

A Word from the Chair

n recent years the Mathematics Department has experienced huge changes. This is a very exciting time in the life of the department.

First of all, the department has grown bigger. We now consist of 31 faculty, 9 adjuncts and 6 postdoctoral fellows, as well as over 50 graduate teaching assistants and over 80 math



majors. In the past three years we've added three new assistant professors – topologists Stephan Wehrli and Peter Horn and differential geometer Will Wylie (for more about them see page 2) – all of whom bring energy and excitement to the department and are already proving to be excellent colleagues.

Second, these new faculty and our existing faculty are continuing to raise the research profile of the department. All 8 faculty members hired after 2000 have held personal grants from the National Science Foundation (NSF) in the last two years and in total, 17 faculty members are now PIs on external awards. This includes 12 grants from NSF, one from the National Institute of Health (NIH), one from USAID, one from the National Security Agency, (NSA), one from the Air Force and one from the Simons Foundation. Here are some recent examples of our research activities: Tadeusz Iwaniec, Leonid Kovalev and Jani Onninen proved Nitsche's Conjecture which was outstanding for 60 years. This achievement was mentioned in the report of the 2010 committee of visitors for NSF Division of Mathematical Sciences as an extremely strong result in analysis. Tadeusz Iwaniec received

the Sierpinski Medal from Polish Academy of Sciences, its highest international award. He also is a foreign member of the Finnish Academy of Sciences, as well as the Polish Academy of Science and the Italian Academia de Scienze Fisiche e Matematiche. Joanna Masingila is the Principal Investigator on a USAID grant which supports a partnership between Syracuse University and Kenyatta University in Nairobi, Kenya, focused on building capacity in teacher education through curricula, instructional, research, and technology. Yuesheng Xu and Lixin Shen were the driving forces behind creation of a collaborative group combining Syracuse University, SUNY Upstate Medical School and Sun-Yat-tsen University to work on mathematical algorithms in medical imaging. One patent is already pending. For even more faculty awards and accomplishments, see page 7.

In the last 8 years there have been 4 international conferences on the SU campus organized by our faculty and sponsored by NSF. As a consequence the department is better known among the national mathematical community and its National Research Council (NRC) ranking rose from 75 in 1993 to 55 now.

While making these remarkable contributions to mathematical research, the faculty members continue to excel at teaching, even as this becomes a bigger and bigger job. Enrollment in the undergraduate science and mathematics courses grows much faster than the total enrollment at SU. For example, in mathematics it has gone up by 50% in the last 6 years. The growth is due to the interest in mathematics courses from other schools and colleges. The department is central for SU, teaching over 8,000 students each year. Growth is happening at all levels: Enrollment in our upper-level courses has gone up from 2,000 to 3,000 in 6 years.

See CHAIR on page 5

Meet New Faculty





Peter Horn is a low-dimensional topologist who joined the department in 2012. Peter earned his PhD from Rice University in 2009 under the supervision of Tim Cochran, and spent three years at Columbia as an NSF Postdoc. In his research, Peter uses a variety of tools, such as von Neumann ρinvariants, Heegaard

Floer homology, and non-commutative algebra, to attack problems in knot theory and link theory. He is particularly interested in knot concordance and mapping class groups.

When he's not in the office, Peter enjoys playing the electric guitar, sewing, and spending time with his wife (Kristin) and daughter (Georgia).

Stephan Wehrli works in low-dimensional topology, particularly in homology theories for knots, links, and 3-manifolds. He received his PhD from the University of Zurich in 2007, under the supervision of Anna Beliakova. His thesis made contributions to the

theory of Khovanov homology, and he has continued to work in this area, as well as in Heegaard Floer homology and other homology theories. He has particular interest in the relationship between the colored Jones polynomial and knot Floer homology.

After postdoctoral positions at Columbia University 2007-2008, at



the Institut de Mathématiques de Jussieu in Paris 2008-2009, and at MSRI in Berkeley in the spring semester of 2010, Stephan joined the department as an Assistant Professor in the fall of 2010.

Will Wylie's research interests are in Riemannian geometry and related areas of analysis and topology.

Will's favorite undergraduate courses to teach are multi-variable calculus and Linear algebra. He once



taught a graduate course attended by a Field's medalist. Since that time all other teaching assignments have seemed less daunting.

In addition to math, Will enjoys the equally nerdy pursuits of reading books about baseball statistics and American His-

tory. His favorite sports team is the Boston Red Sox. He is married to M. Lisa Manning, an Assistant Professor in the Physics department. The couple is expecting their first child in Spring 2013!

Promotions and Tenure

- Claudia Miller was promoted to Full Professor (2011).
- Declan Quinn was promoted to Full Professor (2011).
- ➤ Lixin Shen was awarded tenure (2012).

Congratulations to Claudia, Declan, and Lixin!

Meet New Postdocs





Jonas Ärlebäck

joined the department in 2011 after receiving his PhD in Mathematics and **Physics & Mathematics** education from Linköping University. He is supported by the Swedish National Research Council, and works primarily with Professor Helen Doerr.

Jihyeok Choi

is a Philip T. Church Postdoctoral Fellow who earned his PhD in Mathematics from Iowa State University (2011). He works on graph colorings, random graphs and complex networks.





Thomas Jaeger

is a Philip T. Church Postdoctoral Fellow who earned his Ph.D. in Mathematics from Michigan State University (2011). He works in lowdimensional topology, specifically knot theory, categorification and link homology.

Qi Ye is a Philip T. Church Postdoctoral Fellow with a Ph.D. in Applied Mathematics from Illinois Institute of Technology (2012). He works with kernel-based methods in machine learning, image processing, and stochastic PDEs.





Tom Howard

is a Philip T. Church Postdoctoral Fellow who studies the representations of finite-dimensional algebras. He earned his Ph.D. in Mathematics from University of California, Santa Barbara in 2011.



Tuyen Trung Truong

is a Philip T. Church Postdoctoral Fellow with interests in complex dynamics, several complex variables, and algebraic geometry. He earned Ph.D. in Mathematics from Indiana University in 2012.

Congratulations to our recent postdocs who have moved on to permanent positions: **Hamid** Rahmati is now an Assistant Professor at Miami University (Ohio), and Simon M. Smith has taken a position as Assistant Professor at the City University of New York. Both Hamid and Simon were Philip T. Church Postdoctoral Fellows 2010-2012.

Graduate Degrees and New Arrivals



2011 Doctorates

Tom Bleier: *Excess Porteous, Coherent Porteous, and the Hyperelliptic Locus in M3bar,* under Prof. Steven P. Diaz. Currently Applied Research Mathematician.

Tony Perkins: *Potential Theory on Compact Sets*, under Prof. Eugene Poletsky. Currently Assistant Professor, Spring Hill College.

Marju Purin: Complexity over Finite-Dimensional Algebras, under Prof. Dan Zacharia. Currently Assistant Professor, St. Olaf College.

Moises Venouziou: Mixed Problems and Layer Potentials for harmonic and Biharmonic Functions, under Prof. Gregory Verchota. Currently St. Petersburg College.

2012 Doctorates

Kosmas Diveris: *Eventual vanishing of selfextensions*, under Prof. Claudia Miller. Currently St. Olaf College.

Elizabeth Hartung: *The Clar structure of fullerenes*, under Prof. Jack Graver. Currently Massachusetts College of Liberal Arts.

Ashley Prater: Discrete sparse Fourier-Hermite approximations in high dimensions, under Prof. Yuesheng Xu. Currently National Research Council Postdoctoral Fellow, Air Force Research Lab.

New Grads in 2011

- * Krystal Barber (Villanova University)
- * Nathan Benz (SUNY Geneseo)
- * Ellen Neary Boyd (SUNY Brockport)
- * Justin Bush (SUNY Cortland)
- * Stephen Edmond (Western Connecticut State)
- * Joseph Grace (SUNY Cortland)
- * James Heffers (King's College)

- * Ann Marie Heiner (SUNY IT)
- * Jennifer Jordan (Goucher College)
- * Brandon Milonovich (College of Saint Rose)
- * Calvin Osinde (Kenyatta University)
- * Robert Roy (Oberlin College)
- * Maria Walpole (King's College)
- * Mark Wong (Northeastern University)

New Grads in 2012

- * Scott Constable (Ithaca College)
- * Ching Fan (University of Rochester)
- * Jordan Johnson (University of Rochester)
- * Hyesu Kim (Manhattan College)
- * Samuel Leitermann (Manhattan College)
- * Xiaoxia Liu (Sun Yat-sen University)

- * Peter Mkhatshwa (Kenyatta University)
- * Mkrtich Ohanyan (U. Southern California)
- * Ahmed Souid (Syracuse University)
- * Anne Wegener (Technical College of Cottbus)
- * Florian Ullrich (Technical College of Cottbus)
- *** Jinxia Xie** (Northwest Normal University)

Student Honors, Prizes, and Awards

Graduate Prizes & Awards

2011

All University Doctoral Prize for superior achievement in completed dissertation **Dana Olanoff**, currently Hobart and William Smith Colleges

Donald E. Kibbey Prize in Mathematics for excellence in the Ph.D. program **Tony Perkins**, currently Spring Hill College

Outstanding TA Awards University-wide award for excellence

> Shannon Casey Elizabeth Hartung, currently Massachusetts College of Liberal Arts Patricia Wilson

2012

Donald E. Kibbey Prize in Mathematics for excellence in the Ph.D. program **Kosmas Diveris**, currently St. Olaf College

Outstanding TA Award University-wide award for excellence Ben Cortese

Undergrad Prizes

2011

Archimedes Prize
awarded annually in recognition of outstanding
achievements in undergraduate mathematics.
Justin Cyr '11, currently graduate student at
University of Indiana
Jakub Kotynia '11, currently Microsoft Corp.

2012

Archimedes Prize awarded annually in recognition of outstanding achievements in undergraduate mathematics. In Gun Kim '12, currently graduate student at University ofWisconsin-Madison Seth Rothschild '12, currently graduate student at Tufts University James Schwartz '12

Euclid Prize

A new prize, introduced in 2012, awarded to the most promising math majors who are not graduating in the year of the award.

Joseph Andrade '13 Ben Hatch '13

CHAIR from page 1

The department is enormously proud to be the birthplace of the Pi Mu Epsilon Mathematics Honors Society, and PME continues to thrive at SU. This is the place where anybody with interests in math comes to listen to lectures given by professors and students, prepare for Putnam exams and simply socialize. See page 6 for more PME activities.

We recently greatly increased our professional Master's Program in Applied Statistics: 37 students take 33 credits to get a professional degree. The program has been hugely successful: graduates have found 100% employment after their degrees. Our faculty also reach out into the community and the schools. Project Advance is an SU entity that arranges for SU courses to be taught in high schools (mostly in New York, but also in neighboring states). These courses are taught by high school teachers who are visited twice a year by faculty from our department.

I hope you enjoy reading about all the exciting events and accomplishments in our department. Please keep in touch. We hope our alumni will keep us up to date on their activities and will publish updates in future newsletters.

I wish you all the best for 2013.

Math Major News





New Pi Mu Epsilon members (from left, with certificates) Randi Rodecker, Stanley Hoffman, Bingjing Feng & Shuo Zhang, together with PME officers Keeley Naughton, Gordon Jones, Ben Hatch, Dylan Hsu, and Joe Andrade, at the induction ceremony Dec. 4, 2012. (Not pictured: new member Xinyi (Shirley) He.)

The SU chapter of the math honor society **Pi Mu Epsilon** inducted 14 new members in Spring 2012 and 5 more in Fall 2012. The officers of the PME chapter, together with faculty advisors Profs. Miller, Kovalev, and Wylie, have organized biweekly events aimed at promoting interest in mathematics in the student population. Recent events have included Math Jeopardy, a panel discussion on graduate studies in mathematics (organized jointly with the MGO), Math Movie Night, and talks on the math of card counting and of error-correcting codes. PME also ran weekly Putnam competition training sessions and recruited undergrads to represent SU in this highprofile national mathematical contest. Seven SU students took part in the Putnam exam on Dec. 1, 2012.

Congratulations to **Ryan Badman '13**, a double major in Math and Physics, who was named a 2011-12 Astronaut Scholar in 2011, and awarded a 2012 Goldwater Scholarship this fall. In the intervening summer, Ryan worked at CERN's Large Hadron Collider in Switzerland, where the Higgs Boson was glimpsed for the first time.



Of the 35 Remembrance Scholars 2012-2013, seven pursue a degree in Mathematics. We are hugely

proud of seniors **Ryan Badman**, **Tara Brenner**, **Gordon Jones**, **Dan Kepple**, **Stephanie Kranz**, **Natascha Trellinger**, and **Bailey White**. Remembrance Scholars are chosen every year on the basis of distinguished academic achievement, citizenship and service to the community.

Gordon Jones '13 and Keeley Naughton '13

took part in Research Experiences for Undergraduates during Summer 2012, at Bard College and Texas State University, respectively. Gordon's group explored splines on an interval, characterizing basis elements for those which are *r*-times differentiable in the interior and p-times differentiable at the endpoints. They will present their results in a poster session at the Joint Math Meetings in San Diego in January 2013. Keeley's group researched prime graphs of groups, which are defined to have a vertex for each prime divisor of the order of the group, with two vertices p and q joined by an edge if and only if there exists some element of order pq. They characterized the prime graphs of solvable groups as those for which the complement has chromatic number 3 and is triangle-free. They hope to eventually submit their results for publication.

Congratulations to all of our 2012 graduates who earned Bachelor of Science degrees with Distinction: Jia Yu Chen, Qiu Jin, In Gun Kim, Yunjia Mi, Seth J. Rothschild, James B. Schwartz, and Ahmed Y. Souid.

Faculty Accomplishments 2011-2012



Pinyuen Chen received an Air Force Research Lab grant in 2012 to work on nonparametric multivariate detection among heterogeneous data.

Ted Cox was awarded a 3-year NSF grant to study "Stochastic Spatial Processes" starting in 2012.

Peter Horn

was awarded an NSF grant, 2012-2015, to study "Higherorder phenomena in knot theory".



Tadeusz

Iwaniec was inducted in 2012 as a foreign member of the Finnish Academy of Science and Letters, and awarded the Sierpinski Medal from the Polish Academy of Sciences, its highest international honor.



Graham Leuschke

was awarded a 2-year NSA grant 2012-2014 to study "Theory and applications of maximal Cohen-Macaulay modules". His book with Roger Wiegand, *Cohen-Macaulay Representations*, was published by the AMS in 2012.

Joanna Masingila gave a Keynote Address at the International Mathematical Research Meeting at Strathmore University in Nairobi, Kenya in July 2012. At the same meeting, Joanna gave a Plenary Address on Kenyatta UniversitySyracuse University partnership project: "An example of international collaboration". The KU-SU partnership is currently funded by USAID.

Claudia Miller was

recognized as SU's United Methodist Scholar-Teacher of the Year in 2012.

Lixin Shen is PI of a

grant from the National Research Council via AFSOR. He was also honored as an Air Force Summer Faculty Fellow,



2011, and as part of the Air Force Visiting Faculty Research Program, 2012.

Will Wylie was a plenary speaker at the Workshop on Ricci Solitons and Symmetry at the University of Oklahoma, March 2012.

Dan Zacharia was awarded a 2-year NSA grant to study "Representation Theory of Koszul Algebras" 2011-2013.



Claudia Miller, **Graham Leuschke**, and **Dan Zacharia**

were co-PIs of an NSF grant to host a conference at SU in April 2012, "Interactions between Commutative Algebra and Representation Theory".

Lixin Shen and Yuesheng Xu are co-PIs

of a NSF Computational Mathematics Program grant on "Collaborative Research: Proximity Algorithms for Optimization Problems Arising from Image Processing".

Retirements





Doug Anderson retired in May 2012. Doug earned his PhD at Yale University in 1966 under the direction of Wu Chung Hsiang, the brother of our faculty colleague Wu Teh Hsiang. He joined our faculty in the fall of 1970 after spending three years at Northwestern University and a year at Michigan State. He was promoted to full professor in 1977.

Doug's mathematical interests were in geometric topology with a special interest in Whitehead torsion, Wall's finiteness obstructions, and their analogues in lower algebraic K-theory. In his pursuit of them, he held visiting positions at Princeton, McMaster (Canada), and Odense (Denmark) Universities, and held almost continuous NSF support for his research for just over twenty-five years.

Doug was one of the founding organizers of the Upstate New York Topology Seminar. He helped to build it from a small, daylong, local conference with all volunteer speakers to a large, three-day conference with invited speakers from many parts of the country and the world.

Doug served the Department as Chair from 1994 to 2005. Doug regards that period as among the most challenging in his career. When he became chair, the University and Department were in the midst of a protracted period of retrenchment and "downsizing" which listed through his first several years. Later the Department had to face the tasks of reinvigorating itself and rebuilding and refocusing its faculty as many of our colleagues hired in the 1960s retired.

Since stepping down as Chair, Doug has focused on teaching and service. He was one of the first faculty members to teach the Senior Seminar and spent three summers mentoring students in independent study. He has served a term on the Faculty Council of the College, sat on several committees of the University Senate, and served as Chair of the Senate Committee on Appointment and Promotions.



Mark Watkins retired in August 2012. Mark earned his AB at Amherst College (1959) and his MA and Ph.D. (1961/1964) at Yale University under the supervision of Øystein Ore. After four years at the University of North Carolina/Chapel Hill and one year at the University of Waterloo (Ontario), he came to Syracuse University as an Associate Professor in 1968 and was

promoted to professor in 1976. He has held visiting appointments in Vienna, Waterloo, and Paris.

His research interests lie in combinatorics and graph theory, especially where symmetries are involved. He has worked on connectivity of graphs, the graphical regular representation (GRR) problem, topics in infinite graph theory including infinite planar graphs, distinguishability of graphs, and permutation groups. In addition to nearly 70 research articles, with Jack Graver he coauthored *Combinatorics with Emphasis on the Theory of Graphs* and *Locally Finite, Planar Edge-Transitive Graphs*. With Jeffrey Meyer, he has coauthored *Passage* to Abstract Mathematics, which is currently used for our MAT 275. He has had six PhD students, and currently holds a 5-year Simons Foundation Collaborative Research Grant (2011-2016).

In another collaboration with Jack Graver, Mark and Jack have taken a graduate students on a number of overnight canoe-camping trips to the Adirondacks and Ontario in May and in the fall. Mark is an accomplished musician, having played oboe and English horn until 2006, when a neurological problem compromised his left thumb and forefinger. Until then he had performed as both soloist and member of a wind quintet and the Syracuse Camerata. Unwilling to play no instrument at all, Mark has taken up the trombone, and is delighted to be improving at something at his age!

Mark has been married to Brenda Silverman since 1990. He has three daughters by a previous marriage and five grandchildren.

Carnegie Under Construction





Carnegie Library is currently undergoing a dramatic transformation, particularly the Reading Room, the main entrance and vestibule, and the stacks. Renovations are underway to restore the building to its former splendor.

The five-year, multimillion dollar project to update Carnegie began with the Reading Room in March 2012. The old desks, light fixtures, and chairs were moved and three layers of flooring



removed. With that completed, the yellowed scagliola columns were cleaned and restored, and the new parquet floor is being installed over the Winter Break. At the same time, the windows opening onto the Reading Room from the third-floor hallways are being removed, reopening the original arches. This will be followed by the installation of refurbished desks and chairs and updated light fixtures. The library service desk will be relocated adja-



cent to the Reading Room, along with current journals and a new books display. The corridors will be upgraded with new lighting, new flooring, and spruced-up ceilings and walls.

Most dramatically, the original main entrance to Carnegie Library, with its iconic steps up from the Quad, will be reopened. The main entrance to the Library will once again be through the vestibule, which has been occupied by classrooms for many years. A bronze statue of the goddess Diana, which formerly graced the vestibule and was moved to the second floor of Bird Library, will return. Other renovations to the building include conversion of the first-floor "pit" into two classrooms on the same level as the rest of the floor and a tiered 90-seat auditorium, new restrooms, a new elevator, and a computer lab.

Carnegie Library opened in 1907. It served as the main University library until Bird Library opened in 1972. Over the next decade or so, the Engineering and Life Sciences, Mathematics, and Chemistry Libraries were relocated back to Carnegie and reunited under the aegis of the Science and Technology Library. The building is one of only two original Carnegie libraries on a college campus still being used as a library.

You can follow the renovation at http://library-blog.syr.edu/carnegie/.

Epsilons and Deltas



News items from the Department, not necessarily arbitrarily small!

Summer 2012 saw the **retirement of Madaline Argiro** after 27 years in the department, during which she took care of the scheduling, math clinic, graders, exams, and many other duties, always with a quick smile and a kind word. Even more, she informally "adopted" many of the graduate students, and was always willing to listen with sympathy and wisdom. Madaline wrote to the faculty, "I came to care very deeply for the department and its mission, and for all of you. And thankful that I was always treated with such respect, and friendship. Thank you for that gift which I will treasure always." The feeling's mutual, Madaline. Happiness and long life in retirement!

The 37th Annual New York State Regional

Mathematics Conference, better known to us as the **MGO Conference**, was held April 15-16, 2011. The Opening Address was given by Sylvain Cappell of the Courant Institute, and the Keynote by Emil Straube of Texas A&M. As always, there were parallel speaker sessions with talks given in nearly all major areas of mathematics. Many of these talks were given



by graduate students, both from Syracuse and around the region. After a year off in 2012, the

MGO Conference is again scheduled for Friday and Saturday, April 12-13, 2013. The main speakers will be John M. Lee (U. of Washington) and Robert Strichartz (Cornell U.).

What proportion of the department's faculty are academic descendants of Copernicus? Of Hilbert? Of Newton? Which statistician, topologist, and analyst share a great-great-grand-advisor? What is the diameter of the "advisor graph"? Answers to all these questions and more can be found in the complete

mathematical genealogy of the Department

which now hangs in the Arents Room and is available on the web at <u>math.syr.edu/Genealogy-2012.pdf</u>.

New programs of study in Applied Mathemat-

ics are available, effective Fall 2011. The programs are intended to satisfy the growing demand from students and employers for training in the applied areas of mathematics, and to draw upon the expertise of the Mathematics Department in research motivated by applied problems. The new major provides a way to combine mathematics with another quantitatively rich subject area which is directly concerned with applications, such as the sciences, economics, or engineering. It is expected that most students will combine Applied Mathematics with another major or minor in one of these subjects.

The department was awarded **a grant from the SU-ADVANCE project** to support our efforts to

raise the number, proportion, and visibility of women in the



pool of applicants

for our academic positions. The mission of the SU-ADVANCE project is to ensure that women faculty in science, technology, engineering and mathematics (STEM) fields have a greater presence at the University. The department used the grant to invite distinguished young women mathematicians to give colloquium lectures at the Department in the fall semester 2012: Jennifer Hom (Columbia U.), Chelsea Walton (MIT), and Christine Breiner (Columbia U.).

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. Please contact Graham Leuschke by email with your comments or questions at <u>gjleusch@math.syr.edu</u>.

Alumni Updates

Helene Tyler PhD '02 delivered remarks at a reception in Phnom Penh hosted by the U.S. Ambassador to Cambodia. The reception honored the work of the Volunteer Lecturer Program, a program sponsored by the IMU that aims to build mathematical capacity in the developing world. Her paper "The Auslander-Reiten Components in the Rhombic Picture", co-authored with Markus Schmidmeier, has been accepted for publication in *Communications in Algebra*. The paper is dedicated to Prof. Mark Kleiner and can be found <u>on the arXiv</u>.

Samer Habre PhD '92 serves as Chairperson of the Department of Computer Science and Mathe-

matics at the Beirut campus of the Lebanese American University.

Eric F. Rieders PhD '88 is President and Chief Executive Officer at NMS Labs, a national reference laboratory for clinical toxicology and forensic testing.

Richard A. Brualdi PhD '64 was elected a Fellow of the American Mathematical Society in 2012. Richard is a professor emeritus of combinatorial mathematics at the University of Wisconsin–Madison, and received the Euler medal from the Institute of Combinatorics and its Applications in 2000.

What Have You Been Up To?

We'd like to hear from you! Please complete and return this form for our alumni/ae files. You can mail it to 215 Carnegie Library, Syracuse University, Syracuse NY 13244, fax it to 315-443-1475, or email the information to Graham Leuschke at gjleusch@math.syr.edu.

Name	
Syracuse University Degree(s) with years & advisors	
Degrees from other Universities/Years	
Home Address	
City, State, Zip	
Home Phone	_ E-mail
Firm/Institution	
Position	_ Business phone

Information about yourself or comments on the newsletter (unless you request otherwise, we may mention any of this in future Archimedeans):



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> You can follow all the activity in the department on Twitter (<u>@SUmathematics</u>), Facebook (<u>SUmathdept</u>), and the web (<u>math.syr.edu</u>).

Consider supporting the Department

The Mathematics Department would like to thank its alumni and friends for their past generous support. 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 <u>secure.syn.edu/giving</u>, choose "Other" from the menu, and enter "Mathematics Department" in the box. You can also specify the Kibbey Fund or the Undergraduate Fund to support specifically graduate or undergraduate students, respectively.