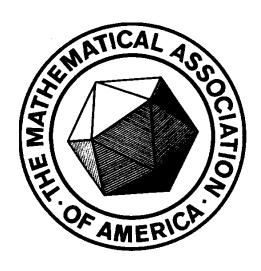
The Mathematical Association of America New Jersey Section Meeting

held in conjunction with the 13th annual
Garden State Undergraduate
Mathematics Conference



William Paterson University Wayne, NJ

Saturday, April 16, 2016

Abstracts and Biographies of Speakers

Inquiry-Based Learning in College Mathematics Patrick Rault, State University of New York (SUNY) at Geneseo

Research experiences in undergraduate mathematics develop critical thinking and intellectual independence, but relatively few students have the opportunity to participate. We will discuss the Inquiry-Based Learning (IBL) teaching style, which can provide all students with a taste-of-research experience. We will describe the fundamentals of IBL and how it is traditionally implemented in proof-based courses such as Introduction to Mathematical Proof, Topology, Abstract Algebra, and Number Theory. But we will also discuss their increasing use in Calculus and Linear Algebra. Active learning strategies have gained significant endorsements in recent years, most notably from the NSF with a 2014 press release titled "enough with the lecturing." It may now be time to stop asking "should we transition to an active classroom?" and start asking "what kind of active classroom should we create?" The Greater Upstate New York IBL Consortium provides a model to support making the transition at a regional level.

Patrick X. Rault earned a B.S. from the College of William and Mary in 2003. He completed his PhD in Mathematics at the University of Wisconsin in 2008 under the mentorship of Jordan Ellenberg. Patrick is now an Associate Professor at the State University of New York (SUNY) at Geneseo, where he uses Inquiry-Based Learning to provide his students with a taste of mathematics research. In 2013 he received a Faculty Mentoring Award from the Council on Undergraduate Research for his work in guiding undergraduates in research. In 2014 he received a grant from the Educational Advancement Foundation to cofound the Greater Upstate New York Inquiry-Based Learning (UNY IBL) consortium, through which he provides

mentoring and workshops. In 2015 he was awarded the MAA's Henry L. Alder Award for Distinguished Teaching by a Beginning College or University Mathematics Faculty Member. Patrick's IBL textbook on Introduction to Mathematical Proof will be published by the MAA.

Two Heads are Better Than None, Or, Me and the Fibonaccis

Steven F. Kennedy, Carleton College and MAA Press

As a graduate student trying to solve a problem in dynamical systems, I stumbled on a seemingly miraculous formula involving the Fibonacci numbers. Five years later, while working on a probability problem, the same miraculous formula popped up. This time I went looking for the explanation of the miracle and, eventually, found it in combinatorics. I'll explain the problems I was trying to solve, the miraculous formula that appears, and the wonderful explanation of the miracle. As a bonus, I'll point to a problem or two that naturally arise from that explanation, the answers to which are still not known.

Steve Kennedy is Professor of Mathematics at Carleton College and Senior Acquisitions Editor for MAA Press. He earned a PhD from Northwestern University and a BS from Boston University. In addition to Carleton, he has taught at Loyola (Chicago) University, the University of Delaware, and Saint Olaf College. He was co-



Editor (with Deanna Haunsperger) of Math Horizons from 1999-2003. He has published two books with MAA Press: The Edge of the Universe and A Century of Advancing Mathematics. He cofounded and has co-directed (again with Deanna Haunsperger) since 1994 the Carleton Summer Mathematics Program for Women which, as of this writing, enjoys more than 85 alumnae with earned PhDs.

Criminal Investigation Through Mathematical Examination Eugene Fiorini, Muhlenberg College

Broadly speaking, forensic science analyzes trace evidence left at the scene of a crime which may be used to either implicate or exonerate a suspect, or just to gain further insight into the incident. Using several cases as a backdrop, this talk examines some of the common applications of mathematics and statistics to forensic science. Topics covered may include fingerprint analysis (graph theory,

probability), blood spatter analysis (trigonometry, geometry), determining time of death (algebra, calculus), DNA identification (probability), evidence sampling (e.g. fibers, glass fragments - statistics), forensic anthropology (algebra, linear regression), and forensic entomology (statistics).

Eugene Fiorini recently assumed a new position as Muhlenberg College Truman Koehler Professor of Mathematics. Prior to this appointment, he was Associate Director for the Center for Discrete Mathematics and Theoretical Computer Science (DIMACS). He earned an M.S. (1989) and Ph.D. (1993) from the University of Delaware in Extremal Graph Theory, as well as completing the graduate work for an M.S. in mathematics education, and holds a master's in Statistics from Temple University. For fourteen years he was a member of the Shippensburg University Mathematics Department where he also served as Chair of the University Scholarship Program, Associate Dean and Interim Dean of the College of Arts and Sciences. In addition to publications in mathematics, statistics, and mathematics education, Dr. Fiorini authored Modeling Reality with Functions: Graphical, Numerical, Analytical, an applications-based textbook to accompany a course to teach college algebra to non-science majors. As DIMACS associate director, Dr. Fiorini was recognized for his work with the DIMACS Research Experiences for Undergraduates (REU) program and has been involved with several projects at the intersection of research and education. These projects include the Integrating Mathematics and Biology (IMB) project and the Mathematics of Planet Earth 2013-Plus project (MPE2013+). He is currently on the organizing committee for the SAMSI (Statistical and Applied Mathematical Sciences Institute) Statistical Forensics Special Program. As part of these projects he has co-authored several modules including Smart Driving: Reducing Pollution by "Greenest" Path, The Neuroscience of Pain and CrIME: Criminal Investigation through Mathematical Examination. Dr. Fiorini has also been recognized for developing a Rutgers University Honors Program interactive, interdisciplinary seminar on mathematical

forensics.

Workshop: Teaching Differential Equations in a Modeling First Environment and a Supporting Community at SIMIODE

Brian Winkel, Emeritus, Mathematical Sciences
US Military Academy, West Point NY, and Director SIMIODE

We engage participants in modeling activities to collect data which can then be modeled to motivate introduction and learning of differential equations. These have successfully served hundreds of faculty (and their students) in a first-day activity for a differential equations or modeling course. We will share other modeling opportunities and discuss how SIMIODE - Systemic Initiative for Modeling Investigations and Opportunities with Differential Equations (www.simiode.org), a free community of teachers and students, supports a modeling first approach to teaching and learning differential equations. Come join our merry band!

Abstracts of MAA-NJ Contributed Paper Sessions Session 1: Recreational Mathematics

UC 168A. Organizer and Presider: David Nacin, William Paterson University, nacind@wpunj.edu

1:30: A New Type of Partition Puzzle

David Nacin, William Paterson University, nacind@wpunj.edu

Abstract: We discuss a famous result of Sylvester in Constructive Partition theory and how it can be used to construct a new type of puzzle. These puzzles combine ideas from Kakuro and Sudoku together with real Mathematics.

1:50: The 21 Card Trick

Jyoti Champanerkar (joint work with M. Jani), William Paterson University, champanerkarj@wpunj.edu

Abstract: The 21-card trick is a way of dealing cards in order to predict the card selected by a volunteer. We give a mathematical explanation of why the well-known 21-card trick works using a simple linear discrete function. The function has

a stable fixed point which corresponds to the position where the selected card reaches at the end of the trick.

2:10: Mathemagic Number Tricks in Several Popular Recursive Sequences

Jay Schiffman, Rowan University, schiffman@rowan.edu

Abstract: This paper will explore a top ten list of palatable number tricks in several popular recursive sequences requiring only elementary discrete mathematics and basic algebraic fluency. The sequences discussed entail the famous Fibonacci sequence, the Pell sequence (also known in some circles as the Fibonacci sequence of order two), the Fibonacci sequence of order three and the Jacobsthal sequence. It is well known that in the Fibonacci (or Fibonacci-like sequence), if one selects any ten consecutive terms anywhere in the Fibonacci sequence and divides the sum by eleven, the quotient will always be the seventh term in the composed sequence. What is less well known is that this is just one in a family of infinitely many number tricks associated with this sequence and is related to the companion Lucas sequence. For example, the sum of any six consecutive terms in the sequence is divisible by four and the quotient is always the fifth time in the sequence while the sum of any fourteen consecutive terms in the sequence is divisible by twenty-nine and the quotient is always the ninth term in the sequence.

We show among other morsels, the following: (1) In the Jacobsthal Sequence, the sum of eight consecutive terms is divisible by seventeen and the quotient is the sum of the first four terms. (2) In the Pell sequence, if one selects any eight consecutive terms and divides the sum by twenty-four, then the quotient will always be the fifth term in the sequence. (3) In the Fibonacci sequence of order three, if ones takes any six consecutive terms and divides the sum by twelve, the quotient is the sum of the third and fourth terms in the sequence. Please join us to view some dynamic and fun mathematics and perhaps impress your friends at the dinner table as you marry mathematics and magic.

Session 2: Statistics Practice and Pedagogy

UC 168A. Organizer and Presider: Dexter Whittinghill, Rowan University, whittinghill@rowan.edu

2:30: Stability – A New Way to Compare Statistical Measures, a Simulation Approach

David DiMarco, Neumann University, dimarcod@neumann.edu; Blane Hollingsworth, Indiana University; Ryan Savitz, Neumann University **Abstract:** Stability is a new concept that gives an indication of to what degree the value of a measure can be changed by altering one, or more, of the data values, whether or not they ultimately become outliers. This concept differs from resistance, which is an indication of to what degree the value of a measure can be changed by altering one, or more, of the data values so that they do ultimately become outliers. It is known that some measures are vulnerable to excessive changes when data values around the center are altered, but the concept of stability quantifies this vulnerability, so the stability of different measures can be compared. The concept of stability will now be defined more formally. Let dinstability, or is(d), be the maximum possible change in the value of a measure caused by changing d values, and x-stability, or st(x), be the minimum number of values that must be changed in order to change the value of the statistic by x. Not strictly inverses, is(d) and st(x) are related by the following; st(x) = min(d) taken over is(d) = x. In this presentation we add an analysis using computer simulations to the topic. In these simulations, the quartile mean (defined in the authors previous work as the mean of the 3 quartiles) and median of a set of data were computed. Then random "errors" were added to a subset of the data, and then quartile mean and median were re-computed. The amount each measure was changed by these "errors" was computed and compared.

Lunch Discussion Tables - Spring 2016 Meeting

Organized by Theresa C. Michnowicz, New Jersey City University. There will be five discussion tables at lunch:

- 1. The mathematics of paper puzzles, led by David Nacin, William Paterson University
- 2. Inquiry-based learning, led by Patrick X. Rault, SUNY at Geneseo

- 3. Two-year college statistics educators, led by Dexter C. Whittinghill, Rowan University
- 4. *REU programs: How to put together a good proposal,* led by Eugene Fiorini, Muhlenberg College
- 5. Encouraging/mentoring members of underrepresented groups (especially women) to persist in mathematics, led by Stephen F. Kennedy, Carleton College Those who pre-registered have priority at these discussion tables.

Announcements

MAA-NJ Section 2016 Distinguished Service Award

The recipients of the 2016 MAA-NJ Section Sr. Stephanie Sloyan Award for Distinguished Service are Katarzyna Kowal and Cathy Liebars.

Katarzyna Kowal has served the New Jersey section of the MAA for the past decade through her leadership of the Garden State Undergraduate Mathematics Conference (GSUMC). She began her service on the organizing committee for the 2006 GSUMC. Since 2007, Katarzyna has served as the co-director of the New Jersey Undergraduate Mathematics Competition, a major component of the GSUMC. During these ten years, approximately 300 teams and 900 students have participated in the competition. Katarzyna has had coresponsibility for all aspects of the competition, including publicity, logistics, contest creation, grading, and prizes.

Cathy Liebars served in the Executive Board of the New Jersey section of the MAA from 1998-2006. Cathy served as treasurer for MAA-NJ from 1998-2002 and as Chair (2003-05), Chair-Elect (2002-03), and Past-Chair (2005-06). Cathy also served on the hosting committee for the 1999 and 2004 MAA-NJ meetings at The College of New Jersey. Cathy currently serves on the MAA's Edyth May Sliffe Awards Committee.

The section is very appreciative and grateful to Katarzyna Kowal and Cathy Liebars for their many contributions to MAA-NJ.

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Mathematical Association of America New Jersey Section, Spring 2016 Meeting Program

Environment and a Supporting Community at SIMIODE, Brian		
8:30 – 1:30 Book Exhibits; lobby outside UC ballrooms 9:15 – 9:30 Welcome by Dr. Kenneth Wolf, Dean of the College of Science and Health; Ballroom C 9:30 – 10:20 Inquiry-Based Learning in College Mathematics, Patrick Rault, State University of New York (SUNY) at Geneseo. Presider: Zachary Kudlak, Monmouth University; Ballroom C 10:25 – 10:40 Business Meeting and By-laws Approval; Ballroom C 10:40 – 11:05 Break; Ballroom B 1:05 – 11:55 Two Heads are Better Than None, Or, Me and the Fibonaccis, Steven F. Kennedy, Carleton College and MAA Press. Presider: Grace Cook, Bloomfield College; Ballroom C 12:00 – 1:30 Lunch; Wayne Dining Hall 1:00 – 2:00 Student Poster Session; Ballroom B Workshop: Teaching Differential Equations in a Modeling First Environment and a Supporting Community at SIMIODE, Brian Winkel, Emeritus, Mathematical Sciences, US Military Academy West Point NY, and Director SIMIODE. Ballroom A Contributed Paper Sessions; UC 168A 2:15 – 3:15 Student Talks; UC 171A and 171B 2:45 – 3:30 Break; Ballroom B 3:30 is the deadline for door prize/silent auction entries 3:30 – 4:25 Criminal Investigation Through Mathematical Examination, Eugene Fiorini, Muhlenberg College. Presider: Aihua Li, Montclair University; Ballroom C Prizes and Awards; GSUMC awards, door prizes, and silent	8:30 – 9:15	Registration, lobby outside UC (University Commons)
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Eugene Fiorini, Muhlenberg College. Presider: Aihua Li, Montclair University; Ballroom C 4:30 – 5:00 Prizes and Awards; GSUMC awards, door prizes, and silent		3:30 is the deadline for door prize/silent auction entries
Montclair University; Ballroom C 4:30 – 5:00 Prizes and Awards; GSUMC awards, door prizes, and silent	3:30 – 4:25	Criminal Investigation Through Mathematical Examination,
4:30 – 5:00 Prizes and Awards ; GSUMC awards, door prizes, and silent		Eugene Fiorini, Muhlenberg College. Presider: Aihua Li,
		Montclair University; Ballroom C
auction winners (must be present to win); Ballroom C	4:30 - 5:00	Prizes and Awards; GSUMC awards, door prizes, and silent
		auction winners (must be present to win); Ballroom C
5:30 Dinner Honoring Speakers	5:30	Dinner Honoring Speakers

Garden State Undergraduate Math Conference Spring 2016 Program

8:30 – 9:15	Team Registration, Student Check-in, and Breakfast;
	Outside SCIE (Science Hall East 2063/2064
9:30 - 10:30	New Jersey Undergraduate Math Competition; Individual
	competition. SCIE 2063/2064
10:30 - 12:00	New Jersey Undergraduate Math Competition; Team
	competition. SCIE 2063/2064
12:00 - 1:00	Complimentary Student Lunch; outside SCIE 2063/2064
1:00 - 2:00	Student Poster Session; Ballroom B
2:15 – 3:15	Student talks; UC 171A and 171B
3:15 – 3:30	Break; Ballroom B
3:30 – 4:25	Criminal Investigation Through Mathematical
	Examination, Eugene Fiorini, Muhlenberg College.
	Presider: Aihua Li, Montclair University; Ballroom C
4:30 - 5:00	Prizes and Awards; GSUMC awards, door prizes, silent
	auction winners (must be present to win); Ballroom C

Dinner Honoring the Invited Speakers and Award Recipients

The Section will honor the invited speakers and award recipients at dinner following the meeting. Everyone is cordially invited.

... continued from page 8

Call for Nominations for the MAA-NJ Award for Distinguished College or University Teaching

The MAA-NJ Section Distinguished Teaching Award Selection Committee is seeking nominations for the 2017 award. Please consider nominating an inspiring, respected, or influential deserving colleague for this prestigious award. Information about the nomination process and eligibility requirements are posted online at http://www.maa.org/newjersey. For additional information, contact Zhixiong Chen (Secretary, MAA-NJ) at zchen@njcu.edu. Award nominations are due by November 18, 2016.

Call for Contributed Papers and Lunch Discussion Leaders for the Fall MAA-EPADEL-NJ 2016 Meeting

There will be one general contributed paper session at the Fall 2016 meeting. Please submit title, 3-4 line summary, and a one-paragraph abstract in Word to Kathy Turrisi, Centenary College, Turrisik@centenarycollege.edu, by September 6, 2016.

There will also be a student contributed paper session at the Fall 2016 meeting; further information will be distributed in early fall.

MAA members interested in leading a lunch table discussion at the Fall 2016 meeting are asked to submit their proposed topic to Theresa C. Michnowicz, New Jersey City University, tmichnowicz@njcu.edu, by September 6, 2016.

Call for Special Contributed Paper Session Organizers for the Spring 2017 MAA-NJ Meeting

MAA members interested in organizing a special contributed paper session for the Spring 2017 meeting should submit the proposed topic to Theresa C. Michnowicz, New Jersey City University, tmichnowicz@njcu.edu, by September 6, 2016.

Governor's Report

MAA Board of Governors Meeting – January 5, 2016

The Board addressed low MAA membership rate among faculty, especially junior faculty. Governors participated in breakout session to discuss the future possibility of MAA offering webinars and other online offerings (such as MathFest videos) to benefit members as a way to increase membership, which grew in 2015 for the first time in ten years. Look for new member benefits in the near future on the MAA website.

The Board voted to approve a governance model consisting of a small board of directors (responsible for budgetary issues) and an assembly consisting of Section representatives and council chairs (responsible for strategic planning and policy). An implementation committee will be formed to draft the details in a proposal that will be voted on by the Board at the 2017 Joint Math Meetings and by the general membership thereafter.

The Board also addressed underrepresentation of females in MAA (authorship by females in MAA journals, awards, committee chairs, etc.) and ways to increase participation such as inviting more female mathematicians to be on editorial boards and reviewers.

As of December 3, 2015, the Second Century Campaign has reached 83%, or \$5.82 million of the goal of \$7 million. Please consider contributing to make the campaign a success, which concludes at the end of 2016.

MathFest this summer will be held in Columbus, OH during August 3-6, 2016. This city is a fitting location for mathematicians since Columbus was named the 2015 Intelligent Community of the Year (by Intelligent Community Forum). Hope to see many fellow NJ Section members there!

Respectfully submitted, Hieu Nguyen, Governor of MAA-NJ Section

Book Sales at the Meeting

The discounted meeting price (35% off) for MAA books also applies to books *not* currently on display. When you order books at the meeting, there are no shipping costs. We will also again offer "buy one, get one free": if you order a book at this meeting, you can also take one book from the "free" group of books.

Future MAA Meetings

MAA-NJ. The Fall 2016 MAA-NJ meeting will be held at Villanova University, Saturday, November 12, 2016. It will be a joint meeting with EPaDel, the Eastern Pennsylvania/Delaware section of the MAA. The Spring 2017 MAA-NJ meeting will be held at The College of New Jersey on Sunday, March 26, 2017.

MathFest. The Mathematical Association of America will hold its annual MathFest in Columbus, OH from August 3 - 6, 2016. The 2017 MathFest will be in Chicago, July 26 - 29, 2017. For further information, go to http://www.maa.org/mathfest/

Joint Mathematics Meeting. The 2017 JMM will be in Atlanta, GA, January 5 – 7.

NJAMTE Annual Meeting June 10 at TCNJ

The New Jersey Association of Mathematics Teacher Educators will hold its tenth annual conference at The College of New Jersey on Friday, June 10. The theme is Equity. All mathematicians involved in the mathematical education of teachers at any level are invited (and encouraged) to join NJAMTE. For further information, contact Maria DeLucia at mdelucia@middlesexcc.edu.

Euler Society Biannual Meeting

The Euler Society invites interested parties to submit proposals for its biannual meeting. Presentations should relate to the work of Leonhard Euler or 18th century science. Read more about the conference at http://tinyurl.com/Euler2016. Those interested in attending or presenting at the conference should contact Dr. Robert Bradley (bradley@adelphi.edu). The conference registration fee is \$120,

payable by cash or check (made out to the Euler Society). Euler Society membership dues are \$25. Fees should be sent to the following address:

Dr. Erik R. Tou

School of IAS

University of Washington – Tacoma

1900 Commerce St.

Tacoma, WA 98402

Deadline for abstracts is June 3. Deadline for attendees is June 17. A reduced registration rate is available for those without institutional support. On-campus lodging is also available. Visit www.eulersociety.org.

25/50-year Members of the MAA: The section congratulates Dr. Eugene Fiorini (Muhlenberg College) for his 25 years of MAA membership. We congratulate Dr. Leo Chosid (New York City College of Technology) and Dr. Eileen L. Poiani (Saint Peter's University) for their 50 years of membership.

MAA-NJ Committees

Awards Committee: Carol Avelsgaard, Middlesex County Community College; Bonnie Gold, Monmouth University; Tom Hagedorn (ex-officio), The College of New Jersey; Hieu Nguyen, Rowan University; Elizabeth Uptegrove (chair), Felician University; Dexter Whittinghill, Rowan University.

Nominating Committee: Karen Clark, The College of New Jersey; David Marshall, Monmouth University; Sarita Nemani, Georgian Court College.

Teaching Award Committee: Karen Clark, The College of New Jersey; Bonnie Gold (chair), Monmouth University; Brian Hopkins, Saint Peter's University; Sarita Nemani, Georgian Court University; Diana Thomas, Montclair University.

Selection Committee for Contributed Papers: Srabasti Dutta, Ashford University; Theresa Michnowicz (ex-officio), New Jersey City University; Kathy Turrisi (chair), Centenary College.

Organizing Committee: Zhixiong Chen, New Jersey City University; Karen Clark, The College of New Jersey; Grace Cook, Bloomfield College; Lawrence D'Antonio, Ramapo College; Kaaren Finberg, Ocean County College; Jana Gevertz, The College of New Jersey; Bonnie Gold, Monmouth University; Thomas Hagedorn, The College of New Jersey; Zachary Kudlak, Monmouth University; Aihua Li, Montclair State University; David Marshall, Monmouth University; Theresa C. Michnowicz, New Jersey City University; Sarita Nemani, Georgian Court University; Linda Ritchie, Centenary College; Tatyana Stepanova, Raritan Valley Community College; A. David Trubatch, Montclair State University; Kathy Turrisi, Centenary College; Dirck Uptegrove, Nokia; Elizabeth Uptegrove, Felician University; Paul von Dohlen, William Paterson University; Jonathan Weisbrod, Rowan College at Burlington County.

Hosting Committee: Paul von Dohlen, Jyoti Champanerkar, Christina Mouser, Valentina Vega, and Madeleine Rosar, William Paterson University.

GSUMC Committees

Organizing Committee: Amanda Beecher, Ramapo College; Lee Collins, County College of Morris; Katarzyna Kowal, Ramapo College of New Jersey; Ken McMurdy, Ramapo College of New Jersey; A. David Trubatch, Montclair State University (director).

New Jersey Undergraduate Mathematics Competition Committee: Katarzyna Kowal (Co-Director), Ramapo College of New Jersey; Ken McMurdy (Co-Director), Ramapo College of New Jersey; Tom Leong, The University of Scranton; David Molnar, Rutgers University; Ken Monks, The University of Scranton; Marek Slaby, Fairleigh Dickinson University.

New Jersey Undergraduate Mathematics Competition Proctors and Graders: Tom Leong, The University of Scranton; David Molnar, Rutgers University at New Brunswick; Ken Monks, The University of Scranton; Marek Slaby, Fairleigh Dickinson University. Jonathan Weisbrod, Rowan College at Burlington County; Jennifer Hoxworth, Rowan College at Gloucester County; Ryan Hoxworth, Rowan College at Gloucester County; Ioanna Mavrea, Rutgers University at New

Brunswick; Jeremy Russell, The College of New Jersey; Emanuel Palsu-Andriescu, Monmouth University; Catalin Turc, New Jersey Institute of Technology; David Buhanan, Centenary College; Norman Beil, Rowan University; Jimmy Mathews, Stony Brook University; Robert Roach, Rowan College at Burlington County; William Dugan, Cumberland County College; Priti Mihalik, Rowan College at **Burlington County.**

Acknowledgments

The New Jersey Section thanks the Mathematics Department of William Paterson University for their kind hospitality in hosting the meeting. They also thank Princeton University Press and World Scientific Publishers, along with Stephen Kennedy, keynote speaker, and Bahman Kalantari, Fall 2015 keynote speaker, for donations for the silent auction, door prizes, and GSUMC prizes.

The New Jersey Section offers congratulations to the GSUMC for thirteen years of successful undergraduate math conferences.

The 2016 GSUMC is supported by William Paterson University and the NJ section of the MAA.

The GSUMC thanks the Mathematics Department of William Paterson University for their kind hospitality in hosting the meeting.

Social Media Information

Check us out on the following social media!

maanj.socialmedia@gmail.com Email:

Facebook: https://www.facebook.com/maanewjersey

Instagram: https://instagram.com/maanewjersey https://twitter.com/maanewjersey Twitter:

Join the MAA! http://www.maa.org/membership/join main.html

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