

Fall 2018, Volume 21, Number 2

Upcoming Meeting

Southwest Minnesota State University (Marshall, MN) will host the MAA-NCS Fall meeting during the weekend of October 12-13. Matt Zabka is the local organizer for the meeting. The invited speakers are Barry Peratt (Winona State University), Michael Catanzaro (Iowa State University), and Matthew Zabka (Southwest Minnesota State University).

A program for the Fall 2018 meeting will be posted approximately one to two weeks on the MAA-NCS website prior to the meeting.

Invited Speakers

Barry Peratt, Winona State University

Talk Title: Leveraging applications and Cooperative Learning to Enhance student Motivation and Conceptual Understanding.

Abstract: We will take a journey through a rather varied and eclectic set of mathematics problems used to structure cooperative learning activities. Along the way, we will explore the various learning opportunities that have arisen from these activities.

Michael Catanzaro, Iowa State University

Talk Title: An Introduction to Topological Data Analysis

Abstract: Topological data analysis (TDA) is a relatively new area of data science motivated by algebraic topology. TDA provides a framework for studying the 'shape' of data in geometric and topological terms. In this talk, we'll discuss two of the main tools provided by TDA, persistent homology and mapper. We'll see how these tools can be applied through a variety of examples, as well as mention various software implementations. We assume no previous knowledge of algebraic topology.

Matthew Zabka, Southwest Minnesota State University

Talk Title: A Tutorial in Topological Data Analysis

Abstract: We have seen how the tools of topology can be applied to analyze data. In this workshop, we shall explore some of the software available in topological data analysis (TDA). We shall then discuss how undergraduates have used TDA in their research projects.

Officer Reports

Governor's Report from the MAA Congress

Jason Douma, University of Sioux Falls

The MAA Congress met on August 1, 2018, in Denver, just prior to Mathfest. We have also engaged in a series of discussions and tasks both prior to and subsequent to our August meeting. Now that we are over one full year into the MAA's new governance structure, my sense is that the Congress is developing a feel for its role as a conduit for communication and body of strategic discernment within the organization. This requires a certain "choreography" with the MAA's Board of Directors (as well as the MAA's sections and membership), and while we may still find ourselves occasionally stepping on toes or losing track of who is leading on a particular step, we are finding a common rhythm.

The Denver meeting was packed with information about projects, programs, and goings-on in the MAA. We are an active organization (very active!), and there is no reasonable way to even summarize extent of programs and resources supported by the MAA in a brief newsletter article. Instead, I will choose to recommend an activity for each of you. When you find a free moment (or when you need an excuse to procrastinate before tackling the stack of papers that need to be graded), visit the MAA website (www.maa.org) and select the "Programs and Communities" pull-down menu. If you do some exploring within these subcategories you will almost certainly discover some resources, projects, and communities you did not previously know about, and—I hope—you may discover a new opportunity to engage with the people and resources of the MAA. And speaking of engaging with the people of the MAA: our organization has scores of interest groups and committees that are regularly in need of new members. I would be happy to visit with you about these opportunities if you think you might have an interest in serving.

The Congress also continues to support efforts to shape the MAA's strategic direction for the future. The MAA approved a set of core values statements (view them at <https://www.maa.org/about-maa>), which were developed through feedback from Congress. And currently, members of Congress have formed Congress Learning Communities (CLiCs), each of which focuses on an area of strategic importance to the MAA: K-12 Students and Teachers; Students, Activities and Sections; Inclusivity; Communication (MAA Publications/Talks); Reading/Listening Activities at the JMM; Teaching and Learning (and Professional Development); Mission and Membership; and Math Beyond the MAA. The CLiCs will research the status, needs, and emerging opportunities in their area of focus, then communicate their findings to the rest of Congress as a basis of informed recommendations for the future.

Recent news that the MAA will be terminating its long-standing arrangement to partner with the AMS in managing the Joint Mathematics Meetings has prompted a flurry of questions (and concerns) from within our MAA community. Beginning in 2022, the program for this annual meeting will be the sole responsibility of the AMS. For its part, the MAA will conduct its

national meeting activities at Mathfest each summer. Without question, this decision—which was made by the MAA Board of Directors in an effort to most effectively direct its limited resources—will be experienced as an adjustment (even a loss)

for many in our mathematical community. That much is certain. But much of the “post 2021” landscape is set to be determined. Congress, the Board of Directors, and the communities of the MAA will be looking for opportunities and models for engagement within the MAA and the broader mathematical community. This may occur at Mathfest, in the sections, in other communities (like SIGMAAs), or in forms currently unimagined. The MAA may still have some presence at the JMM (consider the roles played by the AWM and NAM), but we should expect that role to be modest.

Please do not hesitate to contact me with your questions about developments in Congress or the national level of the MAA. (I may not know the answer myself, but I will help you try to find it.) I also welcome hearing your suggestions or perspectives that may help inform the ongoing work of the greater MAA organization. My email address is jason.douma@usiouxfalls.edu.

President's Report

Sarah Jahn, Concordia University, St. Paul, MN

This year is going to be a busy and interesting year in the North Central Section of the MAA. The National MAA has challenged sections to involve BIG (Business, Industry and Government) in their section meetings and the North Central Section is working hard to increase membership and involvement our meetings. The Fall meeting (SMSU, Oct 21-22) will feature Barry Peratt (2018 Teaching Award winner from Winona State) presenting an eclectic set of math problems used to structure cooperative learning activities and Mike Catanzaro (plenary speaker from Iowa State) and Matthew Zabka (Section NExT member from SMSU) teaming to give a presentation and a workshop on topological data analysis. These presentations seem like a great opportunity to get ideas to use in your classroom and to learn about a newer math topic you may know very little about. I encourage you to attend these talks at the Fall meeting and to bring along a colleague who has never been to a Section meeting or has not attended a Section meeting for a long time.

Other upcoming meetings for the NCS are the Spring meeting and the Summer Seminar. The Spring meeting (Augsburg, April 5-6) will include invited speakers: Carlos Catillo-Chavez (Polya Lecturer from Arizona State University) and Jenny Quinn (Section Visitor from University of Washington, Tacoma), and the Augsburg team is working on obtaining a speaker from BIG. The location and dates for the Summer Session 2019 are still in the process of solidifying, but a team from The Academy of Inquiry Based Learning will lead the session.

I would like to thank officers Co Livingston (President, Bemidji State) and Eric Errthum (Member-at-Large, Winona State) for their service to the NCS and to welcome Jonathan Rogness (President Elect, University of Minnesota, Twin Cities) and Megan Breit-Goodwin

(Member-at-Large, Anoka Ramsey Community College) to the Executive Board. In addition, I owe a huge debt of gratitude to Shawn Chiapetta (University of Sioux Falls) for agreeing to serve another three year term as Secretary of the NCS and the rest of the Executive Board for their continued service to the section.

Secretary's Report

Shawn Chiapetta, University of Sioux Falls

Nothing to report.

Information Officer's Report

Kris Nairn, College of St. Benedict/St. John's University

The spring 2019 Pi Mu Epsilon meeting at CSBSJU will be on April 12-13, 2019. The invited speaker is Talitha Washington, Howard University. See the College of St. Benedict/St. John's University website for further details: <http://www.csbsju.edu/mathematics/pi-conference>

Jill Fisher, Academic Administrative Assistant – Physics Department, and Program Administrator for Budapest Semesters in Mathematics Education (BSME), has asked me to share information on the program. BSME is a semester-long program in Budapest, Hungary, designed for undergraduates and recent graduates interested in teaching secondary mathematics. Participants will study the Hungarian approach to learning and teaching, in which a strong and explicit emphasis is placed on problem solving, mathematics creativity, and communication. BSME is specifically intended for students who are not only passionate about mathematics, but also the teaching of mathematics. Applications are currently being accepted for Fall 2018 and Spring 2019 semesters. You can find the online application at : <http://www.bsmeducation.com>

Campus News

Augsburg University

Yes, we are now Augsburg University -- a name that better recognizes the work we do across both liberal arts and professional studies. Also, we are now the Department of Mathematics, Statistics, and Computer Science -- a merger that reflects the interdisciplinary preparation our students seek. In December, we will be moving into a wonderful new building, the Hagfors Center for Science, Business, and Religion. We are especially excited about having more collaborative work space for students. (You'll be able to check it out at the MAA NCS Spring 2019 meeting.)

Pavel Bělík was promoted to Professor and off enjoying sabbatical this fall. Alumna Billie Marget returns to Augsburg this fall now in a tenure-track position in Statistics. She earned her Ph.D. with specialty in experimental design from Iowa State University and has been teaching in Ohio for several years. Lisa Minogue will be visiting with us this year in Computer Science as we launch a search for two full-time positions in Computer Science (tenure-track or continuing non-tenure track). Su Dorée continues to be active in the MAA, currently serving as Chair of the Council on Programs and Students and Chair of the MAA Congress (which replaced the MAA Board of Governors). As such, she sits on the MAA Board of Directors.

We continue work on renovating our calculus curriculum -- to add more inquiry-based activities, contextualized labs (that we hope will build transference skills), and to streamline the content in our continued quest for a "lean and lively" calculus sequence and have just finished Year 2 of a 5-year grant from NSF and as part of the national SUMMIT-P consortium. Last year we launched a new course in Data Visualization and Statistical Computing, taught by John Zobitz, and graduated our first group of Statistics minors. Submitted by Su Doree

[Bemidji State University](#)

Our new computer science professor Baozhong Tian comes to us from UW-Platteville. As others in our department have assumed administrative positions across campus, Eric Lund has stepped into provide instruction in Probability and Statistics I and II, Cryptography, and Geometry, teaching these courses for his first time over the course of 3 semesters. Todd Frauenholtz and Jenna O'Dell have a project to investigate the process of productive struggle when middle school students face unfamiliar mathematics problems. Derek Webb is working with Porter Coggins to help Ojibwe college students identify culturally relevant mathematics concepts as a stepping stone to deeper understanding of innate ability. Last spring four of our mathematics education students presented at the MCTM meeting in Duluth. Hannah Altmann presented at the spring AMS Central sectional meeting on "Lower bounds on Projective Levels of Complexes." Co Livingston is returning to the classroom after a sabbatical. Submitted by Co Livingston

[College of St. Benedict/St. John's University](#)

Faculty member Anne Sinko was awarded tenure and promotion to Associate Professor. Bret Benesh and Kris Nairn were promoted to Full Professor. Robert Campbell was converted to a tenure-track position. Dr. Travic Peters has joined the faculty as an Assistant Professor of Mathematics. Travis comes to us most recently from Iowa State University as a Howard Hughes Medical Institute Postdoctoral Fellow. His focus is on improving calculus instruction, specifically by implementing Team-Based Learning. Bob Hesse completed his term as Chair of the Joint Faculty. Stepping into his shoes, Kris Nairn is now Vice Chair of the Joint Faculty Assembly. Submitted by Kris Nairn

[Concordia College-Moorhead](#)

Mark Causapin has joined the Concordia mathematics department as our specialist in

mathematics education. Mark has a BS from the University of the Philippines, and a Ph.D. from Columbia University. John Reber is on sabbatical this fall. Submitted by Doug Anderson

[Metro State University](#)

The new departmental chair is Dr. Rikki Wagstrom. Submitted by Ben Weng.

[Minnesota State University- Mankato](#)

Minnesota State University, Mankato, Mathematics & Statistics department has had three retirements last academic year. Drs. Francis Hannick, Chia Chi Tung, and Charles Waters have finished their 30-plus-years of faithful services to the department program.

We welcome a new tenure-track faculty Dr. Wook Kim (Analytic Number Theory and Real Analysis). We will start two tenure-track positions search from this academic year (target areas are (Complex) Analysis and all areas in Algebra). We will also search at least one fixed term (up to 4 years full time, in any area in mathematics) position. If you know of any excellent candidate, please let us know. Soon official position description will be posted on the university's HR site.

The department has 31 graduate teaching assistantship plus a few research assistantship positions. This year, about half of the position is filled with new students from many midwest states and foreign countries. There will be a few available graduate assistantship positions for Spring 2019 as some plan to graduate by this Fall semester. Submitted by Namyong Lee

[University of St. Thomas](#)

Heekyung Youn retired in the fall of 2017 and is now Professor Emeritus. Faculty members Amy DeCelles and Thomas Hoft were awarded tenure with promotion to Associate Professor, and Mike Axtell was promoted to Full Professor. Also, we are pleased to welcome Junsen Tang as a new tenure-track professor in Actuarial Science. Submitted by Eric Rawdon

[University of Sioux Falls](#)

Dr. Victor Larsen has joined the University of Sioux Falls mathematics faculty this year as an Assistant Professor of Mathematics. Victor comes to us (most recently) from Kennesaw State University. He completed his graduate degrees from Emory University with a specialization in graph theory. Submitted by Jason Douma
