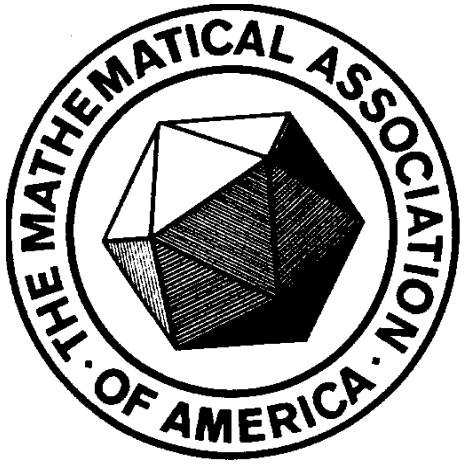
The Mathematical Association of America
New Jersey Section



Spring Meeting
Middlesex County College
Edison, NJ

in conjunction with the second annual
Garden State Undergraduate Mathematics Conference
and NJ-NExT

Saturday, April 2, 2005

Abstracts and Biographies of Speakers

Blown Away: What Knot to Do When Sailing

Sir Randolph Bacon III [cousin-in-law to Colin Adams (Williams College)]

Being a tale of adventure on the high seas involving great risk to the tale teller, and how an understanding of the mathematical theory of knots saved his bacon. No nautical or mathematical background assumed.

Sir Randolph Bacon III is a British adventurer and bon vivant. His interest in mathematics comes from his cousin-in-law Colin Adams, who is the Francis Oakley Third Century Professor of Mathematics at Williams College. Adams received his Ph.D. from the University of Wisconsin-Madison in 1983. He is particularly interested in the mathematical theory of knots, their applications and their connections with hyperbolic geometry. He is the author of "The Knot Book", an elementary introduction to the mathematical theory of knots, co-author of the humorous supplements "How to Ace Calculus: The Streetwise Guide", and "How to Ace the Rest of Calculus: the Streetwise Guide" and author of "Why Knot?", the mathematical comic book with attached toy. Having written a variety of research articles on knot theory and hyperbolic 3-manifolds, his research is supported by the National Science Foundation. He was a recipient of the National Distinguished Teaching Award from the Mathematical Association of America (MAA) in 1998, an MAA Polya Lecturer for 1998-2000, a Sigma Xi Distinguished Lecturer for 2000-2002, and the recipient of the Robert Foster Cherry Teaching Award in 2003. He is also the humor columnist for the Mathematical Intelligencer.

Piecewise-holonomic Mechanics, Hybrid Dynamical Systems, and Escaping Cockroaches

Philip Holmes, Princeton University

I will discuss joint work with John Schmitt, Raffaele Ghigliazza and Justin Seipel, in which nonlinear mechanics and hybrid dynamical systems meet biology. Motivated by Robert Full's experimental studies of insects at UC Berkeley, we propose a mechanical model for the dynamics of legged locomotion in the horizontal plane. Our three-degree-of freedom rigid body model with massless, compliant legs in intermittent contact with the ground allows for passive and prescribed (active muscle) force and torque generation. Starting with energetically conservative bipedal models (each leg corresponding to the front/rear/opposite-middle tripod used in rapid running by many insect species), we move on to include active muscles and a central pattern generator of bursting neurons, and begin to develop hexapedal models with more realistic leg geometries. We show that piecewise holonomic

mechanics due to intermittent foot contacts can confer strong asymptotic stability, and compare our models' behaviors with experiments on running insects. We stress the relevance of simple models, and show how phase reductions and averaging allow significant simplifications of complex neuromechanical models.

Philip Holmes was born in the UK in 1945 and studied Engineering at the universities of Oxford and Southampton. He taught at Cornell from 1977-1994 and is currently Professor of Mechanics and Applied Mathematics at Princeton. He works in nonlinear dynamics and "chaos theory," studying spatio-temporal patterns in physical and biological contexts. He has also published four collections of poems.

Stopping between the integers: How Euler discovered the Gamma function

Edward Sandifer, Western Connecticut State University

Euler was only 22 years old in 1729 when he discovered the Gamma function, a generalization of the factorial function. It didn't look like the Gamma function when he first discovered it, though he did discover some of its important properties. We will see what Euler discovered, how his technique of "interpolation of functions" worked, and some other things he did with similar methods.

Edward Sandifer was a high school student in South Jersey during the Kennedy and Johnson administrations. He was relatively undistinguished in soccer and track, but he did fairly well in the state mathematics contest, coming in first in the region at about the same time Nixon was being elected President. College. Grad school. Algebra. Invariant theory. Combinatorics. Then he went to teach at Western Connecticut State University, where he discovered the history of mathematics. Now he reads mathematics from the 1700's, especially the work of Leonhard Euler, and writes a monthly column "How Euler Did It," for MAA Online. He still runs, and has run the Boston Marathon 32 times.

Abstracts of MAA-NJ contributed paper sessions

Session 1: Applications of Math to the Social Sciences & Finance, LH 218
Organized by Youngna Choi, Montclair State University
Presiders: Youngna Choi and Michael Jones, Montclair State University

1:30-1:45

Youngna Choi, Montclair State University,
choiy@mail.montclair.edu

Comparing the Actual Cost of Debt: Point vs. Compensating Balance

When a consumer borrows money, the bank can increase the actual cost of borrowing (effective interest rate) above the nominal interest rate by charging a one-time payment (point) or holding money in a non-interest bearing account (compensating balance) to be returned later. When the different amount of money is charged, which method is more advantageous to the borrower and what are the decision factors? The talk will use a simple mathematical model to calculate and compare the effective interest rate of various payment methods and explicitly demonstrate how each variable affects the output.

1:50-2:05

Michael A. Jones, Montclair State University,
jonesm@mail.montclair.edu

The Geometry Behind Paradoxes of Voting Power

Despite the many useful applications of power indices, the literature on power indices is raft with counterintuitive results or paradoxes, as well as real-life institutions that exhibit these behaviors. This has led to a cataloging of sorts, remniscent of butterfly collecting, where new and different paradoxes are calculated and then shown to exist in nature. Even though the paradoxes sound different from one another with names like the paradox of redistribution, the donor and transfer paradoxes, the paradox of quarreling members, the paradox of a new member, and the paradox of large size, they can be classified by the underlying geometric property that induces the counterintuitive result. Games where the players have the same power form a partition. The paradoxes are a result of three geometric ideas and how they interact with the partition: a point passing a hyperplane thereby changing parts, moving hyperplanes that change the size or number of parts in a partition, and changing the dimension of the space by adding or subtracting a voter. Perhaps surprisingly,

analyzing the geometry behind the paradoxes for three voters is sufficient to understand the geometry behind the paradoxes.

2:10-2:25

Joel Pitt, Georgian Court University, pittj@georgian.edu

A Brief Introduction to Options Pricing: The Binomial Model

In the (just over) 30 years since the publication of the Black-Scholes' model for option pricing, Mathematical Finance has become a significant academic area with many texts, journals and graduate programs devoted to it. In addition there are a host of well-paid positions in the financial industry available to its practitioners. In this talk we provide a brief introduction to the problem of and the mathematics of option pricing.

Session 2: Discrete Mathematics: Pedagogy, Projects, Research, LH 219
Organized and presided over by Brian Hopkins, Saint Peter's College

1:30-1:45

Aihua Li, Department of Mathematical Sciences, Montclair State University, lia@mail.montclair.edu

Polynomial Modeling of Discrete Time Series

A polynomial model of a time series is a collection of multivariable polynomials that describe the current time series data and can predict the future values. Such models can be used to simulate and analyze the dynamics of the time series and to help understand the relationships among the elements in the system. We study the algebra methods to construct a desired polynomial model. Applications of Gröbner Bases Techniques in the construction process will be discussed.

1:50-2:05

Kimberly Burch, Montclair State University,
burch@pegasus.montclair.edu

Graph Theory Project on the Melting Point of Alkanes

After a presentation about using multivariable models to predict the melting points of alkanes having 10 to 20 carbon atoms and only one methyl group, students were asked to develop melting point models of the normal alkanes based on their diameter. Students then answered several questions about their models. They were also asked to motivate their choice of regression analysis and to list additional situations that could be modeled using graph theory.

2:10-2:25

Larry Thomas, Saint Peter's College, lthomas@spc.edu

Applying Graph Theory to Typography

A discussion of the Knuth-Plass line-breaking algorithm. This little-known but important algorithm is at the heart of the TeX and LaTeX typsetting programs.

2:30-2:45

Diana Thomas, Montclair State University,
thomasdia@mail.montclair.edu

A *k*-parameter Dynamical System Induced by the Nim Game

It is well-known that the win loss pattern of single pile Nim will cycle. A major open question posed is to determine win-loss cycle lengths as a function of subtraction set (the restricted number of tokens that can be removed from the pile by a player). Inspired by this question, we pose the Nim recursion as a dynamical system over the vector space $(Z_2)^n$ where the Nim win-loss pattern is generated by a specific initial condition. Global dynamics such as classifying Garden of Eden points and transient dynamics are determined. In addition, because the dynamical system is a shift register sequence, we derive general conditions that will guarantee no stand alone cycles for an arbitrary shift register sequence. Because the Nim dynamical system satisfies these conditions, all dynamics can be generated by forward iteration of the Garden of Eden points. (Work with Michael Jones.)

2:50-3:05

Brian Hopkins, Saint Peter's College, bhopkins@spc.edu

Shift-Induced Dynamical Systems of Partitions and Compositions

"Bulgarian solitaire," popularized by Martin Gardner in the early 1980's, uses a shift operation on integer partitions. We show that the corresponding dynamical systems have no stand alone cycles, so that all dynamics can be generated from Garden of Eden points (except for the cases $n = 1, 2$). The Garden of Eden partitions are shown to be in bijection with pairs of conjugate partitions. The shift can also be defined for integer compositions, which raises analogous questions. We show that the Garden of Eden compositions are counted using Fibonacci numbers. Open questions will also be discussed. (Work with Michael Jones.)

Session 3: General Contributed Paper Session I, LH 220
Organized by Theresa Michnowicz, New Jersey City University
Presider: Sandra Caravella, New Jersey City University

1:30-1:45

Eliana S. Antoniou, William Paterson University,
Antonioue@wpunj.edu

A Theoretical Simulation of Hematopoietic Stem Cells During Oxygen Fluctuations: Predictions of Bone Marrow Responses During Blood Loss

This presentation is based on the premise, that studies on bone marrow (BM) stem cells (lymphohematopoietic stem cell, LHSC) by proteomics, computational biology and genomics could be aided by mathematical models. We present the formation of a mathematical model that addresses the immediate response of the BM to hemorrhagic shock. This is in contrast to other models that address changes in hematopoietic responses during prolonged hemorrhagic shock. Hemorrhagic shock is associated with acute drop in blood volume and decrease in pO_2. This study proposes to use O_2 level (percentages) as the dependent variable to simulate the responses of HSC in its microenvironment. We assume that the loss of cells by apoptosis is negligible, since hypoxia could mediate biological changes to protect against apoptosis.

1:50-2:05

Frank Sullivan, Fairleigh Dickinson University, fsully@fdu.edu

Hyperbolic Subshift Approximations for Certain Logistic Markov Maps

We exhibit explicit invariant hyperbolic Cantor sets for the logistic Markov maps $f(y) = cy(1–y)$ which have Hausdorff dimension arbitrarily close to one, where either $c = 4.0$ (the Von Neumann–Ulam full logistic map), $c = 3.6785$ (the Ruelle logistic Markov map with critical point pre-periodic to a hyperbolic fixed point) or $c = 3.89087$ (the logistic Markov map with critical point pre-periodic to a hyperbolic period two orbit). The first and third mappings support strongly mixing Markov measures μ with Hausdorff dimension $HD(\mu)$ equal to the Hausdorff dimension of the Cantor set (they can be modeled as mixing subshifts of finite type), while for the Ruelle logistic map the invariant Cantor set decomposes into two f–squared invariant Cantor sets which are interchanged by f(y) and each supports a strongly mixing f–squared invariant Markov measure (again, they can be modeled as mixing

subshifts of finite type). The construction is based on the bi–Hölder continuous conjugacies to the corresponding piece-wise linear tent maps and an idea of Sheldon Newhouse's. The thermodynamic methods of Bowen and Ruelle are employed.

2:10-2:25

Abdul Hassen, hassen@rowan.edu and Hieu D. Nguyen*, nguyen@rowan.edu, Rowan University

A Functional Inequality for Hypergeometric Zeta Functions

The Riemann zeta function is distinguished by its functional equation, which describes its reflection across the critical line. We discuss joint work with Abdul Hassen to extend this symmetry to hypergeometric zeta functions and demonstrate a functional inequality that they satisfy based on the same critical line.

2:30-2:45

Jay L. Schiffman, Rowan University, Schiffman@rowan.edu

Prime Decades Less Than One Billion

In a given set of ten integers, it is rare that all four candidates for primality are actually prime. An example is {11,13,17,19}. This paper will focus on securing prime decades, demonstrate the minimal distance between them and employ the TI-89 and MATHEMATICA as a discovery tool.

2:50-3:05

Julio Guillén, New Jersey City University, jguillen@njcu.edu

A Statistical Assessment of the Effectiveness of a Pre-college Program in Mathematics, Sciences and Computer Sciences

Proyecto Access / Proyecto Science is a year-round math/science/ computer-science program for middle and high school students housed at New Jersey City University. This paper will discuss an assessment model of the program consisting of two phases: pre-post test data analyses across levels, gender and ethnicity; and a longitudinal analysis spanning the eight years of the program's existence. The second part involves determining the best co-hort for a comparison analysis of test data. This work is a follow up of a previous study conducted three years ago.

Session 4: General Contributed Paper Session II, LH 255
Organized by Theresa Michnowicz, New Jersey City University
Presider: B. Lynn Bodner, Monmouth University

1:30-1:45

Donald Forbes, dforbs16@optonline.net

Mathematics Trivialized

Mankind invented mathematics as the tool to dominate nature. So we seek the architecture of the mathematical sciences, and the conceptual structure of abstract mathematics. Mathematics is no longer a tall mountain with an invisible peak, but a small mountain with its summit always in view. The broad perspective provides multiple benefits.

1:50-2:05

Robert Mayans, Fairleigh Dickinson University, Mayans@fdu.edu

Ten Ways of Looking at Real Numbers

The real numbers may be examined and related to other mathematical structures in a variety of ways. The system of real numbers is a linear order, a completion of the rational numbers, a manifold, a complete metric space, a subfield of the surreal numbers. We describe a portion of a mathematical hypertext that places these different views of the real numbers into a larger framework.

2:10-2:25

Richard Riggs, New Jersey City University, rriggs@njcu.edu

Fifty Years of Mathematics Education: An Overview

The paper will give an overview of the significant developments in mathematics education from 1954-2004. Modern mathematics, the basic skills movement, and the current constructivism will be briefly discussed with some attention given to various sub-movements and activities. Key persons will be identified and references as well as links will be provided for further information.

2:30-2:45

Sylvester Reese, sylreese@yahoo.com

A Constant that Archimedes Missed?

In Archimedes's work: "Quadrature of the Parabola," he found a **simple** "formula" for the area of **any** parabolic segment. This talk is about how he might have found a **universal** parabolic constant,

$\sqrt{2} + \ln(1+\sqrt{2})$, similar to the **universal** circular constant, π, had he chosen a **particular** distinguished parabolic segment.

2:50-3:05

B. Lynn Bodner, Monmouth University, bodner@monmouth.edu

Unique Moroccan Designs: Reconstructed and Classified

In this paper, a few extraordinary Islamic designs found on geometric mosaics and decorative ceramic work only in Morocco, will be illustrated. The designs will then be analyzed for their symmetry elements, classified according to the symmetry transformations the patterns allow, and then recreated using compass and straightedge constructions (with the aid of the *Geometer's Sketchpad* software).

Announcements

Lunch discussion tables for Spring 05 meeting

There will be nine discussion tables at lunch (in addition to those for NJ-NExT).

1. Popular and Recreational Mathematics, led by Colin Adams, Williams College
2. Math and Art, led by Lynn Bodner, Monmouth University
3. Implementation of Financial/Actuarial Mathematics, led by Youngna Choi, Montclair State University
4. Proof: What is Applied Mathematics? led by Philip Holmes, Princeton University
5. Discrete Mathematics: Who, When, and What? led by Brian Hopkins, St. Peter's College
6. Using history to improve your teaching of mathematics, led by Edward Sandifer, Western Connecticut State University
7. Actuarial Science, led by Stewart Gleason, Guy Carpenter
8. National Security Agency Careers and Opportunities, led by Theresa Francis, NSA
9. Teaching in NJ High Schools, led by Susan L. Rembetsy, Chatham High School, and Caryn Vlassenko, West Windsor-Plainsboro High School South

Those who pre-registered have priority at these discussion tables. We look forward to a set of lively and interesting discussions!

MAA-NJ Fall 2005 Meeting

The Fall 2005 MAA-NJ Section meeting will be held on **Sunday**, November 6 at Monmouth University, West Long Branch, NJ.

(continued on page 14)

Mathematical Association of America
New Jersey Section
Spring 2005 Meeting Program

All sessions except the concurrent sessions at 1:30 p.m. will take place in L'Hommedieu Hall (LH) 205

8:30 – 9:15	Registration and Coffee, L'Hommedieu Hall, Second Floor
8:30 – 1:30	Book Exhibits, L'Hommedieu Hall, Second Floor
9:15 – 9:30	**Welcome by Joann La Perla-Morales, President,** Middlesex County College
9:30 – 10:20	***Piecewise-holonomic Mechanics, Hybrid Dynamical Systems, and Escaping Cockroaches*, Philip Holmes,** Princeton University Presider: Debra V. Curtis, Bloomfield College
10:20 – 10:30	Presentation of **Distinguished** and **Meritorious Service** Awards
10:30 – 10:40	Chair's and Governor's Reports, and recognition of 25- and 50-year members
10:40 – 11:10	Intermission
11:10 – 12:00	***Stopping between the integers: How Euler discovered the Gamma function,* Edward Sandifer,** Western Connecticut State University Presider: John T. Saccoman, Seton Hall University
12:00 – 1:30	**Lunch**, Corral Restaurant, College Center, Second Floor (Book exhibits ends at 1:30.)
1:30 – 3:05	**MAA-NJ Contributed paper sessions** (concurrent): Applications of Mathematics to the Social Sciences and Finance: LH 218 Discrete Math: Pedagogy, Projects, Research: LH 219 General Contributed Papers I: LH 220 General Contributed Papers II: LH 255
2:10 – 3:10	**NJ-NExT session** (NJ-NExT fellows only): LH 256
3:05 – 3:30	Intermission, Lobby (Silent Auction bidding ends at 3:30)
3:30 – 4:20	***Blown Away: What Knot to Do When Sailing,* Sir Randolph Bacon III [cousin-in-law to Colin Adams** (Williams College)**]** Presider: Catherine A. Beneteau, Seton Hall University
4:20 – 4:50	Contest Results, Awards, Drawing of door prizes, Silent Auction Winners announcement (must be present to win)
4:20 – 5:50	**NJ-NExT session** (NJ-NExT fellows only): LH 256
5:00	Dinner honoring Award Winners, Invited Speakers and Workshop Leaders

Garden State Undergraduate Math Conference
Spring 2005 Program

8:30 – 10:00	Registration and Breakfast, L'Hommedieu Hall (LH) Second Floor
8:30 – 9:00	Check-in for NJ Undergraduate Math Competition, L'Hommedieu Hall (LH) Second Floor
9:00 – 12:00 (9:00 – 10:00) (10:00 – 12:00)	**NJ Undergraduate Math Competition** Individual Session Team Session Headquarters: Main Hall (MH) 103
12:00 – 1:00	**Lunch**, Main Hall (MH) Lobby
1:00 – 1:45	**Career Workshops** (concurrent): *Actuarial Science*: MH 132, Stewart Gleason, Guy Carpenter *National Security Agency Careers and Opportunities*: MH 133: Theresa Francis, National Security Agency *Teaching in NJ High Schools*: MH 135: Susan L. Rembetsy, Chatham High School, and Caryn Vlassenko, West Windsor-Plainsboro High School South
1:50 – 3:30	**Presentations by Students: Talks and Poster Session** Student Session 1: MH 113 Student Session 2: MH 117 Student Poster Session: MH217
3:30 – 4:20	***Blown Away: What Knot to Do When Sailing*, Sir Randolph Bacon III [cousin-in-law to Colin Adams** (Williams College)]LH 205 Presider: Catherine A. Beneteau, Seton Hall University
4:20 – 4:50 4:50	Contest Results, Awards, and Prizes, LH 205 End of Conference

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(continued from page 11)

Invited speakers include David Bressoud, Macalester College and Betty Liu, Monmouth University; two workshops (one by David Bressoud) and consideration of amendments to the section by-laws.

Call for Lunch Table Discussion Leaders at Fall 2005 Meeting
Pease submit topics to Theresa C. Michnowicz, New Jersey City University, 201-200-3219, tmichnowicz@njcu.edu, by September 30, 2005.

Other Future MAA-NJ Meetings
The Spring 2006 Meeting will be our **50th Anniversary Meeting**. It will be held at Georgian Court University, Saturday, April 8, 2006.

MathFest 2005
The Mathematical Association of America will hold its annual MathFest in Albuquerque, NM August 4-6, 2005. Check MAA Online at http://www.maa.org for more information about MathFest.

Other future national MAA meetings
MAA-AMS Joint Mathematics Meeting: San Antonio, TX, January 12-15, 2006
MathFest: Knoxville, TN, August 10-12, 2006
MAA-AMS Joint Mathematics Meeting: New Orleans, LA, January 4-7, 2007
MathFest: San Jose, CA, August 3-5, 2007
MAA-AMS Joint Mathematics Meeting: San Diego, CA, January 6-9, 2008

2005 PREP Workshops
- Assessing the Undergraduate Program in Mathematics
- Geometric Combinatorics
- Mathematics Meets Biology: Epidemics, Data Fitting and Chaos
- Nifty Applications in Discrete Mathematics
- The Geometry of Vector Calculus
- Statistical Ratemaking
- Revitalizing your Developmental Mathematics Courses: A Context-Driven, Activity-Based Approach
- Exploring Abstract Algebra Using Computer Software
- Computational and Mathematical Biology
- Computational Literacy Across the Curriculum: Everybody's Project
- Leading the Academic Department: A Workshop for Chairs of Mathematical Sciences

Visit MAA Online at http://www/maa/org/prep/2005 for information about these workshops.

Other upcoming workshops
DIMACS Reconnect Conference: Reconnecting Teaching Faculty to the Mathematical Sciences for Summer 2005.

PMET (Preparing Mathematicians to Educate Teachers) is offering 12 workshops (8 new and 4 continuations) during Summer 2005. Visit the PMET website http://www/maa/org/pmet for more information about the program.

Call for Nominations for the New Jersey Section Award for Distinguished College or University Teaching
The MAA-NJ Section Distinguished Teaching Award Selection Committee is seeking nominations for the 2006 Distinguished College or University Teaching 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 on the section's website at
http://www.maa.org/newjersey . The winner of the award will be recognized at the Spring 2006 meeting. For more information about this award you may contact Naomi Shapiro (Secretary of the MAA-NJ Section) at shapiro@georgian.edu 732-987-2340.

Mathematics Awareness Month
April is Mathematics Awareness Month. The theme for this year's Mathematics Awareness Month is Mathematics and the Cosmos. The main statement of the theme says, "mathematics is at the core of our attempts to understand the cosmos at every level: Riemannian geometry and topology furnish models of the universe, numerical simulations help us to understand large-scale dynamics, celestial mechanics provides a key to comprehending the solar system, and a wide variety of mathematical tools are needed for actual exploration of the space around us."

Dinner Honoring Award Winners and Invited Speakers
The Section will honor award winners and the invited speakers at dinner following the meeting. Everyone is cordially invited.

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

MAA Certificate of Meritorious Service
The MAA Certificate of Meritorious Award was awarded to **Barbara L. Osofsky** at the Prize Session of Joint Mathematics Meetings, 2005, in Atlanta. The MAA Certificate of Meritorious Service is presented for service at the national level or for service to a Section of the Association. The first such

awards were made in 1984. At each January meeting of the Association, honorees from several Sections are recognized.

CITATION
The New Jersey Section is pleased to nominate Barbara L. Osofsky to be the recipient of the 2005 Mathematical Association of America Certificate of Meritorious Service.

Professor Osofsky became a member of the MAA in 1958, while an undergraduate student in Cornell University, and has been a member ever since, becoming a life member in 1986. She received her B.A. and M.A. in mathematics, with a minor in physics, from Cornell and then moved to New Jersey, where she began her teaching career as an instructor at Douglass College of Rutgers University. She completed her Ph.D. in mathematics at Rutgers, and then she spent a year as a member of the Institute for Advanced Study on an NSF postdoctoral program. Barbara has been teaching and doing research in homological algebra at Rutgers University ever since.

Barbara is a member of the MAA, AMS, and AWM. She was active in both the AMS and the MAA early in her career, but later became much more active in the MAA. Her interests and service have been diverse and significant. She has served on and/or chaired a large number of national MAA committees: program committees for national meetings, including chairing the program committee for the last joint summer meetings with the AMS in Seattle 1996, and the program committee for the first MAA MathFest in Atlanta in 1997; editorial committees for the MAA, including chairing the Carus Monograph Editorial Committee for three years early in her career, and now back on that committee; two ad hoc committees to select a Monthly editor; committees to select the Chauvenet and Beckenbach award winners and to select a Hedrick Lecturer; and the Short Course Subcommittee, which she chaired for several years, and helped write a manual for organizers of Short Courses at the winter and summer national meetings and select organizers for the Short Courses. In January 2004, she completed her term as Short Course chair. She has served as the New Jersey Section Governor (1994-97) and as First Vice President of the MAA at the national level (2000-2002).

For her many years of outstanding, dedicated service at both the local and national levels, the New Jersey Section regards Professor Osofsky to be well-deserving of the MAA Award for Meritorious Service.

RESPONSE FROM PROFESSOR OSOFSKY

It is indeed an honor to be the 2004 recipient of the Certificate of Meritorious Service of the Mathematical Association of America. I thank the New Jersey

Section for nominating me. I very much appreciate this award, but even more I appreciate the invaluable opportunity I have had to work with so many wonderful, dedicated, creative people in the New Jersey Section and on the national level of the Mathematical Association of America.

Since my undergraduate days at Cornell in the late 1950's, when I began my long association with the MAA by tackling problems in the Monthly section, I have watched the MAA grow and blossom. I later began attending meetings and serving on a variety of MAA committees to do my small part in contributing to this growth. As a result, I became more and more in awe of the many MAA visions of what the undergraduate mathematical experience might be, the insights of our members on how to get there, and the incredibly large amounts of time and effort spent by my MAA colleagues to further the goals of the Association. This has been a source of great pleasure to me, and I am very grateful to have had the chance to work with such dedicated people in our common cause.

Nominating Committee:
Reginald Luke, Middlesex County College; Theresa C. Michnowicz (chair), New Jersey City University; Naomi Shapiro, Georgian Court University

Past recipients of The MAA Meritorious Service Award
Emory Starke, Rutgers University, 1985
Henry O. Pollak, Bell Labs, 1990
Theresa C. Michnowicz, New Jersey City University, 1995
Sr. Stephanie M.Sloyan, Georgian Court University, 2000

Governor's Report
The Annual Joint Mathematics Conference 2005 was held in Atlanta, GA, from January 5 to 8, 2005. I want to thank former MAA-NJ Governor, Amy Cohen, for covering the Governor's meeting for me in light of my traveling conflicts. She was able to take part in discussions and vote on the agenda items. The reports and documents she received are being summarized below.

The Governors' Meeting was held on February 4, 2005 at the Atlanta Marriot Marquis Hotel with the business agenda depicting organizational stability and a flurry of appointments, awards and celebrations. The Board appointed Professor William Yslas Velez of the University of Arizona as James R.C. Leitzel Lecturer and Dr. Jeffrey C. Lagarias as the Earle Raymond Hedrick Lecturer for MathFest 2005 to be held in Albuquerque, NM in August. Notable committee appointments involving NJ members include: Barbara Osofsky to the new AWM-MAA Etta Z. Falconer Lecture Committee and also

to chair the new Subcommittee on Travel Study Programs, along with Theresa Michnowicz as a member, with a possibility of a 2006 MAA study tour to China. The Board accepted the formation of a MAA-NCTM Joint committee on Mutual Concerns, including issues in mathematics and math education, teacher education, articulation and placement and the College Board. A Nominations Committee, chaired by Tom Banchoff, will begin the process for selecting a new President-Elect and First and Second Vice-Presidents for the MAA organization. And the Board expressed a fond farewell and sense of gratitude to our own Ron L. Graham who just completed his last meeting as President.

The national MAA organization continues to fare well financially, with portfolio investments generally showing performances above designated benchmarks. Book-sales revenues are up significantly; indirect-cost recovery is up significantly; costs of new-member acquisitions are up significantly. So the 2004 budget is in the black. But there is a recommendation to increase dues for the 2006 budget year from $2 to $7 in different member categories in order to keep up with the inflation of business costs. As of November 24, 2004, total MAA membership was listed at 11,601 members. The online project, Math Gateway, received NSF funding of over $2 million over 4 years to strengthen the MAA Math DL online activities. Initial participating members include the Eisenhower National Clearinghouse (www.enc.org), Math Forum (www.mathforum.org), CAUSE (causeweb.org), webODE Project, Eduworks (www.eduworks.com), WeBWork (webwork.math.rochester.edu) among the list of 14 websites.

The third annual MAA Math Study Tour is scheduled for Mexico in August/September 2005 under the theme, Mathematics of the Mayans. The list of MAA sponsored projects (with funding sources in parenthesis) include MAA Undergraduate Mathematics Conferences (NSF-DMS), MAA SUMMA Research Experiences for Undergraduates (NSA, NSF), Preparing Mathematicians to Educate Teachers (NSF, TI), Meeting the Challenges: Education across the Biological, Mathematical and Computer Sciences (NSF, NIH/NKGMS), MAA Professional Enhancement Program (NSF), CUPM Guidelines (NSF, CCHE), Supporting Assessment in Undergraduate Mathematics (NSF), Project ACCESSS (Exxon/Mobil), and Computer Science, Engineering and Mathematics Scholarships PI meeting (NSF). More specifically, for Project ACCESSS there were 120 applications and 28 appointments of community college faculty as Project Fellows.

This year's USA Mathematical Olympiad will be held on April 19 and 20, 2005. The Robert P. Balles Mathematical Award is being established to honor the six USAMO/IMO winners with a $1,000 savings bond. Mr. Balles is a former community college mathematics instructor and retired businessman. Susan Schwartz Wildstrom from Maryland was voted Governor-at-Large Representing High School Teachers and Efraim P. Armendariz of Texas was elected Governor-at-Large Representing Minorities. Dr. Michael Jones of Montclair State University has been listed as the MAA-NJ webmaster for the MAA Online initiative.

Featured speakers at MAA presentations or contributed papers sections involving NJ members at this Joint Mathematics Conference 2005 are include in the listing below:
(NOTE: Many NJ faculty also presented at the American Mathematical Society (AMS) and other mathematical association (e.g. AWM, SIAM) sessions, but are not listed below due to space considerations.)

- Christopher Lacke (Rowan University), *Going All In – Taking a Gamble on a Poker Project in an Undergraduate Probability Course*
- B. Lynn Bodner (Monmouth University), *The Use of Household Items as Calculus Concept Models*
- Brian Hopkins (Saint Peter's College), *Picture Compression and Linear Algebra*
- Lawrence D'Antonio (Ramapo College), *An Islamic Renaissance: Mathematics in Safavid Persia* and also *Mathematics?: Early Twentieth Century Debate on Calculus Reform*
- Karen D. Ivy (Montclair State University), *About Us: From a Measurement Perspective*
- Lora Billings (Montclair State University), Preliminary Report: *Projects in Population Dynamics*
- Su-Chi Wen (Monmouth University), *Preparing the Under-prepared Math Student*
- Louis M. Beaugris (Kean University), *Building Skills and Confidence via an Engaging Classroom Environment*
- Eileen Fernandez (Montclair State University) with M. Keynes, *Using teachers' mathematics questions as an opportunity to deepen their understanding*
- David E. Payne (Monmouth University), *Psychology Data for – and from – Applied Statistics Students*
- Sarah Knapp Abramowitz (Drew University) with S. Weinberg, *An Integrated Approach to Teaching with Real Data*

- Amy Cohen (Rutgers University) with D. Bressoud, *Using the CUPM Curriculum Guide 2004 to guide curricula and pedagogy in the "right" direction*
- Bonnie Gold (Monmouth University), *What is Mathematics II: A Possible Answer*
- Karen Clark and Thomas Hagedorn (The College of New Jersey), *Incorporating Software Tools into a Linear Algebra Course*
- Fred Roberts (Rutgers University), et al, *Parameters of L(2,1)-colorings*
- Gregory E. Coxson, James K. Beard & Jon C Russo (Lockheed Martin), Keith Ericson, Michael Monteleone & Michael Wright (NJIT), *Recent Results in Costas Arrays*
- Cathy Leibars (The College of New Jersey), Preliminary Report, *Teachers as Leaders and Learners*
- Katherine Safford-Ramus (Saint Peter's College), *Which Comes First, Development or Learning? A New Twist on the Chicken versus Egg Question*

Organizers of Contributed Paper Sessions, Panels or MAA Minicourses included:

- Bonnie Gold (Monmouth University) with W. Marion, Minicourse: Developing your department's assessment plan
- Bonnie Gold (Monmouth University) with S. Doree and R. Jardine, Contributed Paper Session: Countering "I Can't Do Math"; Strategies for Teaching Underprepared, Math-anxious Students
- Bonnie Gold (Monmouth University) with C. Hampton, Contributed Paper Session: Philosophy of Mathematics, and SIGMAA on the Philosophy of Mathematics Guest Lecture, Business Meeting and Reception
- Maria Delucia (Middlesex County College) with E. Laughbaum, Contributed Paper Session: Using Handheld Technology to Facilitate Student-Centered Teaching/Learning Activities at the Developmental Algebra Level
- Patricia Clark Kenschaft (Montclair State University), Panel: Mathematical Outreach and the Environment
- Michael Jones (Montclair State University), et al, General Contributed Paper Session

Report on NJ-NExT, Submitted by Bonnie Gold, co-director, NJ-NExT
NJ-NExT began its second series of workshops for new mathematics faculty in New Jersey in conjunction with the fall MAA-NJ meeting. Seventeen faculty members in their first five years of full-time teaching at colleges and universities

in New Jersey are our new NJ-NExT fellows. Seven of them are at two-year colleges.

Sessions for the new NJ-NExT fellows began Friday afternoon, November 12, at The College of New Jersey. At their first session, they introduced themselves to the group by sharing something about their teaching. After dinner, Amy Cohen, of Rutgers University, gave a workshop, "Discussing Active Learning: What's being tried; what works; what doesn't; and why." The fellows then adjourned to the hotel room of NJ-NExT co-director, Bonnie Gold, of Monmouth University, for casual conversation.

The next morning, they attended the MAA-NJ section meeting, eating together at lunch along with some national NExT fellows in the section. During the workshop time during the meeting, Bonnie Gold led a workshop for them on "Classroom Assessment Techniques." After the end of the MAA-NJ section meeting, they listened to a panel discussion on "Balancing Responsibilities," with presentations by Susan Gaulden (Essex County College, a 1999 NJ-NExT fellow), Mark Korlie (Montclair State University, a 1999 NJ-NExT fellow), Hieu Nguyen (Rowan University, a national NExT fellow) and John Saccoman (Seton Hall University, co-director of NJ-NExT and a national NExT fellow). Many were tired after this two-day workshop, but several stayed for dinner after this presentation.

The project continued with the beginning of an electronic discussion list, in which a range of NJ-NExT consultants (listed below) from a variety of New Jersey institutions also participate. The discussion list has not been very active to this point, except during the process of organizing the sessions for this meeting.

At this spring MAA-NJ meeting, they will again have their own lunch discussion tables: one on "Balancing Responsibilities" led by Kimberly Burch, one on "On-line courses" led by David Sze, and one for general discussion, led by David Marshall. four of the NJ-NExT fellows are giving contributed paper talks. Then the fellows will have a choice of two concurrent workshops (during the later part of the contributed paper session time), "How to Choose a Textbook (and some good ones out there)," organized by Kaaren Finberg, and "Applying for grants (and what kinds of grants are out there)," organized by David Sze. After the last MAA-NJ talk, they will have a second workshop, "How to get students actively involved in their learning," organized by Su-Chi Wen. We will then go out to dinner together.

The final NJ-NExT sessions for this group of fellows will be held at the fall, 2005, section meeting at Monmouth University. However, we hope that this

group of fellows will by then have become friends and colleagues and will form a supportive group helping each other through the tenure process, as well as contributing to the section as a whole.

NJ-NExT fellows, 2004:
Eliana S. Antoniou, William Patterson University
Kimberly Burch, Montclair State University
Youngna Choi, Montclair State University
Joseph Coyle, Monmouth University
Neera Desai, Atlantic Cape Community College
W. Joseph Dugan, Cumberland County College
Kaaren B. Finberg, Ocean County College
Mitra A. Kermani, Passaic Community College
Aihua Li, Montclair State University
David Marshall, Monmouth University
Michele McGowan, Atlantic Cape Community College
Gabrielle Michaelis, Cumberland Community College
Katarzyna Potocka, Ramapo College of New Jersey
Paul Rossi, College of Saint Elizabeth
David Sze, Monmouth University
Su-Chi Wen, Monmouth University
Mark Wiener, Passaic County Community College

NJ-NExT consultants, 2004:
Catherine Beneteau, Seton Hall University; Amy Cohen-Corwin, Rutgers University; Debra Curtis, Bloomfield College; Larry D'Antonio, Ramapo College of New Jersey; Susan Gaulden, Essex County College; Bonnie Gold, Monmouth University; Michael Jones, Montclair State University; Mark Korlie, Montclair State University; Reginald Luke, Middlesex County College; Revathi Narasimhan, Kean University; Hieu Nguyen, Rowan University; John T Saccoman, Seton Hall University; Christopher S. Simons, Rowan University

News from NJ Departments

The Mathematics Department of New Jersey City University will hold a Mathematics Awareness Program on Thursday, April 21, 2005. Invited speakers will include Lynn Bodner, Monmouth University, and Larry D'Antonio, Ramapo College. For information: tmichnowicz@njcu.edu, 201-200-3219

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Hosting Committee Carol Avelsgaard, Paul Bachmann, Jo Ann Blatchford, Thomas Drew, John Gaspar, Reginald Luke, Kathy Shay, Middlesex County College

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- Princeton University Press
- Springer
- SIAM