Scranton; Kenneth Monks, University of Scranton; Marek Slaby, Farleigh Dickinson University; G. Boyd Swartz, Monmouth University; Chia-Lin Wu, Richard Stockton College of NJ.

Acknowledgments

The MAA New Jersey Section thanks the Mathematics Department of Middlesex County Community College for their kind hospitality in hosting the meeting. They also thank Springer-Verlag, Priceton University Press, and A K Peters for donating books for the silent auction and door prizes.

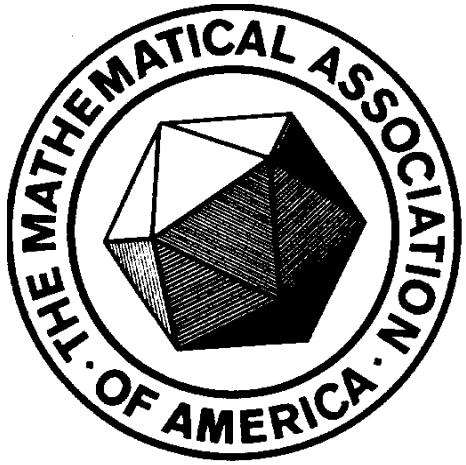
The Garden State Undergraduate Mathematics Conference is made possible by contributions funding graciously provided by NSA Grant H98230-09-1-0119. The GSUMC also thanks Springer-Verlag, Priceton University Press, and A K Peters for their donation of books for student prizes.

The Mathematical Association of America

New Jersey Section Meeting

in conjunction with the 7th annual

Garden State Undergraduate Mathematics Conference



Middlesex County College
Edison, NJ

Saturday, April 10, 2010

Abstracts and Biographies of Speakers

From Differentials to Limits: Fleeting Flirtations and Lingering Loyalties

Robert Bradley, Adelphi University

In its original form, the calculus dealt with the geometry of infinitely small quantities, or differentials, related to one another by equations. It was powerful and useful, but there was no satisfactory explanation of why it worked. The modern conception of the calculus is based instead on the fundamental concepts of limit and function. Augustin-Louis Cauchy (1789-1857) is usually given credit for the shift from differential to limit, making a rigorous foundation for the calculus possible.

Although this shorthand account is essentially correct, the real story is more nuanced. On one hand, during the decades prior to Cauchy's landmark textbook *Cours d'analyse*, various mathematicians had already proposed the limit as the "true metaphysics" of the calculus. However, their conception was informal and no more logically satisfying than the differential. On the other hand, the mathematical community was quite slow to adopt Cauchy's new framework, and clung to differentials long after this more satisfactory account was available.

In this talk, which will be accessible to a broad mathematical audience, we will trace history of the limit, as well as that of the notions it competed with in the eighteenth and nineteenth centuries.

Robert E. Bradley is Professor of Mathematics at Adelphi University. He received his B.Sc. from Concordia University (Montreal), earned a M.A. as a Rhodes Scholar at Oxford University, and M.Sc. and Ph.D. degrees from the University of Toronto. His research specialty is the historical development of mathematical analysis from the mid-17th to the mid-19th century. Bradley recently co-authored Cauchy's *Cours d'analyse: An Annotated Translation* published by Springer-Verlag. He is the author of two additional books, eight book chapters, and 27 articles. Bradley is also dedicated to the preparation of excellent future math teachers and has received $2.4 million in grants from the NSF and U.S. Department of Education for his work. Bradley serves as the President of the Euler Society, the chair of the MAA's History of Mathematics Special Interest Group and is the past-President of the Canadian Society for the History and Philosophy of Mathematics. He also plays bluegrass music, sings, and is a recognized beer judge by the American Homebrewers Association

Korlie, Montclair State University; Aihua Li, Montclair State University; David Marshall, Monmouth University; Theresa C. Michnowicz, New Jersey City University; Hieu D. Nguyen, Rowan University; John T. Saccoman, Seton Hall University; Beimnet Teclezghi, New Jersey City University; Dirck Uptegrove, Lucent-Alcatel; Elizabeth Uptegrove, Felician College; Paul VonDohlen, William Paterson State University.

Hosting Committee Paul Bachmann, Middlesex County College; Maria DeLucia, Middlesex College; Reginald Luke, Middlesex County College

Awards Committee Larry D'Antonio, Ramapo College; Mark Korlie, Montclair State University; Theresa C. Michnowicz (chair), New Jersey City University

Nominating Committee Carol Avelsgaard, Middlesex County College; Mark Korlie, Montclair State University; Theresa Michnowicz (chair), New Jersey City University; Hieu D. Nguyen, Rowan University

Teaching Award Committee Bruce Bukiet, NJIT; Janet H. Caldwell, Rowan University; Amy Cohen (chair), Rutgers University; Bonnie Gold, Monmouth University; Kenneth Wolff, Montclair State University

Selection Committee for Contributed Papers Carol Avelsgaard, Middlesex County College; Lawrence D'Antonio, Ramapo College; Yi Ding, New Jersey City University; Olcay Ilicasu, Rowan University; Theresa C. Michnowicz (chair), New Jersey City University

GSUMC Committees

Organizing Committee Srabasti Dutta (Co-Director), College of Saint Elizabeth; Thomas Hagedorn(Co-Director), The College of New Jersey; Aihua Li (Co-Director), Montclair State University; Karen Clark, The College of New Jersey; Chengwen Wang, Essex County College; David Trubatch, Montclair State University; Miroslav Orna, Raritan Valley Community College; Tatyana Stepanova, Raritan Valley Community College; Olcay Ilicasu, Rowan University; Ken McMurdy , Ramapo College of New Jersey; Katarzyna Potocka, Ramapo College of New Jersey.

NJUMC Competition Committee Ken McMurdy(Co-Director), Ramapo College of New Jersey; Katarzyna Potocka(Co-Director), Ramapo College of New Jersey; Zhixiong Chen, New Jersey City University; Judit Kardos, The College of New Jersey; Janos Komlos, Rutgers University; Tom Leong, University of

followed by dinner to honor Professor Osler. For a complete schedule of events and registration information, please visit: http://www.rowan.edu/colleges/las/departments/math/facultystaff/hassen/Osler_Fest.htm. For more information, please contact Dr. Abdul Hassen at hassen@rowan.edu.

MAA-NJ Section Officers

Chair	Bonnie Gold, Monmouth University
Past-Chair	Hieu D. Nguyen, Rowan University
Vice Chair for	
Speakers	Thomas Hagedorn, TCNJ
Innovations	Theresa C. Michnowicz, NJCU
Two-Year Colleges	Carol Avelsgaard, Middlesex County College
Student Activities	Lawrence D'Antonio, Ramapo College
Secretary	Alhua Li, Montclair State University
Treasurer	Karen Clark, The College of New Jersey
Governor	Mark Korlie, Montclair State University
Public Information Officer	Srabasti Dutta, College of St. Elizabeth
Program Editor	Beimnet Teclezghi, NJCU
Liaison Coordinator	Zhixiong Chen, NJCU
Workshop Coordinator	David Marshall, Monmouth University
Contributed Paper Organizer	Theresa C. Michnowicz, NJCU
Door Prize Coordinator	Olcay Ilicasu, Rowan University
MAA Books Sale Coordinators	Dirck Uptegrove, Elizabeth Uptegrove, Felician College, Paul VonDohlen, William Paterson University
GSUMC Co-Directors	Srabasti Dutta, College of St. Elizabeth Thomas Hagedorn, TCNJ Alhua Li, Montclair State University
Project NJ-NExT Co-Directors	John Saccoman, Seton Hall University Kaaren B. Finberg, Ocean County College

MAA-NJ Committees

Organizing Committee Carol Avelsgaard, Middlesex County College; Zhixiong Chen, New Jersey City University; Karen Clark, The College of New Jersey; Amy Cohen, Rutgers University; Larry D'Antonio, Ramapo College; Yi Ding, New Jersey City University; Srabasti Dutta, College of St. Elizabeth; Kaaren B. Finberg, Ocean County College; Bonnie Gold, Monmouth University; Thomas Hagedorn, The College of New Jersey; Olcay Ilicasu, Rowan University; Mark S.

Can Computers do Math?

Thomas Hales, University of Pittsburgh

Joint MAA-GSUMC Speaker

This question might seem strange at first. After all, whatever else they can do, computers can certainly compute. But math is much more than a series of long mechanical computations. As mathematicians, we make new conjectures, we create new structures, we prove theorems, and we check our logic to keep any errors from sneaking in. How much of this can a computer do?

One example I will use is the Kepler conjecture, which asserts that the familiar pyramid arrangement used to stack oranges at the market is the best (densest) possible arrangement. Human referees had a hard time checking the details of the proof of this conjecture. I have suggested that a computer is better qualified than humans to referee the correctness of this proof. I will explain how computers should soon be ready to take over this particular responsibility.

Thomas C. Hales is the Mellon Professor of Mathematics at the University of Pittsburgh. He received B.S. and M.S. degrees from Stanford University, a Tripos Part III (mark of distinction) from Cambridge University, and a Ph.D. from Princeton University in the area of representation theory. He has held postdoctoral and faculty appointments at MSRI, Harvard University, the University of Chicago, the Institute for Advanced Study, CNRS, and the University of Michigan. In 1998, Hales, with the help of his graduate student Samuel Ferguson, proved Kepler's 1611 conjecture (and Hilbert's 18th problem) on the most efficient way to stack oranges. A noted lecturer and researcher, Hales's current project, called Flyspeck, seeks to formalize his proof of the Kepler conjecture in the computer theorem prover "HOL Light."

Mathematical Challenges in Climate Change

Mary Lou Zeeman, Bowdoin College

Joint MAA-GSUMC Speaker

We will describe the key observations and introduce some simple models that begin to give intuition for the physical processes of climate change, including the earth's radiative energy balance, and the ice-albedo and greenhouse gas feedback processes. We will also illustrate the wide range of mathematical challenges and opportunities in climate change research.

Mary Lou Zeeman is the R. Wells Johnson Professor of Mathematics at Bowdoin College and also works in the Department of Neurobiology and

Behavior at Cornell University. She earned her B.A. and M.A. from Oxford University and her Ph.D. from the University of California, Berkeley. Zeeman is a renowned educator, researcher and speaker who has received numerous awards for teaching; authored and co-authored dozens of papers and presented at many conferences and colloquia. Her current research interweaves biological experiments with mathematical modeling, and she collaborates closely with students and faculty from both disciplines to strengthen interdisciplinary connections between the two curricula. As one example, in joint work with David McCobb, Zeeman proposed a new way of thinking about the pituitary to mathematically model the menstrual cycle and has used it to help tackle questions about infertility.

At the 2008 Joint Mathematical Meetings, Zeeman co-organized minisymposia in which mathematicians, climate scientists, economists and policy makers came together to discuss a development path for integrated models of climate change and economics. She has since co-organized several more such conferences and workshops, including co-directing the 2010 "Theme of the Year" on Mathematicians and Climate Change at the National Center for Atmospheric Research (NCAR), the 2008 and 2010 MSRI Climate Change Summer Schools, and the Cornell based Institute Computational Sustainability. She was the chair of the Society for Industrial and Applied Mathematics (SIAM) Activity Group on Dynamical Systems for 2008-2009.

Abstracts of MAA-NJ Contributed Paper Sessions

Session 1: General Session
Room 201, L'Hommedieu Hall
Organizer**:** Theresa Michnowicz, New Jersey City University
Presider: Yi Ding, New Jersey City Unversity

11:00-11:15 **Hieu D. Nguyen**, Rowan University, nguyen@rowan.edu

Sums of Products of Hypergeometric Bernoulli Polynomials
New formulas for sums of products of hypergeometric Bernoulli polynomials are presented, generalizing recent results of K. Kamano for hypergeometric Bernoulli numbers. These formulas are derived using only elementary methods from first-year calculus, in particular multiplication of series, partial fraction decomposition, and product rule for differentiation.

MAA is weathering the storm. Members can see details of the Treasurer report online at http://www.maa.org/treasurer/.

Rick Cleary, chair of the Budget Committee, reported that the 2009 operating budget had a deficit, and the forecast for the 2010 operating budget calls for operating deficit. In light of these deficits, and to significantly reduce future ones, the Board voted in favor of increasing all 2011 membership dues (regular) categories by $2 over the 2010 rate with the exception of student memberships, which will remain at the 2010 rate. This will raise the dues for an electronic membership or a print membership with just a subscription to the *Monthly* from $190/year to $192/year. The MAA launched electronic memberships last fall, and at the time of this Board meeting, about 25% of new and renewed members were choosing electronic membership.

Barbara Faires of Westminster College took over from Martha Siegel as Secretary of MAA after the 2010 Joint meetings in San Francisco. In addition to serving in other positions in the MAA, Martha Siegel served as editor of the Mathematics Magazine for five years and then for 14 years as Secretary.

The MAA is currently evaluating what should be offered as the package that comes with a departmental membership in order to make it attractive. The number of MAA departmental memberships has been decreasing, which is a disturbing trend.

News from NJ Departments

New Jersey City University. The NJCU Mathematics Awareness Lectures will be held at New Jersey City University on Thursday, April 20, 2010. The theme is Mathematics and Sports, www.mathaware.org. Speakers include Joy H. Atkin, Elizabeth High School; Ben Baumer, NY Mets and SUNY; Bruce Bukiet, NJIT; Bruce Chadwick, NJCU; Zhixiong Chen, NJCU; Mathew S. Johnson, TC, Columbia University; John T. Saccoman, Seton Hall University; Ira Thor, NJCU; and Paul vonDohlen, William Paterson University. For information contact Theresa C. Michnowicz, tmichnowicz@njcu.edu.

Rowan University. The Department of Mathematics at Rowan University is proud to announce Oslerfest, a Mathematics Conference in Honor of Professor Thomas Osler's 70th Birthday, to be held on Friday and Saturday April 16 - 17, 2010 at Rowan. Plenary speakers include Professor Richard Askey of University of Wisconsin at Madison, Professor George Andrews of Penn State University, and Professor Bruce Berndt of University of Illinois at Urbana-Champaign. Oslerfest will kick off on Friday April 16 at 3:30pm with a general public lecture by Professor Berndt entitled Ramanujan's Life and Notebooks. This will be

Governor's Report

The MAA Board of Governors had its winter meeting at the 2010 Joint Mathematics meetings in San Francisco on January 12. In addition to its usual business, the Board heard reports from the Washington Office, MAA officers, strategic planning working groups, and editors of MAA publications. In addition, the Board voted on prizes and awards to be given at MathFest 2010, and conducted several elections. The following are several items that I think are important for you to know.

The Board of Governors elected Frank Farris of Santa Clara University to serve as chair of the Council of Publications and on the MAA Executive Committee. His term started after the January 2010 Joint Mathematics meeting held in San Francisco, and he replaces Paul Zorn of St. Olaf College who is serving as President-elect of the MAA.

The Board of Governors voted in January 2005 to initiate continuous strategic planning. Since then, the Board has approved several areas for study under the direction of an appointed working group on a regular basis. Each working group reports back to the Board in two years. In each final report, a working group discusses the evaluation and analysis of the issues in its specific area and makes suggestions for improvement and innovation. At the 2010 winter Board meeting, Elizabeth Mayfield (MAA First Vice President) presented the final report of the Strategic Planning Working Group on Meetings, and the Board voted to accept it. Paul Zorn (MAA President-elect) presented the preliminary report of the Strategic Planning Working Group on Periodicals and Communications. Further, the Board voted to establish two new strategic planning working groups: Working Group on SIGMAAs and Working Group on MAA Books. The reports of the strategic planning working groups are available online at the members-only website http://www.maa.org/StrategicPlanning/.

The MAA President, David Bressoud, reported that the MAA recently received several large grants including the 5-year renewal of the PREP Workshop grant and the REESE grant to study Characteristics of Successful Programs in College Calculus (headed by David Bressoud). In addition, he worked with Michael Pearson (MAA Associate Executive Director) to submit a proposal to the NSF for a new MAA Center for Innovation that will help colleges and universities identify and implement programs that work in improving undergraduate mathematics education. The WeBWork project, led by Arnie Pizer and Mike Gage, is another funded project at the MAA.

John Kenelly, the MAA Treasurer, reported that even though the MAA has been affected by the recent financial crisis, "the heart warming news is that the MAA made it through all this ordeal working within its operating capital account and it did not have to draw down any of its investments." That is, the

11:20-11:35 **Robert J. Ronkese,** United States Military Academy, Robert.Ronkese@usma.edu

An Asymptotic Model of a Nonlinear Adaptive Orthotropic Elastic Plate
Cancellous bone near joints can be viewed as a lattice of asymptotically thin rods and plates. Thus, a model for bone growth and reabsorption can be formulated from the engineering mathematics of asymptotically thin elastic rods and plates. Here, a model based on the orthotropic elastic plate will be presented.

11:40-11:55 **Jaewoo Lee,** Borough of Manhattan Community College, jlee@bmcc.edu

Numbers and Geometry
The connection between numbers and geometry has fascinated many mathematicians over the years. Classically, we can name examples such as Minkowski's theorem on geometry of numbers and Gromov's theorem on growth of groups. In this talk, we will discuss some of the recent results that reveal interesting connections between numbers and geometry.

12:00-12:15 **Maryam Vulis**, USMA Preparatory School, mlv2007@earthlink.net

The Development of the Financial Mathematics Curriculum
In 1970s, a course in financial mathematics generally did not involve calculus. In this talk, we will trace how the current curriculum has grown to include stochastic calculus and optimization. Most of the material had been developed earlier in the 20th century, but it was not part of undergraduate studies until recently.

Session 2: Statistics: Practice and Pedagogy
Room 218, L'Hommedieu Hall
Organizer and Presider: Dexter C. Whittinghill, Rowan University

1:50-2:05 **Donatella Delfino (with Robert Ellis, Frank Lewis and Jun Wen)** SCPS McGhee Division New York University, dd61@nyu.edu

Approaches to Statistics in an Adult Undergraduate Program
Successful techniques to foster students learning in introductory statistics classes for adult undergraduate students are discussed. We

focus on integration of oral and written reports on newspaper readings, group projects involving large data sets, and the use of technology to support students' learning.

11:20-11:35 **Joel Pitt,** Georgian Court University, pittj@georgian.edu

Using R to Teach Elementary Statistics: Why, Why Not, How
For the last three years I have been using R as the preferred statistical software in the Introductory Statistics course I teach at Georgian Court University. In this paper I present a brief introduction to R and discuss the Why's, Why Not's, and How's of using R.

11:10-11:55 **Thayasivam Umashanger,** Rowan University, thayasivam@rowan.edu

Assessing the Number of Components in Mixture Models: A Model Selection Approach
Mixture Models are powerful and flexible tools for the identification of patterns and underlying subgroups in a collection of data, such as a mixture of two normal distributions for the heights of a mixed group of men and women. This talk will outline some of the traditional techniques of choosing the number of subgroups and its estimates (mean, variance, etc) and pointing out their deficiencies, and then outline our technique of doing so efficiently.

12:00-12:15 **Dexter C. Whittinghill III (with Courtney Richmond and Kamille Hammerstone),** Rowan University, whittinghill@rowan.edu

The Effect of Light on the Growth and Morphology of the Threatened Seagrass Halophila Johnsonii
Seagrasses play a vital role in the subtidal marine community, providing habitat and food, and stabilizing the sediment. We simulated the effects of light-diminishing overwater structures (such as docks) on ambient light to study the effect on the growth and morphology of the threatened seagrass H. johnsonii. This talk summarizes our results.

Future MAA-NJ Sectional Meetings

- The Fall 2010 MAA joint meeting with EPADEL will be held at La Salle University in Philadelphia, on Saturday, November 6. Invited speakers include William Dunham, Muhlenberg College, and Brian Hopkins, Saint Peter's College.
- The Spring 2011 MAA-NJ Section/GSUMC meeting will be held at Essex County College, on Saturday, April 9.

Call for Contributed Paper Session Organizers and Lunch Table Discussion Leaders

People interested in organizing a contributed paper session or leading a lunch table discussion at the Fall 2010 meeting are asked to please submit the proposed topics to Theresa Michnowicz, New Jersey City University, tmichnowicz@njcu.edu, by Sunday, September 5, 2010.

MathFest 2010

The Mathematical Association of America will hold its annual MathFest in Pittsburg, PA, Augst 5-August 7, 2010. More information, including online registration and a list of contributed paper sessions, can be found online at http://www.maa.org .

Future National MAA Meetings

- 2011 Joint Mathematics Meetings, New Orleans, LA, January 5-8, 2011
- 2011 MathFest, Lexington, KY, August 4-6, 2011
- 2012 Joint Mathematics Meetings, Boston, MA, January 4-7, 2012

2010 MAA PREP Workshops

The program costs as well as the costs of food and lodging during the workshop are covered by PREP. However, there is a registration fee for each workshop. Visit MAA Online at http://www.maa.org/prep/ for information.

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.

JOIN THE MAA (http://maa.org/mbsvcs/future.html#joinmaa).

In 1998 Dex organized and moderated the first Teachers of Statistics meeting at the JMM in Baltimore. He did this again in 1999 at the JMM in San Antonio, and in 2000 at the JMM in Baltimore. At the Baltimore meeting, the attendees voted that this 'stat group' become an official MAA SIGMAA: the SIGMAA on Statistics Education. Dex served as the first Chair of this new SIGMAA and moderated the business meetings in 2001 and 2002.

In 2006, the SIGMAA on Statistics Education recognized Dex for his dedicated service by naming the SIGMAA award in his honor: The Dexter C Whittinghill III Outstanding Contributed Paper Award in Statistics Education. Since 2006, this award has been given annually at the JMM to the presenter of the best Stat Ed contributed paper,

We are grateful to Dex for his many years of continued and dedicated service to the Mathematical Association of America and its New Jersey Section.

Distinguished Teaching Award

The recipient of the 2010 Award for Distinguished College or University Teaching is Robert Wilson, Rutgers University. Please see the separate flyer for both the nominator's statement and Dr. Wilson's response.

NJ-NExT

The organizers of Nj-Project Next will be soliciting new faculty members in the New Jersey section to become NJ-Next fellows next spring. Those who are intersetd can contact the organizers, John T. Saccoman, Seton Hall University University, saccomjt@shu.edu or Kaaren B. Finberg, Ocean County College, kfinberg@ocean.edu

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 2011 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 you may contact Aihua Li (Secretary, MAA-NJ) at lia@mail.montclair.edu . Award nominations are due November 7, 2010.

Session 3: Mathematics and Sports

Room 219, L'Hommedieu Hall

Organizer: Kaaren Finberg, Ocean County College, and John T. Saccoman, Seton Hall University

Presider: John T. Saccoman

11:00-11:15 **Paul vonDohlen**, William Paterson University, vondohlenp@wpunj.edu

Mathematics of the NFL's Quarterback Passer Rating

In this talk, we will investigate the history and calculation of the National Football League's quarterback passer rating. We will consider the effectiveness of such a statistic and possible improvements. Finally, variations to the formula using the past season's data will be examined.

11:20-11:35 **Michael Huber,** Muhlenberg College, **huber@muhlenberg.edu**

A Model for Scoring 20+ Runs in a Game

How often can we expect a Major League Baseball team to score at least 20 runs in a single game? Considered a rare event in baseball, the outcome of scoring at least 20 runs in a game has occurred 224 times during regular season games since 1901 in the American and National Leagues. Each outcome is modeled as a Poisson process; the time of occurrence of one of these events does not affect the next future occurrence. Using various distributions, probabilities of events are generated, goodness-of-fit tests are conducted, and predictions of future events are offered.

11:40-11:55 **Zhixiong Chen,** New Jersey City University, **zchen@njcu.edu**

A Running Model

J. B. Keller introduced a racemodel years ago. Starting from $D = \int_0^T v(t)dt$, we hope to achieve a solution for the following problem: when T is fixed, find the optimal velocity which will maximize the distance (D), i.e. when the distance (D) is fixed, find the velocity which will make the time (T) smallest. Four physiological factors (the resistant force constant τ, the force controlled by the runner f(t), the rate that oxygen is supplied by breathing and circulation in excess of that supplied in the non-running state σ and the initial energy measured by the

quantity of the available oxygen in the muscles per unit mass E_0) which affect the velocity of the runner will be discussed. Advantages and disadvantages of the model will be presented. Comparisons of the prediction with the real record will be shown.

12:00-12:15 **John T. Saccoman**, Seton Hall University, saccomjt@shu.edu

Gil Hodges Should Be in the Hall of Fame

Gil Hodges has received more votes for the Baseball Hall of Fame than any other player. An eight-time All-Star, Hodges was voted by respected baseball statistics organization STATS Inc. as the best defensive first baseman of the 1950's. He created a significant percentage of his team's runs in the years 1948-1959, hitting 20 or more home runs in 11 straight seasons and driving in 100 runs in the seven consecutive seasons from 1949-1955.

In this talk, Hodges' record is shown to compare favorably to a host of first basemen, contemporary and otherwise, Hall of Famers and non-Hall of Famers, using sabermetrical and non-traditional measures.

Session 4: The Mathematical Education of Teachers
Room 220, L'Hommedieu Hall,
Organizer and Presider: Bonnie Gold, Monmouth University

11:00-11:15 **Margaret Karrass, Borough of Manahtan Community College**, MKarrass@bmcc.Cuny.edu

Can we see what you see: An analysis of pre-service mathematics teacher's geometric reasoning.

Is there a relationship between geometric knowledge of pre-service secondary mathematics teachers and their visual reasoning skills? More specifically, when pre-service mathematics teachers are presented with diagrams of certain theorems found in high school mathematics curriculum, are they able to recognize these theorems from the diagrams? Can they reason from a diagram, thereby connecting visual and abstract representations? In this presentation I will discuss a study which attempted to answer these questions.

RESPONSE FROM PROFESSOR COHEN

It is crucial to our country and our profession that undergraduate education in mathematics become more effective and more satisfying for faculty and students alike. I am grateful for the opportunity to work with the MAA---both in the New Jersey Section and in the national organization---toward the improvement of undergraduate education in mathematics. This award is an added cause for gratitude. I hope to continue to work with the MAA and to enjoy the professional community it provides.

Past Recipients of The MAA Meritorious Service Award

2005	Barbara L. Osofsky, Rutgers University
2000	Sr. Stephanie M. Sloyan, Georgian Court University
1995	Theresa C. Michnowicz, New Jersey City University
1990	Henry O. Pollak, Bell Labs
1985	Emory Starke, Rutgers University

MAA-NJ 2010 Distinguished Service Award

The recipient of the 2010 MAA-NJ Sr. Stephanie Award for Distinguished Service is **Dexter C. Whittinghill III** of Rowan University.

Dr. Whittinghill has been active in the New Jersey Section since 2001, when he introduced our section to the new SIGMAA on statistics education by giving a talk "The SIGMAA on Statistics Education: Past, Present and Future" at the spring meeting held at Rowan University.

Each year after that he has presented talks related to statistics or pedagogy at our spring section meetings. Two of these presentations were reprises of talks given at the Joint Mathematical Meetings.

Since 2002, in addition to leading lunch discussion groups at the section's spring meetings, Dex has continued to organize contributed paper sessions on statistics. The current one is titled "Statistics: Practice and Pedagogy."

At the MAA-NJ 2009 Fall Meeting, Dex served as the presider for the plenary talk given by Dr. Rebecca Goldin on statistics in the media. Since 2004, Dex has also remained active in the South Jersey Math Alliance meetings.

On the national level, Dex has served MAA members who are teachers of statistics. He was the co-organizer and contact person for the three-day contributed paper session at the JMM in San Antonio in 1999 and for panels in 1999 and 2001.

Announcements

MAA 2010 Meritorious Service Award

The MAA Certificate of Meritorious Award was awarded to **Amy Cohen**, Rutgers University, at the Prize Session of the 2010 Joint Mathematics Meetings in San Francisco. The MAA Certificate is presented for service at the national level or for service to a section of the Association to a member of New Jersey Section every five years. The first such awards were made in 1984. At each January meeting honorees from several MAA sections are recognized.

CITATION

Amy Cohen is a graduate of Radcliffe College and received her Ph.D. from the University of California at Berkeley. She has been a member of the faculty at Rutgers University since 1972. Her research interests include partial differential equations, inverse scattering, and the Korteweg-de Vries equation. Recently, she has turned her attention to issues of diversity, graduate education, and teacher preparation.

Amy Cohen's service to the MAA, both at the local and national levels, has been outstanding. In the Section, she has chaired the Teaching Award Committee, helped organize workshops and panels for Section meetings, and made presentations for NJ Section NExT.

Her national service includes the Committee on Research on Undergraduate Mathematics Education, CUPM, the AMS-MAA Joint Data Committee, and the Committee on the Gung-Hu Award. She served as a member of the MAA Board of Governors as the New Jersey governor 2000-03.

Her service to other national organizations on behalf of mathematics includes a term as treasurer of the Association for Women in Mathematics, a term on the Council; on the American Association for the Advancement of Science, and membership on the AMS Committee on an Award for an Exemplary Program or Achievement in a Department of Mathematics.

Because of her concern about a New Jersey law governing transfer from community colleges to public four-year institutions, Amy Cohen organized a statewide conference on transfer articulation in mathematics to encourage mutual understanding and cooperation to mitigate unintended consequences and enhance student achievement.

The MAA proudly presents the Certificate of Meritorious Service to Dr. Amy Cohen.

11:20-11:35 **Penny Dunham**, Muhlenberg College, pdunham@muhlenberg.edu

Writing to Learn: Problem solving diaries for preservice teachers.
A semester-long program of writing and problem solving helps preservice elementary teachers increase skills and improve attitudes toward math. I'll describe the program with examples of problems, assessment methods, and student comments about changes in their views of math.

11:40-11:55 **Amy Cohen**, Rutgers University, acc@math.rutgers.edu

A Capstone Course for Future HS Teachers
Rutgers offers a course called "Connecting Advanced Math to HS Curriculum". Prerequisite is completion of the math major and a semester of practice teaching. Most students are in the masters year of our 5-year certification program. The course is offered in a workshop format: students work in groups on a problem, they present their results, the instructor leads a discussion making connections that might have been missed, then the class moves on to the next problem. This talk will describe the outline of the course and discuss at least two problems and the discussions that ensue.

12:00-12:15 **Jay L. Shiffman**, Rowan University, schiffman@rowan.edu
(This is a general contributed paper)

An Overview of Proof in a Discrete Mathematics Course
This past semester I taught a section of discrete mathematics which met for 2.5 hours on Monday evenings to students primarily majoring in our Liberal Studies Mathematics/Science track. This major encompasses courses taken from six disciplines including mathematics where students take 16 credits to fulfill the major. Topics in my discrete mathematics course included induction and recursion, set theory, logic, methods of proof, the theory of binary relations, combinatorial considerations, and vertex-edge graphs. This presentation will include proofs of essential theoretical considerations, samples of student work on projects displaying the pitfalls encountered as well as the successful outcomes garnered.

Spring 2010 MAA-NJ Section Meeting Program

8:30 – 9:15	**Registration and Coffee** First Floor Entrance to L'Hommedieu Hall
8:30 – 1:30	**Book Exhibits** First Floor L'Hommedieu
9:30 – 9:40	**Welcome** Dr. Karen Hays**,** Vice President for Academic and Student Affairs, Middlesex County College
9:45 – 10:35	**From Differentials to Limits: Fleeting Flirtations and Lingering Loyalties** Robert Bradley, Adelphi University Presider: Larry D'Antonio, Ramapo College Room 205 L'Hommedieu Hall
10:35 – 11:00	**Intermission**, Coffee and Book Exhibits
11:00 -- 12:15	**Contributed Paper Sessions** (all in L'Hommedieu Hall) • **General Session** Room 201 • **Statistics: Practice and Pedagogy** Room 218 • **Mathematics and Sports** Room 219 • **Mathematical Education of Teachers** Room 220,
12:15 -- 1:20	**Lunch and Lunch Discussion Tables** College Center (Book Exhibits end at 1:20)
1:20 -- 2:15	**Mathematical Challenges in Climate Change** Mary Lou Zeeman, Bowdoin College Presider: Stanley F. Cohen, Union County College Room 205, L'Hommedieu Hall
2:25 -- 3:30	**Student Poster Session** Room 256, L'Hommedieu **Student Contributed Paper Session I** Room 218, L'Hommedieu **Student Contributed Paper Session II** Room 219, L'Hommedieu
3:05 -- 3:20	**Chair/Governor's Report,** Room 205, L'Hommedieu Hall
3:20 – 3:30	**Intermission**
3:30 – 4:25	**Can Computers do Math?** Thomas Hales, University of Pittsburgh Presider: Paul VonDohlen, William Paterson University Room 205, L'Hommedieu Hall
4:25 – 4:45	**Prizes and Awards,** GSUMC Awards, door prizes, and silent auction winners (must be present to win) Room 205, L'Hommedieu
5:00	Dinner honoring the Invited Speakers and Award Recipients

Lunch Discussion Tables - Spring 2010 Meeting

Organized by Theresa C. Michnowicz, New Jersey City University

1. History of Mathematics, led by Robert Bradley, Adelphi University.
2. Climate and Sustainability in the Curriculum, led by Mary Lou Zeeman, Bowdoin College.
3. Mathematics and Sports, led by Kaaren Finberg, Ocean County College, and John T. Saccoman, Seton Hall University
4. On-line-courses, led by Mark S. Korlie, Montclair University
5. Should we be using the calculator or a statistics package in the introductory course? led by Dexter C. Whittinghill III, Rowan University

Those who pre-registered have priority at these discussion tables.

2010 Garden State Undergraduate Mathematics Conference Program

8:30 – 9:00	Registration and Breakfast Main Entrance to the Main Hall
9:15 – 12:00	**New Jersey Undergraduate Math Competition** Main Hall, Room 100
12:15 – 1:20	**Complimentary Student Lunch** Science Building, outside Rooms 200A and 200B
1:20 -- 2:15	**Mathematical Challenges in Climate Change** Mary Lou Zeeman, Bowdoin College Presider: Paul VonDohlen, William Paterson University Room 205, L'Hommedieu Hall
2:25 – 3:30	**Student Poster Session** Room 256, L'Hommedieu **Student Contributed Paper Session I** Room 218, L'Hommedieu **Student Contributed Paper Session II** Room 219, L'Hommedieu
3:30 – 4:25	**Can Computers do Math?** Thomas Hales, University of Pittsburgh Presider: Stanley F. Cohen, Union County College Room 205, L'Hommedieu Hall
4:25 – 4:45	Contest Results, Awards, and Prizes, Room 205, L'Hommedieu Hall