
THE ARCHIMEDEAN

Syracuse University | Department of Mathematics



Let's hear from you!

The Archimedean is published by the Mathematics Department of Syracuse University to keep its students, alumni, and friends informed about news and events in the department. Your comments and questions are welcomed at 215 Carnegie Library, Syracuse University, Syracuse NY 13244 or by email to mathdept@syr.edu.

Contents

From the Chair	1
New Faces	2
Faculty Highlights	4
Graduate News	6
Math Major News	7
Research Highlight	8
Epsilons and Deltas	8
Donors	10
Alumni Notes	11

The View from the Chair

The year 2014 was another year of dramatic change in the Department of Mathematics: Prof. Eugene Poletsky stepped down after serving the department as its Chair for the last six years.



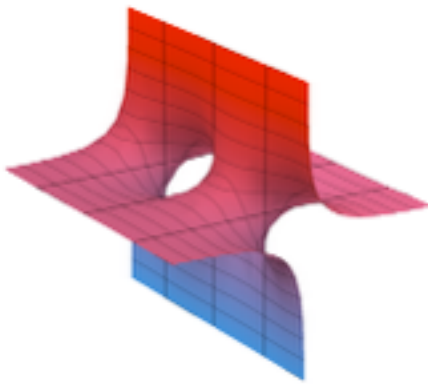
Uday Banerjee

During those six years, Prof. Poletsky negotiated with the administration for adequate office space in Carnegie Library for all the mathematics faculty and navigated the plans for new faculty offices in Carnegie. He was the chief architect behind creating the new BA/BS program in Applied Mathematics in 2011. This program has become very successful, and currently accounts for about a third of our majors. The number of students in our classes went up by about 22% during this time and Prof. Poletsky was successful in obtaining 2 new faculty lines and 5 PTIs so that we could effectively maintain our teaching responsibilities. He also actively facilitated the research of the faculty.

There was change in the College as well. Dean George Langford stepped down and Prof. Karin Ruhlandt became the new Dean of the College of Arts & Sciences. Dean Ruhlandt is a distinguished professor of Chemistry and served as Chair of the Chemistry department from 2009 to 2014. We look forward to working with Dean Ruhlandt to raise the research and teaching in the department to even higher levels.

In 2014, two new faculty members joined our department. Prof. Loredana Lanzani, who works in harmonic analysis and several complex variables, came to us from the University of Arkansas. Prof. William Volterman, who works in

See CHAIR, page 3



New grad students!

- James Barr (Western New England University)
- Ashley Binnert (Nazareth College)
- Stephen Farnham (Western New England University)
- Sascha Gritzbach (Universität Ulm)
- Muzhi Jin (Mississippi State University)
- Jialing Li (Capital Normal University, Beijing)
- Sydney Mace (Millersville University)
- Caleb McWhorter (Ithaca College)
- Diwakar Pant (University of Delhi)
- Sean Spriggens (University of Rochester)
- Erin Tripp (University of California Santa Barbara)
- Victoria Wambua (Maseno University)
- Mingyue Wang (University of Science and Technology (Beijing))

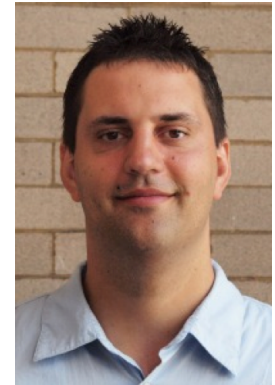
New Faces in 2014



Loredana Lanzani

Loredana Lanzani joins the department as Professor of Mathematics. She came to us from University of Arkansas, where she also served as a full professor. Her research interests are in harmonic analysis, PDEs, and several complex variables. She received her Ph.D. from Purdue University in 1997, and her research has been continuously supported by NSF since 2001. She also spent 2 years at NSF as a program director in Analysis. She has also held many visiting positions at mathematics departments in the US and abroad.

William Volterman joins us as Assistant Professor of Mathematics. He is a statistician with research interests in the areas of experimental design, order statistics, and reliability. He earned his Ph.D. from McMaster University and did his postdoc also at the same place. Before coming to Syracuse, Will spent one year as a faculty member at XJTLU in China.



William Volterman



Turgay Bayraktar

Turgay Bayraktar is a Philip T. Church Post-doctoral Fellow. His research is in complex analysis and complex geometry, particularly holomorphic endomorphisms of complex manifolds and asymptotic distribution of zeros of random polynomials. Turgay earned his Ph.D. from Indiana University in 2012, and held temporary positions there and at Johns Hopkins before coming to Syracuse. His main collaborator at SU is Dan Coman.

Continued next page

More New Faces



Denise Rangel Tracy

Denise Rangel Tracy is a Philip T. Church Postdoctoral Fellow. Her research is in commutative algebra, particularly representation theory of totally reflexive modules. She earned her Ph.D. at U. Texas-Arlington

in 2014. She works with Graham Leuschke and Dan Zacharia.



Dmytro Yeroshkin

Dmytro Yeroshkin is a Philip T. Church Postdoctoral Fellow. He works in differential geometry, with a focus on positive curvature and orbifolds. Dima earned his Ph.D. from U. Penn

in 2014, and works mainly with William Wylie.

Henry Barwotoe joined the office staff as Office Coordinator. He has background in accounting, business administration, and human resources. His hobbies are playing and watching sports, especially soccer and basketball.

He is married and has two boys.



Henry Barwotoe

CHAIR, from page 4

reliability, exact non-parametric analysis, and statistical analysis of lifetime data, will fill the void that we had in the area of Statistics for some time.

Two of our long-time office staff, Christine Gilmore and Caroline (CJ) Sabloski, retired in 2014. The faculty and staff arranged small but cozy events in appreciation of Chris and CJ's service to the department. Mr. Henry Barwotoe joined as a new staff member. Henry has a BS degree in Business Administration from SUNY Buffalo and he worked at the Human Resources department of SU before joining our department.

We taught about 8700 students in 2014, an increase of about 5% from 2013. In spite of heavy teaching, service responsibilities, and sequestration of national funding agencies, the faculty kept their research on track. In 2014, they published a total of 57 papers, their research was supported by 18 grants from external sources including NSF, NSA, NRC, NIH, and the Simons Foundation, and they were invited to present 47 lectures at national or international conferences.

The faculty also undertook an introspective exercise called SWOT analysis in 2014. This has prompted us to look carefully into the future and begin to craft a strategic plan, which will include identifying research areas in which we expect to hire in the next 5-7 years.

Our future plans must also include our undergraduate programs. The number of our majors has tripled in the last 10 years, but we must work harder to sustain or increase this growth. It will require looking critically at our programs and devising serious but appealing options to attract students as well as making them competitive for the job market or graduate studies.

Finally, our reputation as a research department has grown markedly over the last 15-20 years and I believe it is extremely important to continue to work hard to attract excellent students into our graduate program. However, this will not happen automatically and we will have to collectively use our national and international connections to achieve this goal. It is extremely difficult to achieve everything at the same time, but I believe that with collective hard effort, we will be successful in the near term and continue the department's exciting upward trajectory.

Faculty Highlights

Uday Banerjee delivered a keynote lecture on stable generalized finite element methods at the 11th World Congress on Computational Mechanics in Barcelona (Spain).



Dan Coman

Dan Coman gave invited addresses at Tsinghua Sanya International Mathematics Forum (TSIMF) in Sanya, Hainan Province, China, and the Institute of Mathematics of the Chinese Academy of Science in Beijing. He also spoke at the University of Cologne in Germany.

Ted Cox gave an invited talk at a workshop “From interacting particle systems to population genetics,” at Universität Erlangen-Nürnberg in Germany.

Steven Diaz was promoted to Full Professor in the department.

Jack Graver delivered the Jean Bee Chan and Peter Stanek Lecture for Students at the MAA’s MathFest in Portland OR. His lecture examined the founding of Pi Mu Epsilon, the Mathematics Honor Society, at Syracuse University in 1913—1914. See page 5.

Phil Griffin was a Distinguished Invited Speaker at the Kioloa Conference: “From Random Walks to Lévy Processes” at the Australian National University.

Tadeusz Iwaniec completed his six-year appointment at the University of Helsinki as “Finland Distinguished Professor” (FiDiPro). This highly respected post, sponsored by the Finnish

Academy of Science, allowed Tadeusz to spend half of each year in Helsinki, often accompanied by his Ph.D. students from SU. He gave a 5-year lecture course under the general title “An invitation to quasiconformal geometry and nonlinear elasticity”, which attracted even more students to work with him.



Tadeusz Iwaniec and Loredana Lanzani.
Photo credit: Michael Lacey

Leonid Kovalev was awarded a three-year NSF grant “Multi-scale geometry of bi-Lipschitz and quasiconformal maps”.

Loredana Lanzani was awarded a three-year NSF grant “Holomorphic Singular Integrals on Non-Smooth Domains in Complex Analysis”.

Graham Leuschke was promoted to Full Professor in the department. In August, he gave a series of four one-hour lectures at the Workshop and International Conference on Representations of Algebras (ICRA 2014) on the topic “Non-commutative desingularizations and Cohen-Macaulay representations”. He also serves as Chair of the AMS Committee on Meetings and Conferences.

See FACULTY, page 5

Jack Graver on the founding of PME at SU 100 years ago

Jack Graver delivered the Jean Bee Chan and Peter Stanek Lecture for Students at the Mathematical Association of America (MAA)'s MathFest, a four-day conference for hundreds of university faculty, high school teachers, and graduate and undergraduate students.

His lecture explored the origins of Pi Mu Epsilon (PME), the national mathematics honor society, which was founded at Syracuse in December of 1913 and incorporated by the state legislature five months later.

An outgrowth of the mathematics club at Syracuse University, PME was founded by Edward Drake Roe Jr., the John Raymond French Professor and chair of mathematics, as well as director



Jack Graver

The matter of organizing a mathematical fraternity was then discussed. Mr. Roe explained the situation as it is in German universities. A motion was made

of the Holden Observatory. Roe not only oversaw PME's first chapter, Alpha of New York, but also served as PME's national president until his death in 1929.

Since then, PME has grown to more than 350 chapters at colleges and universities nationwide. PME chapters engage in a variety of events and activities, designed to promote and recognize scholarly activities in mathematics, including conferences, lectures and workshops.

"Using the Archives of Syracuse University, as well as detailed notes left by [PME's] founders, I hope to cultivate a greater understanding of the historical context in which the organization was born," said Graver. "There are a lot of questions about how and why PME came about the way it did."



FACULTY, from page 4

Evgeny Poletsky was awarded a Simons Foundation Collaboration Grant. He recently gave a plenary lecture at the Conference on Constructive Approximation of Functions at the Stefan Banach International Mathematical Center in Warsaw.



Eugene Poletsky

Lixin Shen was an invited speaker at the 5th International Conference on

Computational Harmonic Analysis (ICCHA V) at Vanderbilt. He also delivered a plenary lecture at the International Workshop on Theoretical and Computational Analyses for Inverse Problems at Sun Yat-sen University in Guangzhou (China).

William Wylie gave invited talks at the National Meetings of the Canadian and American Mathematical Societies. He also spoke at a mini-workshop at the MFO in Oberwolfach.

Dan Zacharia was named the inaugural Douglas R. Anderson Faculty Scholar. (See page 8 for more on this new scholarship.)

Graduate Prizes

Donald E. Kibbey Prize in Mathematics

for excellence in the Ph.D.
program

Özcan Yazici

Outstanding Teaching Assistant Award

University-wide award
recognizing excellence as
primary instructors or recitation
instructors

James Heffers

Joshua Stangle

ε-δ, from page 8

The SU **Mathematics Graduate Organization** is now also a Student Chapter of the American Mathematical Society. The additional support the AMS offers will allow the MGO to invite more guest speakers, have refreshments for meetings, and support other activities.

The **mathematical genealogy** of the Department has once again been updated to include all new faculty and adjuncts. Follow the link from math.syr.edu/Department.htm or click [here](#) and look in the left column.

Graduate Program News

Leonard Mwathi Kamau completed his dissertation, “Technology adoption in secondary mathematics teaching in Kenya: an explanatory mixed methods study” under the supervision of Joanna Masingila. Leonard is interested in secondary pre-service teacher education, and has research interests involving pre-service teachers’ understanding of functions, particularly inverse functions. He was born in Boiman-Silibwet Settlement Scheme, Nyandarua District in Kenya. He earned his Bachelor of Education degree in Mathematics from Kenyatta University and his master’s degree in Mathematics from Central Michigan University.



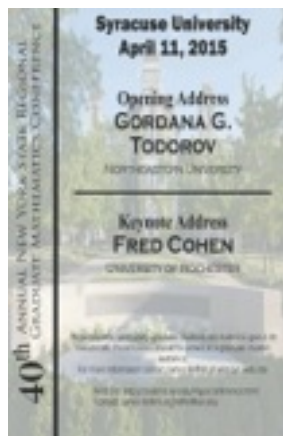
Lenny Kamau

The following graduate students earned MA degrees in 2014: **Collin Bruce, Emily Dougherty-Samowitz, Ching Fan, Nicole Frey, Jordan Johnson, Hyesu Kim, Clemens Kraus, Selma Krdzic, Samuel Leitermann, Reece McIntyre, Robert Roy, Stefan Schelling, Lynea Snyder, RJ Spargo.**

The annual **MGO Conference** was held April 12, 2014. This year’s Opening Address was by John McCarthy (Washington University, St. Louis) speaking on “Non-commutative Function Theory”. The Keynote Address was given by Timothy J. Healey (Cornell University) on “Existence of Global Symmetry-Breaking Solutions in an Elastic Phase-Field Model for Lipid Bilayer Vesicles”. There were 9

more talks in parallel sessions by students and postdocs from SU, Utica College, Cornell, and Université Laval.

This year’s installment of the longest-running mathematics conference organized entirely by graduate students will be 11 April 2015. The Opening Address will be by Gordana Todorov (Northeastern University), and the Keynote by Fred Cohen (University of Rochester).



Math Major News

Seven undergraduates represented SU in the nationwide Putnam Competition in December 2013. We had one scorer: **Neill Warrington** (10 points).

Our chapter of **Pi Mu Epsilon** organized nine general-interest mathematical events for undergraduates, as well as a series of weekly problem-solving sessions as practice for the Putnam competition. In the spring the chapter added 11 new members (see photo below).

Out of 55 new Phi Beta Kappa members in the University, eight pursue a major in math: **Hualong Chen** (Applied Mathematics, Economics), **Jingjing Li** (Chemistry, Mathematics), **Kaitlin O'Rourke** (Mathematics, Mathematics Education, Spanish Language, Literature & Culture), **Liwen Qin** (Economics, Finance, Mathematics), **Amanda Tetro** (Mathematics), **Samantha Usman** (French and Francophone Studies, Mathematics, Physics), **Kewei Xu** (Chemistry, Mathematics), **Ju Yuan** (Economics, Mathematics).

Samantha Usman, double major in Physics and Mathematics, received Goldwater Honorable Mention.

The major programs continue to grow; this year the total number of majors in Mathematics, Applied Mathematics, and Mathematics Education passed 130!

Math Major Prizes

Archimedes prize

in recognition of outstanding achievements in undergraduate mathematics

Neill Warrington

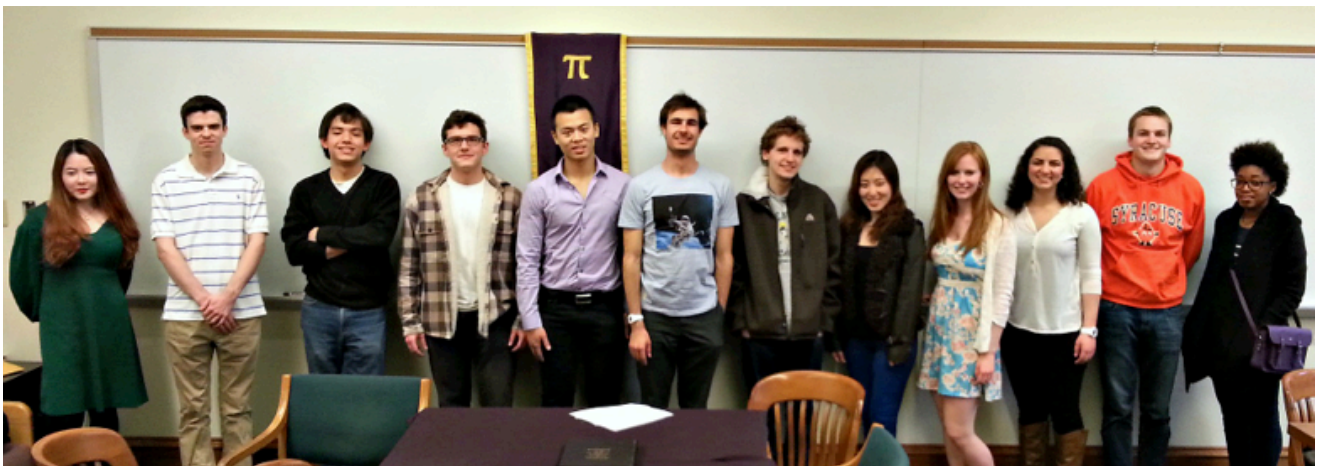
After graduating with Mathematics and Physics degrees, Neill went on to graduate studies in physics at University of Maryland

Euclid Prize

given to the most promising math major not graduating in the year of the award

Stephen Sorokanich

In summer 2014, Stephen took part in an REU program (in Mathematics) at Penn State.



PME members, both old and new (L to R): Ju Yuan, Grant Griffiths, Dylan Hsu, Craig Allen, JiaJin Lei, Steve Sorokanich, Kevin Donovan, Tessa Xie, Kaitlin O'Rourke, Lameess Mehanna, Fred Gard, Mary-Johanna Adjetey.

New PME members not pictured: Amine Elmeghni, Liwen Qin, Zhan Zhao.

Research Highlight

New Anderson Faculty Scholarship

This year saw the introduction of the Douglas R. Anderson Faculty Scholar Fund. This award is endowed by an anonymous donor to support faculty research. The executive committee of the department decided to name it after **Douglas Anderson**, in recognition of his exemplary service to the department. Anderson retired in 2012 after 42 years in the department, 11 of them as chair 1994-2005.



Professor Emeritus
Douglas Anderson

The purpose of the fund, verbatim from the gift agreement, is to “promote the advancement of both the scholarly work of the faculty member and the general scholarly atmosphere in the Mathematics Department. The Faculty Scholar, who shall have a two-year term, should be a tenured member of the faculty selected for his/her ability and willingness to use the funds it provides to realize both of these purposes.”



Dan Zacharia

The first recipient of the award is **Dan Zacharia**. “I was very happy when the mathematics department was told about the anonymous donation that established the Douglas R. Anderson Faculty Scholar award,” said Dan. “Especially since Doug Anderson and I have been colleagues and friends ever since I came to Syracuse University. It was a very nice and generous way of recognizing his contributions to the department, college and university over

a period of more than 40 years. I am honored to be this year’s recipient of the award. ”

Dan plans to use the funds to stimulate his research, attending conferences around the world, inviting his collaborators to Syracuse to work together and also giving talks at seminars for the faculty and graduate students. The funds also will allow him to support his graduate students attending conferences.

Epsilons and Deltas

News items from the Department, not necessarily arbitrarily small

Graduate students **Patrick Neary** and **Sam Leiternann** were involved in SU’s University-wide strategic-planning initiative FastForward Syracuse. Patrick was selected as a member of the Steering Committee, and Sam as a member of the Campus Master Plan Advisory Group.

Congratulations to three new “epsilons” in the department:

- Professor **Jani Onninen** and his wife Stephanie Hitztaler welcomed daughter Vera.
- P.T. Church Postdoc **Margaret Doig** and her husband Steve Maderak welcomed daughter Isabelle.
- Graduate student **Casey Necheles** and her husband Sean Faill welcomed son Alexander.

We said farewell this year to **Christine Gilmore** and **Carolyn (CJ) Sabloski**, who retired in the summer. Chris and CJ each worked in the main office for more than a decade. Thanks and best wishes to you both!

See ϵ - δ , page 6

Postdocs on the move!

Our Philip T. Church Post-doctoral Fellows continue to make great contributions to the intellectual life of the department. Here are some updates on where they've gone since leaving SU.

- Frédéric Latour (algebra, 2004-2006) is Associate Professor at Central Connecticut State University.
- Susan Cooper (algebraic geometry, 2005-2006) is Assistant Professor at North Dakota State University, Fargo ND.
- Maritza Branker (complex variables, 2005-2007) is Associate Professor at Niagara University.
- Jinjia Li (commutative algebra, 2006-2008) is Assistant Professor at the University of Louisville.
- Hengguang Li (applied mathematics, 2008-2010) is an Assistant Professor at Wayne State University.
- Ngin-Tee Koh (complex function theory, 2009-2011) is a Lecturer at the University of Canterbury, Christchurch, New Zealand
- Hamid Rahmati (commutative algebra, 2010-2012) is Assistant Professor at Miami University, Ohio.
- Simon Smith (combinatorics, 2010-2012), is Assistant Professor at the New York City College of Technology, CUNY.
- Jonas Bergman Ärleböck (math education, 2011-2013) is a Universitetslektor in the Department of Mathematics at Linköping University, Sweden.
- Tuyen Trung Truong (complex variables, 2012-2014) is a Research Fellow at the School of Mathematics, Korea Institute for Advanced Study.

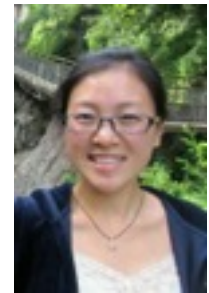
Donations fund travel

Generous donations to the department have supported our grad students and visitors.

- **Thembinkosi (Peter) Mkhathshwa** attended and presented at the Special Interest Group of the MAA on Research in Undergraduate Mathematics Education (SIG-MAA RUME) conference.
- **Jinxia Xie** attended and presented at the Association of Mathematics Teacher Educators conference.
- **Jeffrey McLean, Thembinkosi (Peter) Mkhathshwa, and AnnMarie O'Neil** gave presentations at the Congress of European Research in Mathematics Education conference in the Czech Republic.
- **Khim Shrestha, Melissa Voldan, Claudio DiMarco, and Özcan Yazici** attended the Joint Math Meeting in San Antonio.
- **Ellen Boyd** attended a graduate conference in Algebra and Topology at Binghamton University
- **Stephen R. Hermes** (BS '07, PhD Brandeis '14, now at Wellesley College) visited SU and gave an algebra seminar lecture.
- **Claudio DiMarco** gave an analysis seminar lecture at UIUC.
- **Qian Huang** traveled to Hong Kong to work with Prof. Yuesheng Xu on his dissertation research.



Peter Mkhathshwa



Jinxia Xie



Jeff McLean



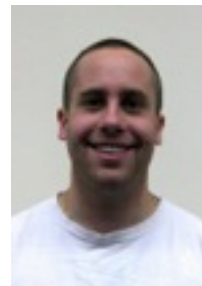
Khim Shrestha



Ellen Boyd



Qian Huang



Claudio DiMarco

Thank you to our Donors

Recent donors to the Mathematics Department

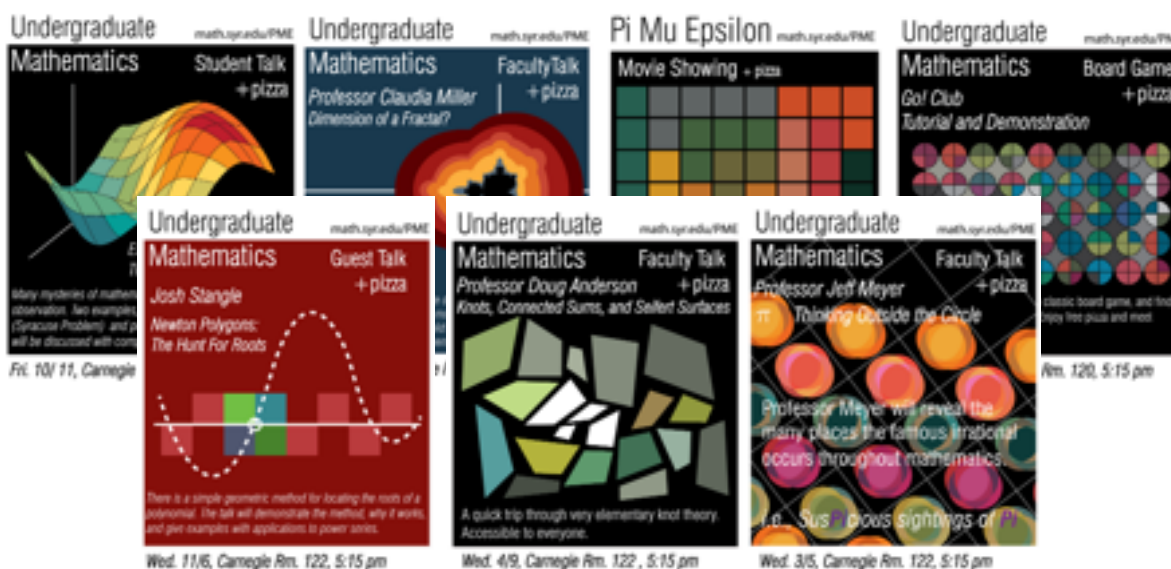
- Dr. Douglas R. Anderson
- Mr. Carl M. Angelone
- Dr. Ron F. Barnes
- Dr. Leonora Z. Benzinger
- Mr. Michael S. Bochner
- Dr. David T. Brown
- Mrs. Noel R. Calger
- Dr. Wei Chen
- Dr. Philip T. Church
- Dr. Geraldine C. Darden
- Dr. Ronald W. Degray
- Dr. Jill F. Diamond
- Mr. Joseph Gerald Grace
- Dr. Donald G. Hazlewood
- Dr. Carol Hazlewood
- Mr. John Martyn Jardin
- Dr. Eleanor Green Jones
- Mr. John F. Kenny
- Dr. Adnah G. Kostenbauder
- Dr. Donald A. Lutz
- Mr. Adamson N. Masingila
- Dr. Joanna O. Masingila
- Mrs. Patricia S. McGrath
- Dr. Edmund A. Memmott
- Mr. Barry M. Pool, Jr.
- Dr. Gary M. Sampson
- Dr. Gabriela R. Sanchis
- Mrs. Karin C. Schembari
- Dr. Nunzio P. Schembari
- Dr. Melvin A. Shader
- Dr. Malcolm J. Slakter
- Mrs. Joseph A. Trosino
- Dr. Helene R. Tyler
- Mr. Evan H. Wachs
- Ms. Mary E. Wightman
- Dr. Dan Zacharia

Matching gifts have been received from the following employers:

Dresser-Rand Company

Schwab Charitable Fund

Gifts to the Department enhance our ability to compete for the strongest undergraduates and graduate students, to support bringing in speakers for seminars and colloquia, and to send our graduate students to conferences nationwide. If you would like to help us in these efforts by making a general contribution to the department, please visit givetothecollege.syr.edu and choose one of “Math dean’s fund”, “Undergrad math fund”, and “Donald Kibbey Math fund”.



Alumni Notes

Tomasz Adamowicz (PhD '08) is now an Assistant Professor in the Department of Differential Equations at the Institute of Mathematics, Polish Academy of Sciences, in Warsaw

Seth Rothschild (BS '12) is in his third year of graduate study at Tufts University, having passed his qualifying exam and candidacy exam on algebraic groups. He is also President of the Tufts Organization of Graduate Students in Mathematics (OGSM) 2014-15


Eric Wortman (BS '03, MS '07) is an Assistant Professor and was granted tenure at SUNY Orange County Community College in Middletown NY.

Bayard Bigelow (BS '69): writes "While I did not pursue further studies in mathematics, the academics at Syracuse prepared me for a lifetime

of achievement in two respects: 1. Because of the way math is taught, one is trained to recognize patterns, to connect disparate thoughts into a cohesive line of reasoning. This has proven invaluable, for much of what we see every day simply does not hold together and does not take into account the many contradictions. 2. Of equal importance, the ability to imagine, to anticipate what one should see was also implanted. This set up a lifelong pattern of wanting to learn and imagining what could be."

Manal Alshakhs (MS iSchool '97) writes: "Although I did not finish my MS in Math, the rich experience and respect that I got from my Math instructors are present in the way I treat my students now. All these kept a special mark in my heart and my attitude."

What Have You Been Up To?

You can detach and return this page for our alumni/ae files. Please mail it to 215 Carnegie Library, Syracuse University, Syracuse NY 13244, fax it to 315-443-1475, or email the information to mathdept@syr.edu. 

Name _____

Syracuse University Degree(s) with years & advisors _____

Home Address _____

City, State, Zip _____

Phone _____ E-mail _____

Tell us something about yourself or your comments on the newsletter:

SYRACUSE UNIVERSITY.

College of Arts & Sciences

Department of Mathematics

215 Carnegie Library

Syracuse, NY 13244-1130

NON PROFIT ORG
US POSTAGE
PAID
SYRACUSE UNIVERSITY
SYRACUSE NY



Follow us!

You can follow all
the activity in the
department on:

Twitter

[@SUmathematics](https://twitter.com/SUmathematics)

Facebook

[SUmathdept](https://www.facebook.com/SUmathdept)

Web

math.syr.edu