Combined Ohio Section MAA / OhioMATYC Virtual Spring Meeting - Friday-Saturday March 26 - 27

Due to the Covid-19 pandemic, a joint Spring Meeting of the Ohio Section of the MAA with Ohio MATYC will be a virtual on-line affair to be held on Friday March 26, 2021, from 3:00 until 7:00 PM, and Saturday, March 27 from 10:00 AM to 2:00 PM. The meeting will consist of three invited talks as well as contributed paper sessions. There will be no registration fee, and as usual, students are strongly encouraged to attend. A complete program and links to the online registration form will be made available at the Ohio MAA Website http://sections.maa.org/ohio/ .

Two of the invited talks will be given by members of the Ohio MAA: Judy Holdener of Kenyon College and Gordon Swain of Ashland University. Dave Kung from St. Mary's College in Maryland will give the invited talk presented by OhioMATYC

Contributed Paper Sessions will all be run via Zoom. As different speakers come up, they will be given control over the meeting to share their presentations. Options within that are either a webinar format, where only the speaker is talking, or a meeting format where participants can unmute and speak as desired. The latter would facilitate some more interactive presentations.

Leo Schneider Student Mathematics Competition

Saturday March 27:8:30 AM—9:50 AM

Undergraduate students from institutions of the Ohio section are invited to participate in the seventeenth annual Leo Schneider Student Mathematics Competition.

Due to COVID restrictions, this year's competition will take place virtually on Saturday, March 27 from 8:30-9:50am. Registration information along with contest rules as well as copies of previous years' problems and their solutions can be found on the Ohio Section Student Member website, http://constum.ohiomaa.org/. There will be no cash prizes this year, only the satisfaction of a job well done and recognition within the MAA.—*continued on page 2*

We will always have STEM with us. Some things will drop out of the public eye and go away, but there will always be science, engineering, and technology. And there will always, always be mathematics.
— Katherine Johnson, African-American mathematician

From Our President—David Stuckey

Greetings to each of you throughout the section. As my college president frequently refers to, this is a time of ambiguity. We are trying to work in changing circumstances, ready to still have a good product or experience despite unexpected turns. On one hand, those who work in the classroom are experienced at facing unexpected twists as we teach. On the other hand, we are not used to so much ambiguity on a larger scale. Hopefully we are learning to thrive in it.

As a section, I believe we are learning to excel. The virtual Fall meeting went well overall. Our appreciation goes to our speakers: Jim Fowler - Ohio State University, Katie Cerrone - University of Akron, Lew Ludwig - Denison University, Jim Albert - Bowling Green State University, and Anna Ghazara - Miami University, for adjusting their presentations to a virtual format and condensed schedule. A special thanks goes to Program Chair, Matt Davis, who worked with Hawkes Learning to set up the logistics for the meeting, including the social time after the talks. Personally speaking, it was refreshing to talk and reconnect with friends in one of the many rooms available.

Because of the efforts of Section members, our impact is reaching beyond Ohio and Cabell County, West Virginia. Ohio Section was one of seven sections that held a virtual meeting in the fall. In January, Matt Davis shared at the Section Officers meeting how the Fall meeting went for us and provided advice for those establishing virtual meetings in the future. This included being assigned a breakout room where a small group could discuss the pros and cons of various ideas. It was also helpful for us as we make plans for the upcoming Annual meeting.

Another example of our contributions is through the MAA's efforts for updated section websites. Michael Schroeder agreed to take the template provided and use it for an upgraded website for the Section. This is a time consuming project to overhaul an entire website and we are grateful that Michael was willing to go first. Other sections will be able to update just a few at a time. The ad hoc committee formed to assist Michael with insights and content include Darren Wick, Danny Otero and myself. We are looking forward to the time when you can visit the new website for yourself.

Our upcoming Annual Meeting is scheduled for March 26 and 27. It will be held virtually again, but this time it will be in conjunction with OhioMATYC. The Program Committee has been working with them to line up a great set of speakers, including the 2019 recipient of the Award for Distinguished University Teaching in Mathematics, Gordon Swain from Ashland University. See elsewhere in this edition for details on all of the presenters. We are still looking to have contributed talks and the Leo Schneider Student Team Competition. Again, these will take some adjustments to carry out these projects, but I am confident that we can make it work. I am looking forward to interacting with you at the meeting.

David Stuckey—Defiance College—Section President

(*student competition continued from page 1*) Any questions about the competition or other student activities can be addressed to the chair of CONSTUM, Matthew McMullen, at mmcmullen@otterbein.edu.

A sample integral from the 2019 Leo Schneider Student Mathematics Competition

Problem 2 : Compute $\int \dfrac{1}{\sqrt{x} + \sqrt[3]{x}} dx$

From Our Section Representative—Danny Otero

When last I wrote in this space a few months ago, we had just passed the date of our first cancelled MathFest meeting (no genuine Philadelphia cheesesteaks at Geno's or at Pat's this summer!) and we were making plans for our first virtual Section meeting. COVID vaccines were still in trials, and the presidential election was still in full swing.

Today, 2020 is in the rearview mirror, vaccines for the coronavirus are being distributed, and there is genuine expectation that society may soon be able to resume some semblance of "business as usual''. But we all know that the world we're walking into will not be the world from which we retreated when the pandemic beset us last March. We've become way more resilient about a lot of things. We've learned a lot about remote teaching and learning, for one, things we can all profitably use going forward. And our students' priorities – as well as our own – may be shifting (or have shifted) as a result of the experience of this last year.

The MAA has also been undergoing tremendous change, much of which was underway before the pandemic. The 2021 Joint Mathematics Meetings celebrated a few weeks ago were the last ones for the foreseeable future in which the MAA will be formally involved as a co-organizer; from now on, MathFest (planned, still at this writing, for Sacramento in early August) will be the Association's big annual meeting. If you attended the last MathFest in Cincinnati in 2019, you learned that it has been evolving into a much larger event with an ever more exciting program.

The MAA Congress has not met since my last report, so I have no big news to share with you from the Congress; but I should continue to urge you to regularly visit the MAA website, and its wealth of resources there, and to check out and use its communications platform, MAA Connect. Connect has a real and as-yet untapped potential to link us together professionally in exciting new ways.

You can always reach me, Danny Otero, at otero@xavier.edu.

Nominating Committee Presents Dr. Chandra Dinavahi for President-Elect

Chandra Dinavahi is an Associate Professor of Mathematics at the University of Findlay in Findlay, Ohio. He received his PhD from Auburn University in 2008 under the direction of Dr. Chris Rodger and joined the faculty at University of Findlay, where he has been teaching since 2008. He is currently the Chair of Mathematics at University of Findlay. Chandra's research interests are Graph Theory and Design Theory. Chandra has been active in the Ohio Section, having served on CONCUR and as an Ohio NeXT Fellow. He is currently serving as chair of CONCUR and as coordinator of Ohio NeXT. Chandra enjoys teaching classes using IBL, watching movies and, playing cricket.

In mathematics, you don't understand things. You just get used to them.
— **John von Neumann**

Mathematics is the most beautiful and most powerful creation of the human spirit.
— **Stefan Banach, Polish mathematician**

Nominating Committee Presents Dr. Alicia Prieto-Langarica for Programming Committee

Dr. Alicia Prieto-Langarica is a Distinguished Professor in the Department of Mathematics and Statistics at Youngstown State University. She received her Undergraduate degree in Applied Mathematics from the University of Texas at Dallas in 2008 and her PhD from the University of Texas at Arlington in 2012. Alicia's research is in the intersection of mathematics and biology, specifically problems related to the medical field. Recently she started conducting research in data science and public policy.

At the 2019 MathFest, Dr. Prieto-Langarica was one of the recipients of the prestigious Henry L. Alder Award which recognizes beginning college or university faculty whose teaching has been highly effective and successful in undergraduate mathematics.

Nominating Committee Presents Dr. Thomas Wakefield for Treasurer–Elect

Thomas P. Wakefield received his PhD in mathematics from Kent State University in 2008 and is now Professor and Chair in the Department of Mathematics and Statistics at YSU. Tom finds inspiration in working with students and enjoys accompanying students to regional and national conferences and advising undergraduate research projects. His relationship with the Ohio Section of the MAA began as an undergraduate at Youngstown State, when he attended and presented at four spring meetings. As a faculty member, he served on CONSTUM since returning to the Ohio Section in 2009 and currently serves as Treasurer of the Section. He regularly attends MathFest, the Joint Meetings, and actuarial meetings with students and serves as Councilor on the Executive Committee of Pi Mu Epsilon, the national mathematics honors society. Tom has supervised summer research experiences for students at YSU, organized lectures and talks for students, advised students who published their research results, and supervised dozens of undergraduate presentations and capstone research projects to broaden student awareness of and engagement in the larger mathematics community. He has several peer reviewed publications in algebra and actuarial science and has achieved "Fellowship" level status in the Society of Actuaries, the premier global actuarial accreditation professional society. Tom is the current Treasurer of the Ohio Section of the MAA.

Around the Ohio Section: Campus Notes

From Adam Parker at Wittenberg: The Department of Math and Computer is excited to welcome Assistant Professor Jaimie Kelley to Wittenberg University. She will be responsible for teaching the full range of computer science classes, including those that satisfy requirements in Mathematics, Data Science, and Information Systems.

From Brent Strunk at Baldwin-Wallace: The Mathematics Department at Baldwin Wallace is proud to congratulate Dr. Peggy Slavik on obtaining tenure and promotion to Associate Professor and proud to congratulate Dr. Catherine Lane on her promotion to Associate Professor. In addition the Mathematics Department at Baldwin Wallace is announcing the opening of the Austin E. Knowlton Center which will house the Mathematics, Physics, Engineering, and Computer Science Department in a new state of the art building.

More Around the Ohio Section: Campus Notes

From Lew Ludwig at Dennison University: Denison University is happy to announce that Dr. Sarah Wolff earned tenure and has been promoted to Associate Professor of Mathematics. Sarah will use her sabbatical to continue work on a new algorithm for computing Fourier transforms on the symmetric group based on decomposition into double cosets. She also plans to begin a project with her collaborators that will unify techniques for computing generalized Fourier transforms. And, if COVID allows, to sign up for lots of trail races!

From Glen Lobo at Sinclair CC: Juanita Darden left the department during summer 2020. Ms. Emmilla Ross, our Administrative Assistant, retired after 32 years of service to the department on August 31, 2020. Danielle Cummings joined the department as an Instructor in fall 2020.

Speaker: Judy Holdener - Kenyon College

Title: *A DIY Project: Create Your Very Own Multiply Perfect Number!*

Abstract: A multiply perfect number of index K (or K-perfect number) is a positive integer N whose divisors sum to KN. When K = 2, we refer to 2-perfect numbers as simply perfect numbers. Both multiply perfect and the better-known perfect numbers have been the source of great interest and mystery for mathematicians for centuries. Are there infinitely many perfect or multiply perfect numbers? Does there exist an odd perfect or multiply perfect number? Nobody knows the answers to these questions, and solutions are nowhere in sight. In this talk, I present an algorithm to construct multiply perfect numbers. The algorithm is simple enough that it can be applied by hand to find 4- and 5-perfect numbers. However, anyone who is serious about finding K-perfects with K > 5 should enlist the help of a computer. Like all good DIY projects, this one does not require such expertise. We'll explain everything you need to get started in this talk. The content of the talk will appear in this month's issue of *Math Horizons*.
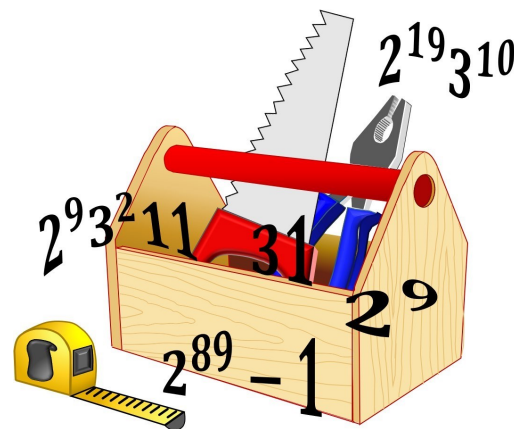
Judy Holdener PhD, is a professor of Mathematics at Kenyon College in Gambier, OH, where she has taught for 23 years. Having grown up in Ravenna, OH, she received her B.S. in Mathematics from Kent State University, followed by her M.S. and Ph.D. degrees in Mathematics from the University of Illinois in Urbana, Illinois. Since earning these degrees, Judy has appreciated having opportunities to experience a variety of academic settings. She started her career at the U.S. Air Force Academy in Colorado Springs, CO (1994-97) where she was a Project NExT fellow, and she has twice taught a quantitative methods course in the Master of Public Policy program at the Harvard Kennedy School of Government (2012, 2015). She has been fortunate to spend sabbaticals at the University of Colorado in Boulder, CO as a visiting associate professor (2004-05), at Carnegie Mellon University in Pittsburgh PA as the Shelly Distinguished Teaching Chair (2012-13), and most recently at Brown University in Providence, RI as a participant in ICERM's special semester on "Illustrating Mathematics" (fall, 2019).

Holdener bio continued on next page

(Holdener bio continued from page 6) At Kenyon Judy enjoys collaborating with students on research projects relating to algebra, number theory and dynamical systems. Their work has led to publications in research journals and presentations at conferences. In recent years, Judy has tapped into her life-long interest in art, creating artwork reflecting the nature and beauty of mathematics. She has presented her work at Bridges conferences in South Korea, Finland, and Sweden. Judy currently serves on the *PRIMUS* editorial board where she enjoys working with creative people who share her interests in teaching pedagogy. She has received several teaching awards from the institutions where she has taught, and in 2008 she was awarded the MAA Ohio Section Distinguished Teaching Award. When she isn't teaching or thinking about mathematics, Judy enjoys art, gardening, Zumba, and spending time with her family. Her husband Eric is a geologist who also teaches at Kenyon, and they have two children, Chase (age 18) and Max (age 13), and a dog named "Pi" (age 2).

Speaker: Gordon Swain - Ashland University

Title: *What if Fibonacci had…?*

Abstract: In his *Liber Abaci*, Fibonacci gave a word problem about reproducing pairs of rabbits, which led to the ubiquitous Fibonacci sequence. We ask how things would be different had the original problem given different rules for reproduction. In this talk we will show how to derive new recursive formulas, as well as recounting how students collaborated in this exploration.

Gordon Swain PhD, grew up in Peru and Ecuador, the middle of three kids in a missionary family. His siblings apparently contracted the same horrible disease, eventually acquiring doctorates in English and Romance Linguistics, respectively. Gordon received the BS in Physics and Mathematics from Eastern Nazarene College, an MS in Mathematics from the University of Vermont, and a PhD in Mathematics from the University of Massachusetts – Amherst. He has been at Ashland University since 1994, teaching a wide variety of topics including statistics, linear and abstract algebra, calculus, and even operations research. He continues to dabble in noncommutative ring theory but mostly gets to explore mathematics of interest to undergraduates. His time at AU has included service as Department Chair and Faculty Senate President, and he has been honored with the AU Taylor Teaching Award, the Academic Mentor Award, and the Ohio MAA Section Teaching Award. At home he hangs out with his wonderful wife, Teresa, and enjoys running and reading. His two sons have fled Ohio to pursue their educations in Utah and New York. Gordon believes the Fibonacci numbers receive way too much attention but is nevertheless willing to give them just a bit more.

More Interesting Quotes about Mathematics

It is impossible to be a mathematician without being a poet in soul.
— Sofia Kovalevskaya, Russian mathematician

Nature is written in mathematical language.
— Galileo Galilei, Italian astronomer, physicist and engineer

There are two ways to do great mathematics. The first is to be smarter than everybody else. The second way is to be stupider than everybody else — but persistent
— Raoul Bott, Hungarian-American mathematician   *(I'm of the latter category—Ed.)*

Speaker David Kung: St. Mary's College of Maryland

Title: *Closer to Fair: Mathematics & Social Justice*

Abstract: The world is an unfair, unjust place - so let's fix it! This interactive workshop will focus on two specific ways we can work to address issues of social justice both in our classrooms and in our world. The first half will focus on the college setting and the inequalities that pervade mathematics and science classrooms. Why do students from groups historically under supported by the math community still fail math courses disproportionately, despite good preparation and strong motivation? What can we do about it? In the second half, we'll tackle ways to help students view the world through a more mathematical lens, from racially-skewed traffic stops to the mathematics of credit cards. A growing group of mathematicians teach "Math for Social Justice" courses that ask students to use the tools of mathematics to study, understand, and even address issues ranging from economic inequity to environmental impacts.

David Kung PhD. Dave's varied interests are a perfect match for a liberal arts institution like St. Mary's College of Maryland. In addition to teaching mathematics, using his degrees from the University of Wisconsin – Madison, he plays violin with students and in the local community orchestra, runs with the cross country team, and marches alongside campus activists. He has authored a variety of articles on topics in harmonic analysis and mathematics education, and is the recipient of numerous awards including the 2021 Deborah and Franklin Tepper Haimo Award from the MAA. His passion for leveling the playing field for women and minorities in STEM fields has led to the creation of an Emerging Scholars Program, an REU, and a math circle. Two Great Courses lecture series, on math/music and mind-bending paradoxes, have engaged audiences around the world. He serves as director of MAA Project NExT, a professional development program for new math faculty, and as director of strategy and implementation for TPSE-Math.

Ohio Section Meetings

Fall 2021 Section Meeting
University of Toledo

Spring 2022 Section Meeting
Xavier University

MathFest & AMS JMM Meetings

MathFest 2021: Sacramento, CA | August 4-7, 2021

MathFest 2022: Washington, DC | August 3-6, 2022

Mathfest 2023: Tampa, FL | August 2-5, 2023

MathFest 2024: Indianapolis, IN | August 7-10, 2024

AMS Joint Mathematics Meetings 2022
Seattle WA | January 5-8, 2022

AMS Joint Mathematics Meeting 2023
Boston MA January 4-7 , 2023

2020-2021 Ohio Section Officers and Committees

ELECTED OFFICERS

President
David Stuckey, Defiance College
dstuckey@defiance.edu (2022)

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Katie Cerrone-Arnold, University of Akron, kc24@uakron.edu (2021)

President-Elect
Vacant –TBD

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Treasurer-Elect
Vacant—TBD

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OCTM Liaison
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Archivist
Daniel Otero, Xavier University
otero@xavier.edu (2025)

COMMITTEES

* Denotes committee chair. Elected Officers and Committee Chairs are voting members of the Executive Committee. Terms expire at the end of the Spring meetings of the year listed. See the Bylaws.

Program Committee

*Matt Davis, Muskingum University (2021)
Najat Baji, Sinclair Comm. C. (2022)
Chris Swanson, Ashland University

CONTEAL

*Aaron Blodgett, Univ of Findlay (2020)
Najat Baji, Sinclair Comm. C. (2021)
Laurie Dunlap, U. Akron (2020)
Bradford Findell, Ohio State University (2021)
James Fitzsimmons, Wilmington Coll. (2022)
Ian Hogan, Central State University (2021)

CONSTUM

*Matthew McMullen, Otterbein Univ. 2020)
Jaki Chowdhury, Ohio Northern Univ. (2021)
Matt Davis, Muskingum University (2022)
Alyssa Hoofnagle, Wittenberg Univ. (2023)
M B Rao, University of Cincinnati (2022)
Chris Swanson, Ashland University (2022)

CONSACT

*Jim Anderson, University of Toledo (2021)
Ruma Dutta, Ohio State University (2021)
Aurel Stan, Ohio State University (2022)
Zhijun Yin, University of Akron (2023)
Phil Blau—Shawnee State (2023)
Zijian Diao—Ohio Univ (2023)

CONCUR

*Chandra Dinavahi, U. of Findlay (2022)
Anup Lamichhane, Ohio Northern U. (2021)
Giorgi Shonia, Ohio Univ. Lancaster (2021)
Diana Eames, University of Akron (2022)
Glen Lobo, Sinclair Comm. C. (2022)
Daniel Otero, Xavier (2023)
Jim Fowler—Ohio State (2023)

OTHER COMMITTEES

Nominating Committee

*Chris Swanson, Ashland University (2021)
David Stuckey, Defiance C. (President)
Eric Wingler, Youngstown` State (2022)
Barbara D'Ambrosia, John Carroll Univ. (secretary, nonvoting)

Teaching Award Committee

*Katie Cerrone-Arnold, U. Akron (Past-President)
M B Rao U Cincinnati. (2022)
Gordon Swain, Ashland University (2021)
Barbara D'Ambrosia, John Carroll Univ. (secretary, nonvoting)

LOCAL ARRANGEMENTS FOR MEETINGS

Fall 2021: University of Toledo
Jim Anderson: jim.anderson@utoledo.edu

Spring 2022: Xavier University
Danny Otero: otero@xavier.edu

Dear Math, please grow up and solve your own problems. I'm tired of solving them for you. **- Anonymous**

Please report any errors or omissions to the Newsletter Editor: Brian Shelburne at bshel-