Michigan Section
Mathematical Association of America
NEWSLETTER

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This and older issues of the *Newsletter* can be found at
<sections.maa.org/michigan/newsletters>

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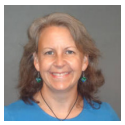

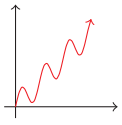

Reports from the Executive Board

Chair's Report

Amy Shell-Gellasch
(EMU)
<ashellge@emich.edu>

Dear Michigan Section,

Well, what a year we had last year! I hope things are getting back to normal, but for many of us, teaching still looks very different than what it used to. I know I have learned a lot of things I would have never learned before, and many of the methods and activities I adopted for teaching virtually I will continue to use and do, even in face-to-face courses. From that standpoint, maybe we all did gain something from this experience of teaching during a pandemic.

A few things were also different for the section due to the pandemic year. The section's annual meeting for 2021 was held, but, alas, virtually. We met over two Friday evenings in April with just over 100 people registered for the meeting. We had a mix of student, pedagogical, and mathematical talks. In addition, we had two plenary speakers, **Bill Dunham** (Muhlenberg C), and **Charles Hadlock** (Bentley U), our Pólya lecturer. All the talks were great, and though we didn't really get a chance to chat and form new connections, it was still an enjoyable and informative time. This spring we will be in person at GVSU, finally!

The Michigan Mathematics Prize Competition was not run in the spring of 2020 nor in 2021. In reviewing the program, we determined that, primarily due to significantly declining participation over the last two decades, it is no longer financially feasible to run the contest. An *ad hoc* committee has been formed to discuss what we might like to do for programming or outreach for our members and Michigan students. We hope to have some plans developed soon, so keep an eye out for announcements about what we will do and how you can be involved.

Have a great fall and winter, and I look forward to seeing you in Grand Rapids in April or over Zoom.

Four-Year-College Vice-Chair's Report

Norma Ortiz-Robinson
(GVSU)
<ortizron@gvsu.edu>

We are hoping that the third time's the charm as we plan the MAA Michigan Section Annual Meeting to be held in Grand Rapids at Grand Valley State University on Friday, April 8 and Saturday, April 9th. In addition to locally invited speakers, the meeting will host two outstanding plenary speakers: **David Kung** from the Dana Center and MAA NAM lecturer **Jose Perea** from Northeastern University. On Friday the 8th, we will feature a pre-conference Workshop on Mastery Grading, which will be facilitated by **David Clark** from Grand Valley State University.

Faculty and student contributed talks represent a vital aspect of the annual meeting. Talks related to mathematical scholarship, expository mathematics, and curriculum or pedagogy in the collegiate classroom are encouraged. A student poster session will also be held on Saturday. See submission information in the Call For Papers on the following page.

A banquet followed by a plenary talk is planned for Friday evening and a luncheon is planned for Saturday. Further details about the meeting will be included in the sectional Spring 2022 newsletter. The 2022 program committee consists of **Norma Ortiz-Robinson** (GVSU),**Amy Shell-Gellash** (EMU), **Robert Kipka** (LSSU), and **Jonathan Oaks** (Macomb CC). The local arrangements chair is **Akalu Tefera** (GVSU).

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Call For Papers

The Michigan Section of the MAA invites papers or posters from faculty and students for the 2022 Annual Meeting to be held April 8-9 at Grand Valley State University in Grand Rapids. Please submit abstracts and titles for talks related to mathematical scholarship, expository mathematics, and curriculum or pedagogy in the collegiate classroom, or for student posters, to <forms.gle/pQ1LshocJZmK1tXp7>.

Two-Year-College Vice-Chair's Report

Jon Oaks (Macomb CC)
<oaksj@macomb.edu>

I can't believe it's almost the end of the year already! My calendar is full of plans to celebrate the new year with friends and family, but in between the holiday parties, I'm hoping to get some rest, and I hope you're able to get some rest as well.

Exciting Grant Opportunity for Your College Is your college interested in implementing increasing success rates in STEM mathematics courses (and their prerequisites) through evidence-based instructional practices? The National Science Foundation funded project *Teaching for PROWESS (TfP): Increasing Student Success in Community College Mathematics through Active Learning and Systemic Instructional Change* (NSF DUE-2013493, -2012962, -2013232, -2013550) is excited to announce the opportunity to apply for the second phase of the project. Any two-year college may apply, and you do not need to have experience with grants. In Phase 2, six college math departments will receive up to $150,000 each ($50,000 per year for 3 years) to implement their plan to transform their department and institution. A Request for Proposals is now available on the grant website at <teachingforprowess.wordpress.com>. The deadline to apply is April 15, 2022.

Scholarship Opportunity for Your Students Each year the Michigan Mathematical Association of Two-Year Colleges (MichMATYC) presents the Karen Sharp Student Scholarship Award to a current or former Michigan community college student who excels in mathematics. Each student scholarship winner receives a $500 scholarship in support of their continuing education. Please inform your amazing students of the eligibility and application requirements and assist in their scholarship application with a letter of recommendation. For more information on the Karen Sharp Student Scholarship Award, please visit Awards on the MichMATYC website at <www.michmatyc.org>. All application materials must be received by May 31, 2022.

Are you looking to get involved in the two-year college community? If you're looking for ways to get involved in the two-year college community, MichMATYC is looking for volunteers to be on the Karen Sharp Student Scholarship and Teaching Excellence Award Committees, as well as for a Newsletter Editor and Affiliate Delegate. If you're interested in serving the community in any of these roles, please contact **Julie Gunkelman** at <president@michmatyc.org>.

Thank you so much, and if you ever need anything, please reach out to me through MAA Connect or by email at <jonnyoaks@gmail.com>. I hope you have a great rest of your year and I hope to see you at our section meeting this upcoming spring!

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WHO WILL GET PAID TO GET A PHD? SPARTANS WILL.

Michigan State University
is accepting applications for its
Doctoral Program in Mathematics Education

- Designed for those who show promise of becoming researchers and leaders in state, national and international mathematics education communities.
- Administered jointly by the Colleges of Natural Science and Education.
- This program prepares researchers to address critical issues in mathematics teaching, learning, curriculum and policy.

Assistantships and **fellowships** are now available!
Apply by **December 1** for enrollment the following fall.

Assistantships include tuition waiver, health insurance, and stipend. Requirement: an undergraduate major in mathematics or the equivalent. Teaching experience is preferred, but not required. **Apply now!**

Program in Mathematics Education
MICHIGAN STATE UNIVERSITY

For more information on this program, please contact:
Lisa Keller, Assistant Director of PRIME
517.432.5472 | kellerl@msu.edu
https://prime.natsci.msu.edu

Section Representative's Report

Mark Bollman (Albion C)
<mbollman@albion.edu>

For the second, and one hopes final, time, the annual Congress meeting was held virtually, just prior to MathFest in August. The diversity initiatives I mentioned last fall continue as the Association works to broaden its membership and reach out to a wider mathematical audience.

Also rolled out at the Congress meeting was the MAA's 2020 Impact Report. One unexpected fringe benefit of serving in the Congress is a greater awareness of the magnitude of the MAA's programs. I would recommend that you read the report, which is available online at <maa.org/sites/default/files/MAA2020ImpactReport.pdf>, for a truly breathtaking view of the scope and significance of the work we all do as part of the MAA.

My term as your Congress representative is coming to an end next June 30. The Section is fortunate to have two candidates for the next 3-year term in this role. Congress elections are conducted by the MAA's Washington office, so you should look for an email in December with the details of the election and your opportunity to choose our next representative.

I remain interested in everyone's thoughts about the direction of the MAA. Please contact me at <mbollman@albion.edu> with your ideas and suggestions.

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Secretary-Treasurer's Report

Ken Schilling
(UM-Flint)
<ksch@umich.edu>

The Michigan section's current bank balance (as of October 19) is $10,644.81. This is higher than our typical balance at this time of year, mostly because our greatest expense each year is the Spring Annual Meeting, which of course we were forced to cancel in 2020 and move online in 2021.

In 2021, the section received $852 in support from the Washington office of the MAA. We also derive some revenue from advertising and occasional other sources, but most of the section's income is from members' voluntary dues payments.

Since I am working from home this year, we are asking that members pay their dues by PayPal rather than by mailing personal checks, if at all possible. Please direct online payments using PayPal <paypal.com> to <MichiganSectionDues@gmail.com>. Please provide your name, institution, mailing address, and email address in the notes for your payment. If you cannot pay by PayPal, please contact me directly (at <ksch@umich.edu>). The voluntary dues contribution for individuals remains $15, or $30 (or more) for a sustaining membership. Institutional membership dues are $40 or $70, depending on the size of the institution.

I know that many of our members skipped voluntary dues payments in 2020/2021, and I didn't press the issue because of the unusual situation. I hope that you will resume supporting the section this year, as we resume our usual activities (including an in-person Spring Meeting!), and, indeed, expand them. You will receive an annual dues solicitation soon.

As always, the members of the executive committee thank you for your support of the section's activities through your voluntary contributions.

Michigan Section Dues

Your voluntary dues contribution will help support the activities of the Michigan section, such as the Annual Meeting and the *Newsletter*.

We are asking that members pay their dues by PayPal rather than by mailing personal checks, if at all possible. Please direct online payments using PayPal <paypal.com> to <MichiganSectionDues@gmail.com>. (Log in to your account at paypal.com and specify <MichiganSectionDues@gmail.com> as the address of the recipient.)

Please provide your name, institution, mailing address, and email address in the notes for your payment. If you cannot pay by PayPal, please contact Ken Schilling <ksch@umich.edu>.

The voluntary dues contribution for individuals remains $15, or $30 (or more) for a sustaining membership. Institutional membership dues are $40 or $70, depending on the size of the institution.

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Campus News

Adrian College

Elizabeth Lamprecht <elamprecht@adrian.edu>

Timothy Clark has assumed the role of Mathematics Department Chair. Dr. Clark, who joined the faculty in 2016, earned a PhD in Mathematics from Western Michigan University. His research interests include topology, category theory, and their applications.

The college has also added a number of new programs to its academic curriculum. Among these are: Bachelor of Science in Mathematics—Actuarial Science, Bachelor of Arts in Computer Science, and Bachelor of Science in Computer Science.

Yasser Alginahi is the Chair of the new Computer Science Department. He earned a PhD in Electrical Engineering from the University of Windsor, Canada.

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Join the MAA

Join the MAA!

The MAA is a professional society whose mission is to advance the mathematical sciences, especially at the collegiate level. MAA members include high school teachers, college professors, undergraduate and graduate students, pure and applied mathematicians, statisticians, computer scientists, and many others in academia, government, business, and industry. As a member, you will enjoy registration discounts at national meetings, electronic subscriptions to all MAA journals and magazines, automatic enrollment in your local MAA section, and access to employment services and exclusive online resources. To become a member, or to learn more about what the MAA can offer you, visit <maa.org>.

Albion College

Albion College

Mark Bollman <mbollman@albion.edu>

Mauricio Marengoni has joined the department on an initial 3-year appointment as Visiting Assistant Professor of Computer Science.

Central Michigan University

Ben Salisbury <ben.salisbury@cmich.edu>

Meera Mainkar was promoted to professor. **Brian Church** and **Anirban Dawn** completed PhD degrees in 2020–2021.

Professor **Katrina Piatek-Jimenez** was nominated for "The Distinguished Woman in Higher Education Leadership Award" which is presented annually by the Michigan American Council on Education (MI-ACE). The MI-ACE Women's Network is a professional network for Michigan women in higher education; this award, the highest honor the MI-ACE Network presents, honors Michigan women who have distinguished themselves by providing outstanding leadership to women in their institutions, in their profession, and in society at large. The award recognizes groundbreaking work on behalf of women that is outside the scope of the nominee's formal faculty or staff responsibilities.

Professor **Debraj Chakrabarti** was awarded the 2021 College of Science and Engineering Award for Outstanding Research. The award is given every year to a CSE faculty member who has demonstrated significant achievements in research including publications and grant awards.

Professor **Tibor Marcinek** was awarded the 2021 College of Science and Engineering Award for Outstanding Teaching. The award is given every year to a CSE faculty member who has demonstrated sustained teaching excellence that is effective in promoting student learning.

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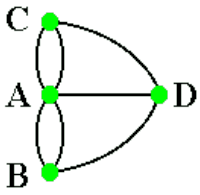
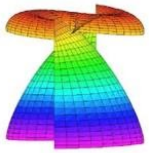
Eastern Michigan University

Amy Shell-Gellasch <ashellge@emu.edu>

Due to planned retirements and a sweet early retirement package, the EMU math department said goodbye to five long-time, amazing colleagues this past year and summer: **Chris Gardiner**, **Gisela Ahlbrandt**, **Barb Britton**, **Kathy Chu**, and **Ken Shiskowski**. This is in addition to two retirements last year, and two others accepted the package but we were lucky enough to extend them for a year so we would not be down nine in one year!

In addition, our amazing **Elaine Richards** stepped down after decades leading our Developmental Math Program. Alumna **Lynn Bahena** fills Elaine's role as our new Program Administrator of Math Pathways Support.





$$[X,[Y,Z]]+[Y,[Z,X]]+[Z,[X,Y]]=0$$

Western Michigan University

The Department of Mathematics at Western Michigan University offers a variety of graduate programs. We offer PhDs in Mathematics and Mathematics Education; Master's degrees in Mathematics, Applied and Computational Mathematics and Mathematics Education.

The Department offers several forms of financial assistance. Stipends range from $13,528–$16,206 with possible summer support. Currently all supported doctoral students and master's students receive tuition waivers. Applications are due by February 15, 2022, and are continually filled as long as openings remain.

All application materials are available on our web pages: <www.wmich.edu/math> or e-mail: <math-info@wmich.edu>

Western Michigan University is an Equal Opportunity/Affirmative Action Institution.

Kalamazoo College

Eric Nordmoe <enordmoe@kzoo.edu>

Visiting Assistant Professor **Francesca Gandini** was awarded a Tensor SUMMA (Strengthening Underrepresented Minority Mathematics Achievement) grant from the MAA for the 2021-22 academic year. In the MMoSH project (Mathematically Making our Stories Heard), our students will uncover their experiences of resilience in mathematics and share their stories with the campus. By reading the book *Living Proof: Stories of Resilience Along the Mathematical Journey* and meeting some of the authors from the book, the participants will learn new mathematical ideas and meet the amazing mathematicians that study them. The connections between our students' experiences, the authors, the math they study, their careers, and their community will stimulate reflection, inspire persistence in mathematics, and help the students generate their own Living Proof stories. In our final MMoSH event, the students will share their stories with the campus and local community to help connect students, faculty, and the local community across disciplines.

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COLLEGE OF
SCIENCE & ENGINEERING
MATHEMATICS
CENTRAL MICHIGAN UNIVERSITY

GRADUATE STUDIES PROGRAMS

Ph.D. in Mathematical Sciences

The Ph.D. degree at CMU is designed to prepare individuals for a career in college teaching and research, as well as other careers that require the knowledge of advanced mathematics. The program consists of broadly distributed coursework, professional pedagogical components, teaching internships, and a dissertation. Areas of research strength include algebra, algebraic geometry, approximation theory, combinatorics, complex analysis, computational mathematics, differential geometry, ethnomathematics, fluid dynamics, functional analysis, mathematical biology, mathematics education, operator theory, representation theory, and tropical geometry.

M.A. in Mathematics

The M.A. degree has an emphasis in the more computational aspects of mathematics for students who are interested in jobs in business, industry, and government. The degree program also retains the flexibility to prepare students for teaching mathematics at the undergraduate level or to undertake doctoral work in mathematics.

For information about any of our programs or how to apply, contact:

Graduate Coordinator
mthgrad@cmich.edu
se.cmich.edu/mth

CMU, an AA/EO institution, strongly and actively strives to increase diversity within its community (see https://www.cmich.edu/aaeo).

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Lake Superior State University

Brian Snyder <bsnyder@lssu.edu>

Lake Superior State University has hired **Jennifer Gorman** as a new mathematics faculty member. She earned her PhD from Lehigh University and comes to the UP from the College of Southern Nevada.

Lawrence Technological University

Bruce Pell <bpell@ltu.edu>

LTU is fully in-person this fall, and students and faculty are making the best of it while still remaining safe. The Mathematics and Computer Science Department has a new major in Data Science.

The 2021 World Robofest Competition has finished, with global winners crowned online. The contest is hoping to continue in person in 2022.

Assistant professors **Matthew D. Johnston** and **Bruce Pell** ran a National Research Experience for Undergraduates Program (NREUP) over the summer that covered modeling the spread of infectious diseases with dynamical systems. Five students participated in the program.

Math Club is back to in-person meetings with a Zoom option. For the Problem of the Day, the first few weeks were chosen from **Peter Winkler**'s puzzles, *Mind Benders for the Quarantined*, to solve as a (lively) group discussion. The puzzles are posted weekly by MoMath (the National Museum of Mathematics). Future plans are to practice for the SCUDEM and the MATH Challenge, and to have student presentations.

LTU entered two teams last February in the MCM/ICM (Mathematical and Interdisciplinary Contests for Modeling). Students met mostly online. Out of six interesting problems offered, the teams chose C (Confirming the Buzz About Hornets) and D (The Influence of Music).

The LMMC (Lower Michigan Math Competition) was online last April. LTU entered one team and placed third, with 11 teams from 8 colleges participating. Thanks to **Joe Spencer** from Aquinas College, the 2021 organizer. The 2022 contest will be organized at Calvin University.

Northern Michigan University

John Kiltinen <kiltinen@nmu.edu>, Bao Truong <btruong@nmu.edu>

Linda Lawton was promoted to the rank of professor in August, 2021. **Qinghong Zhang** is on sabbatical this fall semester.

The first group of students completed their studies in the new mathematics graduate program in the winter semester of 2021. This fall semester, a new masters program in computer science officially launched at Northern Michigan University.

While the Department of Mathematics and Computer Science had hoped to hold the Upper Peninsula Mathematics Meeting in-person this past fall, the increase in the number of COVID-19 cases in the Upper Peninsula made it necessary to cancel the meeting. Instead, the department plans to host the meeting next fall instead.

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Oakland University

Daniel Steffy <steffy@oakland.edu>

Gary McDonald retired in August 2021. **Yongjin Lu** joined the department as an associate professor; **Hon Yiu (Henry) So** and **Matthew Toeniskoetter** started as assistant professors; **Anuj Bajaj** and **Lucian Mazza** joined the department as visiting assistant professors.

In the summer of 2021 the department ran the OU Math Corps, an outreach program for seventh and eighth grade students from Pontiac.

The department has two openings for tenure track positions starting in Fall 2022. More information can be found on our departmental web page or <mathjobs.org>.

Siena Heights University

Jeffrey Kallenbach <jkallenb@sienaheights.edu>

Siena Heights University faculty are enjoying being back in the classroom for the new academic year. We attended numerous remote workshops and conferences over the summer on topics ranging from Inquiry Based Learning to e-texts, and returned with ideas for improving our face-to-face teaching using the lessons learned last year. Our new faculty member, **Kendra Dafoe**, is conducting her first "normal" year after teaching remotely in her first year.

This fall the Math Club, led by advisor **Nate Iverson**, had a tent at the Homecoming Morning tailgate where chili (homemade chili) dogs and cookies were served. We are planning to host a math competition for local junior and senior high schools during the winter semester. Finally, next semester **Andrew-David Bjork** will being spending a sabbatical in France to share ideas regarding IBL.

UM-Ann Arbor

Beth Wolf <bethwolf@umich.edu>, Heather Kleber <heayherg@umich.edu>

Charlotte Chan and **Linh Truong** have been hired as new tenure-track assistant professors. **Lydia Bieri**, **Tasho Kaletha**, **Sarah Koch**, and **Shravan Veerapaneni** have been promoted to full professor. Tasho Kaletha was additionally awarded the John Dewey Award recognizing his long-term commitment to the education of undergraduate students. Lydia Biera was elected Fellow of the American Physical Society.

Trace Jackson has been named a University Diversity and Social Transformation Professor for her extraordinary commitment to increasing opportunities for girls, women and underrepresented minority students, especially through the department's Marjorie Lee Brown Scholars Program.

Sarah Koch was named an Arthur F. Thurnau Professor and presented with the Michigan Section of the MAA's Distinguished Teaching award (see page 14). **Karen Smith** has been named a William Fulton Distinguished University Professor, and elected to the American Academy of Arts and Sciences.

The 2022 Louise Hay Award for Contributions to Mathematics Education will be presented to **Vilma Mesa**, Professor of Education and Professor of Mathematics. Mesa is recognized for her distinguished contributions to mathematics education research at the collegiate level, for her teaching and mentorship, and as an advocate for access to mathematics for women and members of underprivileged populations.

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UM-Flint

Mehrdad Simkani <simkani@umich.edu>

Cam McLeman has been appointed Chair of the Department of Mathematics and Applied Sciences, in the newly reorganized College of Arts and Sciences. **Shy-Yi Tu** is on sabbatical for Fall 2021, and **Daniel Coffield** will be on sabbatical for Winter 2022.

Wayne State University

Dan Drucker <ddrucker@wayne.edu>

Xiaoli Kong joined the department in Fall 2021 as a tenure track assistant professor in statistics. Professors **Leonid Makar-Limanov** and **Ualbay Umirbaev** will be on sabbatical leave in Winter 2022. Senior Lecturer **Don Sherry** retired at the end of the 2020–2021 academic year, while Lecturer **Nicholas Baran** left the department to take a position at Henry Ford Community College. Postdoctoral fellow **Peimeng Yin**, who had been working with Professor and Chair **Hengguang Li**'s numerical analysis and scientific computing research group, has accepted a numerical analyst position at Oak Ridge National Laboratory. Staff member **Tiana Bosley** accepted an assistant professor position at Olivet College, and department advisor **Kimberly Morgan** accepted a supervisory advisory position at Siena Heights University.

Assistant Professor **Luca Candelori**, Adjunct Research Professor **Vladimir Chernyak** (who is also a professor of chemistry), and Professor **John Klein** were awarded a $3.3 million collaborative grant from the Department of Energy. Additionally, John Klein was awarded a Simons Foundation Collaboration Grant for Mathematicians. Associate Professor **Fernando Charro** was a awarded a Wayne State University Research Grant for academic year 2021–22. Research led by Associate Professor **Andrew Salch** is using topological data analysis to aid researchers in Wayne State's Department of Psychiatry and Behavioral Neurosciences in analyzing fMRI data. Professor **Dan Isaksen**, his former student **Zhouli Xu** (UC-San Diego), and **Guozhen Wang** (Fudan University, China) published a research article "Stable homotopy groups of spheres" in the October 2020 issue of the Proceedings of the National Academy of Sciences. The article will be presented by Xu and Wang at the 2022 International Congress of Mathematicians.

Professor and Chair Hengguang Li has been awarded the Excellence in Postdoctoral Mentorship Award. He has supervised five postdoctoral researchers at Wayne Sate University since 2015. Associate Professor of Teaching **Christopher Nazelli** has been recognized for his teaching with admission to the WSU Academy of Teachers. Associate Professor of Teaching **Richard Pineau** was elected Chair of the Academy of Teachers in June 2021. Associate Professor of Teaching Richard Pineau received the WSU President's Award for Excellence in Teaching and the General Education Teaching Award.

Postdoctoral fellow Peimeng Yin received the Postdoctoral Trainee Research Award in recognition of outstanding promise in scientific research.

Distinguished Professor **Boris Mordukhovich** was elected into the National Academy of Sciences of Ukraine in May 2021. He is one of only three foreign members to receive this honor. Other honors: his book *Variational Analysis and Applications* was the subject of the featured review in SIAM Review 62 (2020). He was Principal Lecturer at the International School on Variational Analysis and Optimization, held in Shenzhen, China in November 2021, and will be Principal Lecturer at the International School-Seminar on Nonlinear Analysis and Extremal Problems, Irkursk, Russia, in July 2022. Professor Ualbay Umirbayev was elected to the National Academy of Sciences of the Republic of Kazakhstan. Distinguished Professor Boris Mordukhovich won a Distinguished Lecture Award from the Universities of Hong Kong and the Hong Kong Chapter of SIAM in March 2021.

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Spring 2021 Mathematical Contest News

The 81th William Lowell Putnam Mathematical Competition

Ruth Favro (Lawrence Tech U) <rfavro@ltu.edu>

The 81st Putnam Competition, scheduled for December 2020, was postponed to February 20, 2021 due to the COVID-19 pandemic. It was held online with no proctors and no prizes. Students submitted their own solutions, with scores reported back to each student. The 82nd Putnam will be held in person on December 4, 2021. See <maa.org/math-competitions/putnam-competition> for more information.

The 2020 American Mathematics Competitions Results

David Friday (Macomb CC) <fridayd@macomb.edu>

The American Mathematical Contest 10 (AMC 10) and the American Mathematical Contest 12 (AMC 12) are 25-question, 75-minute competitions designed to challenge talented high school students outside of their typical classroom curriculum. The AMC 10 is geared toward students at grade 10 or below, and the AMC 12 is geared toward all high school students.

In the 2020–2021 academic year, a total of 26817 students (down from 36152 last year) at 1519 schools (down from 1861 last year) worldwide took part in the AMC 10 A and 16887 students (down from 27423 last year) at 1406 schools (down from 1743 last year) worldwide took part in the AMC 12 A. Additionally, 19719 students (down from 26553 last year) at 1206 schools (down from 1484 last year) worldwide took part in the AMC 10 B, and 13677 students (down from 20800 last year) at 1206 schools (down from 1501 last year) worldwide took part in the AMC 12 B.

In the state of Michigan, no students earned a perfect score in one of these competitions. The top scorers from Michigan for each of these competitions are as follows.

AMC 10A **Jason Zhang**, a 9th grader from Plymouth High School (Canton) with a score of 144 out of 150,

AMC 12A **Maxim Li**, a 12th grader from Okemos High School (Okemos) with a score of 145.5 out of 150,

AMC 10B **Shreyas Shrivastava**, a 10th grader from Indus Center for Academic Excellence (Troy) with a score of 141 out of 150,

AMC 12B **Alex Xu**, a 12th grader from Troy High School (Troy) with a score of 144 out of 150.

Congratulations to the students!

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The 2021 American Regions Mathematics League (ARML) Contest Results

Ruth Favro (Lawrence Tech U) <rfavro@ltu.edu>

ARML 2021 was held on June 5. It was online again this year, but with a return to the standard 15 member teams. The *Michigan All-Stars* entered 2 teams in the A division. The *Reals* came in 24th, and the *Primes* were 45th out of 80 teams. In addition there were 44 teams in the B division, and 32 International teams.

The contest consists of four parts: Team round, 20 minutes for 10 problems; Power round, one hour for a sequence of related problems requiring proof; Individual round, 10 problems, 10 minutes for each group of two; and the Relay round, short problems requiring a number to be passed back to the next team member. Groups of three get six minutes to complete each of two Relays. A tiebreaker round is held for ties for the top score in the Individual round. For the online format, breakout rooms were used for the Power round and the Relay round. In addition, each relay team could collaborate together on the solutions. Complete information can be found at <arml.com>.

Two Michigan students won Amazon gift cards as awards for their performance in the Individual round. **Maxim Li** (Okemos HS) was #2 nationally, with a perfect score of 10 out of 10, and a correct tiebreaker problem answer, submitted just a short time later than the student designated #1. **Reagan Choi** (Troy HS) was tied with three others for #3, with 10/10 on the Individuals, but an incorrect answer to the tiebreaker. Congratulations go to them and all our student participants!

The Michigan All-Star Project is an activity of the MAA-Michigan Section. Coaches were**Dave Friday** (Macomb CC), **Cap Khoury** (Everi Games), **Mark Bollman** (Albion C), **Na Yu** (Ryerson U), and**Ruth Favro** (LTU). Many thanks to our 2021 parent proctors **Ashley Ahlin**, **Ren You**, **Xiang Feng**, **Jean Jiang**, **Jie Song**, **Catherine Ling**, **Yilu Zhang**, **Xin Feng**, and **George Wang**.

Awards

Sarah Koch (UM-AA) Wins 2021 Distinguished Teaching Award

Gavin LaRose (UM-Ann Arbor) <glarose@umich.edu>

The Michigan Section of the Mathematical Association of America is pleased to present the 2021 Award for Distinguished College or University Teaching of Mathematics to Sarah Koch of the University of Michigan. Sarah has been characterized as a "force of nature," whose impact on the educational lives of her students, and students at the University of Michigan more generally, as well as hundreds of school-age students in southeast Michigan, has been amazingly positive.

Sarah's work in her classes and in the world around her is characterized by passionate attention to individual students, and by a drive to redress educational inequities and to make mathematics an inclusive space that welcomes all students to the joy she derives from it. Her students write that her classes are affirming spaces where they can see their own success, thrive and see themselves as mathematicians, and where they are exposed to Sarah's infectious enthusiasm, love for learning, and sense of genuine fun. She is, in a nutshell, an inspirational teacher whose students are inspired by her to pursue their learning, and clearly learn and enjoy learning.

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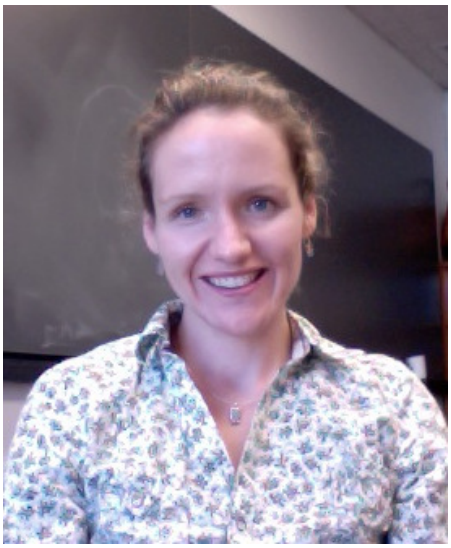

Sarah Koch, recipient of the MAA Michigan Section's 2021 Award for Distinguished College or University Teaching of Mathematics

In addition to her remarkable classroom success, Sarah has shaped the experience of all students in mathematics at the University of Michigan. She created "Bagel Sundays," in which over 100 undergraduate math students meet to work and learn together doing their math homework (over bagels, of course); she organized with a colleague the 2018 meeting of the Graduate Research Opportunities for Women conference; she has run the University of Michigan Math Club, worked with students in the Lab of Geometry in the Department, run sessions in the Department's Math Circle and Math Teachers Circle, and more. In short, her enthusiastic welcome of all who do mathematics at the University is visible throughout the mathematics community in and around her department.

Her impact does not stop at the boundaries of the University, however. In addition to all of the other instructional work she does with students affiliated with the University, Sarah has created not one but two remarkable programs to support Ypsilanti public school students: Math Mondays in Ypsilanti, and Ypsilanti Math Corps at U(M). These both support and engage students from the Ypsilanti school district in their school and through a four-week summer math camp held on the University of Michigan campus that is modeled on the amazingly successful Detroit Math Corps program. The work and energy Sarah has poured into these projects is superhuman, and the potential long-term impact of these efforts to provide support and resources to school students who have historically had neither is truly tremendous.

It is, therefore, with very great pleasure and pride that the Michigan Section of the Mathematical Association of America presents the 2021 Distinguished University Teaching of Mathematics Award to Sarah Koch.

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2022 Distinguished Teaching Award Nominations Due December 31, 2021

Yunus Zeytuncu (UM-Dearborn) <zeytuncu@umich.edu>
Distinguished Teaching Award Committee Chair

Nominations for the Michigan Section's 2022 Distinguished Teaching Award are now being accepted, and must be received by December 31, 2021 to be considered. The Distinguished Teaching Award Committee strongly urges departments or individuals to nominate deserving faculty for this award. We recognize that there are many outstanding teachers in the section, but we can consider only those who are nominated.

The committee particularly welcomes nominations of individuals from groups (or types of institutions) that have historically been under-represented in mathematics or in the list of previous recipients of the award. Past recipients may be found at <sections.maa.org/michigan/history.html#award>. The person selected by the committee will be presented with the award in the spring at the annual meeting of the Michigan Section, and will also, pending submission of additional supporting material and membership in the MAA, become the Michigan Section nominee for the national MAA Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching of Mathematics.

Nomination Instructions Completed nominations must be received by December 31, 2021 to be considered for the 2022 Award. The nomination form is available on the section's website as a Microsoft Word file.

Send an electronic copy of the completed form to Yunus Zeytuncu <zeytuncu@umich.edu>; please use "Michigan DTA Nomination" as the subject.

Anyone may make a nomination (of someone else; self-nomination is not permitted), but nominations from chairs or MAA liaisons in departments of mathematical sciences are especially requested.

Eligibility for the Award To be considered for the award, a nominee must:

- Be a college or university teacher who currently teaches a mathematical science at least half-time during the academic year in a public or private college or university (from two-year college teaching through teaching at the PhD level) in Michigan.
  Those on approved leave (sabbatical or otherwise) during the academic year in which they are nominated qualify if they fulfilled the requirements in the previous year.
- Have at least seven years experience in teaching the mathematical sciences.
- Have had teaching effectiveness that can be documented.
- Have had influence in their teaching beyond their own institution.
- Foster curiosity and generate excitement about mathematics in their students.

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2022 Distinguished Service Award Nominations Due January 31, 2022

Victor Piercey (Ferris State U) <VictorPiercey@ferris.edu>

Nominations are being solicited for the Michigan Section's Distinguished Service Award. The awards committee will accept nominations until January 31, 2022.

Nominations should include the nominee's service in his/her home department as well as service to the section, and any service performed for national mathematics organizations or for the promotion of mathematics in a local community.

Please send nominations to Victor Piercey <VictorPiercey@ferris.edu>.

Nominations for Section Officers

Victor Piercey (Ferris State U) <VictorPiercey@ferris.edu> This has been a difficult year, and we have found that regional ties are more important than ever. The section needs volunteers to help us provide community and programming to our members—in short, we need you!

We seek nominations for the following positions on the executive committee. Self-nomination is allowed.

- Two-Year Vice Chair
- Four-Year Vice Chair
- Secretary/Treasurer

Please submit nominations to Victor Piercey at <VictorPiercey@ferris.edu> by March 1, 2022.

Your Section Needs You!

Want to help out your mathematical community? Then volunteer with the section! We are always looking for people to help out in large or small ways. If you have a little time to give or slightly more, please add your name to our volunteer list by emailing Amy Shell-Gellasch at <ashellge@emich.edu>.

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Conference News

2021 MichMATYC Virtual Conference

Michael Pemberton (Lansing CC) <pembertm@lcc.edu>

Scott Barnett (Henry Ford C) was named this year's MichMATYC Teaching Excellence Award recipient

Sandra Zori (Oakland CC), one of two 2020–21 Karen Sharp Scholarship recipients

A fantastic time was had by all as close to 75 mathematics educators attended this year's MichMATYC Virtual Conference on Saturday, October 9. With the theme *Mathematics Support and Success: A Vision for the Future*, several presentations and conversations highlighted the importance of combining academic and support services to empower students to become the next generation of leaders and change-makers. The conference team and the MichMATYC Executive Board did a wonderful job planning the conference and organized an excellent program with topics appealing to everyone.

The virtual conference kicked off with our keynote presentation given by **Patrick Riley**, Professor of Mathematics at Hopkinsville Community College in Kentucky and AMATYC Webinar Coordinator. Pat's presentation, "Application Based Teaching—From Iron Man to Buzz Lightyear and Everything in Between," shared several techniques, examples, benefits, and a few challenges from teaching mathematics with an application-based approach. Attendees were left inspired from the excitement and passion for teaching mathematics in a project-based approach that applies course content with topics that students can relate. Immediately following the keynote, the program continued with five break-out sessions from practitioners from around the state and region. This year's break-out sessions included topics from a variety of areas including adaptive learning, developmental math, co-requisite support courses, changes in elementary teachers course curriculum, online teaching, and so much more.

The annual business meeting and awards ceremony was another highlight of the virtual conference. **Julie Gunkelman** and **Sam Bazzi** welcomed everyone to the conference, discussed upcoming conferences, financial report, and announced this year's award winners. The 2021 MichMATYC Teaching Excellence Award recipient is **Scott Barnett** from Henry Ford College. Scott was recognized for his high quality of instruction and outstanding support of students, professional

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involvement, professional development activities, and service to his department and college. In addition, the Karen Sharp Student Scholarship is presented annually to a current or former Michigan community college student who excels in mathematics. This year, we were excited to recognize two students for their outstanding achievements in mathematics during the 2020–21 academic year: **Michael Reynolds** and **Sandra Zori** from Oakland Community College.

Julie Gunkelman also announced that next year's conference will return to an in-person format with Oakland Community College ' Auburn Hills agreeing to host on Friday, September 30 and Saturday, October 1, 2022. We look forward to having everyone join us next year!

Convergence: Where Mathematics, History, and Teaching Interact

Amy Shell-Gellasch (EMU) <ashellge@emu.edu>

Dear colleagues,

As an Associate Editor, I want to share a friendly reminder about a great classroom resource: *Convergence* is the MAA's free online journal about the history of mathematics and its use in teaching. Aimed at teachers of mathematics at both the secondary and collegiate levels, *Convergence* covers many topics from grades 8–16 mathematics: algebra, combinatorics, synthetic and analytic geometry, trigonometry, probability and statistics, elementary functions, calculus, differential equations, and linear algebra.

From one-minute warm-ups to classroom projects using primary sources, there are many interesting and fun resources on the *Convergence* website, <maa.org/press/periodicals/convergence>:

- On This Day: Three or four historic mathematical events that happened on each date. There is also a Quotation for the Day.
- Problems from another time: Math problems from throughout mathematics history, as well as articles that include problem sets for students.
- Hundreds of articles, searchable by topic (algebra, fractal geometry, statistics), type (activity, demonstration, problem set, project), and format (Maple, spreadsheet, JavaScript). Or you can use these searching tips. There are also indices of article series, award-winning articles, and translations.
- Reviews of new and old books, websites, and other teaching aids that focus on utility in the classroom.
- A calendar of meetings and events involving the History of Mathematics.
- And lots more: Mathematical Treasures, a Portrait Gallery, ...

You can contribute to (<maa.org/press/periodicals/convergence/guidelines-for-convergence-authors>) or become involved in *Convergence* in several ways:

- Use teaching tools such as one of our projects in your classroom and tell us about your experiences.
- Develop teaching tools and modules for your classroom based on articles in *Convergence* and share them with us.
- Write an article!
- Become a *Convergence* referee. Please contact *Convergence* editors **Amy Ackerberg-Hastings** and **Janet Heine Barnett** at <convergence@maa.org> to let them know what topics and types of articles you would prefer to review.

Please feel free to reach out to me with questions.

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From the Origin

What I've Learned Leading a Community-Based Learning Course

[**Editors' note:** *David was a recipient of the MAA's Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics in 2021.*]

David Austin
(GVSU)
<austind@gvsu.edu>

One of the pleasures of our work is developing connections with students and staying in touch with them as their careers progress beyond graduation. A few years ago, I started to pay more attention to a couple of aspects of that process. First, I saw that the overwhelming majority of students I work with go on to use their mathematical training in a non-academic environment, and I began to wonder what role I played in easing their transition from university to work life.

Second, there didn't seem to be an especially strong correlation between a student's academic standing and the success they find in their careers. Many times, students who graduate with a "B" or "C" average thrive in their careers and find a series of expanding opportunities that demand mathematical creativity and persistence. Since the aim of education is to help our students develop capabilities that will help them achieve their goals, I asked myself why our assessments weren't better aligned with students' notions of success.

As a result, I attended a PIC Math (Preparation for Industrial Careers in Mathematical Sciences <maa.org/programs-and-communities/professional-development/pic-math>) workshop, part of an MAA program led by **Michael Dorff**, **Darren Narayan**, and **Suzanne Weekes**, that led to the creation of a new course at GVSU—Project-Based Applied Mathematics <gvsu.edu/catalog/course/mth-498.htm>—designed to help students transition into non-academic careers. To date, I've taught this course three times; I learn so much from my students as I teach this course, and these experiences now inform how I approach more traditional mathematics courses that I lead.

The students in this course work in teams of four or five on a semester-long project that originates with a partner in the Grand Rapids community. One semester, students worked with a physician-owned company to improve the efficiency with which hospital emergency rooms are staffed. In a second project, students helped determine which factors drive patient satisfaction when visiting the emergency room. In these projects and others, students have provided actionable recommendations that are valuable to their partners.

There's a lot of good news here, much of which may be known but not directly experienced by many mathematics faculty. For starters, there is a real thirst in the community for people with mathematical training. Most of us have had the experience of introducing ourselves as a mathematician to someone new and either having the conversation wither away or hearing their negative perceptions of mathematics. Consequently, the aspect of this new course that initially most intimidated me was developing community partnerships.

The reality, happily, has been much different. One of the first places I visited told me, "We've been waiting for someone like you to approach us," before unrolling a list of 10 excellent project ideas. Many, many businesses and organizations that I visit think of mathematics as a superpower they want access to. Having an eager group of students spend a semester studying some important issues they face without the expertise to understand is a real gift to them.

The level of appreciation for our students can be as startling as it is satisfying. Of course, I know that I work with amazing students, but seeing clearly the value their mathematical training provides to others can be dramatic. It's even better when our students themselves start to sense

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that they are valuable to others. Some of the students describe their experiences in this course in quite personal terms. For instance, students have told me their confidence in themselves has grown significantly, and some report greater feelings of self-worth. Working in teams provides each student with the opportunity to find their niche and make contributions that utilize their interests, background, and skills. I have been pleasantly surprised by the high quality of work I see from students who have been less successful in other mathematics courses.

In keeping with the unique nature of this course, assessment looks different than it does in a typical mathematics course. Students submit weekly progress reports, prepare and deliver biweekly presentations for the class and their partners, and deliver a final report to their partner outlining recommendations. I also meet one-on-one with students to discuss their work and any issues we're seeing with it. Points are never attached to any assessment; instead, the students and I talk about things that are going well and areas we see for future growth. We consider this form of feedback to be a "performance review," much like they will soon have in their jobs. While still a work in progress, the success of this approach helps me appreciate the power of ungrading and has caused me to move in that direction with my other classes.

Of course, the students are engaged in mathematical thinking and they learn, as appropriate for their projects, a wide range of mathematical ideas, most of which are centered around data science. In addition, every student is challenged by the non-mathematical aspects of the course. For instance, students need to work within their teams to set goals that ensure steady progress culminating in a satisfactory conclusion at the end of the semester. This requires organization, clear communication with other group members, and a sense of personal responsibility for their own contributions.

What I've found most interesting, however, is the challenge of communicating clearly with their community partners. For instance, the students studying patient satisfaction in emergency room visits looked at six-dimensional data with a five-dimensional hyperplane roughly separating patients who were satisfied from those who weren't. The six-dimensional vector that is normal to this hyperplane indicates the effect and relative importance of the six parameters in determining patient satisfaction. Communicating this observation to a non-mathematical audience of stakeholders in a way that was clear and convincing required students to think carefully and in new ways about what they had done.

We typically ask our students to assimilate mathematical language and use it with precision. I now ask complementary questions of all my students. For instance, I frequently ask beginning calculus students to explain their results to an imagined audience who is not proficient in calculus.

My time leading this class has been one of the most enjoyable teaching experiences in my career. This course has helped me to see and appreciate my students in new ways and provided insight into how I can serve all of my students better.

The PIC Math program has annual summer workshops for faculty wishing to start such a course. I'll also be sharing more about my experiences with this course at our MAA section meeting in April. Please reach out to me if you have any questions in the meantime.

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Calendar of Events

Michigan Section–MAA Annual Meeting

2022: Grand Valley State University
<sections.maa.org/michigan/meetings/>.
2023*: Alma College
2024*: Lake Superior State University
2025*: Saginaw Valley State University
*tentative

2022: Washington, DC, August 3–6
<maa.org/meetings/mathfest>
2023: Tampa, FL, August 2–5
2024: Indianapolis, IN, August 7-1-0

AMS Joint Mathematics Meetings[1]

2022: Seattle, WA, January 5–8
<jointmathematicsmeetings.org/jmm>
2023: Boston, MA, January 4–7
2024: San Francisco, CA, January 3–6

AMATYC Annual Conference

2022: Toronto, ON, November 17–20
<amatyc.org/page/2022ConfHome>
2023: Omaha, NE, November 9–12
2024: Atlanta, GA, November 14–17
2025: Reno, NV, November 13–16

NCTM Annual Meeting & Exposition

2022: Los Angeles, CA, September 28–October 1
<nctm.org/events/>
2023: Washington, DC, October 25–28

[1]The MAA's agreement with the AMS to jointly run the Joint Mathematics Meetings ended following the JMM in 2021.

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