

Volume 43, Number 2

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Annual Meeting at Ferris State University . . . . . . . 2
Ferris State University will host our annual meeting on Friday and Saturday, March 31-April 1, 2017. Information can be found on the section website.


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Gavin LaRose (UM-AA) reports on past and future activities around the Michigan section and suggests several ways for you to get involved.


Governor's Report
Steve Schlicker (GVSU) reports from the Joint Mathematics Meetings in Atlanta and describes the approved changes to the MAA bylaws.

## Volunteer to Serve the Section.

9There are several volunteer positions with the section that need to be filled. Volunteer or nominate someone to help out our local mathematicians.


Call for Teaching Award Nominations
Nominate an outstanding instructor from your department for the section's 2018 Distinguished Teaching Award. Nominations are due December 15, 2017.

Michigan Mathematics Prize Competition . . . . . 11 Kim Rescorla (EMU) and Carla Tayeh (EMU) report on the 6oth annual Michigan Mathematics Prize Competition that took place last October.

## The Michigan Section of the Mathematical Association of America and MichMATYC

## 93rd Annual Meeting

## Ferris State University Big Rapids, Michigan March 31-April 1, 2017



A statue of founder Woodbridge Ferris watches over the quad on the campus of Ferris State University, host of the 2017 Michigan section annual meeting.

## Meeting Information

All information about meals, travel, lodging, and the meeting schedule are available on the meeting website: <mcclendonmath.com/maa2017.html>

A printed version of the program and abstracts will be available at the meeting.

## Plenary Speakers

Tim Chartier, Davidson College
JP Cossey, U of Akron
Ronnie Pavlov, U of Denver
Chris Rasmussen, Wesleyan U
Matt Wyneken, U of Michigan-Flint

## Local Invited Speakers

Alan Lindsey, U of Notre Dame
David Murphy, Hillsdale College
Katrina Piatek-Jimenez, Central Michigan U

## 2017 Annual Meeting Program Commit-

tee
Chair Laura McLeman, U of Michigan-Flint
Members
David McClendon, Ferris State U
Erin Militzer, Ferris State U
Jan Roy, Montcalm Community College

2017 Annual Meeting Local Arrangements Committee<br>Chair Erin Militzer, Ferris State U<br>Members<br>David McClendon, Ferris State U<br>Victor Piercey, Ferris State U<br>Anil Venkatesh, Ferris State U

## Ferris State University Tours Available During Annual Meeting



Ferris State University hosts two museums that archive objects representing intolerance: The Jim Crow Museum of Racist Memorabilia and the Museum of Sexist Objects. The objects in these museums are used to teach tolerance and promote social justice.

The museums will offer free guided tours during the annual meeting at the following times:
Jim Crow Museum (FLITE library, basement, across the quad from the university center)
Friday: 9:30 a.m. to 11 a.m. and 3:30 p.m. to 5 p.m.
Saturday: 2:00 p.m. to 3:30 p.m.
Walk-in Hours: Friday and Saturday, 12 p.m. to 5 p.m.
Museum of Sexist Objects (STARR 314, across the street from the university center)
Friday: 11 a.m. to 12:00 p.m. and 4:00 p.m. to 5 :00 p.m.

Saturday: 11:00 a.m. to 12:00 p.m. and 3:30 p.m. to 4:30 p.m.

## Officer Nominations for 2017-18

At the 2017 section meeting, Gavin LaRose will rotate into the past-chair position, and Laura McLeman will rotate into the chair position.

The following are the nominations for offices so far. Elections will take place at the business meeting.
Four-Year-Vice Chair Victor Piercey (Ferris State U)
Two-Year-Vice Chair Natascha Rivet (Delta C)

# Upcoming Meetings in and around Michigan 

## MichMAA UP Regional Meeting 2017

The Michigan section of the MAA will hold its upper peninsula regional meeting in 2017 at:

# Northern Michigan University <br> Marquette <br> September 29-30, 2017 

## MichMATYC 2017

The Michigan Mathematical Association of Two-Year Colleges will hold its next annual conference at:

## Baker College

## Muskegon

October 20-21, 2017

Keep your eye on the MichMATYC web page $<\underline{\text { MichMATYC. org }}>$ for more information, including a call for proposals.

## Great Lakes Analytics in Sports Conference

The Great Lakes Analytics in Sports Conference, sponsored by the University of Wisconsin-Stevens Point, is a one-day (July 13) conference showcasing the latest concepts, research, and innovations in the fast-growing field of sports analytics. Featuring speakers and presenters from professional and college sports organizations, the business sector, and the academic community, the conference will cover innovations and evolutions in strategy, technology, training, and more.

The conference will feature an opportunity for students and faculty to present posters or oral presentations on sports analytics topics in fields as diverse as mathematics, athletic training, business, biology, computer science, GIS, and journalism. Deadline is May 15.

For more information, visit <www.uwsp.edu/analyticsconference>.

## Chair's Report

By Gavin LaRose (UM-AA)

TWhis is the Spring 2017 edition of the Michigan section Newsletter, but I find myself writing during what may be still winter, though we've had a bit of an unpredictable one so far this year. But the 2017 annual meeting is coming up fast! Laura McLeman (UM-Flint) has organized
 a wonderful slate of invited speakers. We hope to see you at Ferris State University in Big Rapids on Friday, March 31-starting in the afternoon-through Saturday, April 1. In addition to the invited speakers, it is always great to see the variety of interesting research and pedagogical work that is being done by our colleagues in both the section and the Michigan Mathematical Association of Two-Year Colleges (MichMATYC). It is also exciting to see undergraduates present their research in the Michigan Undergraduate Mathematics Conference (MUMC). The MUMC, facilitated this year by Anil Venkatesh (Ferris State U), will run in a parallel session during the section meeting. So bring your students to present their research or simply to enjoy being in a vibrant and fun mathematical atmosphere. For complete information about the meeting, please visit our section website at the following address: <sections.maa.org/michigan/>.

Looking further ahead, we have the good fortune to have MathFest close at hand again this summer-the MAA will be meeting in Chicago, July 26-29. I am already contemplating the option of taking the train to the meeting, a welcome break from flying! Next spring we are going to have a very special tri-section meeting held jointly with the Illinois and Indiana sections. This will be at Valparaiso University, and is scheduled for March 23-24, 2018.

In other ongoing news, the Michigan Mathematics Prize Competition (MMPC) ran with great success again this year. Almost 5,000 students took the Part I exam this year, and some 1,200 took Part II. Directors Kim Rescorla (EMU) and Carla Tayeh (EMU) have done a great job running this program and are stepping down this year. A big "thank you" to them for their hard work! For more details on the MMPC this year, see their report on page 11.

The MMPC is one of many places where it is easy to get involved in the section. If you are looking for a way to contribute, either in connection with the MMPC or in some other capacity in the section, contact me or Brian Snyder (LSSU), chair of the nominating committee for the section. In the past year or so we have filled positions including webmaster (Paul Pearson, Hope C) and Newsletter editor (Victor Piercey, Ferris State U). Positions open up with some regularity.

In a significant change to how the MAA seeks to communicate with the sections, the MAA's Department Liaisons program was discontinued this past fall. While this largely makes sense for the national MAA, we are hoping to continue it locally-department liaisons are great contact points for us to reach out to our colleagues at different institutions across the state. If you have input on how we should make this transition, please let me know, either by email or in person at the annual meeting.

If you are a member of the MAA and are either living or working in the state, you are automatically a member of the Michigan section. If you would like to assist the Michigan section in a more tangible way, please consider a voluntary contribution. All proceeds stay in Michigan to assist with our activities. You have the option of paying by check or via PayPal, and information about both methods is available on our website <sections.maa.org/michigan/membership.html>. You can also use the form on page 6 .

As always, thanks for being an active member of our section, and for reading through this Newsletter! We look forward to seeing you all on the Ferris State University campus in Big Rapids in the spring.

## Secretary-Treasurer's Report

By Mark Bollman (Albion C)

Iwould like to thank everyone who has sent in a voluntary section dues payment for 2016-2017. At this time, there are 86 dues-paying members. Fifty of these are sustaining members who have paid dues of $\$ 30$ or more. The list of sustaining mem-
 bers can be found on page 7 . In these challenging financial times, your willingness to support the activities of the section is especially appreciated. I would particularly like to thank William Jackson for his continued support of the Ron Mosier Award as a supplement to his voluntary dues. His contribution will guarantee that the section can continue to recognize the outstanding student talk at the annual meeting.

In addition, we now have 24 institutional members. This list can be found on page 7 . If your school is not listed, you might want to remind your department chair to attend to this matter. Last year at this time, there were 80 dues-paying individual members, including 51 sustaining members, and 21 institutional members, so two of these three categories of membership are up slightly. If your department has not yet sent in a dues payment and wishes to do so, the membership form can be found on page 6 .

The Michigan section's current bank balance is $\$ 7035.42$, which is as high as it has been in some time as we reap the savings of moving this Newsletter online. We continue to have a good balance of income and expenses, and the section remains in sound financial shape. With two years of experience with the online format complete, the executive committee will begin exploring new opportunities that these funds might facilitate. In the immediate future, we expect that the financial pressure which occasionally challenges the annual meeting will be less of a concern.

MAA book sales will continue at the annual meeting. Once again, the Washington office of the MAA will provide all section members, not just those attending the meeting, with a $35 \%$ discount coupon code that can be used to order MAA books online within one week (before or after) of the meeting. Books ordered through this alternative, like books ordered at the meeting itself, will gain the section a $10 \%$ commission. Further details about this program will be available at the section meeting.

If you have any questions regarding the section's finances, please feel free to contact me.

## Michigan Section Dues

Your voluntary dues contribution will help support the activities of the Michigan section, such as the annual meeting and the Newsletter. Dues may be submitted online via PayPal (log in to your account at <paypal.com> and specify MichiganSectionDues@gmail.com as the address of the recipient), or you may print and mail this form and a check to the address given below.

Enclosed is a check for:

| [ | $\$ 15$ regular dues |
| :--- | :--- |
| \$30 sustaining membership |  |
| \$40 small institution dues |  |
| \$70 large institution dues |  |

Name

Institution

Mailing address $\qquad$

Email address

Make checks payable to Michigan Section-MAA, and mail them to Mark Bollman, Secretary-Treasurer, Michigan Section-MAA, Department of Mathematics and Computer Science, Albion College, Albion, MI 49224-5013.

## Sustaining Members 2016-2017

The Michigan section voluntary dues structure includes a sustaining member category for those who make a $\$ 15$ contribution beyond the basic dues rate of $\$ 15$. As of mid-February, the 50 section members listed below are sustaining members for 2016-2017. The section is grateful to those several individuals who generously exceeded the suggested sustaining member contribution. If you have not already sent in your dues, please do so using the form on page 6, and please be generous!

| Edward Aboufadel | John Fink | William Jackson | Norman Richert |
| :--- | :--- | :--- | :--- |
| David Austin | Richard Fleming | Gerald Janusz | David Richter |
| Larry Beauchamp | Dan Frohardt | John O. Kiltinen | Bruce Sagan |
| Matt Boelkins | Chris Gardiner | Frances Lichtman | Betram M. Schreiber |
| Mary Bragg | R. Kent Gilbert | Vincent Maltese | Larry Smyrski |
| Robert R. Bruner | Sid Graham | Jack Miller | Elliot Tanis |
| Joseph Buckley | Jerry Grossman | Robert Myers | Gerard Venema |
| Tim Carroll | Jim Ham | Mel Nyman | Sylvia Verdonik |
| Nancy Colwell | Krista Hansen | Jon Oaks | Bette Warren |
| Peter Duran | James O. Harris | Gene Ortner | Matt Wyneken |
| John Dwyer | Konrad Heuvers | Walter Parry | Robert Xeras |
| Paul Eenigenburg | Margret Höft | John Petro |  |
| Ruth Favro | Dan Isaksen | David Redman |  |

## Institutional Members 2016-2017

As of mid-February, the 24 institutions listed below have begun or renewed their institutional memberships in the Michigan section for 2016-2017.

Albion College<br>Alma College<br>Calvin College<br>Central Michigan University<br>Davenport University<br>Delta College<br>Glen Oaks Community College<br>Gogebic Community College<br>Grand Valley State University<br>Henry Ford College<br>Hope College<br>Kalamazoo College<br>Lansing Community College<br>Lawrence Technological University<br>Macomb Community College<br>Monroe County Community College<br>Muskegon Community College<br>Oakland University<br>Olivet College<br>Saginaw Valley State University<br>University of Michigan-Dearborn<br>Wayne State University<br>West Shore Community College<br>Western Michigan University



## Governor's Report

## By Steve Schlicker (GVSU)

This will be the final Newsletter report ever from the Governor of the Michigan section. One of the big events at the Joint Mathematics Meetings (JMM) was the business meeting. The proposed changes to the organizations bylaws was the main issue on which the members had to decide. After long and vigorous discussion, the bylaws changes were approved, with one amendment. Starting in February, the Board of Governors will become the Congress, and the title of Governor will go away. The Congress will be a deliberative body and will provide a better vehicle for sections to communicate with the national organization. If you have any items you would like to see the MAA address, please let me know and I will bring them to the Congress for discussion. Matt Boelkins (GVSU) will serve as Chair of the Congress during the transition while the new Congress has the opportunity to design how it will operate. The Congress will elect a chair and offi-cer-at-large at its first meeting at MathFest 2017.

There were a few items that might be of interest from the Board of Governors meeting in Atlanta. We had the opportunity to vote on various awards. I am pleased to say that two of our colleagues from the Michigan section received important national recognition. Ted Sundstrom of Grand Valley State University is the recipient of the 2017 Daniel Solow Author's Award for his textbook Mathematical Reasoning: Writing and Proof. The primary criterion for selection for this award is the "impact on undergraduate education in mathematics and/or the mathematical sciences". Gerard Venema of Calvin College received the MAA's Meritorious Service Award for his many and valuable contributions to the section and the national organization. Please congratulate these colleagues when you next see them. In addition, the Board of Governors approved a motion that there be no change in dues from 2017 to 2018. Also, there
is a plan to increase the annual number of Project NExT Fellows. Currently, every year Project NExT says no to 50 to 60 new faculty who want to be part of the program. The goal is to find a way to include all faculty who want to be a part of Project NExT into the program, and to do this no later than MathFest 2019. If this happens, there will be 130 to 140 new Project NExT Fellows each year.

The MAA is very concerned about human rights and how the selection of the locations of our meetings can be interpreted. The organization wants to share with its members the following statements that were approved by the MAA Executive Committee on October 28, 2016, which are to be included in future MAA MathFest hotel contracts:
"It is the Group's official position that it will make every reasonable effort to schedule its national meetings in localities which respect the participants' human rights and freedom from discrimination based on sexual orientation, gender, race, national origin, creed, or color. The Mathematical Association of America encourages the free expression and exchange of ideas in an atmosphere of mutual respect and collegiality. The MAA strives to foster a welcoming environment for all.
"While MAA does not control the behavior of third parties, the MAA requests that all individuals involved in MAA, its sections, or its Special Interest Groups, conduct themselves professionally and respectfully toward its conferences' participants, staff, and vendors. Through this contract the Hotel and/or Convention Center represents to the MAA that they will do everything in their power to create a welcoming environment based on MAA's above stated policies."

I look forward to seeing you at the section meeting at Ferris State University March 31-April 1, 2017. Please consider presenting at the conference-abstracts for faculty talks are due February 24, 2017, and abstracts for student talks are due March 10, 2017. In 2018 we will have a long-overdue tri-section meeting with the Indiana, Illinois, and Michigan Sections at Valparaiso University. Michele Intermont (Kalamazoo C) and Matt Boelkins are serving on the organizing committee, so if you have any suggestions, please share with them.

# Carl Lee (Central Michigan University) Wins 2017 Distinguished Teaching Award 

The Distinguished Teaching Award Committee-Frances Lichtman (Delta College), David Murphy (Hillsdale College), Christine Phelps (CMU), and Ken Schilling (UM-Flint)-is pleased to announce that the 2017 recipient of the Award for Distinguished Teaching of College or University Mathematics is Carl Lee, professor of statistics in the department of mathematics at Central Michigan University. Carl is receiving the award in recognition of his outstanding teaching, his extensive record of research in statistics pedagogy, and for innovations that have improved the teaching of statistics at CMU and beyond. The full citation will appear in the Fall 2017 edition of the Newsletter.

## Section Positions Available!

If you, or a colleague of yours, are interested in contributing to the Michigan section, there are always opportunities to serve. If you're interested in any capacity, please contact Gavin LaRose, current section chair, at [glarose@umich.edu](mailto:glarose@umich.edu). At the moment open positions include:

## MMPC (Michigan Mathematics Prize Competition) Director or Co-Directors

The MMPC engages over 6,000 Michigan high school students to work on challenging mathematics problems. Top-scoring students are awarded college scholarships. The (Co-)Director(s) work with the exam committee and graders to get the exams written and prepared, graded, and results disseminated. The current Co-Directors, Kim Rescorla (EMU) and Car-
la Tayeh (EMU), report that serving as (Co-)Director is tremendously rewarding and a great way to become involved with the section.

## Newsletter Editor

The Michigan section publishes this Newsletter twice yearly. The editor is responsible for soliciting, editing, and publishing the articles. Associate editors help with the process by contributing to the editing and proofreading. The section takes great pride in the Newsletter, and there is substantial freedom for creativity.

## Audit Committees

The MMPC and section periodically have their finances audited. This is a non-technical job (it does not require a background in financial auditing) that has a low time commitment.

Self nominations, and nominations of (willing) colleagues, are welcome!

## Distinguished Teaching Award Call for Nominations for 2018 Award

Nominations for the 2018 award for Distinguished College or University Teaching of Mathematics from the Michigan Section of the Mathematical Association of America are now being accepted. They must be received by December 15, 2017, to be considered. The Distinguished Teaching Award Committee strongly urges departments to nominate deserving faculty for this award. While there are many outstanding teachers in the section, we of course can consider only those who are nominated for the award. So please nominate an outstanding instructor from your department! Nominations of deserving candidates from groups (or type of institutions) who have historically been under-represented in mathematics or in the list of previous recipients of the award are particularly encouraged. Past recipients are listed at the web page <sections.maa.org/michigan/ history.html\#award>.

The person selected by the committee will receive the Michigan Section Award for Distinguished Teaching of College or University Mathematics in the spring at the annual meeting of the Michigan section, and will also, pending submission of additional supporting material, become the Michigan section nominee for the national MAA Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching of Mathematics.

## Nomination Instructions

Completed nominations must be received by December 15, 2017, to be considered for the 2018 Award. The nomination form is available on the section's website <sections.maa.org/michigan/awards.html> as a Microsoft Word file.

Send an electronic copy of the completed form to Christine Phelps at [phelpicm@cmich.edu](mailto:phelpicm@cmich.edu); please use "Michigan DTA Nomination" as the subject. Email is preferred, but you may also send it by mail to:

Christine Phelps
Department of Mathematics
Pearce 214
Central Michigan University
Mt. Pleasant, MI 48859
Anyone may make a nomination (of someone else; self-nomination is not permitted), but nominations from chairs or MAA liaisons in departments of mathematical sciences are especially requested.

## Eligibility for the Award

To be considered for the award, a nominee must:

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


## 60th Michigan Mathematics Prize Competition

By Kim Rescorla (EMU) and Carla Tayeh (EMU) MMPC Co-Directors

TThe 2016-17 (60th) Michigan Mathematics Prize Competition got underway on October 11 when 4,940 students from 130 schools across the state of Michigan had 100 minutes to complete a 40-question multiple-choice exam. On December 7, the top 1214 finalists went on to compete in Part II, consisting of 5 proofs. The Part 2 Problems can be found on page 12. Thank you to the exam committee for two beautiful exams-Eddie Cheng (Chair, Oakland U), Michael (Cap) Khoury (Everi Games), David Friday (Macomb CC), and Dorin Dumitrascu (Adrian C).

Grading Day was hosted by Mark Bollman at Albion College. Thank you Mark, and a special thanks to all the graders from across the state for making this event so productive and so much fun. The competition would not be possible without your service. Look to the fall Newsletter for further details next year.

The Awards Banquet will be held on March 11, during which Professor David Reimann of Albion College will speak on Mathematics in Art, Art in Mathematics. The top 50 competitors will share $\$ 20,000$ in scholarships, ranging from $\$ 250$ to $\$ 2,500$ while the 50 Honorable-Mention winners will receive copies of the book The Math Book by Clifford Pickover.

Please look to the fall Newsletter for a detailed report of the Awards Banquet and the names of the top competitors. (The winners are kept secret until the Awards Banquet.)

For their generous support of the MMPC we would like to thank Eastern Michigan University and Mu Alpha Theta. Thanks also to all of the supportive school supervisors who took time out of their busy schedules to encourage their students to participate in the MMPC. Thanks to the parents who inspire their children to do their best daily. And, most of all, thanks to all student competitors-they are amazing!

## MMPC Top 100 Statistics

|  | Count | Part I <br> Score | Part 2 Problem Scores |  |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Prob. | Prob. 2 | Prob. 3 | Prob. 4 | Prob. 5 | Score | Total |  |  |  |  |
| Score |  |  |  |  |  |  |  |  |  |  |

- Out of the top 100 competitors, 15 did not report their grade and 4 did not report their gender.
- The Total Score is the Part I Score (out of 40) plus 1.2 times the Part II Score (out of 50 ) for a maximum possible Total Score of 100 points.
- The cutoff score to qualify for Part II this year was 16 points. There were 1193 students who qualified in this way. Another 21 students scored the highest in their school and were also invited to compete in Part II.
- The cutoff to make the top 50 was 63.4 , while the cutoff to make the top 100 was 54.2.


## 60th MMPC Part II Problems

The finalists had 100 minutes to solve these five problems. More information about the problems is available on the MMPC website [http://www.emich.edu/math/mmpc/](http://www.emich.edu/math/mmpc/).

1. If a polygon has both an inscribed circle and a circumscribed circle, then define the halo of that polygon to be the region inside the circumcircle but outside the inscribed circle. In particular, all regular polygons and all triangles have halos.
(a) What is the area of the halo of a square with side length 2 ?
(b) What is the area of the halo of a 3-4-5 right triangle?
(c) What is the area of the halo of a regular 2016-gon with side length 2 ?
2. Let $s_{1}, s_{2}, s_{3}, s_{4}, \ldots$ be a sequence (infinite list) of 1 's and o's. For example $1,0,1,0,1,0, \ldots$, that is, $s_{\mathrm{n}}=1$ if $n$ is odd and $s_{n}=0$ if $n$ is even, is such a sequence. Prove that it is possible to delete infinitely many terms in $s_{1}, s_{2}$, $s_{3}, s_{4}, \ldots$ so that the resulting sequence is the original sequence. For the given example, one can delete $s_{3}, s_{4}, s_{7}$, $s_{8}, s_{11}, s_{12}, \ldots$
3. This problem is about pairs of consecutive whole numbers satisfying the property that one of the numbers is a perfect square and the other one is the double of a perfect square.
(a) The smallest such pairs are $(0,1)$ and $(8,9)$. Indeed $0=2 \times 0^{2}$ and $1=1^{2} ; 8=2 \times 2^{2}$ and $9=3^{2}$. Show that there are infinitely many pairs of the form $\left(2 a^{2}, b^{2}\right)$ where the smaller number is the double of a perfect square satisfying the given property.
(b) Find a pair of integers such that the smaller one is a perfect square and the larger one is the double of a perfect square.
4. It is a fact that every set of 2016 consecutive integers can be partitioned into two sets with the following four properties.
(i) The sets have the same number of elements.
(ii) The sums of the elements of the sets are equal.
(iii) The sums of the squares of the elements of the sets are equal.
(iv) The sums of the cubes of the elements of the sets are equal.

Let $S=\{n+1, n+2, \ldots, n+k\}$ be a set of $k$ consecutive integers.
(a) Determine the smallest value of $k$ such that property (i) holds for $S$.
(b) Determine the smallest value of $k$ such that properties (i) and (ii) hold for $S$.
(c) Show that properties (i), (ii), and (iii) hold for $S$ when $k=8$.
(d) Show that properties (i), (ii), (iii), and (iv) hold for $S$ when $k=16$.
5. Consider four real numbers $x, y, a$, and $b$, satisfying $x+y=a+b$ and $x^{2}+y^{2}=a^{2}+b^{2}$. Prove that $x^{n}+y^{n}=a^{n}+b^{n}$, for all natural numbers $n$.

## Seeking New MMPC Director(s)

Carla Tayeh (EMU) and Kim Rescorla (EMU) are grateful for having the opportunity to serve as MMPC Co-Directors for the past three years. As this is their last year, we are putting out a call for the next Director(s).

You can find a description of the MMPC Director's duties at the following website:

## <kimrescorla.weebly.com/mmpc-director-duties.html>

Carla and Kim found serving as Co-Directors to be very rewarding and a great way to become involved in the Michigan section of the MAA. If interested, please contact the current section chair Gavin LaRose at [glarose@umich.edu](mailto:glarose@umich.edu).

## Webmaster's Report By Paul Pearson (Hope C)

If you visit the Michigan MAA website <sections.maa.org/michigan>, you'll notice some exciting changes. The new website has a cleaner layout with updated graphics. It also displays well on all devices, including tablets and mobile phones, because of "responsive" html code that adapts to fit different screens. The site should be easier to navigate becuase of a consistent site-wide menu system and easier to read because the fonts are larger. It uses simpler html code, which means it is also easier to maintain. I encourage you to check it out! If you have comments or questions about the new website, please direct them to me at $<$ MichMAAWebmaster $@$ gmail.

## MAA Department Liaisons

## By David Austin (GVSU) <br> Liaison Coordinator

$\mathbf{Y}$ our local MAA liaison is one way the section publicizes upcoming events and opportunities to its members.
1 If your department does not have a liaison, please consider volunteering by emailing David Austin <aus$\underline{\text { tind } @ g v s u . e d u}>$. It's an easy job and sure to earn the appreciation of your colleagues.

## $\uparrow$ <br> From the Origin: A Section for Opinion

From the Origin provides a forum for lively discussion of issues of importance to the mathematical community. The Michigan Section-MAA Newsletter solicits opinion pieces for publication in this column from anyone in the Michigan mathematical community. In addition, comments on pieces published in earlier issues are welcomed.

## Next Steps for Michigan NExT?

## By John Fink (Kalamazoo C)

To the members of the Michigan section (especially the younger ones): As many of you may be aware, the Mathematical Association of America conducts a year-long professional development program for new PhD graduates called Project NExT (New Experiences in Teaching). According to the website, this program addresses everything from teaching and learning to scholarship and service to other professional activities. Over the past 20 years, I have been gratified to see the growing community of NExT Fellows and mentors at the Joint Mathematics Meetings (JMM). The welcome and support that the NExT community offers to our new PhDs as they begin their first years of teaching inspires me.

It hasn't always been this way.

I have a story, and then some questions.

First the story: My first JMM was in San Francisco in January of 1974. Prior to this, my experience with meetings had been limited to two small conferences at Oberwolfach in the Black Forest. There the talks were held in an old hunting lodge, meals and accommodations were in an adjacent guest facility, most of the participants knew each other, and everybody was working in the same area. I was simply not ready for the cavernous ballrooms of the San Francisco Hilton, the hundreds of talks, and the thousands of strangers. It was just overwhelming. There was only one other person that I knew at this meeting. I remember feeling so anxious and utterly alone that at one point I had to flee the hotel and take a long, brisk walk.

Over the years since that first meeting I have come to see these feelings as normal, and have evolved a strategy that keeps them at bay most of the time. Thanks to my participation in the various projects of the MAA, the NSF, and other organizations-including mentoring NExT Fel-lows-I now have so many friends at the meetings that there's just not time to spend time with them all. These connections have made the JMM for the most part invigorating, inspiring, and highly enjoyable.

My most recent meeting was a year ago in Seattle (I was recovering from surgery during this year's meeting in Atlanta). As a former and current NExT Mentor, I had been invited to attend one of the gatherings for the new crop of NExT Fellows. Although I had arrived right on time, the crowd looked and sounded like it had already been there for a while. David Kung (St. Mary's College of Maryland), then in his second year as the director of Project NExT, soon took the floor to offer some inspiring, funny, and profoundly unifying words of welcome. The vibrant sense of community was palpable. This was dramatically different from my experience in San Francisco four decades earlier!

As the party drew to a close, I ran into Steve Schlicker (GVSU) and Victor Piercey (Ferris State U) in the lobby. Steve had recently finished a two-year term as Associate Director of NExT and Victor had just been appointed editor of this Newsletter. We agreed that it had been a remark-

From the Origin continued from page 14
able evening. "Wouldn't it be great if we could find a way to bring this same spirit to the section level?" I asked them.

Now the questions: Do you agree that it would be great? Or pretty great? Or worth trying? Section NExT programs are not uncommon and flourish in some areas. Michigan had a section NExT program, but it has been inactive for several years.

Do you have any thoughts about how we might make it sustainable and inclusive? Would you be interested
 in exploring these possibilities?

If your answer to any of these questions is "Yes" please send me a note at [John.Fink@kzoo.edu](mailto:John.Fink@kzoo.edu). I would love to know your thoughts.

## 41st Lower Michigan Mathematics Competition

The University of Michigan-Flint is excited to continue the tradition and host the 41st Lower Michigan Mathematics Competition on Saturday, April 8, 2017. The competition consists of a 10 -problem paper-and-pencil exam taken by teams of two to three undergraduates. A school may enter multiple teams. The LMMC schedule on Saturday, April 8, 2017, is:

8:45 a.m.-9:15 a.m., check in at the Theater Lobby
9:30 a.m.-12:30 p.m., competition
12:30 p.m.-1:30 p.m., lunch
1:30 p.m.-2:30 p.m., solution session
The registration fee is $\$ 35$ per team to help defray expenses. Lunch will be provided. Please register using the Google form available at <tinyurl.com/j4oqlru> and mail the $\$ 35$ team registration fee by Tuesday, March 28, 2017. Checks should be made out to University of Michigan-Flint and mailed to:

Lynn Barbee (for LMMC)
303 E. Kearsly St.
Department of Mathematics
University of Michigan-Flint
Flint, MI 48502

## Contest News

## By Dave Friday (Macomb CC)

## AMC 8

The American Mathematics Contest 8 (AMC 8) for students in grades 8 and below is a 25 -question, 40-minute multiple choice examination in middle school mathematics designed to:

- promote the development and enhancement of problem solving skills;
- demonstrate the broad range of topics available for the junior high school mathematics curriculum; and
- promote excitement, enthusiasm, and positive attitudes towards mathematics.

The 2016 AMC 8 Exam was taken by 108,295 students from 1875 schools, with an average score of 9.36 out of 25 total points. The top $1 \%$ scored 22 or above.

Four students (up from zero last year) in Michigan got a perfect score of 25: 7th grader Reagan Choi from

Boulan Park MS (Troy), 8th grader J. Jiang of East MS (Plymouth), 8th grader Max Li of Chippewa MS (Okemos), and 8th grader S. Ramanujam of East MS (Plymouth). The highest team score for the state was Boulan Park MS (Troy), with a score of 73 out of 75, edging out East MS (Plymouth), whose score was 72 out of 75 .

Eight students (up from seven last year) in Michigan got a score of 24: 8th grader P. Guduri of Clague MS (Ann Arbor), 8th grader Zachary Halberstam of AAMOC (Ann Arbor), 8th grade Varun Rajesh of Boulan Park MS (Troy), 8th grader Y. Ravan of Frost MS (Livonia), 8th grader Alankar Shende of Boulan Park MS (Troy), 8th grader Daniel Tian of Lawrence Tech (Southfield), 8th grader Alexander Xu of Boulan Park MS (Troy), and 8th grader Jeffrey Z. Zhang of Lawrence Tech (Southfield).

Results from the AMC 10/12 A and AMC 10/12 B are still pending.

Congratulations to all of the 2016 AMC 8 winners!


## Institution News

## Albion College

By Mark Bollman • mbollman@albion.edu
Recent colloquium speakers have included James
Streib (Illinois C) and Chris Creighton (Purdue U). The mathematics and computer science department at Albion encourages people from around the world, and our section colleagues in particular, to show their support for mathematics by wearing plaid on International Plaid Day-April 28, the last Friday of Mathematics Awareness Month.

## Alpena Community College

By Dan Rothe • rothed@alpenacc.edu
As we begin the spring semester at ACC, our enrollment is up 1,765 credit hours. In addition to our face-to-face courses on our Alpena Campus and Huron Shores Campus (Oscoda), we are again offering an online Intermediate Algebra class, which is filled to capacity. We are also offering a College Algebra (Finite Math) class for dual enrollment students at Rogers City High School.

ACC will be hosting the Regional Science Olympiad Tournament on Saturday, March 11, 2017. Many faculty members
run events at this competition, which involves high school and junior high teams from a large portion of the northern part of the lower peninsula.

Alpena Community College will be hosting the 2nd annual Huron Shores Ed Tech Conference on August 15, 2017. If you would like to present or attend, visit our website: \llhuronshoresedtech.amaesd.org/> for more information or contact Meghan Cameron at <cameronm@alpenacc. edu>.

We were pleased to have one of our students, Brianne Becker (pictured below, with Dan Rothe on the left and Meghan Cameron on the right) as one of the recipients of the Karen Sharp Student Scholarship this fall at the MichMATYC conference at Delta College.



## Central Michigan University

By Sid Graham • sidney.w.graham@cmich.edu
Felix Famoye has been awarded a Fulbright U.S.
Scholar Program grant to Nigeria. He is spending the Spring 2017 semester at the University of Lagos, where he is conducting research and implementing hands-on activities and technology in statistics courses. Debraj Chakrabarti was awarded an NSF grant for "Research in Several Complex Variables". Ben Salisbury was awarded a Simons Foundation Collaboration Grant for "Crystals and Combinatorics".

Cédric Villani, University of Lyon, Director of Institut Henri Poincaré, will give the Fleming Lecture this year on April 22.

Our special colloquium lecturers for this spring are Dan Goldston (San Jose State U), Loredana Lanzani (Syracuse U), Kasso Okoudjou (U of Maryland), and Robert Megginson (University of Michigan).

## Delta College

By Frances Lichtman • franceslichtman@delta.edu The mathematics division is participating in an NSF-sponsored project titled "Algebra Instruction at Community Colleges: An Exploration of its Relationship with Student Success". This three-year project involves six community colleges from three states (Arizona, Michigan, and Minnesota) and will investigate the conditions under which instruction in community college algebra courses can be associated with student learning gains and course performance. The initial focus was on linear equations, rational equations, and exponential equations. Randy Nichols is the faculty research associate managing the Delta College contribution, working under the direction of the principal investigators.

The mathematics division is also involved in an Achieving the Dream grant project entitled "Engaging Adjunct Faculty in the Student Success Movement". The goal of this project is to develop practices to support both full- and part-time faculty as they improve

## Delivering Options to Meet Your Students Where They Are Today



Institution News continued from page 18
instruction and engagement in student success initiatives. Activities include faculty learning communities and team teaching. Myung Pinner and Katie Grappin are working on this grant with English division faculty.

David Redman is working on the quantitative reasoning pathway of the Michigan Transfer Agreement as part of a work group formed by the Right Math at the Right Time standing committee to strengthen the implementation of math pathways across Michigan's two-year and four-year postsecondary institutions.

Mary Roberson served as a judge for the MAA Undergraduate Student Poster Session at the 2017 Joint Mathematics Meetings in Atlanta.

## Eastern Michigan University

By Carla Tayeh • ctayeh@emich.edu
Dr. Ovidiu Calin is on leave and teaching at Princeton University. Dr. Stephanie Casey is a lead speaker
at the 2017 MI-AMTE Statistics Education Pre-Conference on March 17, 2017. EMU will host the Michigan Mathematics Prize Competition Awards Banquet on Saturday, March 11, 2017.

Dr. Stephanie Casey received funding as a co-principal investigator for an NSF grant, "Enhancing Statistics Teacher Education with E-Modules (ESTEEM)".

EMU will host the 2018 MI-AMTE Conversations Among Colleagues Conference on March 17, 2018.■

## Saginaw Valley State University

By Emmanuel Ncheuguim • ekengnin@svsu.edu We announce the death of two of our young department members: Nick Scheall on August 18 and Dora Nevada on September 19. Arundhati Bagchi Misra achieved tenure. Emmanuel Ncheuguim was promoted to associate professor. Tony Crachiola was promoted to professor. Jean-Jacques Keng-woung-Keumo of Cameron University will give a colloquium talk on March 14 titled "Longitudinal

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Institution News continued from page 19
Analysis of Disparities in Lung and Bronchus Cancer Incidence Rates between Black/African Americans and Whites in the U.S.A." -

## University of Michigan-Flint

By Ken Schilling • ksch@umflint.edu
Howard Thompson has returned from his fall sabbatical as Laura McLeman enjoys hers in the winter while preparing for her term as section chair next year. Cam

McLeman gave a talk to faculty and students titled "Arithmetic: So You Think You Can Count?" This year marks the Gold Anniversary of Math Field Day, our 5oth annual day of problem-solving competitions for teams of high school students. The event will be held on March 3. Family Math Night, an evening of mathematical fun for children and parents together, will be held on March 28. On April 8, we will host the Lower Michigan Mathematics Competition. -

# Tri-Section Meeting Michigan, Indiana, and Illinois MAA sections Valparaiso University 

March 23-24, 2018


## Join the MAA Community

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


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## Student Chapter News

## Alpena Community College

During Fall 2016, Sigma Zeta Math/Science Honor Society inducted five new members. We went on an educational tour of Decorative Panels International (DPI) in Alpena (see pictures below). This plant manufactures fiberboard for use in paneling, pegboard, and similar materials. The size of the operation and the amount of technology used was of particular interest. Sigma Zeta members will be running the Experimental Design Event at Science Olympiad as well as assisting faculty members with other events. A spring trip and formal induction ceremony are in the planning stages.


Alpena CC Sigma Zeta students tour Decorative Panels International.

## University of Michigan-Flint

Several members of the Student Union for Mathematics (SUM) club attended the Joint Mathematics Meetings in Atlanta, where Ben Savoie presented on his REU research. They are planning another euchre tournament and game night to be held in the coming weeks. They have asked graduate student Jared Cutlip to give a talk on the research he is conducting with Cam McLeman. They are also gathering volunteers for Math Field Day, as well as participants and volunteers for the Lower Michigan Mathematics Competition to be hosted by UM-Flint.


Alpena CC Sigma Zeta students outside of Decorative Panels International.

## Open Positions

Most positions in the mathematical sciences, including many of the ones listed here, are advertised online at <ams.org/eims>, <mathclassifieds.org>, and/or <mathjobs.org>.

- SAGinaw Valley State University invites applicants for a full-time, tenure-track Assistant Professor of Mathematical Sciences position beginning Fall 2017. The successful candidate will teach a variety of courses for majors and non-majors. Departmental and university service and scholarly activity are expected. Applicants MUST apply online at <https://jobopportunities.svsu.edu/applicants/jsp/shared/frameset/ Frameset.jsp>


## Calendar of Events

## Michigan Section-MAA Annual Meeting

2017: Ferris State University | March 31-April 1
2018: Valparaiso University (Tri-section) | March 23-24

## Upper Peninsula Regional Mathematics Meeting

2017: Northern Michigan University | September 29-30

## MAA MathFest

2017: Chicago, IL | July 26-29
2018: Denver, CO | August 1-4
2019: Cincinnati, OH | July 31-August 3
2020: Philadelphia, PA | July 29-August 1


2021: Sacramento, CA | August 4-7
MAA-AMS Joint Math Meetings
2018: San Diego, CA | January 10-13
2019: Baltimore, MD | January 16-19
2020: Denver, CO | January 15-18
2021: Washington, DC | January 6-9

## AMATYC Annual Conference

2017: San Diego, CA | November 9-12
2018: Orlando, FL | November 15-18
NCTM Annual Meeting \& Exposition
2017: San Antonio, TX | April 5-8
2018: Washington, DC | April 25-28
2019: San Diego, CA | April 3-6
2020: St. Louis, MO | October 21-24
2021: Atlanta, GA | September 22-25

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| Governor ('19) | Steve Schlicker (GVSU) <br> schlicks@gvsu.edu•616-331-2305 |
| Michigan Mathematics Prize Competition (MMPC) |  |


| Assoc. Ed. | Jerrold Grossman (OU) <br> grossman@oakland.edu•248-370-3443 |
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|  | MMPC Audit Committee |
| Member | Open Position |
| Member | Open Position |
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