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MetroMath

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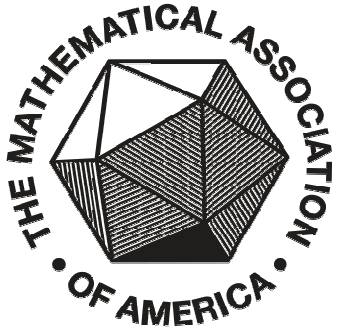
Newsletter

Metropolitan New York Section of
The Mathematical Association of America

March 2010



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Bronx	**Brooklyn**	**Columbia**	**Dutchess**
Greene	**Manhattan**	**Nassau**	**Orange**
Putnam	**Queens**	**Richmond**	**Rockland**
Suffolk	**Sullivan**	**Ulster**	**Westchester**

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ANNUAL MEETING

Saturday, 1 May 2010
8:00 AM – 5:00 PM

New York City College of Technology (CUNY)
Brooklyn, NY

(*More Information Contained Within*)

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SECTION OFFICERS

Section Governor (2008 – 2011)	**Henry Ricardo** Medgar Evers College (CUNY)	(845) 365-0117 henry@mec.cuny.edu
Chair (2009 – 2012)	**Farley Mawyer** York College (CUNY)	(718) 262-2939 fmawyer@york.cuny.edu
Chair-Elect (2009 – 2012)	**Jerry G. Ianni** LaGuardia Community College (CUNY)	(718) 482-5739 iannije@lagcc.cuny.edu
Secretary (2009 – 2012)	**Emad Alfar** Nassau Community College (CUNY)	(516) 572-7268 Emad.Alfar@ncc.edu
Treasurer (2009 – 2012)	**Mohammad Javadi** Nassau Community College (SUNY)	(516) 572-7972 javadim@ncc.edu
Vice-Chair for Four-Year Colleges (2009 – 2012)	**Elena Goloubeva** Webb Institute	(516) 671-2215 x111 egoloubeva@gmail.com
Vice-Chair for Two-Year Colleges (2009 – 2012)	**Janet Liou-Mark** NYC College of Technology (CUNY)	(718) 260-5929 jliou-mark@citytech.cuny.edu
Vice-Chair for High Schools (2009 – 2012)	**Nathaniel Silver** Brooklyn Technical High School	(718) 824-5099 mathelp@worldnet.att.net
Math Fair Chair – NYC	**Randy J. Asher** Brooklyn Technical High School	(718) 804–6500 rasher@schools.nyc.gov
Math Fair Chair – Long Island	**Joseph Quartararo** Northport-East Northport Public Schools	(631) 584-2016 cmleague@optonline.net
Speakers Bureau Chair	**Abraham S. Mantell** Nassau Community College (SUNY)	(516) 572-8092 mantell@ncc.edu
Newsletter Editor	**Abraham S. Mantell** Nassau Community College (SUNY)	(516) 572-8092 mantell@ncc.edu
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Public Relations Chair	**David Seppala-Holtzman** St. Joseph's College	(718) 636-7254 dholtzman@sjcny.edu
Book Exhibit Coordinator	**Henry Ricardo** Medgar Evers College (CUNY)	(845) 365-0117 henry@mec.cuny.edu
Liaison Coordinator and Webmaster	**Raymond N. Greenwell** Hofstra University	(516) 463-5573 matrng@hofstra.edu

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Section Web Page – sections.maa.org/metrony

The website for the Metropolitan New York Section of the MAA is moving to a new location at http://sections.maa.org/metrony/. Please change your bookmarks. The website has been hosted by Hofstra University for many years, but it will now be hosted by the MAA. By later this spring, the old website will no longer be in operation, and people who go there will be directed to the new website. If you encounter any problems with the website, please contact the webmaster, Raymond N. Greenwell, at matrng@hofstra.edu.

National Web Page – www.maa.org (both sites are linked to each other)

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Metropolitan New York Section of the MAA

Membership Count: 783 as of 15 March 2010

MESSAGE FROM THE SECTION CHAIR

I am looking forward to our upcoming meeting. We will have Jeffrey O. Shallit telling us about *The Frobenius Problem and its Generalizations.* Also, Fred Roberts will address us on *Algorithms for Container Inspection at Ports: Finding Optimal Binary Decision Trees.*

As if that weren't enough, Beth Chen, who currently holds the record for tetrahedron packing, will be presenting workshops on her research. Because we want the workshops to be of a size to allow for optimal interaction with the leader registration will be capped at 24 participants per session. Please check off one of the three sessions you wish to attend if applicable. Registration will be on a first-come, first-served basis at the time of morning check-in.

We are fortunate that our section has so much mathematical talent and activities ongoing all year long. This year we have completed our first year as sponsor of *Graph Theory Day* and *Graph Theory Notes*. We also sponsor the Greater Metropolitan New York Mathematics Fair and the Long Island Mathematics Fair. This is the third year that we have sponsored a *Project Next* Fellow.

I hope to see many of you at this year's meeting at NYC Tech!

Farley Mawyer
York College (CUNY)

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MESSAGE FROM THE SECTION CHAIR-ELECT

Do you remember your first contact with the MAA? Perhaps you stumbled across an issue of Math Horizons or one of the MAA's other fine publications. Perhaps you participated in a mathematics contest or fair sponsored by the MAA. Perhaps you attended a Section meeting or a MATHFEST gathering. As I write out these possibilities, I am amazed by the diversity, quality, and quantity of activities, programs, and opportunities for engagement in our organization.

This vibrancy is a direct result of our collective involvement and our mutual interests. As I begin service as Chair-Elect of the Metropolitan New York Section, I want to acknowledge all of the efforts of those who have preceded me, both in leadership positions and as active members. We will maintain our vibrancy by nurturing and welcoming broad-based involvement and by focusing on our common mathematical interests.

Be an active member! The team of officers looks forward to interacting with you and to offering platforms for productive mathematical encounters.

Jerry G. Ianni
Fiorello H. LaGuardia Community College (CUNY)

MESSAGE FROM THE SECTION GOVERNOR

The Board of Governors (BoG) convened in San Francisco on Tuesday, January 12, just before the Joint Mathematics Meetings (JMM) began. Some highlights follow.

MAA President David Bressoud reported on the start of the NSF-DRL-REESE grant, *Characteristics of Successful Programs in College Calculus* (CSPCC) and on plans for a Second Century Campaign, which will coincide with the 100th birthday of the MAA in 2015—at which time (*Deo volente*) I will have been a member for over half of the Association's existence! There is also a planned 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.

Associate Secretary Gerard Venema reported record-breaking attendance at MathFest 2009 in Portland, Oregon, and at the 2009 JMM in Washington, D.C. I have seen no official total for this year's meeting, but I estimate attendance at somewhere in the 6000-7000 range, another record. John Kenelly, MAA Treasurer, reported 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." However, to make up for a slight gap between budget and expenses, the BoG passed an Executive Committee proposal that 2011 dues for all membership categories except student memberships be increased by $2.00 over the 2010 rates.

The MAA Online website will be getting a complete overhaul, with improved navigation and a focus on what members and other visitors are looking for when they come to the site. The Association has started two Twitter feeds (twitter.com/maanow and twitter.com/maareviews)—one for updates of the MAA website, the other for new book review postings. The MAA is also represented on Facebook.

The MAA, AMS, and SIAM are discussing the feasibility of creating a joint membership across all three organizations. Stay tuned.

The Association is in the throes of a bylaw revision. There was an extensive discussion of the MAA's attempt to bring the bylaws up to date, pruning boilerplate language that is no longer legally necessary, for example.

On a more personal note, I continue to serve on the Committee on the Status of the Profession, whose main task right now is to revise the 2003 document *Guidelines for Programs and Departments in Undergraduate Mathematical Sciences*. One concern raised in several MAA circles is the lack of awareness of the many print and online resources offered by the MAA in aid of teaching, research, and administration.

I continue to be an active member of a group (headed by Ivars Peterson) attempting to construct a comprehensive "Problems & Solutions" database for MAA journals. There are technical challenges, but we hope to have a prototype in a few months. We are considering an application for an NSF grant.

I look forward to seeing you on Saturday, May 1, at the New York City College of Technology (CUNY).

Henry Ricardo
Medgar Evers College (CUNY)

TREASURER'S REPORT

(as of 12/31/09)

Business Checking	$ 3,010.50
Business Money Market	$ 268.68
6-Month Business CD	$ 32,632.82
Total	$ 35,912.00

All accounts are with J.P. Morgan Chase Bank. Further details will be provided at the annual meeting.

Mohammad Javadi
Nassau Community College (SUNY)

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2010 SPRING MEETING PROGRAM (Preliminary)
Saturday, May 1 • NYC College of Technology (CUNY), Brooklyn, NY

8:00	–	9:00 AM	Registration and Refreshments Book Exhibits Open (continuing until 3:30 PM)
9:00	–	9:15 AM	Welcoming Remarks: Pamela Brown, Dean of the School of Arts & Sciences, NYC College of Tech. Farley Mawyer, MAA Metropolitan New York Section Chair
9:15	–	10:15 AM	Invited Speaker: *The Frobenius Problem and Its Generalizations* [1] Jeffrey O. Shallit, University of Waterloo
10:15	–	10:30 AM	Break - coffee and refreshments
10:30	–	11:30 AM	Invited Speaker: *Algorithms for Container Inspection at Ports: Finding Optimal Binary Decision Trees,* Fred Roberts, Rutgers University [2]
11:30	–	12:15 PM	Awards Ceremony - including Prize Raffle with some Sectional Business
12:15	–	1:15 PM	Lunch (with time to visit the exhibits)
1:30	–	4:15 PM	Contributed Paper and Poster Sessions Invited Workshop with Beth Chen, University of Michigan [3]
1:30	–	2:25 PM	Tetrahedron Packing
2:30	–	3:25 PM	Tetrahedron Packing
3:30	–	4:25 PM	Tetrahedron Packing
3:30	–	5:00 PM	Special Presentation: *Math Bowl* (for students) Emcees: TBA

[1] See page 7 for Abstract and brief Bio of Jeffrey O. Shallit
[2] See page 8 for Abstract and brief Bio Fred Roberts
[3] See page 9 for Abstract and brief Bio of Beth Chen

Call For Abstracts: General Contributed Paper and Poster Sessions

The Metropolitan New York Section of the MAA is soliciting abstracts for the Contributed Paper and Poster Sessions of its 2010 Annual Meeting to be held on Saturday, May 1, at the New York City College of Technology in Brooklyn, New York. All interested professionals and students are encouraged to submit an abstract. The Contributed Paper Sessions will feature presentations on both mathematics education and mathematical research. There will also be a Poster Session at our meeting.

As always, high school and college students are especially encouraged to submit an abstract discussing their experience with mathematical research. Student presenters will continue to have their meeting registration and luncheon fees waived. Teachers, please encourage your students to present!

Paper presentations will be fifteen minutes in duration followed by a five minute question and answer period. All presenters will be recognized in the final program of the Spring Meeting.

All proposals should include the following elements:

1. Name(s) of author(s) and presenter(s) with institution(s) (if any) and e-mail address(es)
2. Title & Abstract (not to exceed 300 words)
3. Category of presenter (student or nonstudent)
4. Special equipment needs (if any)
5. Presentation preference (paper or poster) --- if your preference is to present a paper, would you be willing to present a poster as an alternative?
6. (For high school and college student presenters) Name/e-mail address of mathematics teacher or advisor

Prepare your proposal as a single file, either in MS Word format or in plain text. For file name, use "firstname_lastname_abstract" followed by ".doc" or ".txt". Please submit proposals electronically as an attachment to Jerry G. Ianni at the following e-mail address: iannije@lagcc.cuny.edu and use "MAA MetroNY 2010 meeting abstract" as the subject line. Proposals received by Friday, April 16, will receive full consideration. A committee of reviewers will examine all abstracts, and the outcome of their deliberations will be announced by about April 26.

For additional information regarding the Contributed Paper and Poster Sessions of the 2010 Annual Meeting, please contact Jerry G. Ianni at the e-mail address listed above.

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Presentation Abstracts and Speaker Biographies

The Frobenius Problem and It's Generalizations

Jeffrey Shallit, University of Waterloo

Abstract:
The classical but oddly little-known Frobenius problem from number theory is the following: given a set of positive integers with greatest common divisor equal to 1, find the largest integer not representable as a non-negative integer linear combination of the set elements. This largest integer is called the Frobenius number. For example, the Frobenius number of 6, 9, and 20 is 43.

In this talk I will survey some of the known results on this problem and its applications to mathematics and computer science, and a new generalization of this problem to words (strings of symbols).

Speaker Biography:
Jeffrey Shallit got his Ph. D. in mathematics in 1979 from the University of California, Berkeley, under the supervision of Dave Goldschmidt (de jure) and Manuel Blum (de facto). Since then he has taught at the University of Chicago, Dartmouth College, and the University of Waterloo. He has written three books (with Eric Bach and Jean-Paul Allouche) and published over 100 papers in discrete mathematics, number theory, combinatorics, automata theory, and formal language theory. He blogs at recursed.blogspot.com.

Algorithms for Container Inspection at Ports: Finding Optimal Binary Decision Trees

Fred S. Roberts, Rutgers University

Abstract:

As a stream of containers arrives at a port, a decision maker has to decide how to inspect them, which to subject to further inspection, which to allow to pass through with only minimal levels of inspection, etc. We look at this as a complex sequential decision making problem. Sequential decision problems arise in many areas, including communication networks, manufacturing, artificial intelligence and computer science, and medicine. The problem we investigate is to find algorithms for sequential diagnosis that minimize the total "cost" of the inspection procedure, including the cost of false positives and false negatives. To make the problem precise, we imagine a stream of containers arriving at the port with the goal of classifying each of them into one of several categories. There are several possible tests that can be performed and an inspection scheme specifies which test to perform next based on outcomes of previous tests. Stroud and Saeger at Los Alamos have formulated this problem, in an important special case, as a problem of finding an optimal binary decision tree for an appropriate binary decision function. We describe the basic idea of the Stroud-Saeger method and the results of new algorithms that improve significantly on the size of the decision problems for which it is applicable. We present a theorem that shows that certain search steps through a larger family of binary decision trees than those considered by Stroud and Saeger allows one to reach any tree in the family from any other.

Speaker Biography:

Fred S. Roberts is a Professor of Mathematics at Rutgers University, where he is a member of seven graduate faculties, in Mathematics, Operations Research, Computer Science, Industrial & Systems Engineering, Computational Molecular Biology, BioMaPS, and Education. He is Director of DIMACS, the Center for Discrete Mathematics and Theoretical Computer Science, one of the original NSF Science and Technology Centers, and Director of the DHS Center of Excellence CCICADA, the Command, Control, and Interoperability Center for Advanced Data Analysis.

Roberts' major research interests are in mathematical models in the social, behavioral, biological, environmental, and epidemiological sciences, of problems of communications and transportation, and for addressing issues arising in homeland security; graph theory and combinatorics and their applications; measurement theory; utility, decision making, and social choice; and operations research.

His first book, Discrete Mathematical Models, with Applications to Social, Biological, and Environmental Problems, has been called a classic in the field, and was translated into Russian. He has also authored three other books: Graph Theory and its Applications to Problems of Society; Measurement Theory, with Applications to Decision Making, Utility, and the Social Sciences, republished in 2009; and Applied Combinatorics (with Barry Tesman), also republished in 2009 and translated into Chinese.

Roberts is also the editor of eighteen other books covering energy modeling, reliability of computer and communication networks, mathematical psychology, computational biology, precollege discrete mathematics, etc., and the author of some 169 scientific articles.

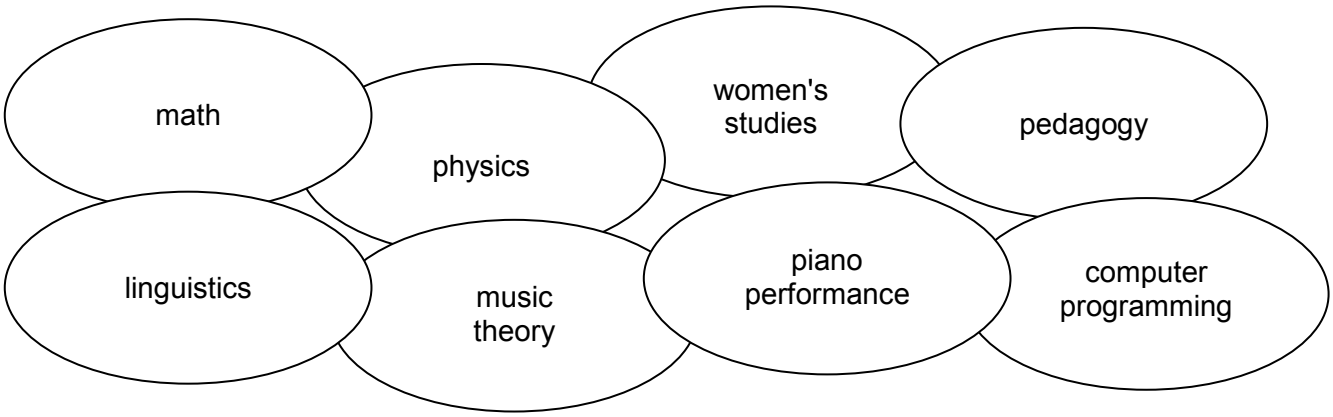
Professor Roberts has received a University Research Initiative Award from AFOSR, the Commemorative Medal of the Union of Czech Mathematicians and Physicists, and the Distinguished Service Award of ACM-SIGACT. He also received the NSF Science and Technology Centers Pioneer Award in a ceremony at NSF.

Tetrahedron Packing (Workshop)

Beth Chen, University of Michigan

Abstract:
play with plastic tetrahedra! join us for a hands-on experience!
(check the recent New York Times article: http://www.nytimes.com/2010/01/05/science/05tetr.html)

Speaker Biography:



(for more, please visit Beth's website: http://www-personal.umich.edu/~bethchen/)

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Directions to: **New York City College of Technology**
300 Jay Street
Brooklyn, N.Y. 11201

By Subway: 2, 3, 4, 5, A, C, F, M, N, R to Borough Hall
By Bus: B26, B37, B38, B41, B51, B52, B54, B61, B67 or B75.
By Car, from:
Manhattan: Take the FDR Drive to the Brooklyn Bridge. Stay to the left and exit the bridge, turning left onto Tillary. Turn right onto Jay Street at the first light.

Bronx: Take the FDR Drive to the Brooklyn Bridge. Stay to the left and exit the bridge, turning left onto Tillary. Turn right onto Jay Street at the first light.

Queens: Take the Long Island Expressway west to the BQE. Follow the sign to downtown Brooklyn. Exit at Tillary and stay in the center lane past the Flatbush Avenue Extensions; move left and turn left at Jay Street.

Brooklyn: Take the Belt Parkway to the Brooklyn-Queens Expressway and get off at the Atlantic Avenue exit. Turn right on Atlantic; continue for five blocks to Smith Street. Make a left onto Smith; continue across Fulton where Smith becomes Jay.

Staten Island: Cross the Verrazano Bridge to the Brooklyn-Queens Expressway. Take the Belt Parkway to the Brooklyn-Queens Expressway and get off at the Atlantic Avenue exit. Turn right on Atlantic; continue for five blocks to Smith Street. Make a left onto Smith; continue across Fulton where Smith becomes Jay.

For additional travel info, maps, parking, and lodging, visit:
http://websupport1.citytech.cuny.edu/faculty/mseip/conference09/travel_info/travel_info.html
or
http://www.citytech.cuny.edu/aboutus/directions/index.shtml (directions only)

2010 SECTION MEETING REGISTRATION FORM

(* PLEASE PRINT ***)**

First Name: _____ M.I.: _____ Last Name: _____

Badge Name or Nickname: _____ Affiliation: _____

Address: _____

City: _____ State: _____ Zip+4: _____-_____

Phone Number: Day: (___)_____ E–mail: _____

Special diet? (circle one) Yes / No. Please specify: _____

Any other special needs? (wheelchair access, etc. – please specify) _____

The MAA national office requests the following information. Please check the appropriate responses.

Current MAA Member: ☐ Yes ☐ No First Metro NY Section Meeting? ☐ Yes ☐ No

Faculty members at a college or university, please check the highest mathematics degree offered by your current institution: ☐ Associate ☐ Bachelors ☐ Masters ☐ Doctorate ☐ None

Current employment/student status (check all that apply):

☐ High School Student ☐ Undergraduate Student ☐ Graduate Student

☐ High School Teacher ☐ College/University Professor ☐ Business, Industry, Government Employee

☐ Retired (from?) _____ ☐ Other (please specify) _____

I wish to participate in Beth Chen's Workshop *Tetrahedron Packing* (one of three sessions): ☐ Yes ☐ No

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Registration Fee*: (Postmarked)	On/Before 16 April	$10.00	_____
	After 16 April	$15.00	_____
	Student Registration	$ 5.00	_____
Luncheon*? (circle one) Yes / No		$15.00	_____
		TOTAL:	=======

* Registration and lunch fees waived for:
- students presenting papers or posters
- 50-Year Members (see page 21)

* Registration fee waived for:
- 25-Year Members (see page 21)

Important Note: On-site registration will be available (at the higher registration fee), but all members are encouraged to pre-register by mail as early as possible. Registration forms received on or after April 26 will not be processed in advance of the meeting. Luncheons are not guaranteed for attendees registering on-site.

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Mail completed form with payment payable to *The MAA* (do not send cash) to:

Mohammad Javadi, MetroNY MAA Treasurer
Mathematics, Computer Science, and Information Technology
Nassau Community College
One Education Drive
Garden City, NY 11530-6793

FEATURED ARTICLES

The Museum of Mathematics

Sheldon P. Gordon, Farmingdale State College

The only museum in the United States devoted to mathematics is now a reality and its home is in New York! The Museum of Mathematics, which was recently officially chartered by the State Department of Education, is currently the featured traveling exhibit at the Queens Hall of Science. The totally interactive Math Midway exhibition, designed for both adults and children of all ages, will run through April 18 in Queens. In a recent weekend, both Time Out New York and the New York Academy of Sciences listed the Math Midway as the "number one thing to do in New York."

The Math Midway show will also be featured on June 6 at the World Science Festival on the streets of Manhattan. It will then move to various other science museums around the country, starting in California and Texas. The Midway will continue to travel the country, giving visitors nationwide a chance to experience a new view of mathematics and helping to build recognition for the Museum of Mathematics, which will make its permanent home in New York City.

The Museum began in response to the closing of the Goudreau Museum, a small museum of mathematics on Long Island. The Goudreau's mathematical collection was well-loved, but well-worn, and when the museum ran out of money several years ago, the entire collection was discarded. In response, a group of interested parties, mostly school and college mathematics educators on Long Island, came together to explore the creation of a new museum of mathematics—one that would go well beyond the Goudreau in both its scope and methodology. Led by Glen Whitney, the group quickly discovered that there was no museum of mathematics in the United States, and yet there was incredible demand for hands-on math programming of the sort that the Goudreau had provided.

The goals of the Museum are based on the philosophy that mathematics illuminates the patterns that abound in our world. The Museum strives to enhance public understanding and perception of mathematics through dynamic exhibits and programs that are designed to stimulate inquiry, spark curiosity, and reveal the wonders of mathematics by making it a fun experience. The Museum's activities will lead a broad and diverse audience to understand the evolving, creative, human, and aesthetic nature of mathematics.

One of the most popular exhibits at the show is the Pedal on the Petals exhibit. This consists of several tricycles with *square* wheels that ride smoothly on a special track which takes the shape of a series of catenary curves. (The mathematical foundation of each of the exhibits also provides a learning experience to a wide spectrum of attendees.)

Another of the more fascinating exhibits is the Roller GraphiCoaster that lets people experiment with the curve of steepest descent to find the function that gives the fastest roller coaster ride. Kids (and mathematicians as well) can choose from among a variety of different shapes, including linear, parabolic, cubic, cosine, and cycloid curves, to design a potential track. They construct an actual track of the desired shape and then watch both a real car roll down the physical track and a simulated ball drop from the start of the track on the giant flat screen computer screen and fall to the end of the track. The actual run is timed, and visitors can experiment to find the best possible curve for the track, which turns out to be an inverted cycloid. This is the famous Brachistochrone problem, which was first solved by Johann Bernoulli in 1696 after many mathematicians, including Newton and Galileo, had failed to solve it in more than half a century.

After its premiere at the 2009 World Science Festival on the streets and sidewalks of New York last spring, the Math Midway made its science center premiere as the visiting exhibition at the Da Vinci Science Center in Allentown, PA. Staff members at the Da Vinci reported that visitation at the museum increased significantly and attributed this increase to the unique offerings of the Math Midway.

(continued)

The Museum of Mathematics, with Glen Whitney as its Executive Director, is governed by a Board of Trustees, receives intellectual guidance from an Advisory Council, and operates with the assistance of the Working Group that originally developed the idea for such a museum. Museum organizers quickly created an on-line community (mathfactory.org) linking these three groups and allowing them to amass a wealth of design concepts and exhibit ideas for hands-on exploration of mathematics.

If you would like further information about the Museum of Mathematics and its displays, you should try to visit it either at the Hall of Science or at the World Science Festival. If you go, be sure to bring your own children, grandchildren, or students. Alternatively, you can find more information at MathMidway.org or at MoMath.org.

Take a circular ride on square wheels with the Math Midway's premier exhibit, the Pedal on the Petals.

Overview of the Math Midway at the 2009 World Science Festival in Manhattan.

Visitors enjoy collaborating on a math construction project at the Math Midway.

A crowd enjoys the opening of the Math Midway at the Da Vinci Science Center.

The Three Ring Circleous captures the attention of attendees at the Association of Science and Technology Centers convention.

Teaching Math in Uganda

Raymond N. Greenwell, Hofstra University

An intriguing email message landed in my mailbox in February 2009 from an organization called Teach and Tour Sojourners (TATS), inviting U.S. professors and teachers to travel to Uganda to give lectures at universities and secondary schools. After looking at the TATS website at http://www.teachandtour.com and doing some further investigation, I accepted their offer.

During the months before I left, I tried to get a schedule of exactly where and when I was supposed to talk, but I soon found firsthand what others had told me: It's very hard to get anything precisely pinned down in Uganda. If you go to Uganda, at least through TATS, be prepared for chaos. If you can go with the flow and enjoy it, you can have a blast.

After arriving in Uganda on June 12, I spent the first few days becoming acquainted with the country, white water rafting on the Nile River, and viewing elephants, giraffes, and hippos in the wild at Murchison Falls National Park. I stayed at the TATS guest house on the outskirts of Kampala, a comfortable home except for the occasional lack of running water for days at a time.

On June 17, I had my first class at Makerere College School (a secondary school affiliated with Makerere University). The talk I gave at the secondary schools was a magic act, in which all the tricks are based on mathematical principles. When I correctly predicted a card that was apparently selected at random, or did a calculation in my head far faster than the students could do it on their calculators, the class exploded in laughter and amazement, eager to learn how math could cause such magic. The class had about 80 students, a common class size in Uganda. The classroom was primitive by U.S. standards, with a crude blackboard that was hard to write on clearly. Despite these disadvantages, the students seemed to be more advanced mathematically than American students of the same age. They asked great questions, and I had wonderful interactions with them.

After the second class, I had lunch with the teachers, and then I walked up the road to Makerere University, the largest and most prestigious university in Uganda, to give a talk on my statistics research at their weekly seminar.

Although Kampala is located near the equator, its altitude of roughly 4000 ft makes the climate pleasant, with highs in the low 80's F and lows in the 60's. Nevertheless, I felt hot walking in the afternoon equatorial sun, especially dressed in a long-sleeved shirt and a tie, which seemed to be the appropriate dress for a visiting professor. After a few days, I reverted to more comfortable attire.

Me teaching a class at Bright Angels' College (a secondary school)

At the Makerere math department, the chairman rounded up a laptop and a computer projection system for me to present my slides. I had also brought overhead transparencies, but I never saw an overhead projector in my entire time in Uganda. University classes were not in session during the month of June, so my audience consisted of just a few professors who were around as well as several graduate students. I learned that there is little appreciation of pure math in Uganda, and a student who wanted to do his master's thesis in number theory had to get help from outside.

The educational system in Uganda is based on the British model, since Uganda was a British colony until their independence in 1962. Primary school is 7 years long, followed by 6 years of secondary school. After the first four years (O level), the students take exams in various topics. I was amazed to see on the O level

(continued)

mathematics syllabus topics that students in the U.S. would not see until college, such as the graphical approach to linear programming. Not all these topics are on the O level exam, but I still think that my own students who are not math majors would have trouble passing this exam, which the better Ugandan schools claimed was passed by 80-90% of their students. The questions on the O level exam cover algebra, systems of two equations in two unknowns, planar and three-dimensional geometry, statistics, sets, probability, basic calculus, and math of finance. The exam is two and a half hours long, and there is no multiple choice. Non-programmable scientific calculators are allowed.

Me with some students at Bright Angels' College

Students studying math at the A level could take various combinations of subjects, such as PCM (for physics, chemistry, and mathematics) or MEG (mathematics, economics, and geography). The A level math exam was three hours long and included more advanced calculus (integrals and differential equations), vectors, Maclaurin series, parametric equations, combinatorics, complex numbers, mechanics, numerical methods, calculus-based probability, and trigonometric identities.

After primary school, some students can pursue a trade, such as bricklaying, rather than continue with O level schooling. Some education past primary school is mandatory, but this is not universally enforced, since even the public schools require tuition beyond what many families can afford. At one school, I saw dozens of students locked out at the front gate because their families hadn't paid the tuition.

There were few girls in the A level math classes in most schools, despite the presence of several female math teachers. I tried to be encouraging to all the students, but particularly to the girls, telling them of the progress made in the U.S. in recent decades toward equal participation in math among males and females.

The official language in Uganda is English, but everyone's first language is a tribal language, which around Kampala is Luganda. Everyone supposedly learns English in school, although poorer people from the countryside who don't attend much school may know little English. Many people had thick accents, and I often had to ask students to repeat their questions a couple of times because I didn't understand the words at first.

Me with some students and a teacher at Jinja Secondary School

I visited seven more secondary schools and one more university before I left Uganda on June 29. The students and teachers welcomed me warmly wherever I went and made me feel like a special honored guest.

I received no compensation for my travel, and I paid $200 a week for my room. Meals were cheap, and I was usually offered a free lunch at the school I was visiting.
I had an amazing time in Uganda at a lower cost than if I had gone there strictly as a tourist.

For a more detailed account of my trip, see
http://people.hofstra.edu/raymond_n_greenwell/Uganda2009.pdf

The Exhibition of Mathematical Art at the Joint Meetings in San Francisco

Anne Burns, Long Island University, C.W. Post Campus

I just returned from the annual joint meetings of MAA and AMS which was held this year in San Francisco January 13-16. I was honored to help organize the Exhibition of Mathematical Art again this year. It was a tremendous success; each year we get more and more entries and of higher quality than in previous years. The exhibition featured 2D and 3D mathematical art, ranging from computer graphics to quilts to geometrical sculptures. All submitted artwork undergoes a refereeing process. This year there were over 60 artists who submitted up to 3 artworks each. The primary intent of the art exhibit is to foster active interaction between exhibiting artists and conference participants.

For the second year in a row an anonymous donor has given money for first, second and third prizes. Four jurors were chosen, two by MAA and two by AMS. This year's prizes were: First Prize: Robert Bosch, for his artwork in stainless steel and brass, *Embrace*, 2009, Second Prize: Harry Benke, for his artwork *The Vase*, 2009 and Third Prize: Richard Werner, for his artwork *Meditation*, 1998.

The exhibited works can be seen on the web site:
http://www.bridgesmathart.org/art-exhibits/jmm10/index.html

The exciting field of mathematical art is growing rapidly. There are several organizations both national and international that are devoted to this field. Visualizing mathematical concepts is a wonderful way to teach mathematics, both for mathematics majors and for non-mathematics majors. One of the earliest and still most popular of these organizations is the Bridges organization. The Bridges Conferences, running annually since 1998, brings together practicing mathematicians, scientists, artists, educators, musicians, writers, computer scientists, sculptors, dancers, weavers, and model builders in a lively atmosphere of exchange and mutual encouragement. Important components of these conferences, in addition to formal presentations, are hands-on workshops, gallery displays of visual art, working sessions with artists who are crossing the mathematics-arts boundaries, and musical/theatrical events in the evenings.

(continued)

In 2010, the Bridges Conference will be held in Pécs, Hungary, July 24-28. As always, the Conference will feature talks and artworks presenting the latest ideas in mathematics and the arts from experts around the world. There will be artists and artworks representing painting, drawing, sculpture, computer graphics, fiber arts, music, dance, and more. There will be hands-on workshops, special music, theater, and movie evenings, and a day-long excursion to museums and cultural sites. The language of the conference is English. All papers are refereed and the accepted papers will appear in a printed proceedings. To find out more go to **http://bridgesmathart.org/** On this site is a lot of information about math and art. Another source is the web page for SIGMAA-ARTS a special interest group of the MAA. This page is located at **http://myweb.cwpost.liu.edu/aburns/sigmaa-arts/**.

On this site is a page devoted to educational resources which contains links to external information of use to teachers.

One other site devoted to mathematical art is the web site http://www.ams.org/mathimagery/

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NEWS FROM OUR SECTION

The Robert Noyce Scholarship Program at Dowling College

by Kevin McDonnell, Associate Professor of Computer Science, Dowling College
Sandra Monteferrante, Professor of Mathematics

In the summer of 2009 Dowling College was awarded a four-year $600,000 grant as part of the National Science Foundation's Robert Noyce Scholarship Program to help recruit science and math teachers in New York and place them in high-need schools. Dowling has participated in the Robert Noyce Scholarship Program continuously since 2003 and has enabled many undergraduate and graduate students to become successful teachers of mathematics and science throughout the New York metro area. Our new grant continues an emphasis on attracting students from underrepresented groups and retaining teachers in high-need schools. In addition to providing up to $10,000 per year to students to offset the cost of attendance at Dowling, the scholarship program also supports several ancillary activities and opportunities, such as monies for professional development and classroom materials, a seminar to provide on-going mentoring to Noyce scholars, an annual symposium held at Dowling, and research opportunities for in-service Noyce scholars and their students.

The faculty team managing the scholarship program consists of professors representing the areas of science, math and education. The team includes Dr. Lori Zaikowski, Professor of Chemistry and Natural Sciences, Dr. Kevin McDonnell, Associate Professor of Computer Science, and Dr. Daniel Ness, Associate Professor of Human Development and Learning. Requests for additional information about Dowling's scholarship program should be forwarded to Kevin McDonnell at (631) 244-3053 or mcdonnek@dowling.edu.

New Book!

Dr. John Loase's 8th book, *The Sigfluence Generation: Our Young People's Potential to Transform America*, was just released by AEG Publishing. The book is based on 3 years of statistics, statistical modeling, data mining, and focus groups that reveals the need and potential for our 18-25 year olds to effect sigfluence, John's new word for significant, long-term, positive influence. John's Jan. 13th radio program on WVOX will be archived for future listeners. John is available for *Sigfluence Seminars* or lectures and can be called at Concordia College 914-337-9300 or e-mail at john.loase@concordia-ny.edu.

CALL FOR PARTICIPANTS AND INVOLVEMENT

Call For Abstracts: General Contributed Paper and Poster Sessions

The Metropolitan New York Section of the MAA is soliciting abstracts for the *Contributed Paper and Poster Sessions* of its 2010 Spring Meeting to be held on Saturday, May 1 at the New York City College of Technology. All interested professionals and students are encouraged to submit an abstract. Once again this year the *Contributed Paper Sessions* will feature presentations on mathematical research as well as mathematics education. See page 7 for the particulars.

Call for Math Fair Judges

The **Al Kalfus Long Island Math Fair** will hold its Preliminary Round (Western) on Friday, March 5, 3 PM, at Hofstra University, Preliminary Round (Eastern) on Friday, March 19, 3 PM, at Suffolk Community College, and the Final Round on Friday, April 30, 3 PM at Hofstra University. Judges are needed at all levels (grades 7-12). If you wish to judge, please contact Joe Quartararo at 631-584-2016 or mathfair@optonline.net.

The Greater **Metropolitan New York Math Fair** is an annual event in which High School students from all over New York City (and environs) present math papers. It is a great privilege as well as an enjoyable experience to help high school youngsters advance in their pursuit of creativity. Anyone who can spare one or two days - Mar 21 and April 18, 11-4 PM at Brooklyn Technical HS, 29 Ft. Greene Place, Brooklyn - is invited to sign up as a judge. You can sign up by visiting the Math Fair URL:

http://www.bths.edu/forms/math-fair-judges/

Those who judge, whether one day or both days, besides receiving the satisfaction of helping youngsters grow in creativity, also receive
a) a free brunch
b) a shirt
c) a social hour when you can meet colleagues from other colleges and high schools, and
d) official Letters of *Thank you* sent to your chairs

For more information, contact: Alan Palmer - mathfair@bths.edu

Go Back to School, Join *The Mathematics Speakers Bureau!!!*

Do you have a talk which would be suitable for local area students or their faculty? We are seeking mathematicians interested in sharing their knowledge, enthusiasm, and love of mathematics. Now in its 49th year, the Mathematics Speakers Bureau (MSB) is composed of dedicated mathematicians who volunteer to speak to students and faculty of regional middle schools, high schools, colleges and universities on topics reaching beyond the traditional mathematics curriculum.

The primary goals of the MSB are to stimulate the interests of local youth in mathematics, to provide opportunities for students to meet active and enthusiastic mathematicians, to motivate students towards careers in the mathematical sciences, and to encourage cooperation between corporate and academic institutions in the mathematical education of area youth. Volunteers provide information about talks they are willing to give and the Bureau, in turn, advertises these talks to the faculty of local area schools. Schools contact speaker volunteers directly to make specific arrangements for a visit. Volunteers determine the number of presentations they give in any given academic year and always maintain the right to decline any invitation to speak. The Bureau web-page (www.maa.org/metrony/speakers) contains an up-to-date listing of available speakers and their proposed talks. Additional information regarding the goals, history and operation of the Bureau can also be found at this site. If you wish to volunteer with the MSB, please contact Bureau Chair Abe Mantell at mantell@ncc.edu.

MetroMath Needs You!!!

Consider submitting a short announcement, commentary, article, study, experience, or other news-worthy item in the next issue of *MetroMath*. Contact the editor, Abe Mantell, via e-mail: mantell@ncc.edu.

NEWS FROM THE MAA

(much more can be found at: http://www.maa.org/news/news.html)

April is Mathematics Awareness Month!

The American Mathematical Society, the American Statistical Association, the Mathematical Association of America, and the Society for Industrial and Applied Mathematics announce that the theme for Mathematics Awareness Month, April 2010, is **Mathematics and Sports**. For more info, visit:

http://www.mathaware.org/mam/2010/

China Girls Math Olympiad: U.S. High School Girls Bring Home Seven Medals

All seven girls on the U.S. team at the 2009 China Girls Mathematical Olympiad team will be coming home with medals: Cynthia Day - Bronze, Carolyn Kim - Silver, Jing Jing Li - Gold, Patricia Li - Silver, Ramya Rangan - Bronze, Elizabeth Synge - Silver, Joy Zheng - Gold.

The CGMO was held in Xiamen on August 11-16, and the team of high school students from the United States took part in the competition for the third time. Once again, the MAA and MSRI co-sponsored the team.

To get ready for the contest in China, which has been held annually since 2002, the young women spent three weeks at the Mathematical Olympiad Summer Program at the University of Nebraska, Lincoln, which helped them develop their problem-solving skills. The preparation also helped boost their confidence for participation in an international competition

Coaches for the team were Zuming Feng of Phillips Exeter Academy and director of the Mathematical Olympiad Summer Program since 2003, and Jennifer Iglasias, a member of the 2007 and 2008 U.S. CGMO teams.

Other sponsors of the U.S. teams are Microsoft, Google, Akamai Foundation, The Shiing-Shen Chern Foundation for Mathematical Research, and The Sunlin and Priscilla Chou Foundation.

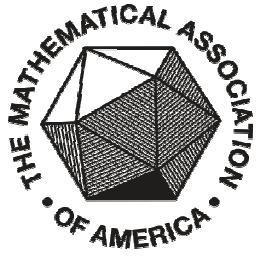
2010 Career Mentoring Workshop for Women

The fourth annual Career Mentoring Workshop for Women will be held July 18 - 20, 2010 at the United States Military Academy in West Point, NY. The goal of the workshop is for each participant to leave with a good understanding of the job search process together with mentors and a group of peers from across the nation who can assist her and provide additional support as she navigates the job market.

Topics of discussion include professional opportunities, an overview of the job search process and employment register, revising application materials, the interview process, starting your postgraduate career, and different career options.

Applicants should be women in the mathematical sciences entering their final year of graduate studies. Participants will receive partial funding for the workshop. The application deadline for the 2010 workshop is May 15, 2010. More information about the workshop, including application materials, is available at www.wheatoncollege.edu/camew.

Questions may be directed to Rachelle DeCoste at decoste_rachelle@wheatoncollege.edu



EVENTS CALENDAR

Al Kalfus Long Island Math Fair 2010
March 5, Friday, (Round 1 – Nassau County) Hofstra University
March 19, Friday, (Round 1 – Suffolk County) Suffolk Community College
April 30, Friday, (Final Round) Hofstra University
All rounds begin at 3:00 PM. Grade Levels are 7-12 for math and 10-12 for computers.
For more information, call Joseph Quartararo at (631) 584-2016 or e-mail: mathfair@optonline.net

43rd Greater Metropolitan New York Math Fair (2010)
March 21, Sunday, (Round 1) Brooklyn Technical HS, Brooklyn, NY
April 18, Sunday, (Round 2) Brooklyn Technical HS, Brooklyn, NY
For more information contact Russell Jay Hendel at RHendel@Towson.Edu
For judging, visit: www.bths.edu/forms/math-fair-judges/

MAA New Jersey Section Spring Meeting in conjunction with the
7th Annual Garden State Undergraduate Mathematics Conference • April 10, 2010
Middlesex County College, Edison, NJ
For more information visit: www.maa.org/NewJersey or www.maa-nj.org/GSUMC/

LIMAÇON (Long Island Mathematics Conference) • April 16, 2010, SUNY College at Old Westbury
For more information, visit: www.atmnyc.org/Limacon2010.pdf

NYSMATYC Annual Conference • April 16-18, 2010, Ithaca, NY • Visit: www.nysmatyc.org/conf2010

17th Hudson River Undergraduate Mathematics Conference • April 17, 2010
Keene State College, Keene, NH • Visit: www.skidmore.edu/hrumc.htm

NCTM 2010 Annual Meeting and Exposition • April 21-24, 2010, San Diego, CA
For more information visit: www.nctm.org/conferences/

MAA Seaway Section Spring Meeting • April 23-24, 2010,SUNY Oswego, Oswego, NY
For more information visit: www.maa.org/Seaway

Spuyten Duyvil Undergraduate Mathematics Conference • April 24, 2010, St. Francis College, Brooklyn
For more information see page 21, and visit: home.manhattan.edu/~joan.harnett/sdumc

Metropolitan New York Section Meeting • May 1, 2010, NYC College of Technology, Brooklyn, NY
For more information see this newsletter, or visit: sections.maa.org/metrony/

AMS 2010 Eastern Section Spring Meeting • May 22-23, 2010, NJIT, Newark, NJ
For more information visit: www.ams.org/amsmtgs/2174_program.html

Euler Society 2010 Meeting • July 19-21, 2010, Adelphi University, Garden City, NY
For more information see page 20, or visit: www.eulersociety.org

6th Cornell Probability Summer School • July 19-30, 2010, Cornell University, Ithaca, NY
For more information visit: www.math.cornell.edu/~durrett/CPSS2010/

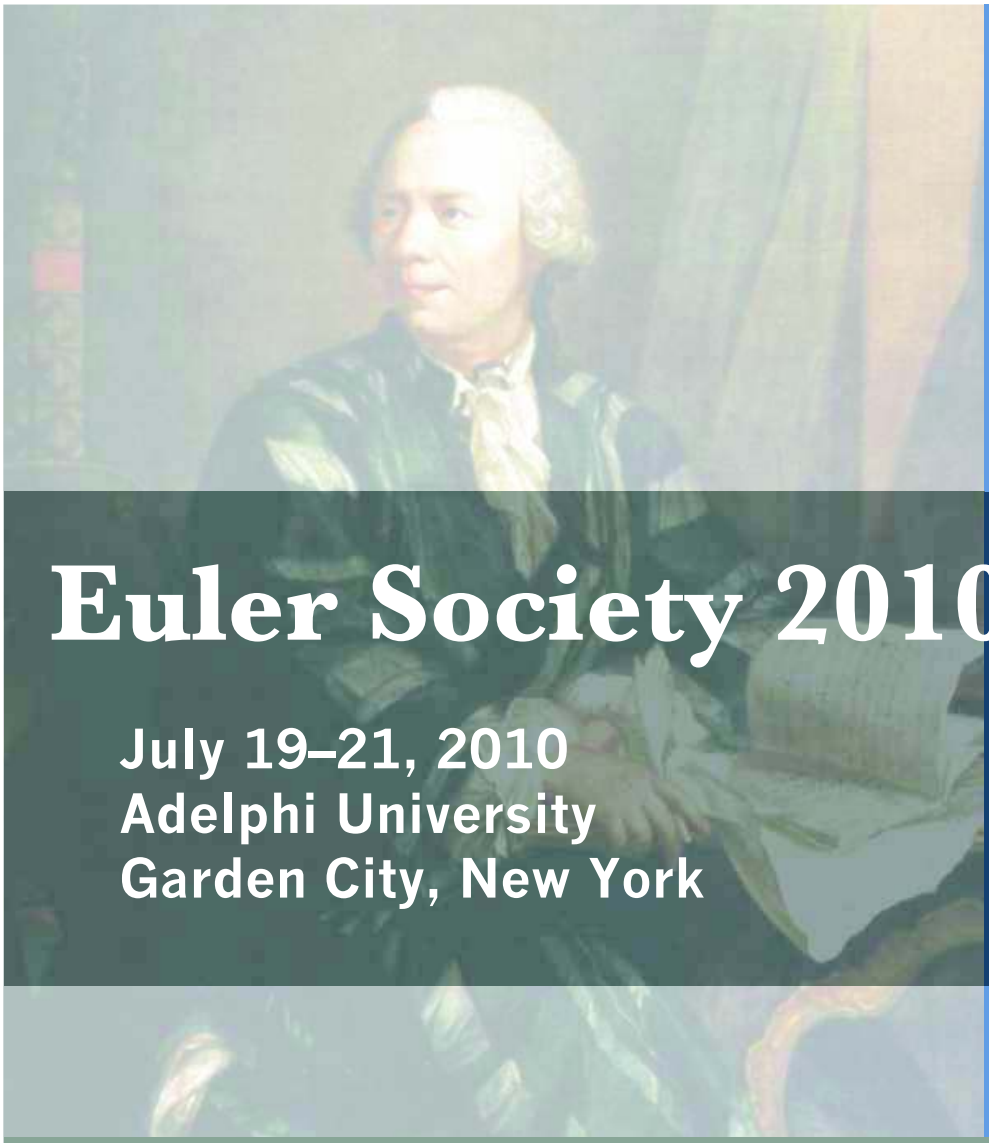
MathFest • August 5-7, 2010, Pittsburgh, PA • For more information visit: www.maa.org/mathfest

NCTM Regional Conference and Exposition • October 14-15, 2010, Baltimore, MD
For more information visit: www.nctm.org/conferences/content.aspx?id=25251

AMS 2010 Eastern Section Fall Meeting • October 2-3, 2010, Syracuse University, Syracuse, NY
For more information visit: www.ams.org/amsmtgs/2176_program.html

AMATYC 36th Annual Conference • November 11-14, 2010, Boston, MA
For more information visit: www.amatyc.org/Events/conferences/2010Boston/

MAA-AMS Joint Mathematics Meeting • January 5-8, 2011, New Orleans, LA
For more information visit: www.ams.org/amsmtgs/2125_intro.html



Euler Society 2010 Meeting

July 19–21, 2010
Adelphi University
Garden City, New York

The Society meeting is open to all interested parties, including those from outside the traditional mathematical and historical communities. Send all titles/abstracts to Rob Bradley for consideration, by postal mail or e-mail:

Prof. Robert E. Bradley
Department of Math and Computer Science
Adelphi University
1 South Ave.
Garden City, NY 11530

bradley@adelphi.edu

Deadline for abstracts is May 15. Registration fee is $100; a reduced rate is available for those without institutional support. On-campus lodging is also available.

www.eulersociety.org

5th Annual SPUYTEN DUYVIL Undergraduate Mathematics Conference

Saturday April 24, 2010 • St. Francis College • Brooklyn, NY

Keynote Address: *Computing Fundamental Groups and Covering Spaces*

Dr. Martin Moskowitz**,** Graduate Center City University of New York

The purpose of the conference is to give undergraduates the opportunity to discuss mathematics with their peers.

For more information contact Dr. Fotios Paliogiannis at sfcmath@gmail.com or Dr. Kathryn Weld at Kathryn.weld@manhattan.edu

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25 and 50 Year Members

The following members will be recognized during the Awards Ceremony at our May meeting. The 25 year members are offered free registration, the 50 year members free registration *and* lunch (who said there's no such thing as a *free lunch*?!!). ☺

25 Years: Sadie C. Bragg (Borough of Manhattan CC), Burton B. Lieberman (Polytechnic University), Donald Golden, Harborne W. Stuart (New York University).

50 Years: Walter W. Bartlett, Raymond A. McCartney, Robert Shloming (Essex County CC), Thomas J. Smith (Manhattan College), Sylvan Wallach.

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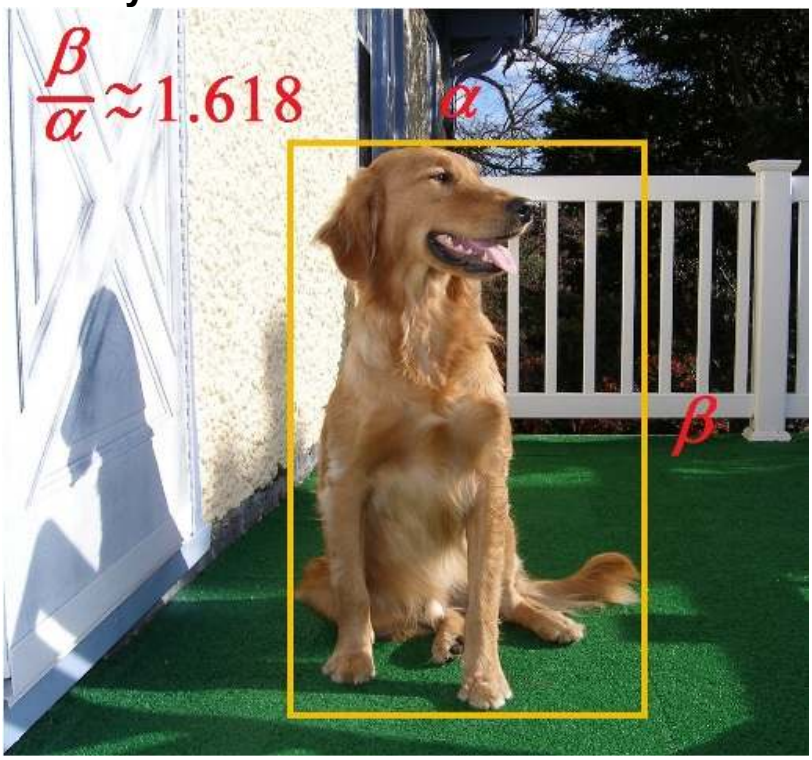
Why Golden Retrievers are so named!



Ray Greenwell's Golden Retriever, Jasper

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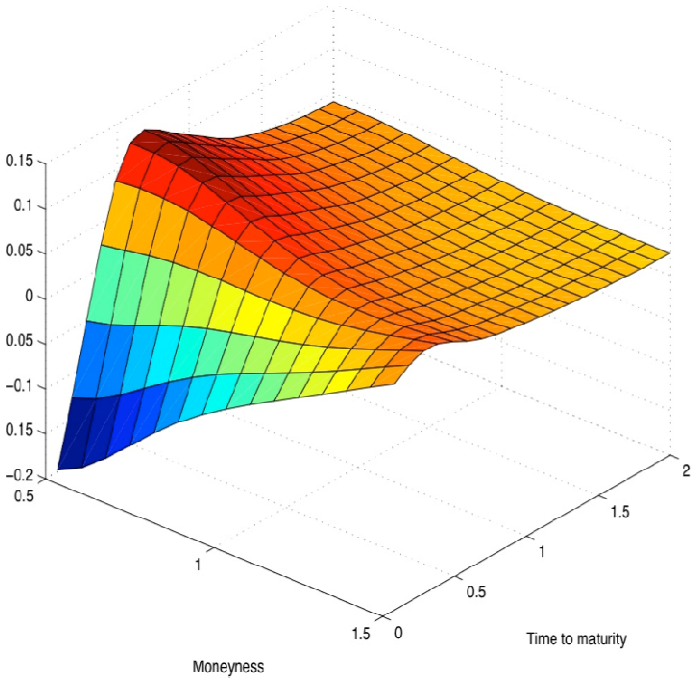
Quantitative Finance

A number of Stony Brook Applied Math graduates hold senior investment positions at leading investment banks such as Morgan Stanley and Credit Suisse First Boston, and others have managed large quantitative hedge funds. One successful Applied Math PhD recently endowed the Frey Family Chair in Quantitative Finance. Our quantitative finance faculty have extensive experience in building mathematical trading systems for hedge funds. **Internships** are available to give students first-hand experience with quantitative finance.



Black-Scholes-based Implied Volatility Surface

Applied Statistics

Demand for statisticians remains strong in investment firms, banks, drug companies, medical centers, government and corporate research labs, and more. All Applied Math statistics faculty have extensive experience consulting for government and business

For more information, see www.ams.stonybrook.edu. Applications for fall, 2010 considered through July, 2010.

* *MetroMath* accepts advertising at $50 for a half-page ad and $100 for a full-page.

PLEASE POST

METROPOLITAN NEW YORK SECTION

OF THE

MATHEMATICAL ASSOCIATION OF AMERICA

ANNUAL SPRING MEETING
SATURDAY, 1 MAY 2010

New York City College of Technology (CUNY)
Brooklyn, NY

INVITED SPEAKERS

Jeffrey O. Shallit, University of Waterloo
The Frobenius Problem and Its Generalizations

Fred Roberts, Rutgers University
Algorithms for Container Inspection at Ports: Finding Optimal Binary Decision Trees

WORKSHOP

Beth Chen, University of Michigan
Tetrahedron Packing

SPECIAL PRESENTATION: *Math Bowl* (for students)

CONTRIBUTED PAPER AND POSTER SESSIONS

Research, Pedagogical, and Student Presentations

FOR MORE INFORMATION PLEASE VISIT OUR WEBSITE AT
www.maa.org/metrony

Mark Your Calendars!!!

Spring Meeting

New York City College of Technology (CUNY)
Brooklyn, NY

Saturday, 1 May 2010

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Abe Mantell, Editor
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