Wisconsin Section
Mathematical Association of America
NEWSLETTER
Spring 2018

## Representative's Report

*By Clare Hemenway, UW-Marathon County*

The year 2017 was an exciting year for the MAA on many fronts. In January, the reorganization of the governance structure of the MAA was completed and bylaws were approved for the new MAA Congress in July. More importantly, several ongoing MAA projects were completed in 2017.

I want to highlight the completion of the very dynamic Instructional Practices Guide. This easy-to-read guide is an excellent introduction to high impact, evidence-based teaching practices and assessment. Each section begins with a vignette and is followed by a section of discussion and practical tips. It is great complement to the curriculum guide that was published a few years ago. Please take a look at this informative and transformative document!

There is also a change in how MAA publications are published. MAA books will now be published by the AMS and MAA journals will now be published by Taylor and Francis. In both cases, input and editorial control is still under the MAA. Taylor and Francis will allow for easier international distribution and now all MAA books will have one publisher instead of several subcontractors. It is a win-win situation for all.

The MAA is in sound financial condition but faces many challenges as we move forward. The MAA would like to boost its membership—so do encourage your colleagues to join and let them know of the opportunities that both MAA affords them (for example the aforementioned open access Instructional Practices Guide) and that they can offer to the MAA. They are also trying to increase departmental memberships (with the wonderful benefits this brings to your students), memberships with those in business, and high school teachers. I will add, if you have let your membership lapse, please renew it!

## Contents



For its part, the MAA leadership is finding ways to reduce its expenses. Several meetings will now be conducted electronically rather than in person. Also, since fiduciary responsibilities are no longer part of the MAA Congress, MAA has decided to not provide funding to members of Congress to attend JMM in January and the MAA Congress meeting at JMM will be more limited in both time and scope.

Lastly, the JMM meeting in San Diego this past January was fabulous. It was filled with talks, receptions, the employment center, activities for both undergraduate and graduate students, and exhibits (including interesting art exhibits from mathematicians—one Wisconsin mathematician, **Karl Kattchee** from UW LaCrosse, displayed a piece of his art). The conference guide, without abstracts, was the size of a phone book for a medium sized town!

As institutions begin their hiring, I want to remind them to encourage their new hires to apply to become Project NExT members and/or Wisconsin Section NExT members.

See you at the Spring meeting in Eau Claire on April 6 and 7 and at Mathfest in Denver in early August!

## Chair's Report

*By Kirthi Premadasa, UW-Baraboo/Sauk County*

I am excited to announce that the 86th Annual Meeting of the MAA-Wisconsin Section will be held on April 6 and 7 , 2018 at UW UW-Eau Claire. I would like to thank Chair-Elect **Irfan Ulhaq** and local coordinator **Chris Ahrendt** for the all the hard work that they are investing to make this annual event a success. Irfan has put together an excellent slate of keynote speakers on the meeting and UW-Eau Claire is busy making arrangements to put together what is sure to be a wonderful meeting! See below for more information on the invited speakers.

I invite you to join me in Eau-Claire and make a presentation at the meeting. You are also invited to encourage your students to speak at the meeting. It will be great opportunity to showcase the mathematics related work that you and your students conduct. Presentations featuring topics in pure mathematics, statistics, math education, history, SoTL, and applications of mathematics are all welcomed. The online form to submit your abstract can be found here. I especially encourage you to tell your students about our section's very successful math game show, Face Off. It's no secret that everyone who comes to the meeting loves to watch Face Off, and we can't do it without the students! You can definitely look forward to our Face Off creators **Steve Szydlik** and **Ken Price** to come up with some intriguing and creative problems categories as they always do.

I invite all of you to attend the business meeting at 8:00 am on Saturday. During this meeting, among other things, we will vote on the location of next year's meeting and hold the election of our new Chair-Elect. At this meeting **Jennifer Szydlik**, of UW–Oshkosh, will complete her term as Immediate Past Chair. Please join me in thanking Jennifer for her years of excellent service to the section's executive committee.

This year we saw **Clare Hemenway** of UW-Marathon County being elected as our new section representative. We also had the pleasure of welcoming **Balamurugan Pandiyan** of UW-Whitewater joining the executive committee as our new Student Activities Coordinator. I would like to thank the executive committee for all the hard work they put in this year.

It is my pleasure to congratulate **Mark Snavely**, former Governor of the Wisconsin Section, who is nominated to receive the MAA Certificate for Meritorious Service. (See article below) Mark has served the Wisconsin Section faithfully in many roles, including a six-year term as Treasurer/Secretary. He has also served the section in the roles of chair-elect and chair. I am pleased to recognize his wonderful service to the section through this richly deserved nomination.

### Distinguished Teaching Award

The Wisconsin Section Distinguished Teaching Award was established in 1991. It stands as a concrete statement that mathematicians at the college and universities in Wisconsin place high importance on teaching. The Wisconsin Section is proud of its growing list of award recipients. These men and women of mathematics who have been recognized for their excellent work as teachers represent the commitment to teaching that exists among mathematicians throughout the state.

Nominations for the 2019 Wisconsin Section Distinguished Teaching Award are now being accepted. The nomination form and instructions are available on the MAA-Wisconsin web site at http://sections.maa.org/wisconsin/award.shtml

## Section NExT-Wisconsin

*By Holly Attenborough, UW-Platteville, and Matthew Corne, UW-Stout*

Section NExT-Wisconsin will have their spring panel discussion immediately following the second day of the 2018 MAA Wisconsin sectional meeting on April 7, 2018 at UW-Eau Claire. The spring panel will focus on undergraduate research. We are actively looking for panelists to serve in this capacity.

The Section NExT-Wisconsin Fall Conference was held on November 4-5th at the University of Wisconsin-Baraboo/Sauk County. We had two awesome external presenters for the conference, **Megan Wawro** of Virginia Tech and **Susan Crook** from Loras College. The conference explored inquiry-oriented and inquiry-based learning. We also had five member presentations on Saturday afternoon spanning the Wisconsin Teaching Fellow program, SoTL, and undergraduate research. The conference was well attended and well received by all involved.

## Contests

*By Laura Schmidt, UW-Stout*

The AMC 8 competition was held on November 14, 2017. A total of 549 Wisconsin students participated in the competition, consistent with last year's number of 552, but a significant drop from previous years of about 959 and 1,300. No students received a perfect score from Wisconsin. The average score for Wisconsin students was 9.49, compared with the national U.S. average score of 8.97. For the third year Wisconsin has outperformed the US average! This is a great trend for our Wisconsin students.

The AMC 10 and 12 contests will be held on February 7 and 15, 2018. Data will be reported at the Spring Meeting.

The Section contest examination was given on Thursday, December 7th, 2017. There were 50 schools reporting scores this year for a total of 930 students. This is an increase in the number of schools participating (44 schools last year), however less overall students (1,157 students last year). The cutoff for the top 1% was a score of 110 out of 120 this year. There were three perfect scores this year. The students with perfect scores were **J. Camacho**, 11th grader from Homestead High School; **J. Huebner**, 12th grader from Rufus King High School; and **T. Rose**, 8th grader from Arrowhead High School. Congratulations to the three of them!

**Jay Beder** and **Gabriella Pinter**, from University of Wisconsin–Milwaukee, directed the contest this year for their last year as hosts. Many thanks to them, University of Wisconsin–Milwaukee, and the test committee for all their hard work. Since this is their last year hosting, we would like to thank them for five years as hosts and their efforts and dedication with outreach to the high schools of Wisconsin.

Welcome to our new hosts to begin the contest for the fall 2018: **Kevin Haertzen**, and the University of Wisconsin – Platteville. Thank you for your willingness to host the contest.

## Snavely to Receive Service Award

*By Jonathan Kane*

Former Section Governor **Mark Snavely** of Carthage College will receive the MAA's Certificate for Meritorious Service at MathFest in Denver this summer.

The Certificate for Meritorious Service has been awarded by the MAA since 1984. The Wisconsin Section is able to nominate someone for the award every five years.

Mark has distinguished himself in numerous services to the Wisconsin Section. He served on the MAA Wisconsin Executive Committee in the years 2002-2005 as Chair-elect (and thus conference organizer of the Spring Meeting), then Chair, and Past Chair; as Secretary/Treasurer for a six-year stint from 2006-20012, and then as Section Governor from 2014-2017. He served this role as governor during a very critical time when the Association rewrote its bylaws and shifted from the Board of Governors to the MAA Congress. In all, he served as a member of the executive committee of the section for an impressive period of 12 years in different capacities.

Mark initiated the Executive Committee listserv and continues to maintain it. Mark has many of his undergraduate students give presentations at the MAA Section Spring Meeting and they compete in our Section Student Face OFF competition (of which he is also the scorekeeper). Through his service, Mark embodies the vision and mission of the MAA

## Candidate for Chair-Elect

*Kseniya Fuhrman, Milwaukee School of Engineering*

**Kseniya Fuhrman** is an associate professor at MSOE. She earned her Ph.D. degree from UW-Milwaukee under the direction of **Gabriella Pinter** and her B.S. degree from UW-Whitewater. She has been a part of the Wisconsin Section of MAA since her years as a student and was a Section NExT-Wisconsin fellow. She has served the MAA on the Committee on MAA/Department Liaisons, and was the local coordinator when the Wisconsin Section meeting was held at MSOE in 2012. Her research interests are in mathematical modeling, biomathematics, and mathematical pedagogy.

## Candidate for Secretary-Treasurer

*Jonathan Kane*

**Jonathan Kane** retired in May 2012 after teaching mathematics and computer science at UW-Whitewater for 32 years. He is now an honorary fellow at UW-Madison. He is very active in the math contest community as a member of the American Mathematics Competitions AMC 10/12 Committee, the American Invitational Mathematics Exam Committee (which he chairs), the USA Mathematical Olympiad Committee, and the Committee on the American Mathematics Competitions. He writes the majority of the problems and coordinates the Purple Comet! Math Meet, the free, annual, international, online, team mathematics competition designed for middle and high school students. Jon is also on the UW-Madison Math Talent Search Committee. Jon teaches at summer mathematics camps in America and at winter mathematics camps in China. His textbook *Writing Proofs in Analysis* was published by Springer in 2016, and his coauthored textbook *American Mathematics Contests: A Guide to Success* was published in China in 2017. Jon likes being active in the Wisconsin MAA and is glad to serve another term as Secretary-Treasurer. Jon also enjoys biking, swimming, hiking, bridge, chess, puzzles, leathercraft, and photography.

# Spring Meeting

## *Program Highlights:*

**Deanna Haunsperger**, Carleton College, President of the MAA

*A Glimpse at the Horizon*

What do a square-wheeled bicycle, a 17th-century French painting, and the Indiana legislature all have in common? They appear among the many bright stars on the mathematical horizon; that is, in *Math Horizons*. *Math Horizons*, the undergraduate magazine started by the MAA in 1994, publishes articles to introduce students to the world of mathematics outside the classroom. Some of mathematics' best expositors have written for *MH* over the years; here is an idiosyncratic tour of the first ten years of *Horizons*.

**Amy Parrot**, UW-Oshkosh

*A Journey Towards Continual Teaching Improvement*

We are all on a journey in our development as educators. Drawing on recommendations set forth in the recently released MAA Instructional Practices Guide (2017) as well as my own personal experiences, we will discuss several paths that lead to more purposeful student learning and engagement. We will explore why each path is important for student learning, small and large steps to take towards implementing each path, and potential potholes to watch out for along the way.

**Jennifer Quinn**, University of Washington Tacoma

*Epic Math Battles: Counting v. Matching*

Which technique is mathematically superior? The audience will judge of this tongue-in-cheek combinatorial competition between the mathematical techniques of counting and matching. Be prepared to explore positive and alternating sums involving binomial coefficients, Fibonacci numbers, and other beautiful combinatorial quantities. How are the terms in each sum concretely interpreted? What is being counted? What is being matched? Which is superior? You decide.

## *Map and Parking*

A UW-Eau Claire campus map, marked with important buildings and appropriate parking lots, can be found at http://sections.maa.org/wisconsin/meetings.shtml.

Parking permits will be sent to preregistered participants, and will be available at registration.

## *Lodging Information*

**The Lismore Hotel**, 333 Gibson Street, Eau Claire, WI 54701. (Located 1.3 Miles from Campus.) A Doubletree by Hilton. Phone 715-835-8888. A newly rebuilt hotel in the heart of downtown and walking distance to campus.

Twenty rooms are reserved at the state rate. Use Group Code UWS, or book directly from this link. (Note: The Section has guaranteed to fill 80% of these rooms, or to pay for the unfilled rooms.)

Ten rooms are reserved at $129. Use Group Code UWM, or book directly from this link.

**Best Western Plus Eau Claire Conference Center**, 3340 Mondovi Road, Eau Claire, WI 54701. Phone 715-838-9989

Rooms offered at the State Rate with proof of Tax Exempt Status, Rooms cannot be booked until 03/06/2018

**Holiday Inn Eau Claire South**, 4751 Owen Ayres Court, Eau Claire, WI 54701. Phone 715-830-9889

15 Single Rooms Reserved for $118.95

5 Double Rooms Reserved for $118.95

Call the front desk and explain you are part of the "MAA WI Sectional" for booking rooms in this group. (State Rate may be honored with proof of Tax Exempt information.) Or use this link.

**America's Best Value Inn**, 809 West Clairemont Avenue, Eau Claire, WI 54701. Phone 715-834-6611

Call the front desk and explain you are part of the "MAA WI Sectional" for booking rooms at State Rate.

**Hampton Inn**, 2622 Craig Road, Eau Claire, WI 54701. Phone: 715-833-0003

10 King Size Rooms available at the $129.00 rate.

You may go online to hamptoninn3.hilton.com and make your reservations or call the hotel and talk to one of the Guest Service Representatives. The online route is the fastest way to go. If you choose the online route: enter Eau Claire, WI as your destination, select the correct dates (make sure to use the dates our group is set for, or the group rate will not appear), then select "Add Special Rate Code." In the Group Code space you should enter MAA. The rest should be self explanatory. Be sure to make your reservations before 03/09/2018.

**Country Inn & Suites by Radisson**, 3614 Gateway Drive, Eau Claire, WI 54701. Phone: 715-832-7289

23 Queen rooms available at $99.00 rate before March 6. Call the hotel direct and mention the UWEC Math Department, or book online at www.countryinns.com/eauclairewi and enter the promo code UWMATH in the drop-down box.

**Grand Stay Residential Suites**, 5310 Prill Road, Eau Claire, WI 54701. Phone: 715-834-1700

Country Inn & Suites by Carlson,

## MAA Book Sales at the Spring Meeting

Support the Section and also get a great deal on books by ordering your MAA books through the spring meeting.

As in the past few years, around the time of the meeting, MAA members will be provided with a code that provides a 35% discount below the list price to meeting attendees. The code will also be available at the meeting, or by contacting Public Information Officer Benjamin V.C. Collins (collinbe@uwplatt.edu).

The Wisconsin Section earns a small percentage of all sales made through the meeting.

## Call for Speakers

*86th Annual Meeting of MAA Wisconsin Section, April 6–7, 2018*
*UW-Eau Claire*

Talks of all kinds are welcome, particularly ones that are accessible to students, and we encourage talks by students.

If you wish to present a talk, please complete the form below and send by March 1, 2018, to Irfan Ul-Haq (ulhaqi@uwplatt.edu). Talks received after March 1 will be considered only as time and space permit.

An on-line version of this form is available at: http://sections.maa.org/wisconsin/meetings.shtml

(There is a separate form below for student speakers.)

Due date: March 1, 2018

Name: _____

Institution: _____

Phone: _____ Email:_____

Title of talk: _____

Length of talk: 25 minutes _____ or 50 minutes _____

Abstract: (Suggested length, 250 words or less.)

_____

_____

_____

_____

Check here if your talk is appropriate for undergraduate students: _____

All rooms have a whiteboard and/or blackboard, an opaque projector, and projector with a connection for a laptop computer. If you have other equipment needs, please describe them, and we will try to accommodate you.

Time preference: Friday afternoon is Imperative ____ Preferred ____

Saturday morning is Imperative ____ Preferred ____

Either time is acceptable _____

## Call for Student Speakers

*86th Annual Meeting of MAA Wisconsin Section, April 6–7, 2018*
*UW-Eau Claire*

The Wisconsin Section of the MAA encourages undergraduate students who have done research in mathematics to give a 25-minute presentation about their work at the Spring Meeting. Each presenting student receives free meeting registration. If you wish to present a talk, please complete the form below and send by March 1, 2018, to Irfan Ul-Haq (ulhaqi@uwplatt.edu). Talks received after March 1 will be considered only as time and space permit.

An on-line version of this form is available at: http://sections.maa.org/wisconsin/meetings.shtml

Due date: March 1, 2018

Primary Speaker:

Name(s): _____

Institution: _____

Address: _____ Phone: _____

_____ Email: _____

Second Speaker: (If more than two speakers, please include the appropriate information.)

Name(s): _____

Institution: _____

Address: _____ Phone: _____

_____ Email: _____

Faculty Sponsor: _____

Title of presentation: _____

Brief description of presentation: (Suggested length, 250 words or less.)

_____

_____ _____

_____

All rooms have a whiteboard and/or blackboard, an opaque projector, and projector with a connection for a laptop computer. If you have other equipment needs, please describe them, and we will try to accommodate you.

Time preference: Friday afternoon is Imperative ____ Preferred ____

Saturday morning is Imperative ____ Preferred ____

Either time is acceptable _____

# Registration Form

*86th Annual Meeting of MAA Wisconsin Section, April 6-7, 2018*
*UW-Eau Claire*

Preregistration Deadline: **March 15, 2018**

**You can also register on-line at:**
**http://sections.maa.org/wisconsin/registration_form/index.html**

NAME(S)_____

Address_____

Main contact e-mail:_____

Institution (for your name badge)_____

| Registration | | | | Banquet | | | |
|---|---|---|---|---|---|---|---|
| No. | Type | Price* | Total $ | No. | Type | Price** | Total $ |
| | MAA Member | $30 | | | Regular | $20 | |
| | Retired MAA Member | $20 | | | Student | $5 | |
| | K-12 Teacher | $20 | | Banquet Total: | | | |
| | Student | FREE | | Please indicate any dietary restrictions (vegetarian, kosher, etc) and the number of each. | | | |
| | Other | $40 | | | | | |
| Registration Total: | | | | | | | |

*Registration after pre-registration deadline of March 15 will be $40 for all except students, who will still be free.

**Regular banquet tickets will be $25 after the pre-registration deadline of March 15. Student banquet tickets remain $5.

| Total Enclosed: |
|---|
| |

For MAA Records, please indicate the number of the above registrants in each of the following categories:

_____ College or university faculty
_____ Business, industry, government
_____ High school teacher
_____ Undergraduate student
_____ Graduate student

## Make checks payable to: MAA - WISCONSIN SECTION

Please submit to:
Jonathan Kane, Treasurer kanej@uww.edu
2814 Regent St.
Madison, WI 53705

# Know Your Wisconsin Mathematician

*Interview with Steve Szydlik, UW-Oshkosh, by Jennifer Szydlik*

**Where did you grow up?**
I'm from Plattsburgh, New York, a small town about 20 miles from the Canadian border. There were 45 kids in my high school graduating class.

**Was there a time in your life when you discovered that mathematics was what you wanted to do?**
I was always a strong mathematics student, but when I was young most of my experiences with the subject were with procedures and algorithms. It wasn't very exciting, but I was quick and accurate when I multiplied three-digit numbers together. So my enjoyment of the subject was externally generated, most often when I was praised for being "good at mathematics."

My first glimpse of the real beauty of mathematics came in high school geometry. I loved straightedge and compass constructions! But it was my upper-level mathematics courses in college where I found my passion for the discipline.

My first glimpse of the real beauty of mathematics came in high school geometry. I loved straightedge and compass constructions!

**Where did you go to undergraduate school?**
I graduated from Union College, a small college (2000 students) in Schenectady, New York, in 1988.

**What about graduate school?**
The University of Wisconsin, a *really* big school. I will be forever grateful to Dr. **Peter Orlik** for his support as my advisor there.

**What was the influence of your family on your education?**
Dad was a first-generation college student from a coal town in Pennsylvania. His family was very supportive of his education but also very poor. I don't think they knew what to make of him – he was one of the rare college students from that working-class town, and he earned a PhD in physics! My mom has a masters degree as well, and taught high school Latin for a time. Both were supportive of me and my education. Even though we were not a wealthy family, there was never any question that I was going to college. It took me a long time to understand that not all families are as committed to their children's education.

Dad was an intellectual through his whole life, and he would occasionally stymie his six kids with his questions at the dinner table. One we all still remember is "How many violin players are there in Philadelphia?" We all thought it was an absolutely ridiculous question, but it led to a long-remembered lesson on estimation and statistical thinking.

**Are there any teachers who had influenced you to become a mathematician?**
My professors at Union College were fantastic! **Sue Niefield**, **Karl Zimmerman**, **Kimmo Rosenthal**, **Al Taylor** – from top to bottom, the mathematics department there did a great job helping a procedurally-driven boy to experience the beauty of mathematics. They got me to a point where I was ready for graduate school.

**How did you end up at UW Oshkosh?**
My wife Jennifer, the best mathematics teacher I've ever seen, was hired at UW Oshkosh in 1995. I was still finishing my dissertation at the University of Wisconsin. The timing was perfect – the following year UWO had two more positions open in the department and they took a chance on me. I feel so fortunate to be able to work in the same place as my best friend.

**What have your students meant to you as a teacher and mathematician?**
I love teaching at UW Oshkosh! About half of our students are first-generation college students like my dad was, and regardless of their backgrounds, when they are in my classroom, I can make a difference with them. That's a great opportunity, and also a great responsibility. It's good to feel like you do important work.

**What courses do you like to teach?**
My two favorite courses to teach are an upper level geometry course for mathematics majors, and a general education problem-solving course for nonmajors. In both those courses, I try to provide my students with authentic mathematical experiences: to work out examples, to collect data, to organize, to look for patterns, to conjecture, and to make logical arguments. I love the

geometry course because it has an explicit logical structure, but at the same time, there's a real story to be told. As we build geometry up from its axiomatic foundations, we also uncover the story of non-Euclidean geometry. There's enough weirdness in that and in other strange geometric models to keep the course lively.

The general education problem-solving course includes lots of topics that students tend to find interesting, particularly issues involving voting, power, and representation. Many of the students have had poor experiences with mathematics in the past, and it's really gratifying when I see them have "Aha!" moments and realize that they actually can do mathematics.

**How have you found that teaching of mathematics has changed over the years?**

Certainly, technology plays a bigger role in teaching. I try to be very cognizant of how I use these tools, focusing on how they can help facilitate student learning. It's great to be able to draw the graph of a function quickly in Calculus II when you're trying to illustrate a point about the definite integral. And it's great to have access to GeoGebra when doing straightedge and compass constructions in hyperbolic geometry, otherwise the pencil marks on your paper become overwhelming!

Rather than worrying about what I'm going to *tell* my students when I go into a class, I ask myself how I want my students to *experience* the mathematical concepts that we will be discussing.

More important than the changing of the technology has been my growth as an educator. Now, rather than worrying about what I'm going to *tell* my students when I go into a class, I ask myself how I want my students to *experience* the mathematical concepts that we will be discussing. I follow a traditional lecture only very rarely now, preferring to find ways to offer students authentic mathematical experiences. We learn mathematics by *doing* mathematics!

**How were you involved with the MAA over the years?**

**Ken Price** and I served as co-Coordinators for Student Activities in the Wisconsin section for about 8 years. That was a great way to get involved with the MAA and to learn about the inner workings of the section. Ken and I have also produced the mathematical game show "Face Off," at the MAA-Wisconsin Section meeting every spring since 2006. This "Jeopardy"-style show is my favorite way to contribute the mathematical community. Our approach to the game is to try to have "serious fun"; the questions are designed to challenge students in all kinds of ways. There's plenty of math, but there's a fair bit of silliness sprinkled in as well. We've been fortunate that so many of our colleagues at UWO and at other Wisconsin schools have been willing to help us produce the game, serving as scorekeepers, game hosts, and organizers. And the students are great!

**What do you think is the best part of being a mathematician?**

I love the "Aha!" moments. There is nothing as professionally satisfying as making a mental connection when I'm working on a mathematical idea, especially one that's new and challenging to me. It's also satisfying when I get to see one of my students having one of those moments as well. **Sylvia Rimm** once wrote, "The surest path to positive self-esteem is to succeed at something which one perceived would be difficult." The more experience I have in my life, the more true this seems to be.

**What is the worst part of teaching mathematics?**

I most dislike assessing students – assigning them grades. While I understand that grades can serve as a motivating force for students, it feels ridiculous to capture a student's level of understanding with a "B-." And those grades can be devastating. A very close second is the actual grading of assignments. Ugh.

How do you describe what you did when you are talking to somebody outside of mathematics?

I like to think of myself as a seeker of patterns. So whenever someone asks what I do, I like to give them the "Pizza Cutting Problem": If you are allowed to make *n* straight cuts in a round pizza, what is the maximum number of slices that you could create? What if you are allowed to make *n* straight cuts in a watermelon? I like this problem because it offers people an opportunity to think about mathematics the way we do: collecting data,

looking for patterns, making arguments, and generalizing. This is also the problem that first got me interested in hyperplane arrangements, my graduate school specialty.

**What is your advice to college students and new teachers?** The American psychologist **E. Paul Torrance** has a "Manifesto for Children," a copy of which is hanging on the wall in my office. I love it:

1. Don't be afraid to fall in love with something and pursue it with intensity.
2. Know, understand, take pride in, practice, develop, exploit, and enjoy your greatest strengths.
3. Learn to free yourself from the expectations of others and to walk away from the games they impose on you. Free yourself to play your own game.
4. Find a great teacher or mentor who will help you.
5. Don't waste energy trying to be well-rounded.
6. Do what you love and can do well.
7. Learn the skills of interdependence.

When I have mastered these skills, I'll move on to his "Manifesto for Adults," maybe 40 years or so from now.

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*Who is a Wisconsin Mathematician that you would like to know? Send suggestions for the next KYWM to Ben Collins, collinbe@uwplatt.edu .*

# Campus News

## Cardinal Stritch University

*By Sr. Barbara Reynolds*

In November, **Rachel Henke** gave a student presentation at the Pi Mu Epsilon Undergraduate Mathematics Conference held at St. Norbert College. Her presentation reported on her investigations of "An Unusual Critical Point." Rachel is one of our juniors, double majoring in mathematics and computer science.

The Department of Mathematics and Computer Science is involved in a search to fill a faculty opening in Computer Science.

**Suzanne Caulfield** continues to serve as our department chair.

**Carl Mueller**, who joined our mathematics faulty in 2008, has recently he has been named Interim Dean of the College of Arts and Sciences.

## Milwaukee School of Engineering

*By Chunping Xie*

Sherry Scott gave a talk on "Ergodicity defect tortuosity metric" at the Joint Meetings in San Diego

## UW-Eau Claire

*By Chris Ahrendt*

At the annual Joint Mathematics Meeting in San Diego this past January, *eighteen* UW-Eau Claire undergraduate research students, as well as two UW-Milwaukee students who worked on the summer REU at UWEC, attended and presented their work from student/faculty research collaborations: 9 students gave 7 talks, 17 students presented 8 posters, 1 student had artwork presented in the math art gallery in the exhibition center, and 1 student sat on an MAA panel. The following are the posters that were presented at the MAA Undergraduate Poster Session:

**Jory Wagner and Tyler Gonzales** presented "The Moduli Space of 3|2-dimensional complex associative algebras," which was completed with faculty advisor **Michael Penkava.**

**Haotian Wu and Grant Keane** presented "The Deformations of 5-dimensional Complex Associative Algebras," which was completed with faculty advisor **Michael Penkava.**

**Michael Breuning, McKenzie Scanlan, and Kyle Goryl** (UW-Milwaukee) presented "Comparison of Statistics in RNA Secondary Structure Matching Models," which was completed with faculty advisor **Manda Riehl**.

**Kee Shen Yim** and **Yee Wen Heah** presented "Pricing Mortality-Linked Securities: An investigation into the Swiss Re Mortality Bond," which was completed with faculty advisor **Marie-Claire Koissi-Kouassi**.

**Michael Vaughan** and **Grace Odegaard** presented "Higher order invariants via quandles," which was completed with faculty advisor **Christopher Davis.**

**John McClellan III** (UW-Milwaukee) presented "Centralizer-like Subgroups Associated with the n-Engel Word Inside of Direct Products," which was completed with faculty advisor **Dandrielle Lewis.**

**Dawn Paukner, Chase Siegfried, and Geoffrey Glover** presented "Polygonal Wheel Graphs and Links," which was completed with faculty advisor **Carolyn Otto.**

**Jared Johnson and Geoffrey Glover** presented "Algebra associated with the Hasse graph of the 600-cell," which was completed with faculty advisor **Colleen Duffy.**

Several UWEC undergraduates also gave presentations:

**Emily Gullerud** presented in the MAA Session on Arts and Mathematics: The Interface. The presentation was titled, "Creating Hyperbolic Wallpapers and Animations," and was completed with faculty advisor **James Walker.**

**Geoffrey Glover** presented a contributed talk: "Determining algebras of Hasse graphs associated with the 600-cell," which was was completed with faculty advisor **Colleen Duffy.**

**Emily Gullerud** presented a contributed talk: "An Euler phi function for the Eisenstein integers and some applications," which was completed with faculty advisor **aBa Mbirika.**

**Chris Magyar** presented a contributed talk: "Mapping the moduli space of complex graded associative algebras through computer algebra systems," which was completed with faculty advisor **Michael Penkava.**

**Tyler Gonzales** and **Jory Wagner** presented the contributed talk, "The Module Space of Complex $Z_2$-graded 3|2-dimensional associative algebras," which was completed with faculty advisor **Michael Penkava.**

**Grant Keane** and **Haotian Wu** presented the contributed talk, "The Moduli Space of 5-dimensional Non Nilpotent Complex Associative Algebras," which was completed with faculty advisor **Michael Penkava.**

**Rita Post** presented "Virtual spatial trivalent graphs and braids" on work completed during an REU at California State University, Fresno.

A few faculty members gave presentations in invited and contributed sessions at the JMM as well:

**Fariba Khoshnasib** presented "Bifurcations of Liouville Tori for Goryachev-Chaplygin system vs. Poincare system," in the AMS Special Session on Algebraic, Analytic, and Geometric Aspects of Integrable Systems, Painleve Equations, and Random Matrices.

**Colleen Duffy** presented "Relativity and Differential Geometry: an interdisciplinary course in England," which was joint work with **Paul Thomas.**

**aBa Mbirika** presented "Characteristic polynomials and eigenvalues for a family of tridiagonal real symmetric matrices and a tantalizing connection to Pascal's triangle," which was joint work with undergraduates **Emily Gullerud** and **Rita Post**.

For the upcoming summer, UWEC will be hosting an REU stemming from the Partnership for Undergraduate Research: Enhancing the Mathematics Curriculum grant. This is the third summer for this REU, and will include research projects led by UWEC faculty **Chris Ahrendt, Dandrielle Lewis, Carolyn Otto, and Michael Penkava**. Students from both UWEC and UW-Milwaukee will be participating in the program.

After 9 years teaching at UWEC, **Manda Riehl** joined the faculty at the Rose-Hulman Institute of Technology in Terre Haute, Indiana.

## UW-Milwaukee

*By Jay H. Beder*

This year's Marden Lecture in Mathematics will be given by Fields Medalist **Vaughan Jones** of Vanderbilt University on Tuesday, March 13, at 4:00 pm. The title of his talk is "Why Quantum Theory Chooses Von

Neumann Algebras". More information can be found at this link.

At the 2018 Joint Mathematics Meetings in San Diego, undergraduate students **Jacob Beihoff** and **Adam Honts** won the prestigious Outstanding Presentation Award in the Applied Mathematics category of the undergraduate poster session. Their poster, entitled "Quantifying the Distribution of Urban Vegetation Based on Google Street View Images," details the work the students did in the NSF supported Undergraduate Research in Biology and Mathematics (UBM) program.

Undergraduate student **Kyle Goryl** and fellow students from his summer REU presented a poster on "Comparison of Statistics in RNA Secondary Structure Matching Models" in the undergraduate poster session.

Graduate students **Jingchun Chen**, **Kathryn Boddie**, **Thomas Stojsavljevic**, **Rachel Elizabeth TeWinkel** and **Martin Vieten** gave successful talks on their research in various sections at the meeting.

The Department now has a student chapter of the Association for Women in Mathematics. Student officers are **Alison Becker**, **Katie Boddie**, and **Rachel TeWinkel**. Faculty adviser is **Gabriella Pinter**.

For the fifth and final time, the Department hosted the MAA Wisconsin Section High School Math Contest on December 7. More information on the contest can be found elsewhere in this newsletter.

The Department has also been hosting several other pre-college competitions: the AMC 8 math competition in November 2017 (for about 50 students from the neighboring communities); the MathCounts middle school math competition February 3, 2018; and a Math Kangaroo competition in March 2018 for students in grades K-12.

## UW-Oshkosh

*By John Beam*

The big news is that, as part of the UW-System restructuring, the UW-Fond du Lac and UW-Fox Valley two-year colleges will be merging with UW Oshkosh. Many of you are going through a similar transition, and as is probably the case with you all, we really have no idea how this is going to play out. But regardless, we would like to extend a warm welcome our new colleagues.

Our department will be hosting a couple of colloquia by our faculty this spring. **Dave Penniston** will give a talk on applications of modular forms to number theory, and **Eric Kuennen** and **John Beam** will give a presentation about their May 2017 visit to schools in Germany with a group of UWO pre-service mathematics teachers.

## UW-Platteville

*By Benjamin V.C. Collins*

**Tim Deis** and **Jodean Grunow** have had their grant "Creating Community Collaboration: STEM as a Catalyst ($C^3$ STEM)" funded by the Wisconsin ESEA Improving Teacher Quality Program. The project was recommended for funding by a broadly-based team of expert reviewers representing Wisconsin's K-12 schools, UW System institutions, and the Wisconsin Department of Public Instruction. The project will be offering a summer institute in 2018.

## UW-Stout

*By Steve Deckelman*

**Shirley Xue Gong**, along with collaborators **J. Mohlenkamp** and **Todd R. Young** had a paper "The Optimization Landscape for Fitting a Rank-e Tensor with a Rank-1 Tensor" in *SIAM Journal on Applied Dynamical Systems*.

**Andrei Ghenciu** received tenure and spent the fall semester as a Long Term Visiting Faculty at Hochschule Darmstadt University of Applied Sciences in Darmstadt Germany. Andre taught an Introduction to Dynamical Systems course in their Master Program in the Department of Mathematics.

**Laura Schmidt** and **Greg Bard** were awarded sabbaticals for Fall 2018 and 2018-2019 respectively.

**Matt Horak** has returned to the department as a senior lecturer after a three year hiatus. **Derek Sturgill**

successfully defended his doctoral dissertation at Ohio University.

**Alex Babinski**, **Steve Deckelman**, **Andrei Ghenciu**, **Nelu Ghenciu**, **Shirley Gong**, **Tyler Skorczewski** and **Derek Sturgill** attended the Joint Meetings in San Diego.

## MAA-Wisconsin Executive Committee

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|---|---|
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