use in the teaching of the history of mathematics are encouraged to apply for a small grant. Information on how to apply can be found on our website https://homsigmaa.net/ and at the end of this newsletter.

Convergence ... on the Move!

Daniel E. Otero and Amy Ackerberg-Hastings

Editors, *MAA Convergence*

Changes are underway for the MAA's refereed journal for the use of the history of mathematics to teach mathematics, although *Convergence* expects to offer classroom-ready resources and informative background articles for decades to come. Some information about how to find *Convergence* content during this time is provided here. Read to the end for updates on our newest content.

As you may be aware, the MAA website has recently been updated and downsized. Meanwhile, in June the renewal of the MAA's contract with Taylor & Francis (T&F) brought *Convergence* into T&F's portfolio of MAA journals. As with these other journals, the *Convergence* editorial board will retain control of publication decisions and work directly with authors on revising submissions. T&F will provide apparatus such as the ScholarOne submission system and production support that will help articles maintain a professional style while reducing that component of the editors' workload. *Convergence* will remain a wholly online publication; applets, videos, and other interactive components will continue to be welcome in our articles.

Continue to find valuable *Convergence* resources, such as Michael Saclolo and Erik Tou's "Things Certain and Uncertain," at MAA's temporary website now, and with T&F very soon. (Library of Congress.)

All existing articles and *Convergence*'s extensive collection of Mathematical Treasures will be saved in PDF format and transferred to the T&F portal. We are negotiating with the MAA to return features such as On This Day and Quotations to *Convergence*'s page on the new website, which can now be found at: https://maa.org/publication/convergence/. Until the summer of 2025, all existing content (except On This Day)

will remain available to users via https://old.maa.org/press/periodicals/convergence. As a general rule, any *Convergence* URL you may have in your records, discover on an internet search, find within MAA Connect, and the like, will become active by replacing "www" in the web address with "old". Thus, the 2024 Table of Contents is found at https://old.maa.org/press/periodicals/convergence/whats-in-convergence-contents-of-volume-21-2024; our Classroom Resources Index is at https://old.maa.org/press/periodicals/convergence/classroom-resources-index; and the Index to Mathematical Treasures is available at https://old.maa.org/press/periodicals/convergence/index-to-mathematical-treasures.

If you have questions about *Convergence*'s future or are willing to assist with the process of preserving and transferring *Convergence*'s existing content, please contact the editors at convergence@maa.org. We appreciate the assistance of all of our readers with sharing information about the move with your colleagues and students, and we look forward to soon announcing further details such as *Convergence*'s "cover" thumbnail that you will see in MAA material.

Top: Fontenelle (Wikimedia Commons), Tolstoy (Library of Congress), and Coveyou (Smithsonian Institution Archives). **Bottom:** Thoreau (National Portrait Gallery), Jacobi (*Convergence* Portrait Gallery), and a sculptor's imagination of Plato (Wikimedia Commons).

As noted above, *Convergence* is continuing to publish new content throughout this transition. Our latest articles include several installments in our various article series:

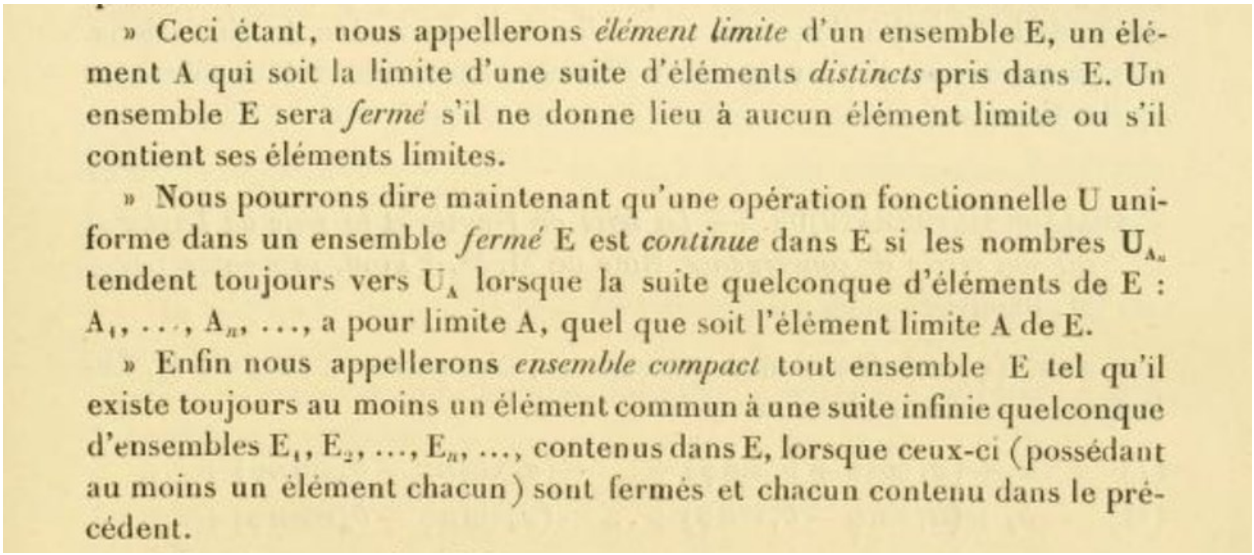
- Two new entries in the TRIUMPHS team's "A Series of Mini-projects from **TR**ansforming **I**nstruction in **U**ndergraduate **M**athematics via **P**rimary **H**istorical **S**ources":
  - "Solving First-Order Linear Differential Equations: Three Mini-Primary Source Projects for Differential Equations Students," by Adam E. Parker;
  - "A Compact Introduction to a Generalized Extreme Value Theorem: A Mini-Primary Source Project for Topology Students," by Nicholas A. Scoville;

- "'Large' Roman Numerals," by Phillip S. Jones with commentary by Victor J. Katz, in the "Historically Speaking" reprint series edited by Betty Mayfield;

- Six more of Mike Molinsky's examinations of "Quotations in Context" by:

  ◊ Bernard Le Bovier de Fontenelle;
  ◊ Carl Jacobi;
  ◊ Henry David Thoreau;
  ◊ Leo Tolstoy;
  ◊ Plato;
  ◊ Robert Coveyou;

- The winning papers in HOM SIGMAA's 2024 Student Paper Contest.



» Ceci étant, nous appellerons *élément limite* d'un ensemble E, un élément A qui soit la limite d'une suite d'éléments *distincts* pris dans E. Un ensemble E sera *fermé* s'il ne donne lieu à aucun élément limite ou s'il contient ses éléments limites.

» Nous pourrons dire maintenant qu'une opération fonctionnelle U uniforme dans un ensemble *fermé* E est *continue* dans E si les nombres U_{A_n} tendent toujours vers U_A lorsque la suite quelconque d'éléments de E : $A_1, \ldots, A_n, \ldots$, a pour limite A, quel que soit l'élément limite A de E.

» Enfin nous appellerons *ensemble compact* tout ensemble E tel qu'il existe toujours au moins un élément commun à une suite infinie quelconque d'ensembles $E_1, E_2, \ldots, E_n, \ldots$, contenus dans E, lorsque ceux-ci (possédant au moins un élément chacun) sont fermés et chacun contenu dans le précédent.

Fréchet's definition of a compact set, which is explored in Nick Scoville's mini-PSP.
(M. Fréchet, "Généralisation d'un Théorème de Weierstrass,"
Comptes Rendus de l'Académie des Sciences 139 (1904): 848–850.)

Are you ready to contribute to *Convergence*'s mission of providing resources for teaching mathematics via the history of mathematics, particularly to grades 8–14 students? See our guidelines for authors at https://old.maa.org/press/periodicals/convergence/guidelines-for-convergence-authors and send your ideas to convergence@maa.org.

HOM SIGMAA Student Travel Grants Available

HOM SIGMAA is pleased to announce travel grants to graduate and undergraduate students. Money is available to help students travel to meetings to present a paper or poster in the history of mathematics. Details can be found at the end of the newsletter and in the HOM SIGMAA community on MAA Connect.

History of Math events at MathFest 2024

HOM SIGMAA Business Meeting, Reception, and Guest Lecture

Thursday, August 8, 6:30 pm - 8:00 pm, Room 309/310 **Zero and Nothing in Medieval Arabic Arithmetic** Jeffery Oaks, *University of Indianapolis*

Whether explaining calculations with decimal or sexagesimal notation, arithmetic books composed in Arabic beginning in the ninth century CE consistently describe the zero (ṣifr) as a sign indicating an empty place where there is no number. And yet we find that some arithmeticians explicitly performed operations on this zero. To understand how the zero was conceived and manipulated in medieval Arabic texts we first address the way that numbers themselves were conceived and how 'nothing' entered into arithmetical problem-solving. From there we examine arithmetic books for their treatment of zero.

We find that there is no inconsistency in operating on what is literally nothing, and thus there was no motive for arithmeticians to regard zero as a number. (Based on the article "Zero and nothing in medieval Arabic arithmetic". British Journal for the History of Mathematics 37.3 (2022), 179-211.)

Organizers:

Abraham Edwards, *Michigan State University*

Ximena Catepillán, *Millersville University of Pennsylvania*

MAA Invited Address

William Dunham, *Bryn Mawr College*

Bryn Mawr Matriculation Exams from Days of Yore

Friday, August 9, 9:00 am - 9:50 am, JW Grand Ballroom 5/6

From its founding in 1885, Bryn Mawr College aspired to the highest academic standards and thus sought to admit women of exceptional promise. In those days before the SAT, the College developed its own “matriculation exam” to identify sufficiently talented students. While grazing through the Bryn Mawr archives, I found copies of these exams from the decades around 1900. In my talk, I’ll share some favorite mathematical questions and a few non-mathematical ones. Modern students (and I’ll include myself here) might be unnerved by what was expected of applicants in olden times.

Biography

William Dunham is a historian of mathematics who has written four books on the subject: *Journey Through Genius, The Mathematical Universe, Euler: The Master of Us All,* and *The Calculus Gallery.* He was the MAA’s George Pólya Lecturer from 2014 to 2016 and is featured in the Teaching Company’s DVD course “Great Thinkers, Great Theorems.” Most recently, he co-edited, along with Don Albers and Jerry Alexanderson, an anthology from Cambridge University Press titled *The G. H. Hardy Reader.* For what it’s worth, Dunham presented MAA invited addresses in 1994, 2004, and 2014, so this continues his once-a-decade streak.

Since retiring from Muhlenberg College (*emeritus*, 2014), Dunham has held visiting positions at Harvard, Princeton, Penn, Cornell, and at Bryn Mawr College, where he now is a Research Associate in Mathematics.

Workshop: On the Shoulders of Giants: Teaching and Learning Mathematics from Primary Historical Sources

Thursday, August 8, 8:00 am - 9:20 am, JW Grand Ballroom 1

This workshop will introduce participants to a classroom-tested approach for teaching mathematics via guided reading projects based on primary historical sources. Designed to actively engage students in doing mathematics as they read and work through the writing of noted mathematicians such as Euler, Fermat, and Agnesi, each “Primary Source Project” (PSP) focuses on a particular topic in the standard undergraduate mathematics curriculum. These projects use excerpts from the writing of mathematicians of the past, on topics of importance to those authors, that carry the novelty and excitement of discovery from a time when these ideas were fresh, together with a series of exercises that engage students in methods of problem solving and proof construction that remain important to understanding today's mathematics. Workshop participants will begin to explore this approach to teaching and learning mathematics by placing themselves in the role of students as they work together in groups through portions of specific projects. Participants will also be introduced to “Reading Apprenticeship” routines that provide students with concrete mechanisms for discerning mathematical meaning from the primary source excerpts found in a PSP, and which can help them develop math-specific literacy skills more generally.

Organizers:
Abe Edwards, *Michigan State University*
Jennifer Clinkenbeard, *California State University Monterey Bay*
Ken Monks, *College of Southern Nevada*
Daniel Otero, *Xavier University*
Adam Parker, *Wittenberg University*
Michael Saclolo, *St. Edwards University*

Sponsor:
SIGMAA on the History of Mathematics (SIGMAA HOM)

Workshop: Putting the Differential Back into Calculus

Friday, August 9, 9:30 am - 10:50 am, JW Grand Ballroom 1

Historically, the Differential Calculus (based on Leibniz’ conception of the differential) predates the modern Derivative Calculus (from Lagrange’s function dérivée) by over 100 years. It predates Weierstrass’ limits by nearly 200 years. Differential Calculus was invented to solve very particular kinds of problems. The differential techniques pioneered by Leibniz were specifically designed to facilitate its use in solving such problems. The foundational idea of a limit was invented to justify Newton’s and Leibniz’ techniques, not to replace them. Introducing Calculus to students as a problem-solving

tool before addressing its logical foundations (approaching the topics historically, using differentials, rather than logically, using limits) has certain pedagogical advantages. However, instructors will need to significantly rethink, reorganize, and retool the standard syllabus to smooth this transition. The purpose of this workshop is to facilitate and guide this re-invention. Participants will learn to develop the differentiation rules in the manner of Newton and Leibniz, using differentials rather than limits. They will compare and contrast the solutions of significant, often historical, problems obtained using the calculus differentials of Leibniz with more modern approaches using the Derivative Calculus of Lagrange. The source material for the workshop's activities will be drawn from our OER Calculus textbook Differential Calculus: From Practice to Theory.

Organizers:
Robert Rogers, *SUNY Fredonia*
Eugene Boman, *Penn State – Harrisburg*

History of Mathematics Trivia Contest

Friday, August 9, 3:00 pm - 4:00 pm, Rooms 201-203 (Student Lounge)
Come join fellow math enthusiasts for a fun time of team trivia. Questions will focus on the history of mathematics, and mathematical connections to the Hoosiers State. Undergraduates are especially encouraged to attend, but the contest is open to everyone!
Goal of the event: Provide an informal time of fellowship and networking through a friendly math trivia competition.

Organizers:
Ximena Catepillán, *Millersville University of Pennsylvania*
Greg Coxson, *United States Naval Academy*
Richard Abraham Edwards, *Michigan State University*
Janine Janoski, *King's College*
Jason Hardin, *Worcester State University*

Sponsors:
MAA Committee on Undergraduate Student Programming (CUSP)
SIGMAA on the History of Mathematics (SIGMAA HOM)

MAA Invited Paper Session
Celebrating 50 Years of Embodied Mathematics in the Rubik's Cube

Saturday, August 10, 8:00 am - 12:00 pm, JW Grand Ballroom 8
The Rubik's cube was invented 50 years ago. It physically embodies powerful mathematical concepts and the puzzle itself has inspired the creation of much new mathematics. The fact that it is a physical realization of group theory offers exciting connections between students and group theory concepts in learning environments. It can both motivate the student as well as offer a tactile engagement with permutation

groups that are otherwise only abstract. Since we are celebrating the anniversary, this session attempts to give glimpses on multiple aspects of the cube. We will review its history and major theoretical progress including complexity and the diameter of the groups. But we will also feature discussions of its use in the classroom and what its hand-on aspect means. The goal of this session is to have diverse presentations and attract a broad audience so speakers will be encouraged to introduce concepts that they discuss.

Organizer:
Brett Stevens, *Carleton University*

Schedule

The Rubik's Cube: A Relationship 'Building Block' in the Mathematics Classroom
8:00 am - 8:20 am
Daniel Van der Vieren, *Aims Community College*
The Rubik's Cube has the power to transform the mathematics classroom, particularly at the middle and high school levels. Although math can be an intimidating subject for many—often times leading students to question the utility in everyday life—the Rubik's Cube offers an intrigue that is matched by few of its kind. As an extension to his 2018 TedXBoulder talk, Dan will provide several activities and problem-solving exercises for students and teachers alike incorporating this iconic puzzle as we celebrate the 50th anniversary of the Rubik's Cube.

Generators, Conjectures, and Invisible Solutions: Exploring the Rubik's Cube with Undergraduates
8:30 am - 8:50 am
Ben Coté, *Western Oregon University*
Puzzles and games are wonderful entry points for undergraduates of all majors and backgrounds to engage in mathematical research. This talk will share some experiences, conjectures, discoveries, and observations from incorporating the Rubik's cube and other puzzles into undergraduate research experiences, courses for majors, and courses for future elementary/middle teachers.

Which Configurations of Rubik's Cubes Are Possible?
9:00 am - 9:20 am
Maria Nogin, *California State University Fresno*
Katherine Nogin, *Northwestern University*
Michelle Nogin, *Clovis North High School*
Our Math Circle participants love playing with Rubik's Cubes and its many variations, sharing algorithms, and creating patterns. They also ask some interesting questions such as whether it is possible to switch two corners of a cube, rotate just one edge piece, or create a pattern that they thought of. In this presentation, we will show how some basic abstract algebra concepts such as the parity of permutations as well as a certain geometric argument can be used to answer questions like these. We will also share how a Rubik's cube can be used to illustrate permutations in proof-writing and abstract algebra courses.

Opening Moves: Reducing the Average Move-count at the Start of a Popular Solution Approach
9:30 am - 9:50 am
Morley Davidson, *Kent State University*
The opening moves of most hands-on solution approaches can involve so many cases that lookup tables are typically abandoned in favor of 'intuitive' moves, placing the move-count analysis on a shaky foundation. Meanwhile, further subdividing eg. a two-step starting approach, as in the popular 'Cross' and '2x2x2' approaches, typically sacrifices move-count efficiency. In this talk we focus on the latter approach and present a non-traditional four-step construction that has reasonably good average move-counts, due to internal cancellation, while keeping the lookup tables small enough for practical Cube solving.

Hypercubing Heads Home
10:00 am - 10:20 am
Roice Nelson, *GE Aerospace*
Over the past few decades, a mathematically minded group has been uncovering analogues of Rubik's cube in far away abstract places. This group first formed around the hypercubical 3x3x3x3 (or 3^4) Rubik analogue, so we call ourselves hypercubers. In the last few years, Melinda Green pivoted our journey back towards the original. She and other members developed a physical puzzle with a symmetry group isomorphic to the 2^4 hypercube puzzle. This talk will share highlights of our adventures into abstraction and landing back in the physical world. Join us in the fourth dimension and play with a physical hyperpuzzle yourself!

Solving the Cube (for Beginners)
10:30 am - 10:50 am
Art Benjamin, *Harvey Mudd College*
Rubik's Cube Solving Workshop
11:00 am - 12:00 pm
Art Benjamin, *Harvey Mudd College*
Brett Stevens, *Carleton University*
Learn to solve the Rubik's cube in 8 steps. Bring your own cube if you have one.

MAA Special Session organized by the Indiana Section
Notable Events in the History of the Indiana Section of the MAA

Friday, August 9, 8:00 am - 10:00 am, JW Grand Ballroom 3/4

Mathfest 2024 will be held in Indianapolis, Indiana, and presents a unique opportunity for the Indiana Section to showcase itself to the rest of the MAA community. While other members of the section will be working to showcase our Hoosier hospitality and our substantial mathematical contributions, this session will focus on sharing various historical episodes and individuals that have made the section unique over its 110-year history and which we believe would be of interest to the general membership of the Association.

The organizer has been writing twice-yearly blogs about the history of the Indiana Section for eight years, available at https://www.indiana.maa.org/lookingback. He has invited other members of the section to speak on a topic of particular interest to them.

Organizer:

Rick Gillman, *Valparaiso University (in his role as Historian of the Indiana Section of the MAA)*

Schedule

The History of Indiana's Squared Circle
8:00 am - 8:15 am
Melissa Desjarlais, *Valparaiso University*
"In 1897 the Indiana State Legislature considered House Bill No. 246 … which proclaimed a new way of squaring the circle with an accompanying declaration of a new value of pi." This is the first line in a paper by Arthur Hallerberg, a former professor at Valparaiso University who wrote multiple papers on the history of pi in Indiana. This talk is based on these papers and will highlight some of the significant events and incorrect mathematics from this infamous history.

Hoosiers, the MAA, and the Indiana Section
8:20 am - 8:35 am
Colin McKinney, *Wabash College*
In this talk, I will chronicle the role some Hoosiers played in the founding of the MAA and of the Indiana Section, which was only the fifth section formed. I'll also discuss some of the early members of the MAA and the Indiana section, drawing on archival resources at Wabash College and on digitized archives of the American Mathematical Monthly.

Peter & Paul: A Surprising Intersection of Lives
8:40 am - 8:55 am
Rick Gillman, *Valparaiso University*
Peter Edson was an award winning, popular, nationally syndicated Washington columnist when he asked "Is there a team-based collegiate mathematics competition?" Paul Mielke was an accomplished applied mathematician who was able to reply "we can do this in Indiana." This talk shares their life stories and how they intersected at Wabash College, which is not in Wabash Indiana nor on the banks of the Wabash River. The question, asked and answered in 1965, led to what was then called the Indiana Small College Mathematics Competition, later the Friendly Competition, and now simply the ICMC - a long-standing part of the Indiana Section of the MAA.

Rodney and Dwight: Purely Pure vs. Purely Applied
9:00 am - 9:15 am
Dan Callon, *Franklin College*
Rodney Hood and Dwight Heath were longtime Franklin College mathematics professors, both accomplished scholars and leaders in different era of the Indiana Section of the MAA, who passionately lived out their values mathematically and in their personal lives. Both were prominent campus figures consistently lauded by Franklin College alumni as major influences on their lives, and yet their campus reputations, mathematical interests and accomplishments, and personal values were polar opposites. In this presentation we will get to know these two amazing mathematicians whose influence on their students and on their communities extended far beyond mathematics.

The Indiana College Mathematics Competition (ICMC)
9:20 am - 9:35 am
Justin Gash, *Franklin College*
Since 1966 the Indiana Section of the MAA has hosted the Indiana Collegiate Mathematics Competition (ICMC) in which teams of up to three students compete to solve problems from an array of mathematics subjects. From its inception the ICMC has been as much about community as it is a contest. To this day neither the student teams competing nor the volunteer judges grading solutions are supervised; everyone is trusted to act with integrity. This approach has sometimes garnered the ICMC with a different nickname: A Friendly Mathematics Competition. In this talk we will journey through the more than fifty years of ICMC exams, and in addition to seeing some interesting problems, we will see some of the changes of the last 15 years that have made the exams accessible to a wider range of mathematics students.

A Conversation among Section Historians
9:40 am - 9:55 am
Rick Gillman, *Valparaiso University*
During this informal conversation, I will share my experience as a section historian, and invite other section historians to do the same. Collectively, we will attempt to answer questions from prospective (amateur) section historians.

Read the Masters! Cauchy's Limits and the Integral Defined

Saturday, August 10, 3:00 pm - 5:00 pm., JW Grand Ballroom 1

Attention has grown in recent years on the power of using primary historical sources as a resource in the teaching and learning of mathematics. The experience of encountering mathematical ideas in the context of their early development, before becoming refined and carefully sculpted for textbook consumption by students, can be a powerful one, as it is often charged with the excitement of discovery and the immediacy of the problems in which these notions were forged. The event is designed to allow anyone who wishes to participate in this common reading experience.

Participants will be introduced in a brief 15-minute talk to Augustin Louis Cauchy (1789--1857), a towering figure in the development of calculus as a university course; in the 1810s he introduced the use of limits as a central underpinning of the main notions of the calculus, using them to define continuity, the derivative and the definite integral. The talk will be followed by 70 minutes of common reading from Cauchy's lecture notes (texts will be provided), where participants can experience the immediacy of what was then a novel approach to understanding calculus. This event is a follow-up to one that took place at MathFest 2023 in Tampa, where participants read about limits in the definitions of continuity and differentiability; at this event, the focus will be on defining and using the integral. (Not having attended last year's event will not disadvantage attendees who wish to participate in this event.)

Organizers:
Daniel Otero, *Xavier University*
Robert Bradley, *Adelphi University*

Sponsors:
SIGMAA on the History of Mathematics (SIGMAA HOM)
The TRIUMPHS Society
ORESME Reading Group
Arithmis Reading Group
The Euler Society

The History of Mathematics
Special Interest Group of the
Mathematical Association of America

Al-Khwarizmi Student Paper Contest in the History of Mathematics during the Islamic Civilization, "8th-16th Century"

This contest is open to all undergraduate students in the USA

The purpose of this contest is to increase awareness and interest in the history of mathematics among undergraduates, and to encourage students to learn more about the contributions of the Islamic Civilization to mathematics.

First and second places winners will be chosen.

Winners will receive a one-year student membership in the MAA and HOM/SIGMAA, and a history of mathematics book.

Eligible Topics and Submission Guidelines

- Contributions of a scholar from the Islamic World to mathematics or geometry during such period.
- Any topic in geometry or mathematics from this period by scholars in the Islamic World.
- Contributions of multiple Islamic/Arabic scholars to a given subject/topic in mathematics in this period.
- Connections of Islamic/Arabic Mathematics and the Arts.
- Connections of Islamic/Arabic Mathematics and Architecture.
- Influence of Islamic/Arabic Mathematics on other civilizations.

- Submissions should be at a minimum 2500 words (approximately 10 double spaced 12 pt. pages) in length.
- Submissions should be in a single PDF file, including a cover page with title, name, school, and full contact information.
- Papers should include a full citation list.
- Papers should not draw too heavily from web sources [π]
- Submissions should include a cover sheet with your name, the paper's title, your institution, supervising instructor if applicable, and email and permanent postal address.
- Please submit electronic copy to the email addresses below
- Students submitting a paper need not be currently taking a history of mathematics course.
- Only single-authored papers are eligible.

Deadline for submission is **November 17, 2024**

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

Results will be announced via email
and on the HOM SIGMAA website in December.

Submissions and questions can be directed to

Dr. AbdelNaser Al-Hasan
via email at: naser.alhasan@newberry.edu
OR
Dr. Noah Aydin
via email at: aydinn@kenyon.edu

Information can also be found at the HOM-SIGMAA website at
www.homsigmaa.net

[π] Web sources that give access to print material, such as JSTOR, are completely acceptable.

The History of Mathematics Special Interest Group of the Mathematical Association of America

is pleased to announce its 22nd annual

Student Paper Contest in the History of Mathematics

This contest is open to all undergraduate students[π]

Papers will be judged by a panel of specialists for content, originality, and presentation. Typically first and second place winners are chosen.

Submission Guidelines

- Topics can be drawn from any field of mathematics.
- Papers can address a single person or topic, or be an historical survey of a topic or school of thought.
- Submissions should be approximately 5000 words in length with font that is easy to read.
- Submissions should be in a single PDF file, including a title page with title of paper, the author, school, and complete contact information.
- Papers should include a full citation list.
- Papers should not draw too heavily from web sources.[ϰ]
- Students submitting a paper need not be currently taking a history of mathematics course.
- All papers should be single-authored.
- Eligible papers are those written in the past year and while the author was an undergraduate.

Submission Deadline: April 30, 2025

Results will be announced to winners via email, on MAA Connect, and on the HOM SIGMAA website in May. Winning papers will be published on *Convergence*.

Submissions and questions can be directed to
Dr. Amy Shell-Gellasch ashellge@emich.edu

[π] Students who have graduated less than a year ago but wrote their paper while still an undergraduate may also participate. Graduate and high school students may also submit for an honorable mention.

[ϰ] Web sources that give access to print material, such as JSTOR, are completely acceptable.

HOM SIGMAA Small Grants

Guidelines and Procedures

Purpose: The HOM SIGMAA wants to aid its members in their quest to bring the joys of the history or mathematics to their students. These small monetary grants will allow HOM SIGMAA members to purchase items that will aid in learning the history of mathematics. For example, a classroom set of abacus or materials to make an historical model.

Guidelines

1. Recipients must be a current member of the HOM SIGMAA
2. The idea is to purchase items, materials to make a historical model, or materials that can be used year after year. (Not supplies that will be used up quickly.)
3. These materials may be used by an individual's colleagues, but belong to the HOM SIGMAA member and not their department.
4. Items or materials must clearly be for the instruction of a historical topic.
5. Grants will be for amounts up to $100 and considered on a rolling basis (so apply early in the year.)
6. Approval of the grant is at the sole discretion of the HOM SIGMAA executive board.
7. Applications can be made at any time, but may take several weeks to be approved and paid out by the MAA. So plan ahead.
8. Receipts for purchased items is preferable. But if purchase depends on funding, receipts may be required after purchase.
9. Total annual grants dispersed will not exceed $1000 per year and are subject to HOM SIGMAA funding needs.
10. Preference will always be given to first-time grantees. And the HOM SIGMAA has the right to deny any request if they feel a single member is requesting too often.

How to apply

Please send the application form (available on the HOM SIGMAA website) in Word or PDF to the Chair of the HOM SIGMAA via email.

HOM SIGMAA Classroom Small Grant

Name

Institution

Email

Phone

Address

Funds requested

Item(s) to be purchased

Purpose or use of items

HOM SIGMAA Student Travel Grants

Guidelines and Procedures

Purpose: The HOM SIGMAA wants to support students of the history of mathematics. We will offer travel grants (in the form of travel expense reimbursements) for students traveling to conferences to give a paper or poster on the history of mathematics. Grants are up to $250 for a local/regional/sectional meeting, and $350 for a national/international meeting. We encourage students to attend MAA meetings, but grants are not limited to MAA meetings. Submit application materials prior to the meeting; submit registration/travel/lodging receipts and verification of talk after the meeting.

Guidelines

1. Travel must be completed while a student or the summer immediately following graduation.
2. Approval of the grant is at the sole discretion of the HOM SIGMAA executive board.
3. Applications can be made at any time, but may take several weeks to be approved and are paid out by the MAA after travel is completed. So plan ahead.
4. Total annual grants dispersed will not exceed $1500 per year and are subject to HOM SIGMAA funding needs and will be considered on a rolling basis.
5. Preference will always be given to first-time grantees.

How to apply (prior to meeting):

1. Please send the application form (available on the HOM SIGMAA website) in Word or PDF to the Chair or Secretary of the HOM SIGMAA via email.
2. Have your research advisor email the Chair or Secretary of the HOM SIGMAA a letter verifying your status and stating the nature of your research.

Reimbursement (post meeting):

Email scans of the following to the HOM SIGMAA:

1. travel receipts totaling the grant amount or more
2. program page verifying your participation.

HOM SIGMAA Student Travel Grant Application

Full Name:

Status: (circle one) Graduate student Undergraduate student

Home Institution:

Email:

Address:

Conference title and session title:

Location and dates:

Title of talk/poster: