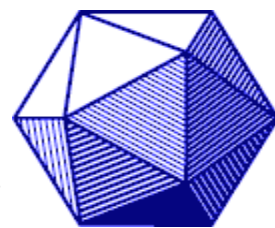


HOM SIGMAA News



Volume XII, Number 2

September 2022

Greetings from the HOM SIGMAA Chair

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This summer I attended the Canadian Society for History and Philosophy of Mathematics 2022 Annual meeting, a virtual and very well-organized conference with many interesting presentations. Several HOM SIGMAA members gave excellent talks. In July I attended, virtually, ICM 2022 (see my report on page 11), and in August I attended my favorite conference, MathFest 2022, as chair of HOM SIGMAA. MathFest 2022 was very special to me since it was my first in-person conference since the start of the pandemic.

Here are some of the HOM SIGMAA highlights at MathFest 2022:

The HOM SIGMAA Trivia event was a lot of fun to organize and run. The trivia winners were Abe Edwards, Michael Matthews and Danny Otero, congratulations!

EPaDel section members helped me prepare a set of questions, and here are some of them. For responses keep in mind that MathFest 2022 was in **Philadelphia**. See the answers at the end of this report.

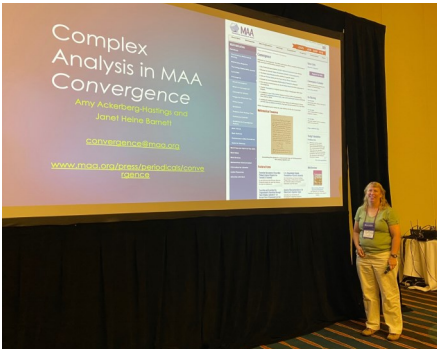


From left to right: Michael Matthews, Danny Otero, and Abe Edwards

1. This internationally recognized mathematician born in Philadelphia created "Formula Ono" and gave a TEDX talk on how living mathematically can lead to happiness. He is an expert triathlete who represented Team USA in the 2012, 2013, and 2014 ITU World Cross Triathlon Championships.
2. What do Yul Brynner and a prominent mathematical organization headquartered at 3600 Market Street in Philadelphia have in common?
3. What are the next two entries in the following sequence:
2,5,8,11,13,15,30,34,40,46,52,55,60,63
4. Who was an 18th century Philadelphian astronomer, inventor, mathematician, surveyor, scientific instrument craftsman, and public official? He also was a member of the American Philosophical Society and the first director of the United States Mint.
5. EPaDel became the "Eastern PA and Delaware" section in 1979. Prior to that we were the only MAA section named after a city. Which city?
6. The BBC Science Focus Magazine listed what they called "5 of the greatest mathematicians that you've probably never heard of". Select the person NOT on their list: Muhammad al-Khwarizmi, David Hilbert, Sofia Kovalevskaja, Nikolai Ivanovich Lobachevsky, Ada Lovelace, Emmy Noether.
7. Who was the first leader of EPADEL elected in the 21st century?
8. What was the location of the most recent MathFest meeting that occurred face-to-face before the pandemic?

9. On the grounds of which Philadelphia area college will you find the final resting place of Emmy Noether?
10. Name the section that has a bi-annual Careers in Mathematics Conference.
11. How many Special Interest Groups of the MAA (SIGMAA) exist?
12. Einstein called her a "significant mathematical genius." She taught at Bryn Mawr. Who was she?

The workshop **“Learning from History: Teaching with Primary Source Projects in Your Mathematics Classroom,”** organized by Abe Edwards, Dominic Klyve, Danny Otero, and Michael Saclolo, was a complete success.



Amy Ackerberg-Hastings ready to begin her talk

Amy Ackerberg-Hastings & Janet Heine Barnett, MAA Convergence, presented the talk titled: **Complex Analysis in MAA Convergence.**

Nuh Aydin, Kenyon College, presented the talk titled: **The Need for Teaching a More Accurate and Inclusive History of Mathematics and Science.**

Jason Rosenhouse, James Madison University, gave the Martin Gardner Lecture titled: **The History and Future of Logic Puzzles.**



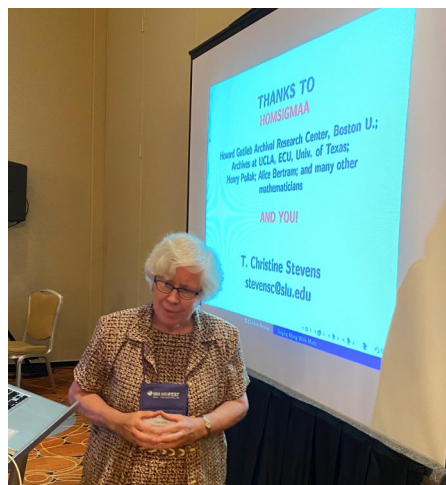
Nuh Aydin ready for his presentation

HOM SIGMAA was also present at the sixth annual **MAA Project NExT Networking Fair**, the representative was Antonia Cardwell, our Electronic Resources Coordinator.

One of my favorite activities was directing my first **HOM SIGMAA Business Meeting, Reception, and Guest Lecture** event. T. Christine Stevens, Saint Louis University, gave a wonderful talk titled: **“Singing Along with Math: The Mathematical Work of the Opera Singer Jerome Hines”**. Read about Dr. Stevens collaborator’s request on page 3.



Antonia Cardwell at the NExT Networking Fair entrance



Left, T. Christine Stevens presenting.

Right, thanking HOM SIGMAA at the end of her presentation

The business meeting minutes can be found on our website: homsigmaa.net

Chair letter continued
on next page →

Chair letter continued from previous page

I am pleased to announce that we are sponsoring a new Student Paper Contest, the **Al Khwarizmi Student Paper Contest**, that will start in the Fall 2023. The topic will be Islamic/Arabic Mathematics, 8th-16th century. The contest was created by AbdelNaser Al-Hasan, Newberry College, SC, and Nuh (Noah) Aydin, Kenyon College, OH. For details visit our website, homsigmaa.net.



Left: AbdelNaser Al-Hasan, Right: Nuh (Noah) Aydin

In brief, I had a wonderful HOM SIGMAA summer!

Greetings to all from Ximena

Chair, HOM SIGMAA

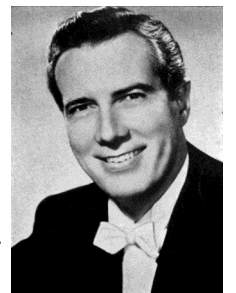


Trivia Answers: (1) Ken Ono (2) SIAM (3) Milbourne, 69th Street Transportation Center (4) David Rittenhouse (5) Philadelphia (6) David Hilbert (7) Annalisa Crannell, Franklin & Marshall College (8) Cincinnati (9) Bryn Mawr College (10) EPaDel (11) 17 (12) Emmy Noether

Collaborator sought

For a research project on the mathematical work of the opera singer Jerome Hines (1921-2003), I am seeking a collaborator with expertise in logic or analysis. Hines had a life-long interest in mathematics and published six mathematical papers. He also wrote a treatise about a subject that he called "primal mathematics," and I need help in assessing its content. Familiarly with non-standard analysis would be especially helpful. For more information, please contact me at stevensc@slu.edu.

T. Christine Stevens, Saint Louis University



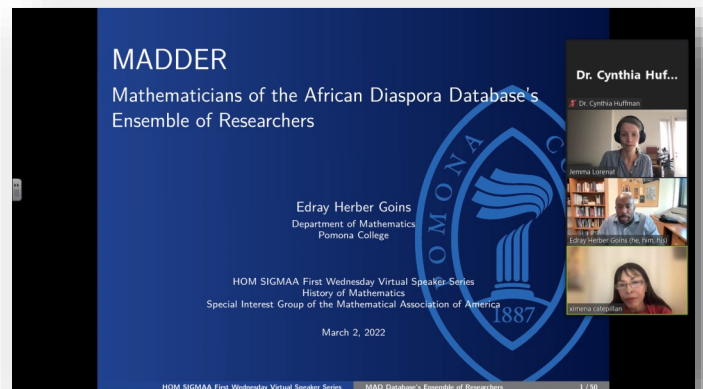
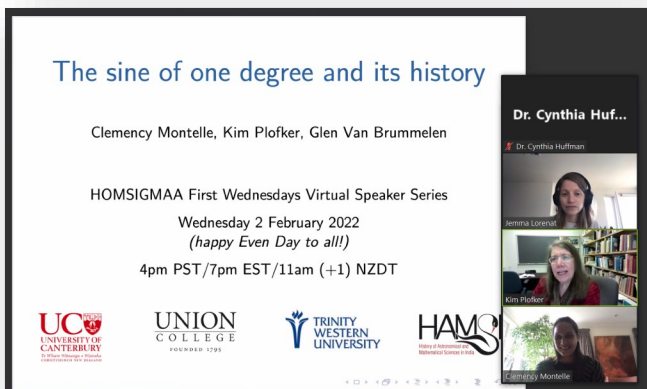
*Portrait of Jerome Hines from 1958
by Robertsacrefan,
[CC-BY-SA-4.0](https://creativecommons.org/licenses/by-sa/4.0/)*

HOM SIGMAA VIRTUAL SPEAKER SERIES

HOM SIGMAA continued its speaker series during Spring 2022, organized by Jemma Lorenat, HOM SIGMAA Program Coordinator.

Speakers and presentations included:

- Clemency Montelle, Kim Plofker, and Glen Van Brummelen, *The Sine of One Degree and Its History*, February 2
- Edray Herber Goins, Pomona College, *Mathematicians of the African Diaspora Database's Ensemble of Researchers*, March 2
- Abe Edwards, Michigan State University, *The Italian Job: Bonaventura Cavalieri's Geometria Indivisibilibus and calculus in early 17th century Italy*, May 4



The first HOM SIGMAA Virtual Speaker Series presentation for Fall 2022 will be on Wednesday, September 28, at 4 PM PST/7 PM EST with a talk by Andrés Navas, Universidad de Santiago de Chile (USACH), on "Khajuraho's magic square is a hypercube".

Abstract: Among (pan)magic squares, the one engraved in a temple in the sacred city of Khajuraho in India is one of the most striking ones. I will focus on this marvelous object from the point of view of symmetries. In concrete terms, I will explain why the group attached to it is isomorphic to that of 384 rigid movements of the hypercube. To do this, I will revisit Pandita's theorem on counting the number of panmagic squares of order 4. Several mathematical questions on groups of symmetries of general magic structures will be presented.

Watch the HOM SIGMAA community on MAA Connect for information on more upcoming speakers during Fall 2022.



HoM Community Mourns Loss of Eulerian Scholar

(courtesy Rob Bradley)

The History of Mathematics Community is sad to learn that Ed Sandifer passed away on Wednesday, August 31. Ed was buried on September 2 at a small ceremony for immediate family. Celebrations of Ed's life are being planned for the future.

Charles Edward (Ed) Sandifer was born on December 6, 1951. Originally from Ottumwa, Iowa, he grew up in Oklahoma, Minnesota, and New Jersey, where he graduated from high school in 1969. In 1973, he graduated from Dartmouth College with a mathematics degree and went on to pursue a Ph.D. at the University of Massachusetts, Amherst.

As a graduate student, Ed was especially interested in Algebra, and he wrote his dissertation, *Finiteness in Noetherian Rings of Invariants*, under the direction of John Fogarty. His fellow graduate students from that era were not surprised that Ed became a historian of mathematics, because he was always attracted to people and their stories, especially how their work fit into a larger narrative.

Ed met his future wife Theresa, nee Morgan, when they were both graduate students at Amherst. They were married in 1979 and raised two children, Elizabeth and Victoria.

Ed began teaching at Western New England University in 1979, spending 4 years in that role before he accepted a position at Western Connecticut State University. Ed remained at WCSU until his retirement in 2009, rising to the rank of full professor.



2022 HOM SIGMA 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: Jemma Lorenat, Pitzer College

Email: jemma_lorenat@pitzer.edu

Electronic Resources Coordinator: Antonia Cardwell, Millersville University

Email: Antonia.Cardwell@millersville.edu

Past Chair: Amy Shell-Gellasch, Eastern Michigan University

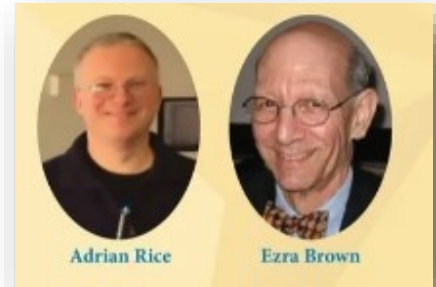
Email: ashellge@emich.edu

History of Math Writings Score Big with MAA Awards

(Adapted from a MAA Connect HOM SIGMAA post by Dr. Amy Shell-Gellasch)

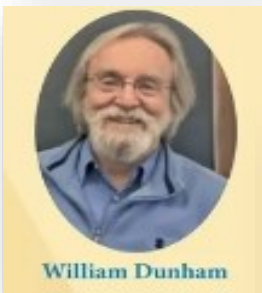
The August/September 2022 issue of *MAA Focus* has been published and inside you will find the list of all the MAA writing awards. Several of our members were honored for writings on the history of mathematics.

Adrian Rice & Bud Brown won the George Polya award (for authors of expository excellence published in the *College Mathematics Journal*) for "Why Hamilton Couldn't Multiply Triples", <https://doi.org/10.1080/07468342.2021.1897418>



Adrian Rice

Ezra Brown



William Dunham



Dominic Klyve

Erik R. Tou

Two Halmos-Ford awards (for Monthly articles) went to HoM articles. Bill Dunham for "Euler and the Cubic Basel Problem", <https://doi.org/10.1080/00029890.2021.1865014>, and Dominic Klyve and Erik Tou for "A Prime Testing Algorithm from Leonard Euler". <https://doi.org/10.1080/00029890.2021.1943118>

Both Chauvenet Prizes were awarded for history papers. Bill Dunham (again) for "The Early (and Peculiar) History of the Mobius Function" (*Mathematics Magazine*, <https://doi.org/10.1080/0025570X.2017.1413921>), and Bud Brown (also again) and Matthew Crawford for "Five Families Around a Well: A New Look at an Old Problem" in the *College Mathematics Journal*, <https://doi.org/10.1080/07468342.2018.1447203>.



William Dunham

Ezra Brown

Matthew Crawford

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, .

Winners of the 2022 Student Writing Contest

First place in the 2022 HOM SIGMAA Student Writing Contest goes to Rye Ledford (University of Missouri – Kansas City; Supervising Instructor: Richard Delaware), for “The Assumptive Attitudes of Western Scholars Regarding the Contributions of Mathematics from India: Assessing yuktis from the Yuktibhāṣā of Jyeṣṭhadeva.” Second place goes to Sarah Szafranski (University of Redlands; Supervising Instructor: Sandy Koonce), for “Estimations of π : The Kerala School of Astronomy and Mathematics, The Gregory-Leibniz Series, and the Eurocentrism of Math History.”

Both students received a one-year membership in MAA (including HOM SIGMAA) as well as a selection of books from MAA Press.

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

You can also find the winning paper on Convergence: <https://www.maa.org/press/periodicals/convergence/hom-sigmaa-2022-student-paper-contest-winners>

Congratulations to our winners Rye Ledford and Sarah Szafranski and all students who submitted for 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.

Convergence Calendar

Visit <https://www.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!

2023	Tampa, FL	August 2-5
2024	Indianapolis, IN	August 7-10
2025	Sacramento, CA	August 6-9

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.

Identify Useful Classroom Materials with *Convergence*

Janet Barnett and Amy Ackerberg-Hastings

Editors, *MAA Convergence*

MAA *Convergence* is both an online journal on the history of mathematics and its use in teaching, and an ever-expanding collection of online resources to help its readers teach mathematics using its history. We highlight here some of our newest articles and features.

Since 2004, *MAA Convergence* has provided hundreds of open-access classroom lessons, guides to implementing various aspects of the history of mathematics, and other online resources for teaching mathematics by using its history. Our [Classroom Resource Index](#) offers a new tool for finding materials published in the past 18 years that are suitable for K–12 students, preservice K–12 teachers, and specific undergraduate courses. To further assist with your planning for fall classes, several of the pages of the index are divided into classroom-ready resources with teaching suggestions and informative background articles.

Convergence also continues to add to its library of materials. Two recent articles offer images and suggestions for helping preservice teachers and others master alternative place-value numeration systems: “[An Ancient Egyptian Mathematical Photo Album – Hieroglyph Numerals and More](#),” by Cynthia J. Huffman, and “[Reflections on Chinese Numeration Systems](#),” by Frank J. Swetz. In “[Kepler and the Rhombic Dodecahedron](#),” Roberto Cardil considers Johannes Kepler’s writings on this polyhedron and develops Kepler’s ideas into activities suitable for secondary school students that connect to three other areas of interest appealing to that audience:

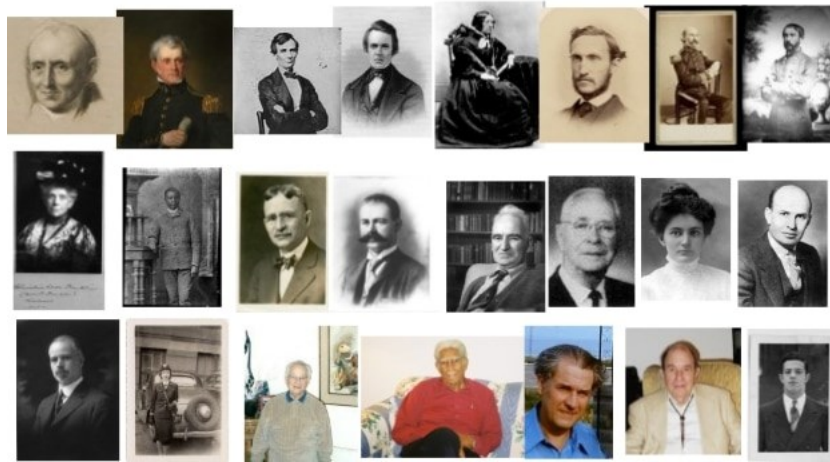
- Nature (the construction of honeycomb cells);
- Technology (the packing of cannonballs);
- Art (connections with drawings by great Renaissance artists).



1,333,330 in Egyptian hieroglyphs from the Edfu Temple (237–57 BCE).

Photo by Cynthia Huffman.

David Lindsay Roberts gives a behind-the-scenes view of historical research in “[Building a Book: Ha-thiTrust, Ancestry.com, Serendipity, and Lifetime Interests.](#)” Students and instructors will be engaged by the stories he tells about the twists and turns his research paths followed as he prepared his 2019 book, *Republic of Numbers: Unexpected Stories of Mathematical Americans*. Copies of the [winning entries in HOM SIGMA’s 2022 Student Paper Contest](#), “The Assumptive Attitudes of Western Scholars Regarding the Contributions of Mathematics from India: Assessing *yukti-s* from the *Yuktibhāṣā* of Jyeṣṭhadeva” by Rye Ledford (student of Richard Delaware) and “Estimations of π : The Kerala School of Astronomy and Mathematics, the Gregory-Leibniz Series, and the Eurocentrism of Math History” by Sarah Szafranski (student of Sandy Koonce) are available. Previous winners can be perused on this page or in *Convergence’s* [Index of MAA Award-Winning Articles on History of Mathematics](#) or in [Article Series in Convergence](#).



The individuals profiled in David L. Roberts’s *Republic of Numbers*.

Collage created by the author.

Speaking of our ongoing series:

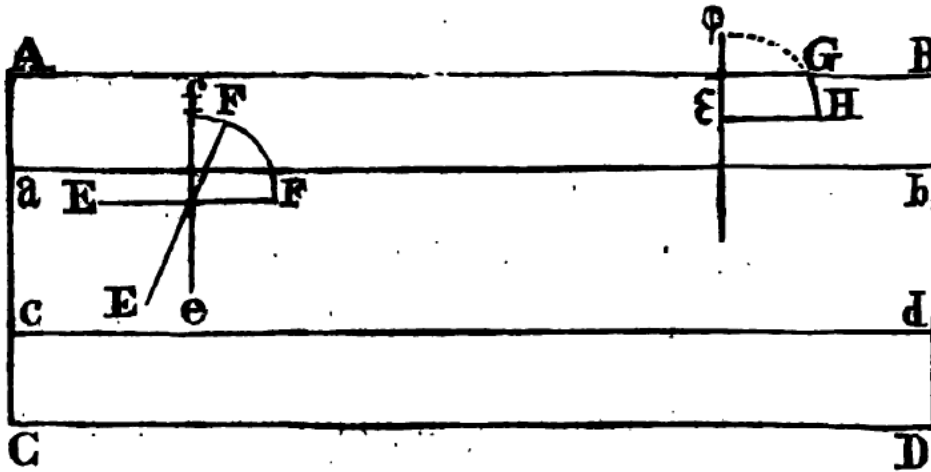
Convergence’s reprints from NCTM’s *Mathematics Teacher* highlight rationales for using the history of mathematics in the teaching of mathematics and the history of American mathematics teaching, respectively:

- “[Do Teachers Need to Incorporate the History of Mathematics in Their Teaching?](#)” by Po-Hung Liu;
- “[The High School Mathematics Curriculum—What Can We Learn from History?](#)” by Robert Reys and Barbara Reys.

And, two new entries have been added to the TRIUMPHS team’s “[A Series of Mini-projects from TRansforming Instruction in Undergraduate Mathematics via Primary Historical Sources](#)”:

- “[Fourier’s Heat Equation and the Birth of Modern Climate Science: A Mini-Primary Source Project for Differential Equations and Multivariable Calculus Students,](#)” by Kenneth M Monks;

- “[How to Calculate \$\pi\$: Buffon's Needle – A Mini-Primary Source Project on Geometric Probability for Calculus 2 Students, Pre-service Teachers and Others,](#)” by Dominic Klyve.



Buffon's [sketch](#) of the Needle Problem.

Convergence also continues to offer other features useful for teaching mathematics with its history:

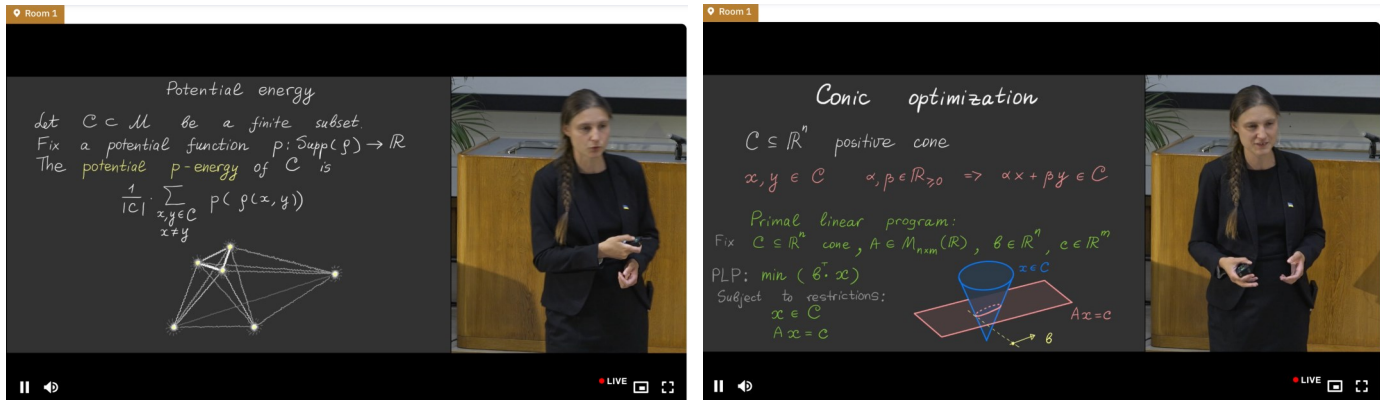
- “[Mathematical Treasures](#),” images and descriptions of texts and objects significant to the history of mathematics;
- “[On This Day](#),” a listing of three or four historic mathematical events that happened on any given date;
- “[Today's Quotation](#),” a quotation about mathematics from a historical figure selected from a searchable database of quotations;
- “[Problems from Another Time](#),” highlighting historical problems;
- “[Conference Calendar](#)” (edited by associate editor Bud Boman), an up-to-date guide to conferences and events online and around the world that feature or include the history of mathematics and its use in teaching.

Interested in contributing? We'd love to hear from you at convergence@maa.org! *Convergence* publishes expository articles on the history of topics in the grades 8–16 mathematics curriculum; translations of primary sources; classroom activities, projects, or modules for using history to teach mathematics; and classroom testimonials after applications of such activities, projects, or modules. For more details about *Convergence*'s submission and refereeing process, please see our [Guidelines for Authors](#).

Report on ICM 2022 by Ximena Catepillán

The first day of the International Congress of Mathematics I attended the remarkable Fields Medal Award Lecture delivered by Maryna Viazovska. You can access her lecture here:

<https://virtualicm2022.opade.digital/days/1/sessions/klbGhQ031ON4sWwKGxtWo>



I attended three **Sectional Lectures** in the History of Mathematics. Note that the Virtual ICM 2022 edition is still online, and you can access the lectures [here](#).

Krishnamurthi Ramasubramanian – Indian Institute of Technology Bombay, a historian of Indian Sciences in Mathematics and Astronomy, Sanskrit Guru, Vedic Teacher and Indian Philosopher.

Title: *The History and Historiography of the Discovery of Calculus in India*

Description: Couched in rich poetic verses in the Sanskrit language, the history of mathematics in India provides a fertile field for researching the evolution of mathematical thinking. During the talk, starting with snippets from the work of Āryabhaṭa (c. 499 CE) we shall try to present how certain important breakthroughs lead to the pioneering contribution of Mādhava (c. 1340) of the Kerala School, which has a more direct bearing on calculus. Towards the end, we would also like to highlight some of interesting facets in the historiography pertaining to development of calculus in India.

June Barrow-Green – The Open University, and chair of the International Commission on the History of Mathematics

Title: *George Birkhoff's forgotten manuscript and his programme for dynamics*

Description: At the end of the 1920s, George Birkhoff began to draw up a programme of research on unsolved problems in dynamics, and in 1941 he presented his ideas at the 50th anniversary celebration of the University of Chicago. Soon afterwards a summary of his lecture was published. At the time of his death in 1944, he left unfinished a manuscript of a revised and extended version of his lecture. I will describe Birkhoff's work leading up to this manuscript before discussing the contents of the manuscript itself.

Annette Imhausen – Goethe University Frankfurt, historian of mathematics known for her work on Ancient Egyptian mathematics.

Title: *Some uses and associations of mathematics, as seen from a distant historical perspective*

Description: The talk presented the evolution of mathematics and its various uses in ancient Egypt.

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

is pleased to announce its twentieth 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 (approximately 12 double-spaced 12 pt. pages) 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.[§]
- 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: Friday, March 31, 2023

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

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.

[§] Web sources that give access to print material, such as JTSOR, 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: