# The Mathematical Association of America

# Wisconsin Section

## Newsletter

## Spring 2012

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# Chair's Report

The 80th Annual Spring Meeting of the Wisconsin Section of the MAA will be held Apri1 13-14, 2012 at the Milwaukee School of Engineering. Chair-Elect James Swenson has invited speakers Frank Farris from Santa Clara University, Susanna Epp from DePaul University, and Jon Rogness from the University of Minnesota. Please consider adding your input to the program by volunteering to give a presentation of your own and/or sponsoring a talk by one of your students. Talks on mathematics, pedagogy, history, SOTL, and applications of mathematics are welcome and appreciated. The contributed speaker application forms are in this newsletter. Also, consider bringing a team of students to compete in the popular Face Off competition. Your participation is what makes our meeting so successful. Also, in this newsletter, you will find information about the meeting details (hotels, parking, etc).

The annual business meeting of the MAA Wisconsin Section will be conducted at the Spring Meeting at 8:00 am Saturday morning, April 14. There are several important items of business we will undertake at this meeting. There will be two elections. One is for Chair-Elect of the Section. The nominating committee selected Ken Jewell of Edgewood College to serve in this position. The other election is for Secretary/Treasurer. Jonathan Kane, a former governor, has agreed to run for this post. Short biographies of these candidates appear elsewhere in the newsletter.

Last year at the Spring Meeting, we voted on a much needed rewording of the bylaws. These were accepted by the national organization except for one minor change. This change appears later in the newsletter and will be voted on at this year's Spring business meeting. This should be the finishing touch to the bylaws revisions that the Executive Board has been working on for the last two years.

Also in this newsletter is a call for nominations for the Wisconsin Section Distinguished Teaching Award. There are many dynamic and innovative teachers in our section so please consider nominating either yourself or someone else. The nomination process is very simple.

Lastly, I would like to thank the Executive Board of the MAA Wisconsin Section for their hard work and dedicated service this year. It has been an honor to chair such a distinguished group of professional mathematicians.

See you at the Spring Meeting at MSOE this April!

Clare Hemenway, Section Chair

# Governor's Report

The Board of Governors meeting was January 3, 2012 at the Joint Mathematics Meetings in Boston. This was a transitional meeting. Long time executive director Tina Straley retired at the end of 2011. The new Executive Director as of January 1, 2012 is Michael Pearson. Also John Kenelly, long time treasurer has retired from that post. The new treasurer is Jim Daniel, of UW-Madison and University of Texas at Austin, now semi-retired. He was formerly director of the actuarial science program at UT, and is now Director of Actuarial Education for Abacus Learning Institute.

The treasurer's report showed the MAA to be in good financial shape. However, Jim Daniel focused attention on the cumulative reserves of the association. These are funds that are free to be used without restriction as needed. It is recommended that the MAA have cumulative reserves totaling at least half a full year's operating budget of 5 million. The reserve has dropped from over one million to its present value of approximately .56 million since 01/01/2010. Therefore it is time to take steps to reverse the downward trend.

This will be accomplished in part by modest fee increases. So expect to see regular hard copy memberships with the Monthly go up two or three percent. However electronic memberships will not go up. The aim is to encourage E-memberships because they save the association money. Student fees were proposed to increase by $ 2.00 in 2013. A motion was introduced to keep student dues flat, but that motion was defeated in a voice vote.

Another divisive financial issue was support for SIGMAAs. For several years now, members renewing their memberships each year could select one or more SIGMAAs to join. For each there was a fee of $12. Part of this went to the MAA and part was to be used by the SIGMAA to fund its program. Well, it turns out that the SIGMAAs didn't use much of the money. So pretty soon there was quite a surplus. In 2009 it was $141,000. That has now been seen as a source of money to help with MAA finances. So it was decided by the officers that it was time to change the policy and be up front about it.

Henceforth a greater portion of the $12.00 per SIGMAA membership each year will go to the MAA coffers, and the rest will go into a general SIGMAA fund, instead of separate funds for each SIGMAA. There will be an opportunity each year for SIGMAA officers to request support from the general SIGMAA fund, and the money will be parceled out as the MAA sees fit. The Board of Govs, anticipating some unhappiness on the part of SIGMAA officers wrangled over the exact proposal. A motion was made not to combine the funds generated by individual SIGMAA memberships into one big Sigma fund. That motion was defeated 30 to 15.

The important point for MAA members to understand is that now the cost of joining a SIGMAA does not support that SIGMAA exclusively, but all SIGMAAs, and an individual SIGMAA may or may not actually use the money that its memberships generate. It must said that it may very well be that the general SIGMAA fund is sufficient to keep the SIGMAAs functioning exactly as they have been. I heard in Boston that Michael Pearson reassured officers of the various SIGMAAs that the MAA, through the SIGMAA fund, would continue to support the kinds of things SIGMAAs have been doing in the past. So if you are in a SIGMAA that has had a reception catered at the Joint Meetings in the past, expect those sorts of activities to continue in the future.

David Bressoud and others presented a report on the state of calculus instruction. Here are the data, quoted from that report. "In 1984 the United states graduated 112,614 students with a bachelor's degree in Engineering, the Physical Sciences, or the Mathematical Sciences. By 2009, the most recent year for which we have the data, 107,095 students graduated with a Bachelor's degree in one of these disciplines." So the number of STEM bachelor's degrees has remained remarkably constant. However, the job market today requires more math intensive majors than it did in 1984. Obama's Council on Jobs is trying to increase the number of STEM degrees earned each year by 10,000.

Here is more data. In the Fall of 2010, 325,000 students enrolled in Calculus I, and 75% of these intended to major in a STEM subject. By the end of December, 2010, 27% had earned a D or F and 23% had received the discouraging grade of C. "The situation that has evolved is seriously dysfunctional. The MAA and NCTM must work together to improve the transition [from high school math] to college-level math." The report concluded that it is time for the two NCTM/MAA recommendations from 1986 to be reiterated, but that that alone was not enough. The NCTM/MAA recommendations from 1986 are as follows.

1) Any calculus course offered in 12-th grade should be treated as a college-level course.
2) Students who enroll in a calculus course in secondary school should have demonstrated mastery of algebra, geometry, trigonometry, and coordinate geometry.

Bressoud made the point that with 1/5 of all high school graduates having taken a calculus course in high school, Calculus I in the colleges must change to recognize the reality that often most of the students in the class have seen the subject before. How a change should be brought about, or even what that change should be was not specified completely, only suggestions were given.

As always the Joint Meetings were a great pleasure. The overall impression one gets about the MAA is that in spite of occasional disagreements about how to build up those reserve funds, the Washington office is a highly responsible entity run by very intelligent professionals, dedicated to maintaining a vibrant organization that supports the creation of mathematical knowledge at the college and university levels in all ways.

Andy Matchett, Section Governor

# Call for Nominations

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 2012 Wisconsin Section Distinguished Teaching Award are now being accepted. The nomination form and instructions are available for downloading as a pdf file on the MAA web site at http://www.maa.org/awards/teachingawards.htm or contact Mark R. Snavely Mathematics Department, Carthage College, Kenosha, WI 53140. Nominations should be submitted so as to arrive by March 2, 2012.

# Contest Report

### American Mathematics Competitions

The AMC 8 competition was held on November 15, 2011. A total of 1,465 Wisconsin students participated in the competition (down from 1,599 in 2010 and 1,477 in 2009). No students from Wisconsin received a perfect score. The average score for Wisconsin students was 9.70, compared with the national average score of 10.76. The gap has narrowed some to 1.06 compared to 1.43 from last year; however it is still higher than earlier years.

The AMC 10 and 12 contests will be held on February 7 and 22, 2012. Data will be reported at the Spring Meeting.

### MAA-Wisconsin Section High School Contest Examination

The Section contest examination was given on Thursday, December 1, 2011. There were 47 schools reporting scores this year for a total of 1,990 students. This is a significant decrease from 69 schools in 2010 and 81 schools in 2009. The difficulty level of the exam was similar compared to 2010, and there was one perfect score. The cutoff for the top 1% was a score of 85 out of 120 this year.

Congratulations to Peter J. Yang, a 7$^{th}$ grader from Madison Memorial High School, who received a perfect score.

Dr. Michael Wodzak, from Viterbo University, directed the contest this year beginning their five year term hosting the contest. Many thanks to him, Viterbo University, and the test committee for all their hard work. If anyone would like to volunteer to help the test committee please send an email to mawodzak@viterbo.edu.

Laura Schmidt, Math Contest Coordinator

# Project NExT-Wisconsin

At the spring meeting of the MAA Wisconsin section, Project NExT-WI will have lunch on Saturday April 14 followed by a panel discussion for Project NExT-WI fellows. We will try to finish by 3:00 pm.

The topic for the panel discussion is: *The millennial student with the cell phone: When to say "Yes"*. This discussion deals with a major issue confronting all professors as today's millennial student brings a culture to the classroom which involves cell phone texting, Facebook, twitter and other such. Most professors simply ban cell phones from the classroom while others ban Laptops, too. On one hand, as a positive aspect, this very same culture can be used to engage the student actively in the learning process (For example, cell phones can be used as alternatives for clickers and Google docs can be effectively used for peer collaboration. Wolfram Alpha, if used wisely, can help the students as a powerful tool to visualize functions and double check calculations.)

On the other hand, texting in class certainly distracts the professor and students. Accessing online tools such as Wolfram Alpha via cell phones can violate the integrity of a quiz, resulting in a scenario which makes it difficult for professors to give take home and online quizzes. How should we math instructors handle this culture? When do we say "No"? How can we use these very same tools to enhance the learning experience? How can we provide online/take home quizzes whose integrity will be reasonably safe? These are some of the questions that we hope to answer at this spring's panel discussion.

Project NExT-WI also holds an annual Fall Workshop (during the last week of September or first week of October) in Menomonie, WI which is open to all current NExT-WI members. Further details are posted in time on the Project NExT-WI website (http://www.uwplatt.edu/nextwi/) along with updates to all the NExT-WI members.

Currently we have 27 active members in NExT-WI and we are always looking for new members. There is no deadline to apply for the membership. One can apply any time during the academic year.

Project NExT-Wisconsin is open to all full-time faculty members in mathematics departments in the Wisconsin Section who are within their first four years of undergraduate teaching. You may also be eligible if you have more teaching experience, but are new to the Wisconsin Section. To apply, contact me at kirthi.premadasa@uwc.edu

Kirthi Premadasa, Project NExT-Wisconsin

## Student Activities

The Student Activities Co-Coordinators, Ken Price and Steve Szydlik, are pleased to report on opportunities for Wisconsin's undergraduate math students. We especially look forward to this year's section meeting at the Milwaukee School of Engineering on April 13-14. Faculty, please continue to encourage your students to attend as there will be numerous talks for and by students. The banquet cost for students will continue to be held at $5 per ticket. We will try to find low-cost housing options for students who wish to stay for both days. Thanks to the hard work by the organizers of the 2011 meeting, we were able to offer a popular student retreat room at UW-Stout, and plan to do so again in 2012.

The Wisconsin Mathematics Council's Annual Green Lake Conference is scheduled for May 2-4, 2012. Anyone interested in any level of mathematics education in Wisconsin is encouraged to attend.

The fast-paced math game show "Face Off!" continues to be a popular student event in the section, and it will again return to the MAA section meeting this spring. With our "Slammer" buzzer system we can allow as many as ten teams to play. Students who have taken Calc I or above are eligible to compete for their department in teams of 2-4 players. Contact Ken (pricek@uwosh.edu) or Steve (szydliks@uwosh.edu) for details on the event or to register your team. More information is available on the web site at http://www.uwosh.edu/faculty_staff/szydliks/faceoff.htm. You can also view pictures from previous years on Facebook.

UW-Oshkosh Dean John Koker pulled double duty at the Pi Mu Epsilon undergraduate student conference at St. Norbert College in November, serving as the invited speaker for the conference as well as the host for the "Face Off!" game. UW-Stevens Point, playing as Hilbert, snuck by defending champion Carthage College (representing Lagrange) in the competition. The College of St. Benedict/St. Johns crossed the border from Minnesota and finished third while playing as Descartes. Five of the ten teams (from Carthage College, College of St. Benedict/St. Johns, St. Norbert College, Winona State University, and Bethany Lutheran College) earned perfect scores on the "Final Face Off" question: *There are two sizes of ceramic tiles in a box. The 1×1 tiles come in two colors, and the 1×3 tiles come in three other colors. I can make different patterns by stringing the tiles together. Let p(n) be the number of 1×n different tile patterns. In five minutes or less, find p(n) for n=1, 2, 3, 4, 5, 6.*

We very much appreciate the enthusiasm that students bring section events. Please let us know if you have ideas of ways to make the section more student-friendly. We're always looking for suggestions!

Ken Price and Steve Szydlik, Student Activities Coordinators

## Proposed Change to Bylaws

The bylaws of the Wisconsin Section of the Mathematical Association of America, Inc., are available on-line at: http://sections.maa.org/wisconsin/bylaws.shtml .

The Board of Governors requires one change before they approve the bylaws which were passed by the Section at the business meeting in 2011. In Article V, section 1, we propose the following deletion:

> The members at the annual meeting, or the Executive Committee at any of its meetings, may authorize the collection of ~~annual section dues and/or~~ registration fees for meetings.

The BoG notes that we may not require dues to be members of the Section. Every MAA member in the state is automatically a member of the section (unless they request to be part of another section.) The offending clause has been in the bylaws for as long as anyone can remember, and neither the Executive Committee nor the membership has ever proposed annual dues.

## *Are You On-line?*

Look for the Wisconsin Section on

- Facebook: http://on.fb.me/oRQZbs
- Twitter: http://twitter.com/MAAWisconsin

## Nominee for Chair-Elect

Ken Jewell, Edgewood College

Ken Jewell is a Professor of Mathematics at Edgewood College. He earned his Ph.D. in mathematics in 1993, at the University of Wisconsin-Madison, specializing in algebraic topology under the direction of Peter Orlik. He received the MAA-Wisconsin Section Distinguished Teaching Award in 2011. Ken has taught most of the courses offered by the mathematics department and has a strong interest in the mathematics preparation of pre-service teachers at both the elementary and middle/secondary school levels. His primary research area is arrangements, and is actively involved in sustainability initiatives on the Edgewood College campus, earning a distinguished service award from Edgewood for building the Edgewood College community boardwalk in 2007. He is in his nineteenth year at Edgewood, having served two terms as Chair of the Mathematics Department. He is looking forward to this opportunity to serve the mathematics community in Wisconsin.

## Nominee for Secretary-Treasurer

Jon Kane, UW-Whitewater

In May I will be retiring after teaching mathematics, statistics, computer science, and actuarial mathematics at the University of Wisconsin – Whitewater for 32 years. I have always enjoyed my work with the MAA and with the Wisconsin Section in particular, and am looking forward to continuing this service as Secretary/Treasurer with the added time I will have after retirement. I was proud to serve as Wisconsin chair-elect, chair, and past chair from 2002 through 2005, and as governor from the Wisconsin Section from 2008 through 2011. I have been very active in the American Mathematics Competitions (AMC) run by the MAA where I currently serve as co-chair of the American Invitational Mathematics Exam committee which places me on the committees for the AMC 10/12 exam, the USA Mathematics Olympiad exam, and the CAMC. In another mathematics contest related activity, I coordinate the annual, international, on-line, team, mathematics competition designed for middle and high school students called the Purple Comet! Math Meet. Finally, I am beginning my second three-year term on the MAA's Minicourse committee, a committee with the responsibility to review proposals, select instructors, and help run the minicourses that are offer at the national meetings of the MAA. I have had significant experience with duties similar to those of the section's Secretary/Treasurer position and look forward to taking on these duties.

## Opening on the Section Executive Committee

The Wisconsin Section invites nominations for the following position:

**Chair-Elect**. This is a three-year position. The Chair-Elect organizes the spring meeting. The following year, the Chair-Elect becomes chair, and presides at each meeting of the Section and of the Executive Committee of the Section, as well as appointing committees and Executive Committee members as needed. The final year, the Immediate Past Chair continues to sit on the Executive Committee, and oversees the selection of the Distinguished Teaching award.

Send nominations to Section Chair Clare Hemenway at clare.hemenway@uwc.edu . Self nominations are encouraged. Section officers must be members of the MAA.

# Spring Meeting

Information for the MAA Spring Meeting 2012 can be found at www.msoe.edu/MAA .

## Getting around MSOE

Campus Map: http://www.msoe.edu/about_msoe/campus_map/
Most of the activities on Friday and Saturday will take place in the Grohmann Museum and the Student Life & Campus Center.

## Directions to MSOE

From the north: Take I-43 south to downtown Milwaukee. Take the Highway 145 east/McKinley Avenue exit (exit # 73A). Turn left (east) onto McKinley Avenue, proceed for about six blocks. McKinley Avenue becomes East Knapp Street. Turn right onto Broadway. The **Broadway** and **Milwaukee B** parking lots will be on your left.

From the south: Take I-94 west/I-43 north to downtown Milwaukee. Continue north on I-43, then take the Highway 145 east/McKinley Avenue exit (exit # 73A). Proceed on McKinley Avenue for about six blocks. McKinley Avenue becomes East Knapp Street. Turn right onto Broadway. The **Broadway** and **Milwaukee B** parking lots will be on your left.

From the west: Take I-94 east to downtown Milwaukee, then take I-794. Take the Jackson/Van Buren exit (exit # 1E). Proceed north on Van Buren Street seven blocks to State Street and turn left. Turn right onto Milwaukee Street. The **Broadway** and **Milwaukee B** parking lots will be on your left.

From 41/45 south (Fox Valley): Take Highway 41 south to Milwaukee. Take I-94 east to downtown Milwaukee. Take I-794. Take the Jackson/Van Buren exit (exit # 1E). Proceed north on Van Buren Street seven blocks to State Street and turn left. Turn right onto Milwaukee Street. The **Broadway** and **Milwaukee B** parking lots will be on your left.

## Parking

The conference participants may park in the Broadway or the Milwaukee B lot. You may ignore the "permit only" signs for your visit. See http://www.msoe.edu/about_msoe/campus_map/ for a campus map.

## Lodging Information

Milwaukee offers many options for meeting attendees who will be staying overnight on the evening of April 13th. The conference organizers have reserved blocks of rooms at special rates at three downtown hotels as well as three suburban hotels. After the specified cutoff dates, the group rates are not guaranteed and will be honored based on availability.

### Downtown hotels within walking distance of MSOE

**Aloft Milwaukee Downtown** (www.AloftMilwaukeeDowntown.com), 1230 Old World Third Street, Milwaukee, WI, 53212, (414) 226-0122. Aloft is a modern hotel located on a scenic Milwaukee Riverwalk. 20 King Rooms: $109, 10 Double Rooms: $109, Valet Parking: $23, Self Parking: $15. Call the hotel directly to make reservations under the group name “Milwaukee School of Engineering”. Rooms are being held until March 13th.

**Comfort Inn & Suites Downtown Lakeshore** (www.choicehotels.com/hotel/WI138), 913 E. State St., Milwaukee, WI 53202, (414) 276-8800. The Comfort Inn & Suites Downtown Lakeshore is a budget hotel located close to the lakefront on the east end of downtown Milwaukee. Hotel offers complimentary deluxe hot breakfast, morning newspaper, and area shuttle service. 40 rooms with 2 queen beds: $75.99, parking: $10. Call the hotel directly to make reservations under the group name “MAA Conference”. Rooms are being held until March 13th.

**InterContinental Milwaukee** (www.intercontinentalmilwaukee.com), 139 E. Kilbourn Avenue, Milwaukee, WI 53202, (414) 935 -5943. The Intercontinental Hotel provides a mix of Renaissance elegance with modern amenities. 5 Standard King rooms: $99, 15 Standard Double rooms: $99, Self Parking: $23, Valet Parking: $25. Call the hotel directly to make reservations under the group name “MSOE MAA Conference”. Rooms are being held until March 13th.

### Bayshore area hotels (10 minutes from MSOE)

**Hilton Milwaukee River,** 4700 North Port Washington Road, Milwaukee, WI 53212, (414) 962-6040. 10 Double Rooms: 1-2 guests ($89), 3 guests ($99), 4 guests ($109). Parking is included in the room rate. Call the hotel directly to make reservations under the group name "MSOE MAA". Rooms are being held until March 30th.

**La Quinta Inn Milwaukee Glendale-Hampton Ave** (www.lq.com/), 5110 N Port Washington Rd, Glendale, WI 53217,(414) 964-8484. 15 Double Rooms: 1-4 guests ($46.55). Parking is included in the room rate. Call the hotel directly to make reservations under the group name "Group #: 320". Rooms are being held until March 23rd.

**La Quinta Inn and Suites Glendale – Bayshore** (www.lq.com/), 5423 N Port Washington Rd, Glendale, WI 53217, (414) 962-6767. 7 Executive Double Suites (maximum occupancy of 6 individuals) and 3 Executive King Suites (maximum occupancy of 4 individuals) have been reserved. Room Rate: $80. Parking is included in the room rate. Call the hotel directly to make reservations under the group name "MAA Conference". Rooms are being held until March 13th.

**For more lodging information visit:** www.msoe.edu/visit

## Invited Talks

**Jonathan Rogness** (University of Minnesota) *When Mathematics Meets YouTube*

Abstract: What happens when 1.7 million people encounter high-level mathematics on YouTube? "Möbius Transformations Revealed" is a short film that illustrates the beauty of Möbius Transformations and shows how moving to a higher dimension makes them easier to understand. After winning an award from the National Science Foundation and Science magazine the video went viral, with unexpected and entertaining results. This talk will describe the behind-the-scenes making of the movie, explore the mathematics it illustrates, and show the reactions of YouTube users who discover the visual allure of mathematics.

Bio: Jonathan Rogness is an assistant professor of mathematics at the University of Minnesota. A topologist by training, he has become well-known for his mathematical visualizations for use in and outside of the classroom. He was recently named the new director of the university's Mathematics Center for Educational Programs (MathCEP), which runs one of the nation's premier accelerated mathematics programs for middle- and high-school students.

**Frank Farris** (Santa Clara University) *Undercover Symmetry*

Abstract: Just when I thought there was nothing new to say about wallpaper patterns, I constructed an image that seemed to have extra symmetries: neighborhoods within an image with striking local mirror symmetry. In this talk, explaining these "undercover" symmetries will lead us to consider such things as eigenvalues of a Laplacian and the length spectra of orbifolds.

Bio: Frank A. Farris has taught in the Department of Mathematics and Computer Science at Santa Clara University since 1984. His research involves geometry, visualization, and expository mathematics. From 2001 through 2005 and again in 2009, Farris was Editor of Mathematics Magazine, aspiring to continue the Magazine's tradition of excellent mathematical exposition accessible at the undergraduate level. In 2012, Farris served as Benedict Distinguished Visiting Professor at Carleton College. A native Californian, Farris did his undergraduate work at Pomona College and received his Ph.D. from M.I.T. in 1981. Awards include a Trevor Evans Award for his article "The Edge of the Universe" in Math Horizons and the David E. Logothetti Teaching Award at Santa Clara University. Farris is also a singer, who has portrayed on stage almost all of the dim but endearing tenors in the light operas of Gilbert and Sullivan.

**Susanna Epp** (DePaul University) *Do We Need to Teach Logic If We Want to Teach Proof?*

Abstract: Much of what teachers say and write in mathematics classes assumes that students understand linguistic and logical conventions that have never been made explicit to them. For many students, the kind of abstract reasoning used in mathematical proof does not come naturally. Becoming familiar with basic logical principles can help resolve much of the mystery – both about the reasoning teachers use in class and about the mathematical tasks students are asked to perform by themselves.

Bio: Susanna Epp is Vincent de Paul Professor of Mathematical Sciences at DePaul University. After initial research in commutative algebra, she became interested in cognitive issues associated with teaching analytical thinking and proof and has made exploring these the focus of her research. She is the author of Discrete Mathematics with Applications, now in its fourth edition, and Discrete Mathematics: An Introduction to Mathematical Reasoning. She also co-authored Precalculus and Discrete Mathematics, which was developed as part of the University of Chicago School Mathematics Project. She has been active in the Mathematical Association of America (MAA), and as a member of the MAA Committee on the Undergraduate Program in Mathematics, she was one of the authors of the CUPM Curriculum Guide 2004. In January 2005 she received the Louise Hay Award for Contributions to Mathematics Education; in June 2005 the third edition of Discrete Mathematics with Applications received a Texty Award for Textbook Excellence; and in 2010 she received the Award for Distinguished Teaching given by the Illinois Section of the Mathematical Association of America.

## MathFest 2012 in Madison!

The annual summer meeting of the Mathematical Association of America is the premier summertime event in mathematics. The meeting offers a substantial mathematical program that promises to be informative, inspiring, and productive.

MathFest returns to Madison on August 2-4, 2012. Mark your calendar.

For more information, see:

http://www.maa.org/mathfest/mathfest.html

# REGISTRATION FORM

MAA Wisconsin Section Spring Meeting — Milwaukee School of Engineering

April 13-14, 2012 — Preregistration Deadline: **March 30, 2012**

NAME(S)_____

Address_____

Institution (for your name badge)_____

| Registration | | | | Banquet | | | |
|---|---|---|---|---|---|---|---|
| No. | Type | Price* | Total $ | No. | Type | Price** | Total $ |
| | MAA Member | $20 | | | Regular | $20 | |
| | Retired MAA Member | $10 | | | Student | $5 | |
| | K-12 Teacher | $10 | | Banquet Total: | | | |
| | Student | FREE | | Please indicate any dietary restrictions (vegetarian, kosher, etc) and the number of each. | | | |
| | Other | $22 | | | | | |
| Registration Total: | | | | | | | |

*Registration at the meeting will be $25 for all except students, who will still be free.
**Regular banquet tickets will be $25 after the pre-registration deadline of April 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

Finally, please indicate the highest degree awarded by your *department*:

☐ Ph.D. ☐ Master's ☐Bachelor's ☐ Associate ☐ Not Applicable

MAKE CHECKS PAYABLE TO: MAA - WISCONSIN SECTION

PLEASE SUBMIT TO:
Mark Snavely, Treasurer (262) 551-5714
Mathematics Department snavely@carthage.edu
Carthage College
Kenosha, WI 53140

# CALL FOR SPEAKERS

Annual Meeting of MAA Wisconsin Section, April 13 – 14, 2012

Milwaukee School of Engineering

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 at the Spring Meeting, please send the information below to James Swenson (swensonj@uwplatt.edu).

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.)

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SPEAKER RESPONSE FORM – DUE: March 2, 2012

Name: _____

Position: _____

Institution: _____

Address: _____

Phone: _____ Email:_____

Title of talk: _____

Length of talk: 25 minutes _____ or 50 minutes _____

Abstract:

Check here if your talk is appropriate for students: _____

All rooms have a whiteboard, a document camera, and a projector with a connection for a laptop computer. If you have any other equipment needs, please describe them in the space below, 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

Student Mathematics Conference

Milwaukee School of Engineering, April 13 – 14, 2012

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. If you wish to present a talk, please complete the form below and send by March 2, 2012, to James Swenson (swensonj@uwplatt.edu).

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

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STUDENT SPEAKER RESPONSE FORM – DUE: MARCH 2, 2012

Name: _____ Year in School_____

Institution: _____

Address: _____ Phone: _____

_____ Email: _____

Faculty Sponsor: _____

Title of presentation: _____

Brief description of presentation:

All rooms have a whiteboard, a document camera, and a projector with a connection for a laptop computer. If you have any other equipment needs, please describe them in the space below, and we will try to accommodate you.

Time preference: Friday afternoon is Imperative ____ Preferred ____

Saturday morning is Imperative ____ Preferred ____

Either time is acceptable _____

# Face Off, The Mathematics Game Show

**What is it?** Face Off is a mathematics quiz show with questions from the broad realm of mathematics. And we mean broad! Teams of 2-4 students representing their schools compete to answer these questions. Each team gets a sign with the face of a mathematician (For example, your team could play as Descartes, Gauss, Hilbert, Noether, or Newton.) A team "buzzes in" to answer a question and earns points if its answer is correct. Teams can use a calculator, paper, and pencil. For more information, visit the Face Off website: http://www.uwosh.edu/faculty_staff/szydliks/faceoff.htm

**When is it?** Friday, April 13, 5:30-6:30 pm., as part of the MAA-Wisconsin Section meeting.

**Sample Questions:**

The *Off Limits* category contained the following questions:

20 pts. What is $\lim_{x \to \pi/2} (\sin x) / x$ ?
40 pts. What is $\lim_{x \to 2} (x - 3) / (x - 2)$ ?
60 pts. What is $\lim_{x \to 0} |x| / x$ ?
80 pts. What is $\lim_{x \to 1} (2^x - 2) / (x - 1)$ ?

The *Take a Number* category contained the following questions:

20 pts. How many pips are on a standard die?
40 pts. What prime number is both the sum of two primes and the difference of two primes?
60 pts. What two-digit number has a cube root equal to the square root of the sum of its digits?
80 pts. What is the smallest non-palindromic number whose square is a palindrome?

**How do we enter?** Please contact one of the Face Off organizers if you would like to enter a team. Any student who has taken or is enrolled in Calculus I is eligible to join a Face Off team representing their school. If a school doesn't have enough interested students, contact the organizers anyway – we can combine interested students to form hybrid teams. Space will be limited, so form a team soon and let us know of your interest!

**Face Off Organizers:**

Dr. Ken Price (pricek@uwosh.edu, (920)424-1057),
Dr. Steve Szydlik (szydliks@uwosh.edu, (920)424-7346),
http://www.uwosh.edu/faculty_staff/szydliks/faceoff.htm

# Know Your Wisconsin Mathematician

Interview with Charlotte Chell, Carthage College, by Erik Tou

**Where did you grow up?**

In the small town of Cloquet, Minnesota, outside of Duluth.

**At what point in your life did you discover that mathematics was something you wanted to do?**

When I was 5 or 6 my father drew for me the frame outline of a cube, and I could look at it from two perspectives, and was totally amazed that I could see it in either of two ways. That you could look at something that appeared to be so stable and see it become unstable in front of you—it absolutely fascinated me. So that was probably my first mathematical experience. After that I noticed there were certain things I really liked doing that didn't seem to amuse other people at all. When I was 12 I really liked thinking about how I would organize the books on my shelf. Should I organize them from the tallest to the shortest? Should I organize them by author? But then again, it was one of those intractable problems: why couldn't I organize them so that they had both features at once? Why couldn't I solve what I now know is a 2 dimensional problem on a 1 dimensional line?

**Did you have any teachers who particularly influenced you to become a mathematician?**

My high school geometry teacher was Ludwig Hiti, and what I liked most about his class was that it was absolutely orderly: he came in and ordered the class a certain way every day, and geometry went in a certain way, and we had 2-column proofs, and we had statements and reasons, and it was all so beautifully logically sequenced and ordered. And I loved that about it.

**Where did you go to undergraduate school and graduate school?**

I was an undergraduate at St. Olaf College and a graduate student at the University of Wisconsin, Madison for both the Master's degree and the Ph.D.

**What brought you to Carthage?**

My husband took a job at Carthage with the understanding that the following year there would be an opening in the math department for which I could apply. That actually took 11 years to come about.

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

Seeing things fall into patterns; organization.

**What do you think will be the most important development in math instruction in the next 10 years?**

I read an article this morning in MAA FOCUS talking about students' writing on discussion boards about their mathematics homework problems. We've talked a lot about writing in mathematics in at least the last 15 years, but that has usually been about writing *completed* mathematics. Because of the notation problem we haven't talked so much about writing mathematics *back and forth*, though I'm sure every professor has had a student or two or 10 who has written them a homework problem in e-mail. I was very encouraged by the FOCUS article about using discussion boards or forums for students to discuss homework. How many homework problems could be solved outside of class, more quickly for students and with greater efficiency? And that could create more ownership of the problems, and also student ownership of a class. So I'm interested to see how that develops.

**What advice do you have for graduate students or new teachers?**

Love what you do—if you're teaching, let your students know that you love it, but also let them know that you love *their* doing it as well. I heard something valuable this week from someone in her first year of teaching—she's not even teaching mathematics, she's teaching political philosophy. She said, “If I'm not having fun, then my students aren't having fun.” And I realized that this past semester, even though it was a difficult term for me in many personal ways, I had more fun with my students than I've had in the past 10x years of teaching.

For graduate students: you got to graduate school because you liked doing this thing; when I asked my seniors last year what they liked about doing mathematics, they said things like they liked getting the answer, they liked knowing the answer was right, they liked the certainty. And surely that has attracted all of us. (I have sat in English classrooms that the instructor has considered very successful and at the end of the period, I couldn't figure out what had been accomplished, because I couldn't see what the *answer* was!)

So we all enjoy “getting the answer.” But for graduate students we've also got to be able to enjoy thinking about all the different ways to get to the answer; seeing all the paths can be as exciting as getting to “the answer.” And sometimes you don't! But that’s okay, too.

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

# In Memoriam

UW-Platteville Professor **Anthony (Tony) Thomas** died unexpectedly on November 9, 2011. Tony was the Student Activities Coordinator for the Wisconsin Section for many years. He was a passionate teacher and a respected colleague. The UW-Platteville community mourns his loss.

# Campus News

Beloit College *submitted by Ben Newton*

**Amy Shell-Gellasch**’s book, “In Service to Mathematics”, was recently published by Docent Press. The book chronicles the life of Mina Rees, former head of the Mathematical Sciences Division of the Office of Naval Research and the first female president of the AAAS. Dr. Shell-Gellasch will be heading to Maryland this summer to begin a new position at Hood College.

**Ben Newton** had a recent article entitled “On the number of maximal subgroups of a finite solvable group” published in the journal *Archiv der Mathematik.*

Madison College *submitted by J. Sriskandarajah*

- Lecture # 110, Friday, January 27, 2012, 3:30 PM, Room #209; Professor Benjamin Collins, UW-Platteville; "Euler's Polyhedron Formula"
- Lecture # 111, Friday, February 3, 2012, 3:30 PM, Room #209; Professor Robert L. Devaney, President elect, Mathematical Association of America, Boston University ; "Chaos Games and Fractal Images"
- Lecture # 112, Friday, March 2, 2012, 3:30 PM, Room #209; Professor Nigel Boston, UW-Madison; "Congruent Numbers"
- Lecture # 113, Wednesday, March 21, 2012, Noon, Room WEST #110; Professors Colin Adams and Tom Garrity (Williams College); "The Great Pi vs e debate"
- Lecture # 114, Friday, April 20, 2012, 3:30 PM, Room #209; Professor Norbert Kuenzi, UW-O; "The Birthday Problem and Beyond"
- Lecture # 115, Friday, May 4, 2012, 3:30 PM, Room #209 Professor Darrah Chavey, Beloit College; "Designs and Patterns Across Cultures"

Further information is available at http://clubs.matcmadison.edu/mathclub/ .

UW Colleges Submitted by *Clare Hemenway*

**Sarah Bennett** of UW Barron County gave a presentation, “What are the Threshold Concepts in Mathematics (college Algebra) as Perceived by Students” at the ISSOTL conference in Milwaukee in October. At the same conference, she gave a joint presentation with **Anthony von Groningen**, also from UW-Barron County on “Lesson Study in a College Algebra Class.” Sarah also presented the talk “Evaluation and Assessment of Student Learning” at the UW Colleges Best Practices in Science, Technology, Engineering, and Math Teaching Conference in August.

**Paul Martin** and **Kirthi Premadasa**, both of UW Marathon County, will have their article “The optimal level of insulation in a home attic” published in the March Issue of the MAA’s College Mathematics Journal.

UW-Eau Claire *submitted by Chris Ahrendt*

At the annual Joint Mathematics Meetings in Boston, six UW-Eau Claire students presented results from student-faculty research collaborations as well as REU projects. Four projects were showcased in the MAA Undergraduate Poster Session:

- **Ryan Davis** with faculty advisor **Ursula Whitcher** presented “Four Dimensional Tops.”
- **Noah Williams** with faculty advisor **Manda Riehl** presented “The Insertion-Deletion Model Applied to the Genome Rearrangement Problem.”
- **Sean Vanden Avond**, **Noah Williams**, and **Chunyang Tang** with faculty advisor **Simei Tong** presented “Inequalities and Isomorphisms in $L_p$ Spaces, $p > 2$, with the Alspach Norm.”
- **Russell Chamberlain** and two other research team members **Chi Zhang** (University of Florida) and **Sam Ginsburg** (Allegheny College) presented “Generating Functions and Wilf Equivalence on $\Theta_k$-embeddings.”

This work stemmed from the 2011 summer REU at UW-Eau Claire, where **Manda Riehl** was the faculty advisor.

**Josh Frinak** also gave a presentation in the AMS-MAA-SIAM special session on research in mathematics by undergraduates. This work was completed under the supervision of **Michael Penkava** and titled "Constructing the Moduli Space of 2|2-Dimensional Complex Associative Algebras."

**Mohamed Elgindi** retired from the UW-Eau Claire mathematics department at the beginning of the fall semester.

### UW-Milwaukee *submitted by Jay H. Beder*

**Thomas Hales**, Mellon Professor of Mathematics, University of Pittsburgh, will deliver the 2012 Morris and Miriam Marden lecture this spring. The tentative date is April 5. Professor Hales is known for his 1998 computer-aided proof of the Kepler conjecture, a centuries-old problem in discrete geometry which states that the most space-efficient way to pack spheres is in a pyramid shape. Hales also proved the honeycomb conjecture. Information will be listed at http://www4.uwm.edu/letsci/math/newsevents/events/marden.cfm as it becomes available.

Senior Lecturer **Bill Mandella** is presenting the February "Science Bag" on "Math Puzzlers and Brain Ticklers". The Science Bag is a program of public lectures for children and adults sponsored by the College of Letters and Science. Information is at http://www5.uwm.edu/news/2012/01/31/game-on-at-uwm%E2%80%99s-february-science-bag/.

Eleven undergraduate students and two faculty members attended the Undergraduate Research at the Interface of Biology and Mathematics conference in Knoxville, TN in October 2011. The students presented talks and posters on their research conducted while participating in the NSF-UBM program. Three students, **Jared Catenacci**, **Anne Bruckner** and **Morgan Schroeder**, attended the 2012 Joint Mathematics Meetings in Boston in January. Jared presented a poster on his summer REU project *Spatial Spread of Wolbachia-Infected Mosquitoes: A Strategy to Control Dengue Fever*, while Anne and Morgan showed a poster on the investigation of the *Dynamics of Bacterial Contamination at an Urban Beach on Lake Michigan.*

Faculty members at the UWM Mathematics Department started a Math Circle in September 2011. The Math Circle meets weekly for fun problem solving activities for students in grades 6-12. For more information on the program contact Prof. **Gabriella Pinter** (gapinter@uwm.edu).

UWM is co-sponsoring the North American Computational Linguistics Olympiad (NACLO), a fun puzzle-solving contest for high school students. The focus is on solving puzzles relating to language and discovering logical patterns. The first round of the competition is February, 4, 2012. For more information check out our website http://hslinguistsmke.wordpress.com/

For the first time, the department offered the AMC-8 and AMC-10A exams. Seven students took the first and six took the second. Students came from all around the Milwaukee metropolitan area.

### UW-Platteville *submitted by Benjamin V.C. Collins*

**Dave Boyles** presented "The Effects of Math Placement on Student Success", summarizing the results of the math department's recent Growth Agenda Grant, at the 91st State Education Convention in Milwaukee on Jan. 19.

### UW-Stout *submitted by Steve Deckelman*

This fall we introduced a new concentration in the Applied Mathematics and Computer Science program for mathematics education. Graduates from this concentration will be licensed to teach 6-12 grades in Wisconsin. This is in addition to our established concentrations in actuarial science, bioinformatics, business management, information assurance and cyber security, and software development.

**Laura Schmidt** was selected to be the 2012-2013 Wisconsin Teaching Scholar for UW-Stout. This involves investigating a yearlong project within the scholarship of teaching and learning. Her topic will be an investigation on impacting students motivation in a general education mathematics course. Laura also had a research article get published titled "On The Numbers Of Faces Of Low-Dimensional Regular Triangulations And Shellable Balls" in Rocky Mountain Journal of Mathematics, Vol. 41, No. 6, 2011.

### UW-Whitewater *submitted by Mohammad Ahmadi*

**Chilikuri Rao** retired after many years of service to our department.

Our department had its proposal for a major in Computer Science approved at the December 9 meeting of the Board of Regents. The new major will begin in the Fall 2012 semester.

**Jonathan Kane** attended the JMM in Boston in January 2012. His paper coauthored with **Janet Mertz** "Debunking Myths about Gender and Mathematics Performance" appeared in the January 2012 issue of the Notices of the AMS. They received a great deal of press coverage including being mentioned in the New York Times chess column on Sunday January 22. Jon gave a 30 minute talk about the paper at the JMM. Janet delivered the paper to an audience at MIT the next week. Jon also spoke at the Metroplex Math Circle in Dallas on January 28 giving a talk entitled "My Favorite Circle Problems".

**Athula Gunawardena** published the following paper.

Athula Gunawardena, Michael C. Ferris and Robert Meyer, A Network Approach for Segmentation in Intensity Modulated Arc Therapy, Optimization Methods & Software, IFirst 2011, 1-24.

**Xueqing Chen** published two papers and had one accepted. They are:

1) J. Lee, X. Chen, S. Choi, K. Nam, Automorphism Groups of Some Stable Lie Algebras. Journal of Lie Theory, vol. 21, no.2, 2011, 457-468. [15]

2) X. Chen, M. Ding, J. Sheng, Bar-invariant Bases of the Quantum Cluster Algebra of Type A(2), Czechoslovak Mathematical Journal. 61 (136) 2011, 1077-1090.

3) F. Xu, X. Chen, Hall Algebras of Odd Periodic Triangulated Categories. Accepted by Algebra and Representation Theory. 2011.

Xueqing gave several conference presentations as follows.

[1] "Integral Bases of Quantum Cluster Algebras for Affine Valued Quivers". CMS (Canadian Mathematical Society) Winter Meeting 2011. Toronto. Dec 10-12, 2011. Ontario. Canada.

[2] "Hall Type Algebras and Periodic Triangulated Categories". The XXIIIrd Meeting on Representation Theory of Algebras. Bishop's University. Sherbrooke. Sept.16 -17, 2011. Quebec. Canada.

[3] "Hall Algebras over Triangulated Categories". Southeastern Lie Theory Workshop: Finite and Algebraic Groups. University of Virginia, Charlottesville. June 1-4, 2011. Virginia. USA.

**Ki-Bong Nam** is the coauthor of the following textbooks.

1. Introductory Abstract Algebra, 3rd edition, by Ki-Bong Nam, Xueqing Chen, Moon-Ok Wang, and Ki-Suk Lee, will appear March, 2012. ISBN: 978-89-6105-546-2.
2. Introductory Linear Algebra, 1st edition, by Ki-Bong Nam, Xueqing Chen, In-Suk Ma, Moon-Ok Wang, and Ki-Suk Lee, will appear May, 2012. ISBN: 978-89-6105-490-4. (You may contact Ki-Bong at namk@uww.edu or mathuwwedu@yahoo.com if interested in reviewing the books available in PDF format.)

**Thomas Drucker** organized an invited paper session on the Philosophy of Mathematics at the Joint Meetings in Boston. It was jointly sponsored by the AMS and the MAA. Thomas gave a talk entitled "Thought in Mathematical Practice" at the contributed paper session on Philosophy of Mathematics at the Joint Meetings. At the conclusion of the meetings, he became Program Director for the Philosophy of Mathematics SIG of the MAA (POMSIGMAA).

# Executive Committee 2011 – 2012

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|---|---|---|
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