

THE MATHEMATICAL ASSOCIATION OF AMERICA

# ANNUAL MEETING OF THE METROPOLITAN NEW YORK SECTION Sunday, May 1, 2011 8:45 AM - 5:00 PM

Stony Brook University, SUNY Simons Center Geometry and Physics Stony Brook, New York



#### ANNUAL MEETING OF THE METROPOLITAN NEW YORK SECTION

**OF THE** 

MATHEMATICAL ASSOCIATION OF AMERICA

STONY BROOK UNIVERSITY, SUNY

SIMONS CENTER FOR GEOMETRY AND PHYSICS

MAY 1, 2011

8:45 - 9:30 AM	Registration and refreshments	Simons Center Lobby
8:45 - 9:30 AM	Book exhibits open (continuing until 3:30 PM)	Simons Center Lobby
9:30 - 9:45 AM	Welcoming Remarks: Brent Lindquist, Deputy Provost, Stony Brook University Farley Mawyer, Chair, Metropolitan New York Section of the MAA	Simons Center Auditorium
9:45 - 10:45 AM	Invited Speaker: Demonic Graphs and Undergraduate Research Aparna Higgins, University of Dayton	Simons Center Auditorium
10:45 - 11:00 AM	Break - coffee and refreshments	Simons Center Lobby
11:00 - 12:00 PM	Invited Speaker: <i>Puzzles You Think You Must Not Have Heard Correctly</i> Peter Winkler, Dartmouth College	Simons Center Auditorium
12:15 - 1:15 PM	Lunch (with time to visit the exhibits)	Simons Center Cafe
1:15 - 1:45 PM	Awards Ceremony - including prize raffle and section business	Simons Center Auditorium
2:00 - 3:00 PM	Common Core State Standards, Now Assessment: An Up-Date Henry Kepner, University of Wisconsin - Milwaukee	Simons Center Auditorium
2:00 - 4:00 PM	WeBWork Workshop Florin Catrina, St. John's University Ethan Pribble, SUNY Old Westbury	Lecture Hall
3:00 - 5:00 PM	Contributed papers and poster sessions	Harriman Hall

# PRESENTATION ABSTRACTS AND SPEAKER BIOGRAPHIES

#### **Demonic Graphs and Undergraduate Research**

Aparna Higgins, University of Dayton

#### Abstract:

Working with undergraduates on mathematical research has been one of the most satisfying aspects of my professional life. This talk will highlight some of the beautiful and interesting research done by my former undergraduate students on line graphs and pebbling on graphs. We will consider line graphs, some pioneering results in pebbling graphs, and pebbling numbers of line graphs. This work has inspired other students to investigate questions in these areas, and it has contributed to my research as well.

#### Speaker Biography:

Aparna Higgins received a B.Sc. in mathematics from the University of Bombay in 1978 and a Ph.D. in mathematics from the University of Notre Dame in 1983. Her dissertation was in universal algebra, and her current research interests are in graph theory. She has taught at the University of Dayton, Ohio, since 1984. Although Aparna enjoys teaching the usual collection of undergraduate courses, her most fulfilling experiences as a teacher have come from directing undergraduates in mathematical research. She has advised twelve undergraduate Honors theses; she has co-directed an NSF-sponsored Research Experiences for Undergraduates program; and she continues to help students prepare talks for regional and national mathematics meetings. Aparna is an advocate of academic year undergraduate research at one's own institution. She has presented workshops (often with Joe Gallian) at mathematics meetings on directing undergraduate research. She enjoys giving talks on mathematics to audiences of various levels and backgrounds. Aparna has been the recipient of four teaching awards - from the College of Arts and Sciences at the University of Dayton, the Alumni Award (a University-wide award), the Ohio Section of the Mathematical Association of America, and in 2005, the Deborah and Tepper Haimo Award for Distinguished College or University Teaching, which is the Mathematical Association of America's most prestigious award for teaching. Aparna has served the MAA in many capacities, including being a founding member of, and then chairing, the Committee on Student Chapters, which helped create and maintain Student Chapters, provided support to Sections for student activities and provided appropriate programming for undergraduates at national meetings. Aparna is Director of Project NExT (New Experiences in Teaching), a professional development program of the MAA for new or recent Ph.D.s in the mathematical sciences. Project NExT addresses all aspects of an academic career: improving the teaching and learning of mathematics, engaging in research and scholarship, and participating in professional activities. It also provides the participants with a network of peers and mentors as they assume these responsibilities. Aparna Higgins is married to Bill Higgins, a mathematician who teaches at Wittenberg University, in Springfield, Ohio. They like to take year-long sabbaticals and spend part of that time teaching at other institutions. They feel privileged to have taught at the Naval Postgraduate School in Monterey, California, at the United States Military Academy in West Point, New York, and at California State University Channel Islands. Aparna and Bill Higgins have two sons.

#### **Puzzles You Think You Must Not Have Heard Correctly**

Peter Winkler, Dartmouth College

#### Abstract:

Some mathematical puzzles have the property that when they are presented, certain questions are inevitably raised. Perhaps the puzzle seems to make no sense, or it asks for something to be proved that sounds trivially true or trivially false. Puzzles in this category turn out to be among the most amusing and/or educational in the puzzle repertoire. I will present several of my favorites, some with solutions, some without.

#### **Speaker Biography:**

Peter Winkler is Professor of Mathematics and Computer Science, and Albert Bradley Third Century Professor in the Sciences, at Dartmouth College. Winkler's mathematical research is primarily in combinatorics, probability, statistical physics, and the theory of computing. He holds a dozen patents in cryptology, holography, distributed computing, optical networking, and marine navigation. He is the author of two collections of mathematical puzzles, a portfolio of compositions for ragtime piano, and (just published) a book on cryptologic methods in the game of bridge.

#### The Common Core State Standards, Now Assessment: An Up-Date

Henry Kepner, University of Wisconsin - Milwaukee

#### Abstract:

Over the last two years, a mathematics standards movement has been driven by the National Governors Association and the Council of Chief State School Officers. This session will take a close look at the resulting standards adopted by over 40 states; report on efforts to interpret the standards; challenges in their implementation; and a view of efforts to develop assessments.

#### **Speaker Biography:**

Hank Kepner takes his expertise in mathematics education directly into classrooms and school districts, both locally and nationally. He is professor of Mathematics Education and holds an appointment in the Department of Mathematical Sciences, University of Wisconsin - Milwaukee. He has taught middle and high school mathematics for 12 years in Milwaukee and Iowa City and is currently active in K-12 schools. Kepner is Immediate Past President of the National Council of Teachers of Mathematics. Earlier, he served five years as program officer at the National Science Foundation in Washington, D.C. He was a founding member and president of the Association of Mathematics Teacher Educators. He was president of the National Council of Supervisors of Mathematics, and the Wisconsin Mathematics Council.

#### WeBWork Workshop

Florin Catrina, St. John's University and Ethan Pribble, SUNY - Old Westbury

#### Abstract:

WeBWorK is an open source online homework system. It is supported by the MAA and the NSF and comes with a National Problem Library (NPL) of over 20,000 homework problems. This workshop is designed to introduce the faculty participants to WeBWorK. It is also hoped that the workshop will help foster and develop the community of WeBWorK users in the NY Metro area. More information can be found at: http://webwork. maa.org/home/index.html

#### **Speaker Biography:**

Florin Catrina is an Assistant Professor at St. John's University in Queens, NY. He received his PhD from Utah State University in 2000, in Nonlinear Analysis and Elliptic PDE's. After his PhD he had two three-year appointments: one at the University of Rochester, and one at Worcester Polytechnic Institute, before moving to New York. In Rochester he became familiar with WeBWorK by direct interaction with the creators of the system: Arnold Pizer and Michael Gage. Florin has been using WeBWorK every semester since Fall 2000, and he likes to think that this fact influenced some of the faculty at WPI and at St. John's University into adopting this system. Ethan Pribble is an Assistant Professor at SUNY College at Old Westbury on Long Island, NY. He received his PhD from Northwestern University in 2004 in Algebraic Stacks and Stable Homotopy Theory. He had a three year postdoctoral position at the University of Rochester from 2004 until 2007 where he became involved with WeBWorK. He has been at SUNY College at Old Westbury since 2007 where he continues to use and promote WeBWorK as well as other learning technologies such as GeoGebra. He is currently interested in finding ways to enhance learning and the larger educational process through the use of open source software.

## **CONTRIBUTED PAPER AND POSTER SESSIONS**

ROOM: HARRIMAN 112 3:00 PM - 5:00 PM

### **PEDAGOGY SESSION:** NAMM BUILDING, ROOM N1022

Presider: TBD

**3:00 p.m.** Applying Self-Regulated Learning in Developmental Math Courses Sandie Han, New York City College of Technology Grazyna Niezgoda, New York City College of Technology

According to research on the cognitive science, students' failure to learn can be attributed to a lack of metacognitive awareness in learning. The self-regulated learning (SRL) with its three cyclical phases: the planning, the monitoring, and the self-reflecting phase, is a process which heightens self-awareness and promotes proactive learning. Activities, designed to build specific self-regulatory skills such as goal setting, self-efficacy judgment, and performance evaluation, are integrated in the teaching of the developmental math courses.

3:20 p.m. The Effects of Study Skills Training and Peer Coaching of 'At-risk Students' on Retention and Passing Rates in Remedial Mathematics Courses Leonid Khazanov, Borough of Manhattan Community College Michael George, Borough of Manhattan Community College Chris McCarthy, Borough of Manhattan Community College

This study (1) incorporated the teaching of study skills, time management strategies, test-taking skills, and anxiety reduction strategies into an Elementary Algebra course, and (2) identified at-risk students and assigned these students "coaches," who functioned both as tutors and counselors, providing regular personalized assistance. The retention rate was significantly higher in treatment groups than it was for the control groups (p-value < 0.02). The pass rate for the treatment cohort was also higher but not significantly so (p-value > 0.1).

3:40 p.m. Incorporating Quantitative Literacy in Mathematics Courses Reem Jaafar, LaGuardia Community College Mangala Kothari, LaGuardia Community College

We present methods and examples that can be used to incorporate quantitative literacy in various introductory mathematics courses at the two-year college and assess how it can benefit students.

#### 4:00 p.m. On Using Microsoft's Excel in Introductory Statistics Frank Lewis, New York University

Since its introduction in the early 90's, Microsoft's Excel has become a popular tool used in Introductory statistics courses. At New York University's McGhee Division I have used it as an environment to illustrate the concepts of histogram, standard deviation, correlation, regression, geographic mapping of residuals, as well as for a final term project using the data mining technique of forward variable selection for multiple regression.

**4:20 p.m.** Numeracy and Meaning in Developmental Mathematics Courses Shenglan Yuan, LaGuardia Community College Yelena Baishanski, LaGuardia Community College

How necessary is numeracy to conceptual understanding? How are arithmetic and computational skills related to the ability to make meaning? The presenters outline a pedagogical approach that pairs an emphasis on mental arithmetic and numerical fluency with the promotion of common sense and the goal of discovery over application in problem solving.

4:40 p.m. Clicking Algebra-Related Education (CARE) Jerry Chen, Suffolk County Community College Myung-Chul Kim, Suffolk County Community College

In algebra-related courses, the Clicker Teaching Technique is used to ask good questions, combined with visual lessons, and proven to enhance student success, increase conceptual understanding, and promote critical thinking and sense making in an interactive environment. Almost all students expect and enjoy learning with the clickers!

### MOSTLY RESEARCH SESSION: ROOM: SIMONS CENTER

Presider: TBD

**3:00 p.m. Power Sum and Binomial Coefficient Congruences via Pascal's Identity** Jonathan Sondow, Princeton University (alumnus and presenter) Kieren MacMillan, Rice University (alumnus and co-author)

A frequently cited theorem says that for n > 0 and prime p, the sum of the first p nth powers is congruent to -1 modulo p if p-1 divides n, and to 0 otherwise. We give an elementary proof, using an identity for power sums proven by Pascal in 1654. An application is a simple proof of a congruence for certain sums of binomial coefficients, due to Hermite and Bachmann. A preprint of our June 2011 Monthly paper is at http://arxiv.org/abs/1011.0076.

#### **3:20 p.m.** An Introduction to Gene Set Analysis

Jacob A. Gagnon, Worcester Polytechnic Institute

In recent years, microarray genetic analysis has shifted focus from the analysis of individual genes to gene sets because they tend to be more reproducible across studies and easier to interpret biologically. This talk will introduce the analysis of gene sets by first describing what a gene set is and by discussing what database resources are available for gene sets. Then, I will present a mathematical model for gene set analysis and discuss some potential applications to Acute Lymphoblastic Leukemia.

**3:40 p.m.** Verifying Logical Arguments with Extensible Truth Tables David B. Sher, Nassau Community College

I extend a method developed by L. Sher. I prune our truth tables by eliminating rows that conflict with premises. I combine this pruning with an innovative method of truth table construction that is extensible.

#### 4:00 p.m. Fifteen Favorite Integer Sequences Jay L. Schiffman, Rowan University

The purpose of this talk is to explore the fascinating world of integer sequences as a means for discovery, investigation and mathematical experimentation. The use of technological software such as MATHEMATICA aids in such an inquiry. The sequences will be selected from such branches of mathematics as abstract algebra, number theory, graph theory, combinatorics, discrete mathematics, and recreational mathematics. Participants will be encouraged to guess the possible sequence based on the terms that are furnished.

4:20 p.m. Introducing One of the Fundamental Concepts of Calculus Emad Alfar, Nassau Community College Chia-ling Lin, Nassau Community College Daniel Ness, Dowling College

This presentation demonstrates the fundamentals of differentiation using two methods: estimation and differentiation. Students will be using simple tools, such as a ruler and a pencil. Through inductive reasoning, students can estimate the answer (derivative). This presentation builds students' confidence in learning mathematics.

4:40 p.m. Encryption and Decryption Using Remainders Ron Skurnick, Nassau Community College Mohammad Javadi, Nassau Community College

In this presentation, we will start by showing how modular arithmetic can be used to find remainders, and conclude by showing how remainders can be used to encrypt and decrypt secret messages.

### MOSTLY STUDENTS SESSIONS: ROOM: HARRIMAN 115

Presiders: Si Min Tan and Jodi Ann Young, New York City College of Technology

3:00 p.m. The Mathematics Modeling for the Analysis of Psoriasis

Virgile Barnes, Mercy College (student) Dominique Whitehurst, Mercy College (student) James Guerra, Mercy College (student) Ariel Vargas, Mercy College (student) Advisor: Sanju Vaidya

The purpose of our project is to explain Psoriasis using mathematical concepts. We'll begin by giving the basic understanding of Psoriasis, its causes, symptoms, and treatments. We will discuss the statistics calculated by extrapolations of various prevalence or incident rates of various countries. We will analyze the survey panels explaining the impact of psoriasis in everyday life, calculations of different types of Psoriasis on the sections of the skin and finally the mathematical model on Immunopathogenesis of Psoriasis. 3:20 p.m. Mathematical Modeling to Analyze Sports Injuries Thomas Di Carlo, Mercy College (student) Morgan Foley, Mercy College (student) Advisor: Sanju Vaidya

Our project is about sports injuries and the applications of math formulas to sports injuries. We decided to report on this topic because it was very intriguing and sports play a big role in both our lives. Sport injury statistics and percentage got us thinking on how math can relate to sports medicine and injuries. We researched the Mathematical models to analyze sports injuries by the type of injury, age, gender, and type of sport the athlete played. Sport injuries and math are simultaneously going to work together to help protect athletes and predict ways to prevent injuries in sports.

#### **3:40 p.m.** The Linear Algebra Behind Web Search Engines Steven Lora, New York City College of Technology (student) Advisor: Andrew Douglas

Internet search engines typically employ a link analysis algorithm to refine search results. Perhaps the best know such algorithm is Google's PageRank algorithm; an algorithm that ranks the importance of web pages according to an eigenvector of a "link matrix." In this talk, we describe the PageRank algorithm and the linear algebra behind it.

#### 4:00 p.m. Fun Ways to Teach Mathematical Proofs Elana Reiser, St. Joseph's College

Are you looking for a way to get students interested in and able to understand proofs? By challenging them to think about proofs in unorthodox ways, students have an easier time grasping this conventionally frustrating topic. Students in a capstone course picked a branch of mathematics and thought of a fun way to teach proofs within that subject. Groups researched proof techniques and used this knowledge along with their own experiences to create an activity to teach proofs.

#### 4:20 p.m. Academic Inventory Module (AIM) for Success in an Intermediate Algebra and Geometry Course

Janet Liou-Mark, New York City College of Technology AE Dreyfuss, New York City College of Technology Mursheda Ahmed, New York City College of Technology (student) Susan Lema, New York City College of Technology (student) Jodi-Ann Young, New York City College of Technology (student) Karmen Yu, New York City College of Technology (student)

The goal of the AIM for Success in Mathematics project at New York City College of Technology was to establish a seamless pathway from developmental to credit-bearing mathematics courses through a community of practice. This project investigated the use Peer-Led Team Learning workshops to support students in an intermediate algebra and geometry mathematics course. Results from this study will be presented. (Project supported by the CUE Improving Undergraduate Education at CUNY grant, City Tech BMI, NSF STEP grant #0622493, and LSAMP.) 4:40 p.m. Peer-Assisted Learning Workshops: A Program to Improve Persistence and Retention Janet Liou-Mark, New York City College of Technology AE Dreyfuss, New York City College of Technology (student) Ireen Bary, New York City College of Technology (student) Amelise Bonhomme, New York City College of Technology (student) Renee Clarke, New York City College of Technology (student) Sereta Scott, New York City College of Technology (student) Si Min Tan, New York City College of Technology (student) Yi Ming Yu, New York City College of Technology (student)

Peer Assisted Learning (PAL) workshops in mathematics have been implemented at New York City College of Technology for three academic years. Results from this study showed the retention and pass rates in gateway mathematics courses to be higher for students who participated in PAL workshops than those who did not. Moreover, peers leaders continue to persist in their STEM majors indicating that a peer leadership program may be a potential retention effort to keep students in STEM-degree programs. (Project supported by the CUNY 2011 OAA grant, City Tech BMI, and NSF STEP grant #0622493)

### **POSTER SESSION:** NAMM BUILDING, HARRIMAN HALL

Presider: : Jerry G. Ianni, LaGuardia Community College

#### An Abstract Method of Encoding Using Cryptography

Neha Vaidya, Nyack High School (student) Advisor: Orande Daring

My project is based on the science of cryptography, the study of writing secret codes using various techniques. This is commonly used in everyday practices, such as simply opening one's account by typing a password or shopping online. However, identity theft has become prevalent today spawning a need for stronger cryptographic techniques. After researching previous ways of encryption, I came up with my own encoding system, using random digits table, colors, shapes, properties of functions and modular arithmetic.

#### **Cellular Automata**

Lisa Murphy, St. Joseph's College (student) Thiessen Charles, St. Joseph's College (student) Advisor: David Seppala-Holtzman

Conway's Game of Life has gained considerable attention since it was first introduced in the 1970's. Numerous publications have been produced on the analysis of recurring patterns and shapes within the game. It has even been claimed that finding algorithms that give rise to certain patterns can inch us closer to predicting real-life patterns. In our analytical research, we sought to find and study patterns that arise during the evolution of certain initial configurations, such as empty n x n squares, and, by doing so, become able to predict the final state and lifespan generated by these configurations.

#### Developing a Computer Algebra System: The Math Behind the Math

Agop Shirinian, Bethpage High School (student) Advisor: Leon LaSpina

Computer algebra systems (CAS) are widely available on the web (http://www.wolframalpha.com/) and with CAS graphing calculators. There are still two issues preventing people from putting CAS to affective use: availability and user-friendliness. A custom CAS was developed to address these concerns. Students and faculty that have never used CAS before may be surprised by how much math it can do. Those already familiar with this tool will gain some insight into what is going on under-the-hood.

An Examination of Vibrating String Problems Nathaniel Prince, Farmingdale State College (student) Advisor: Irina Neymotin

A poster illustrating (a) wave propagation in strings with a single density discontinuity and (b) the comparison of high and low tension oscillations in a finite uniform string based on the results of analysis.

Hudson River Biodiversity Project – A SENCERized Course Module Urmi Ghosh-Dastidar, New York City College of Technology Margaret Cozzens, DIMACS at Rutgers University

In this presentation a SENCER-based model course is exemplified, one which uses a graph theory approach to develop digraphs, competition graphs and weighted competition graphs to analyze relationships of competition among Hudson River species, including identification of top, intermediate, basal, and keystone species, finding trophic status, and flow-based trophic levels. Furthermore, we will study Hudson River food web complexity based on species richness, connectance, links per species, and omnivore properties. The SENCER promotes undergraduate STEM education improvement by expanding capacities beyond classrooms.

**The Mathematics of Radiologic Technology** Phillip Abraham, Mercy College (student) Arlene Tejada, Mercy College (student) Advisor: Sanju Vaidya

How does x-ray imaging work? How are we able to view a baby inside a mother's womb? How does ultrasound work? How is radiation used to fight cancer? All these questions and more can be answered through mathematics. Join us as we explain the mathematics that make up the exciting and advanced field of radiologic technology. Our poster presentation consists of information regarding many fields of study in radiologic technology, its history, the required education, job outlook, and the mathematical applications.

#### Mathematics for Understanding Brain Chemistry and Behavior

Connie Minoso, Mercy College (student) Sophia Lulgjuraj, Mercy College (student) Advisor: Sanju Vaidya

The objective of this project is to understand the chemistry of the brain and personality traits using mathematical concepts. Have you ever wondered why two people in similar situations have different reactions? The mathematics of magnetic resonance imaging provides an essential tool to discover this answer. Magnetic resonance imaging (MRI) provides a gateway to view the brain in detail allowing scientists to make such discoveries.

**The Real Mathematicians** Francisca Barrios, Nassau Community College (student) Parinita Singh, Nassau Community College (student) Advisor: Abraham Mantell

Hypatia, Maria Agnesi, Sonya Corvin-Krukovsky Kovalevsky – do these names sound familiar? Most people aren't as familiar with these names as they should be. These are the names of some of the most influential women mathematicians. Our project consists of not only these, but a few more memorable names of women who have impacted mathematics. It reflects on the stereotypes that come with women in this subject, and what women have done to help progress mathematics.

**Testing for Prime Numbers with Calculus** Elizabeth Mills, New York City College of Technology (student)

Yi Ming Yu, New York City College of Technology (student) Advisor: Satyanand Singh

In this project we have explored the use of calculus in identifying primes, based on a strikingly simple primality test published by Dennis Walsh in the October 2007 Mathematics Magazine. We showed how his method of testing the nth derivative of  $exp(x^2)$  at x=0 to show primality can be applied to certain other types of continuous, differentiable functions, and we experimented with ways to speed up this process in Maple and Matlab.

**Contributed Paper and Poster Sessions Organizing Committee:** Jerry G. Ianni, LaGuardia Community College (chair) Matthew Leingang, New York University

Janet Liou-Mark, New York City College of Technology

### METROPOLITAN NY SECTION OF THE MAA TREASURER'S REPORT MAY 1, 2011

Accounts*	Balance	Balance
	(05/01/11)	(05/01/10)
Business Checking	9,948.86	9,832.50
Business Money Mkt Acct	2,270.44	5,269.15
6-Month Business CD	20,700.27	20,648.58

Withdrawals - Business Checking Account		(05/01/10 - 05/01/11)	
CK#	Description	Amount	Date
784	Unitech (news letter)	180.00	04/27/10
785	Abraham Mantell (meeting give-away items)	752.26	04/28/10
786	Beth Chen (\$300 honorarium, \$240.41 travel expenses)	540.41	05/07/10
787	Armen Baderian (name badges, dots, tickets)	234.90	05/07/10
788	Ron Skurnick (registration table assistant	100.00	05/07/10
789	Jeffrey Shallit (honorarium and travel expenses)	664.27	05/07/10
790	Farley Mawyer (post-meeting dinner reimb.)	172.16	05/14/10
791	MAA (section book sales spring 2010)	721.00	06/04/10
792	Compass Group USA (catering spring 2010 mtg.)	279.60	06/04/10
793	Compass Group USA (catering spring 2010 mtg.)	1,199.20	06/04/10
794	Fred Roberts (honorarium and travel expenses)	300.14	06/04/10
795	Post Master, Commack, NY	20.48	06/05/10
796	2010 Project NExt Fellow	2,500.00	06/13/10
797	CulinArt, Inc. (2010 delegate assembly)	179.00	10/13/10
ccount	Maintenance Fees (May 2010 – May 2011)	54.00	05/01/11
-	TOTAL	7,897.42	

\* All with JPMorgan Chase

Deposits - Business Checking Account	(05/01/10 - 05/01/11)	
Description	Amount	Date
Deposit (pre-reg. 50 cks. for \$1295 and cash \$50 walk-in 6 cks for \$140 and cash \$450, publishers 3 cks for \$240)	2, 175.00	05/10/10
Deposit (book sales spring 2010 mtg.)	307.25	06/05/10
Deposit (transfer from savings account)	3,000.00	06/12/10
Deposit (NYC College of Technology) \$115 reg. + \$346.25 book vouchers)	461.25	08/09/10
Deposit (book sales spring 2010 mtg.)	97.28	08/28/10
Deposit (Metropolitan NY Sec. of MAA Graph Theory Fund)	40.00	09/04/10
Deposit (publisher)	80.00	09/17/10
Deposit (Subvention 2010)	1,763.00	09/17/10
Deposit (Metropolitan NY Sec. of MAA Graph Theory Fund)	90.00	12/29/10
TOTAL	8,013.78	

### GRAPH THEORY FUND METROPOLITAN NY SECTION OF THE MAA

Accounts*	Balance	Balance
	(05/01/11)	(05/01/10)
Graph Theory Fund Metro NY Sec. of MAA (Business Checking Account)	335.00	205.00

Withdrawals - Business Checking Account		(05/01/1	0 - 05/01/11)
CK#	Description	Amount	Date
NONE			

Deposits - to Metro NY Sec. of MAA (Business Checking Account)	(05/01/10 - 05/01/11)	
Description	Amount	Date
Deposit (Metropolitan NY Sec. of MAA Graph Theory Fund)	40.00	09/04/10
Deposit (Metropolitan NY Sec. of MAA Graph Theory Fund)	90.00	12/29/10
TOTAL	130.00	

### **MAA METRO NY SECTION OFFICERS**

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**Special Appreciation** Stony Brook University Ms. Emely Perez, Program Designer, New York City College of Technology

### **MAP OF STONY BROOK UNIVERSITY**

