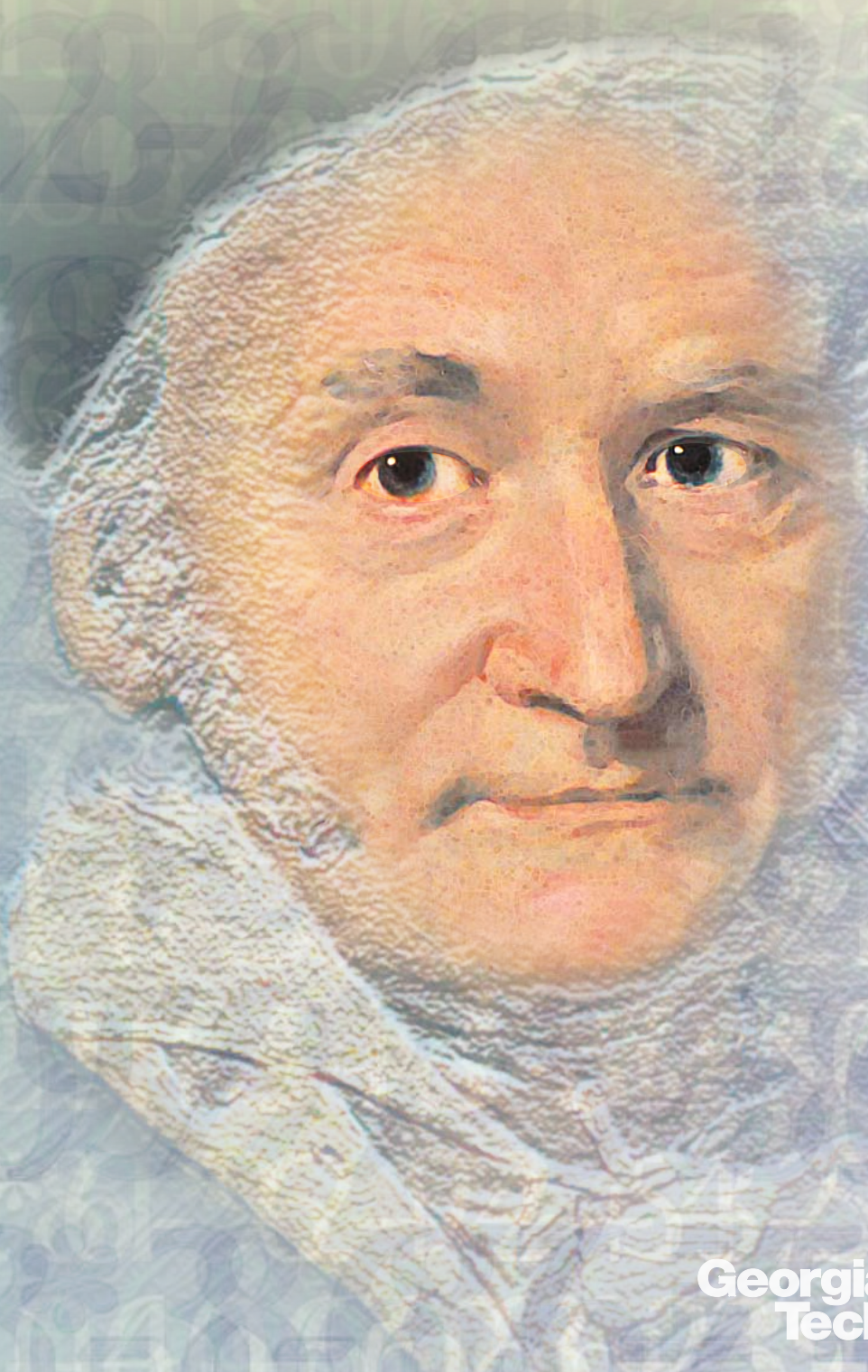


For ALUMNI and FRIENDS

Proof Reader

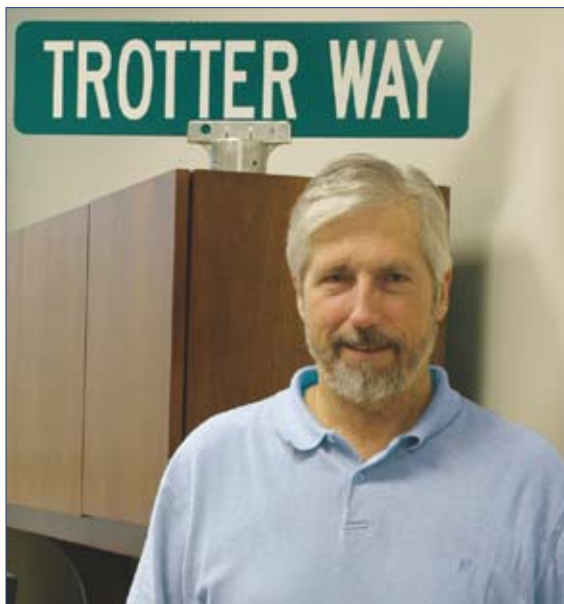
From the School of Mathematics, College of Sciences @ Georgia Tech



Georgia
Tech



What Makes a Math Department Great?



There are a number of top-ranked universities with mathematics units featuring internationally distinguished researchers. The School of Mathematics at Georgia Tech is one of them. There are some excellent colleges and universities where students are well served by dedicated, hard-working teaching faculty and support staff. Again, the School of Mathematics at Georgia Tech is one of them. What makes us very special is that the list of universities where excellence is expected in both research and teaching is not very long, and if there were any data available on the issue, Georgia Tech could compete with any school when it comes to expecting and achieving excellence in both.

So what makes us special? First, Georgia Tech is one of a handful of universities where everyone, students and faculty alike, seems to like mathematics. At Georgia Tech, students who have completed their required courses go on to take additional mathematics courses just because they like the subject. Of course, they also know the experience will be good for them in the long run, but they come back to mathematics because they have been well treated and well served.

In a recent semester, the list of faculty teaching first semester calculus included four full professors and, among this group, were some of our most

distinguished researchers...and they did their jobs well. This scheduling pattern is the norm. There was nothing special about senior faculty taking their turn with first year students. That's the culture here at Georgia Tech. Students matter and faculty accept responsibility for their success. From top to bottom, from first year mathematics through advanced topics courses, faculty put energy and enthusiasm into teaching and it shows.

Most recently our faculty members Michael Lacey, Michael Loss, Tom Morley and Enid Steinbart received a major National Science Foundation (NSF) award to support our undergraduate program. (More details are reported on page 7.) And at the graduate level, we have made substantial progress in recruiting strong students and placing them in top universities after they finish their degrees.

And what's happening on the research front? Great news here too. This year, Yuri Bakhtin received an NSF CAREER award, a highly prestigious award given to the most promising young faculty. Yuri joins previous CAREER award winners Saugata Basu, John Etnyre, Mohammad Ghomi, Chongchun Zeng and Haomin Zhou.

At the senior faculty level, Focused Research Group (FRG) awards have been granted to Luca Dieci, Robin Thomas, Michael Lacey, Yang Wang, Chris Heil and Wilfrid Gangbo. In fact, Wilfrid has received a second FRG, a singular accomplishment. Members of the School of Mathematics faculty have been invited for extended stays to the MSRI (the Mathematical Sciences Research Institute), SAMSI (the Statistical and Applied Mathematical Sciences Institute) and the Fields Institute. And the list goes on.

So what does it take to make a great mathematics department?

Be like Georgia Tech. They're doing it right.

-William T. Trotter, Chair

SOM History—The First 80 Years

When the Georgia School of Technology opened in 1888, one of the first three departments was the Department of Mathematics and it was housed in the Tech Tower. Professor Lyman Hall was the first mathematics professor at Georgia Tech. He served as the head of the Department of Mathematics and then, in 1896, Professor Hall became the second President of Georgia Tech. At the age of 36, he was Tech's youngest President.



The Department of Mathematics became the School of Mathematics when we began granting a Bachelor of Science degree in Applied Mathematics in 1952. In 1958, the School moved from the second Shop Building to our current location, the Skiles General Classroom Building, named after a beloved mathematics professor and academic dean, Dr. William Vernon Skiles.



One of the longest serving mathematics faculty members and another head of the department was Dr. D. M. Smith, who taught from 1913 to 1954. In 1922, a mathematics professor and the department's head, Floyd Field, became the first Dean of Men.



The graduate program also began in the 1950's; the first Master of Science in Applied Mathematics was granted in 1956 and the first PhD in Mathematics was granted in May 1965.

The first female instructor at Georgia Tech was Dr. Mary K. Cabell who started teaching Mathematics in the fall of 1960!

Sources:
Tech Timeline, by the Alumni Association
Dress Her in White and Gold: A Biography of Georgia Tech, by Robert B. Wallace, Jr.

Ga School Technology.
Examination in Mathematics.
June 12th, 1890 Junior Class. Time 4 hrs.

Sta.	Bear	Dist	+ Lat	-	+ Dist	-
*A	N 36° E	8.60	6.95		5.05	
B	N 10° W	4.30	4.23			0.74
C	N 79½° E	4.50	0.80		4.43	
D	S 17½° E	17.33		16.52	5.21	
E	S 88° W	11.29		.39		11.28
F	N 24° W	5.57	4.91			2.62

Complete the computation of area and construct table of total lats. & depts. for plotting regarding A as most westerly station.

2. Describe the method of finding with the Transit the azimuths of several successive courses with a first course AB and explain how to obtain the bearings of those courses AB being regarded as the meridian.

3. Give in full all the adjustments of the transit

1890 Mathematics Exam

Degree Programs

Undergraduate Degrees:

Bachelor of Science in Discrete Mathematics
Bachelor of Science in Applied Mathematics
Business Option for both degrees

Graduate Degrees:

Master of Science in Mathematics
Doctor of Philosophy in Mathematics

Interdisciplinary Graduate Degrees:

Master of Science in Computational Science and Engineering (CSE)

Starting in Fall 2008 this new program is aimed at students who will want to apply their knowledge to software systems engineering, web technologies, software for consumer product and drug design, financial engineering, modeling and simulation, systems integration, data mining and visualization, high-performance computing and computational modeling.

Master of Science in Statistics (STAT)

This is a joint program with the School of Industrial and Systems Engineering. Students become competent in collecting, analyzing and interpreting data, and will acquire advanced knowledge of statistical principles. Emphasis is on applications to engineering and the physical sciences.

Master of Science in Quantitative and Computational Finance (QCF)

This very successful degree is a joint program with the School of Industrial and Systems Engineering and the College of Management. Students are trained in finance, stochastic processes and numerical methods and bring their knowledge to work in financial institutions.

Doctor of Philosophy in Algorithms, Combinatorics and Optimization (ACO)

This competitive program is run jointly with the College of Computing and the School of Industrial and Systems Engineering. The program is designed to train mathematicians, computer scientists and operations research professionals for academic careers or work in government and the private sector. We are responsible for the “C” in the acronym ACO and the

vast majority of the students from Mathematics who study for a PhD in ACO are in fact interested in Graph Theory and Combinatorics.

Doctor of Philosophy in Bioinformatics (BINF)

Begun in 2003, this program is joint with the Schools of Chemistry and Biochemistry, Biology, Biomedical Engineering and the College of Computing. The program is designed to train students for jobs in both academia and the private sector, and is directed towards students who have interest in fundamental biology, genomics, drug discovery and personalized medicine.

Doctor of Philosophy in Computational Science and Engineering (CSE)

The first students will enter this program in the Fall of 2008! It is a joint program with several other schools from the Colleges of Sciences, Engineering and Computing. The program is designed to provide students with the theoretical understanding and practical skills needed to become leaders in the field of computational science and engineering. It emphasizes the integration and application of principles from mathematics, science, engineering and computing to create computational models for solving real-world problems.

SOM STATISTICS Spring 2008

Faculty	60
Emeritus Faculty	14
Academic Professionals	4
Instructors	5
Visitors and Postdocs	23
Staff	12

Graduate Students

Grand total	113
Women	16
Men	97

Undergraduate Students

Grand total	138
Women	43
Men	95

Working Magic with Students: A Profile of Matthew Baker

Some people view mathematics as a lonely discipline, but Associate Professor Matthew Baker's vision of mathematics is highly people-oriented. What he finds most exciting about mathematics is sharing it with others—and share it he does in a wide range of courses for undergraduates and graduate students alike.

Since arriving at Georgia Tech in Fall 2004, Dr. Baker has taught Math 1512: Honors Calculus II at the freshman level, Math 3012: Applied Combinatorics at the sophomore level, and Math 4150: Number Theory for juniors and seniors. He's also taught the graduate algebra sequence (Math 6121/2: Algebra I/II), which serves as a gateway for PhD level study in mathematics, and Math 8803: Algebraic Number Theory, a graduate-level topics course.

What is it about Matt Baker's teaching that captivates his students and impresses his colleagues? What does this winner of the 2007 CETL/BP Junior Faculty Teaching Excellence Award do that students find so engaging? Here are some elements of Baker's approach that are producing great results as he connects with Georgia Tech students.

Matt wants students to share his enthusiasm for mathematics—and he works to intrigue them with its possibilities. For example, when he teaches his undergraduate course on Number Theory, he introduces modular arithmetic (also known as “clock arithmetic”) through the “circle of fifths” in music theory. He then impresses the students with some lightning-fast mental calendar calculations (e.g. What day of the week was June 8, 1723?), and wraps up the lesson by teaching the students how to do the calculations themselves.

As a member of the International Brotherhood of Magicians and the Atlanta Society of Magicians, Baker knows how to communicate ideas in ways that challenge student thinking. He uses his talents as a magician to illustrate mathematical concepts and to help his students explore the mathematical principles behind what he's doing. He per-

forms card tricks based on modular arithmetic and rope tricks based on principles from topology; he also performs a mind-reading trick using colored gloves to illustrate a famous theorem of Leonhard Euler from graph theory. And of course, bringing magic into the classroom also keeps students alert.

Matt believes that connecting with students on an emotional and

personal level is important too. “In the modern era of online universities and virtual diplomas,” states Baker, “it is important for students to know that a human professor can provide things that a digital one cannot, such as emotional understanding. A small bit of extra encouragement or a solid piece of advice from a trusted mentor can make an enormous difference in a student's performance, sense of confidence, and career decisions.”

To this end, he has served as a teacher, mentor and coordinator for the School of Mathematics' Research Experience for Undergraduates program, an NSF initiative. He is a talented research mathematician who has made important contributions to the field of number theory and publishes in some of the most prestigious journals—and he involves his students in the process.

Matt Baker's students applaud his genuine enthusiasm for both teaching and research, his “talent for simplifying advanced topics,” his “patience and ability to confront a point of confusion by explaining from multiple angles,” his ability to make learning fun, and his sincerity as a teacher and a mentor. In the world of mathematics where students often find the process of learning complex



Matt Baker continued

and intimidating, Matthew Baker is truly working magic. He inspires, teaches and connects with students as few are able to do in one of higher education’s most challenging fields—and in doing so, he is definitely making a difference for students at Georgia Tech.



Written by: Joyce Weinsheimer, Ed.D., Associate Director for Faculty Development, CETL. Edited by: Cathy Jacobson

Faculty Awards



Dr. Thomas Morley was honored as the recipient of The Class of 1934 Outstanding Innovative Use of Education Technology Award in Spring 2007. In January 2008, he was named the CEISMC Professor of Mathematics for his K-12 outreach. (See his profile on page 22.)



Dr. Hao-Min Zhou and Dr. Yuri Bakhtin were the recipients of the NSF Career Awards in 2007 and 2008 respectively. These prestigious and highly competitive awards for young scientists, engineers, and mathematicians are for a 5-year period and support the recipient’s growth and development in research and also as a teacher and mentor. They join four current School of Mathematics faculty who have received NSF Career awards: Dr. Saugata Basu, Dr. John Etnyre, Dr. Mohammad Ghomi and Dr. Chongchun Zeng. Two former School of Mathematics faculty have also received this award: Dr. Rob Ghrist and Dr. Dana Randall.

Dr. Matt Baker was the recipient of the 2007 CETL/BP Junior Faculty Teaching Excellence Award. Previously, Dr. Baker was awarded the 2005 Class of 1969 Teaching Fellow Award.



Dr. Lew Lefton was named as the winner of the 2008 Administrative Service Award. Dr. Lefton’s invaluable service as IT Director for both the School of Mathematics and the College of Sciences was cited in the nomination, and we are certainly fortunate to have benefited from Dr. Lefton’s hard work and enlightened IT leadership since his arrival on campus in 1999.

“We have a tremendously fine IT team. Every single time I have been in need of any help, I have received their fast, efficient and friendly support that has always solved any problem within minutes. Congratulations Lew, and although the award has Lew’s name, I extend my congratulations to Justin, Matt, and all the IT team.” David Jimenez, PhD student.



L to R: Ryan Curtin and Matt Haynes



Dr. Doron Lubinsky was named as one of two faculty members selected from the ranks of Engineering and Mathematics units who have played a “vital role in improving the learning environment for female students, and in encouraging positive participation and success.” This award is presented by the Women in

Engineering Society and he was honored at their 2008 Excellence Awards Banquet on March 27.



Dr. Evans Harrell, Associate Dean and Professor of Mathematics was elected a Fellow of the American Association for the Advancement of Science (AAAS) for contributions to

the study of spectra associated with partial differential equations, particularly gaps and lower bounds for eigenvalues of Schrodinger operators. He received the award in February of 2007.



In Fall 2007, **Dr. Christine Heitsch**, Principal Investigator (PI): School of Mathematics, Dr. Stephen Harvey, Co-PI: School of Biology, and Dr. David Bader, Co-PI: College

of Computing, received a major award from the joint Division of Mathematical Sciences and the National Institute of General Medical Sciences (DMS/NIGMS) Initiative to Support Research in

the Area of Mathematical Biology. Their proposal is titled: "Combinatorial and Computational Methods for the Analysis, Prediction and Design of Viral RNA Structures" and received funding in the amount of \$1.04M over four years. It has long been an important goal for the School of Mathematics to broaden and extend its involvement in large-scale collaborative projects like this one.

The Mentoring through Critical Transition Points (MCTP) proposal submitted by **Dr. Michael Lacey, Dr. Matt Baker, Dr. Michael Loss, Dr. Tom Morley and Dr. Enid Steinbart** has been recommended for funding by the DMS division of the National Science Foundation starting in June 2008. This large scale proposal targets undergraduate students and will enable the School of Mathematics to make substantive advances in a program that is already a national model. The award will be for five years and will draw \$730,000.

New Faculty

Silas Alben

Assistant Professor
Mathematics

Professor Alben comes to Georgia Tech from Harvard University, where he was an NSF Postdoctoral Fellow and Lecturer in Applied Mathematics. His research efforts have been in computational mathematics related to biology and fluid dynamics and will have influence in a wide range of science and engineering applications. He holds a PhD (2004) and M.S. (2002) in Mathematics from the Courant Institute of New York University, and received his A.B. in Physics and Mathematics from Harvard in 1999.



Ionel Popescu

Assistant Professor
Mathematics

Professor Popescu received his PhD in Pure Mathematics from the Massachusetts Institute of Technology in 2004. He earned a Masters (1998) and B.S. (1997) in Mathematics from the University of Bucharest, Romania. His research interests include stochastic analysis, differential geometry, and functional analysis. For the past three years he was a Boas Assistant Professor at Northwestern University. He also has an appointment as a Scientific Researcher at the Institute of Mathematics of Romanian Academy.



Transitions: Retirement News



Bill Green got his PhD in mathematics from the University of Pennsylvania in 1973 in the area of operator theory and operator algebras. After a visiting lectureship at the University of Oslo, Norway, he came to Georgia Tech as an assistant professor in 1974. Bill has served the School of Mathematics extensively in many capacities: as Undergraduate Coordinator, as Graduate Coordinator and on various Institute committees. Bill advised two doctoral students and was named to the list of *Top Ten Profs* in 1981. He was recognized by both the Office of Minority Educational Development and the Georgia Tech Society of Black Engineers for service to minority students in 1983. He has also taught at Williams College and Tulane University. Besides mathematics, Bill's passion is music with all its facets; history, composition, and performance.



Bob Kertz received his PhD in mathematics from Northwestern University in 1972 and came to Tech the same year. His mathematical interests center around probability, in particular stochastic processes with numerous publications in this area. He supervised three graduate students and was selected for the Junior Faculty of Science Award by the Georgia Tech Chapter of Sigma Xi. He served the mathematics community as journal editor and Georgia Tech as a member

of numerous committees. His greatest contribution to Georgia Tech was the creation of the interdisciplinary Master of Science Degree Program in Quantitative and Computational Finance. He was its founding director from 2000-2006 and co-director from 2006-2007. This program sprang from Bob's interest in mathematical finance and its success can be credited to Bob's vision.



Johan Belinfante's career is unusual in that he started out as a physicist. He received his PhD in Physics from Princeton University in 1961, taught physics and math at Carnegie Mellon and then came as an associate professor to Georgia Tech in 1973. Johan's interest shifted gradually to a topic that one would normally consider to be very unusual for a physicist, namely formal logic. His new twist, however, was to get the computer to do the proofs. Johan's interests range from Computer Assisted Reasoning in Gödel's Class Theory to Mathematical Physics and Quantum Mechanics, a truly wide range. Among the honors Johan has received, one stands out: the honor to have played chess with Werner Heisenberg!

Promotions:



To Full Professor
Saugata Basu



To Full Professor
John Etnyre



To Associate Professor with Tenure
Igor Belegradek



To Associate Professor with Tenure
Federico Bonetto

Faculty Emeritus News

At a recent get together, Rena Brakebill asked some retired professors what they were doing for fun, and here are their responses.



L to R: Tom Morley, Jim and Sarah Osborn, Rena Brakebill, Rosalind and David Ho, Jackie and Bill Smythe, Yung Tong

Dr. Bill Smythe has created several double-croctic puzzles. His article, “Croctics with Special Properties” (about the mathematics of puzzles) is posted at www.doublecroctic.com/BILNGTH3.htm .

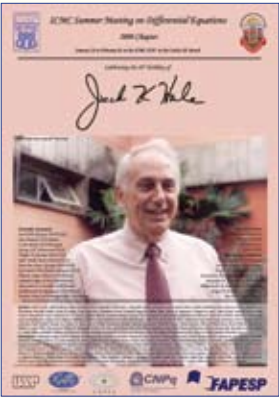
Dr. David Ho and Dr. Jim Osborn have traveled extensively. The Hos just returned from a Taiwan University reunion cruise from San Diego to the Baha in Mexico. The Osborns visited Ankhor Wat in Cambodia earlier this year.

Dr. Osborn and another retired professor, Dr. Yung Tong, have something in common. They both love to dance. While the Tongs enjoy line dancing, the Osborns prefer international folk dancing.

Dr. Jamie Goode and Dr. Gunter Meyer spend time outdoors. Dr. Meyer spends part of his year on a sailboat. Dr. Goode enjoys biking and hiking when he is not busy managing computer networks for different non-profits or doing genealogy.

Dr. Carl Spruill also enjoys exercising and biking and finds time to work on home improvement projects.

Early this year, Dr. Jack Hale, who is a Regents’ Professor Emeritus and Co-founder of the Center for Dynamical Systems and Nonlinear Studies at Georgia Tech, attended a conference on differential equations given in honor of his 80th birthday at the Instituto de Ciências Matemáticas e de Computação (ICMC) in São Carlos, Brazil.



Dr. Jim Herod (below with family) farms, travels, and has recently published his first novel, “Gathering Moss.” An intrepid runner himself, Dr. Herod has written about the life of an extraordinary man named Wesley Stone who spent his undergraduate career at Georgia Tech on the track team.



L to R: Jim Herod and his sons, Chris, Scott and Alan, all of whom are Tech Alumni.

Promotions:



To Associate Professor with Tenure
Yingjie Liu



To Associate Professor with Tenure
Hao-Min Zhou

Career moves: Former Undergraduate Coordinator, Dr. Yang Wang, accepted an appointment as Professor and Chair of the Department of Mathematics at Michigan State University in the Fall of 2007.

Staff Profile: Christy Dalton - Financial Manager



Our current financial manager, Christy Dalton, came to the School of Mathematics as an accountant in 2004. Prior to that, Ms. Dalton held the position of assistant business manager at the Rialto Center for the Arts. Her degree in communications from Georgia State University in 1998 led to employment for a few years in theater management and then to the Rialto.

Because she proved to be such a valuable staff member, Christy was promoted to the position of financial manager for the SOM in 2005. Together with our efficient accountant, Inetta Worthy, Christy deals with all aspects of funding for the School of Mathematics. In fact, the financial office processes payrolls for faculty, staff, and students; reimburses travel expenses, and supply purchases; manages state, grant, and foundation budgets and retains files for auditing.

According to Christy, her work in theatre management helped her prepare for the current position because she learned early on how to cope with a tight budget, frequent deadlines and the resulting stressful environment. To further prepare for her current position, Christy completed two Georgia Tech programs: the departmental financial manager certificate program and the supervisory development training program.

As the financial manager, the first change that Ms. Dalton implemented was to reorganize the budget management process. She reviewed projects and reformatted budget reports to make them more transparent and easier to audit. Christy has converted most paper documents to electronic format to reduce the paper usage and to make it easy to access data. Unlike most departments, the School of Mathematics has very few p-cards (charge cards that state employees use for work-related purchases). The financial office approves each purchase and allocates the

charge to the appropriate project on a daily basis. Accountability, accuracy and efficiency are very important to Christy Dalton.

How does she de-stress? Christy likes to travel, whether it is a weekend road trip to Memphis to pay her respects to Elvis or a two-week journey across different countries. Traveling gives her the inspiration to practice and hone her photography skills. When she can't get away from town, she can usually be found at a local cinema catching the latest independent film.

Ms. Dalton has enjoyed working with dedicated staff and faculty and was amazed to find that brilliant mathematicians are also approachable. The most challenging part of Christy's job is to locate the discretionary funds needed to support undergraduate and graduate enrichment activities such as seminars, the annual high school mathematics competition, recognition programs and awards for student accomplishments. Because of restrictions on the use of state and federal funds, we have not been able to implement some great proposals for student related activities. Ms. Dalton's next important project is to become more involved in development and fundraising for the School of Mathematics.

Her colleague Sharon McDowell reflected the opinion of the SOM in her following observation: "Efficient. Resourceful. Trustworthiness. These are the three words that come to mind when I think of my co-worker, Financial Manager Christy Dalton. The School of Math is extremely fortunate to have Christy on the staff and managing the budget. There has not ever been a time when I asked her a financial question and she did not have the answer. She seems to work very hard and does it all with a smile."



The Graduate Program



To date, the School of Mathematics (SOM) has awarded 159 PhDs and several hundred Masters' degrees. We presently have about 70 students in our doctoral programs and nearly 45 who are enrolled in our MS programs. The administration of the program is the responsibility of the Graduate Coordinator, Prof. Luca Dieci, who enjoys the full time support of a beloved Administrative Assistant, Ms. Genola Turner, and the part-time support of Dr. Russell Todres, who assists all Academic Programs in the SOM.

Since October 2004, the Masters in Applied Mathematics has changed its name to Masters in Mathematics to more faithfully reflect curricular requirements. By and large, our MS programs are designed for people who want to acquire specific knowledge to be used in the workplace and the SOM has taken an active leadership role in creating three interdisciplinary Masters' programs. (See Degree Programs on page 4). As judged by the steady increase of applications to our MS programs, we are meeting a need. In the QCF program alone, Mathematics has received over 200 applications for Fall 2008 admission.

Our doctoral programs require us to do more than just transmit knowledge; rather, we want to create the next generation of professional mathematicians. As evidenced by the placement of our graduate students, our doctoral programs have been gaining national prominence. Recent SOM graduates can be found in academic positions at Princeton, Yale, Texas A&M University, and the University of Maryland, to name a few, and our

graduates are also obtaining very appealing jobs in the industrial sector as well as in government laboratories.

Today, the SOM Faculty is very heavily engaged in mathematical research and, correspondingly, the emphasis of the graduate program has progressively shifted towards support of students in the doctoral program. As the SOM continues to improve its nationwide standing, our PhD graduates are becoming more research oriented and ambitious. As a result, we are working very aggressively to attract the most talented students we can to our programs in several different mathematical fields reflecting the demands of our scientifically diverse faculty.

The PhD in Mathematics is our doctoral program with the highest enrollment. In addition, the SOM participates in three interdisciplinary doctoral programs that have been created in response to specific scientific and socio-economic developments in both the campus community and the country at large.

Excellent professors demand excellent students; excellent students expect excellent facilities and an outstanding learning environment in return. During the last several years, with the limited resources available to us, we have taken steps to ensure that our students find a scientific environment that will be conducive to excellent results. The School of Mathematics has

- created and steadily increased travel funds for our doctoral students
- supported and financed the creation of the "Research Horizons Seminar" where students listen to faculty, or to other more advanced students, presenting research topics of current interest
- improved the physical plant and computing facilities, and created a "doctoral wing" in the Skiles building

Graduate Program continued

- created two prizes to recognize our doctoral students: Best PhD Thesis Award and Best Teaching Assistant Award
- decreased the teaching load for teaching assistants
- increased recruiting funds for both domestic and international students
- created a “graduate student library” to exclusively benefit our students



Graduate Teaching Assistant Ian Palmer

The SOM graduate students are responding in a marvelous way, and are making outstanding progress in their studies. In the academic year of 2006-07, about 20 of our PhD students submitted (or published) scholarly work ahead of their PhD theses, and about 25 presented a talk at a conference or workshop.

Our ability to continue attracting the best doctoral students is leading us to compete with institutes who are able to use resources not available to us. For example, we cannot offer any “Research Assistant” positions to incoming students because we cannot use State monies to fund these positions. Although the SOM was awarded an NSF-sponsored Vigre grant in Fall 2004 that was very helpful in increasing our appeal to domestic students, the grant will have completed its course this calendar year, and so we will need to apply for NSF funds again to help with our graduate program.

In addition to sponsored funds, we need to continue attracting funds from donors as well. We

are pleased to gratefully acknowledge the support of the two donors listed below that has made a difference for us.



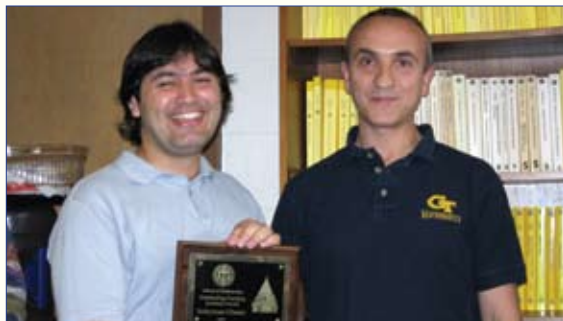
Mr. John Festa, former CEO of Iterated Systems (a company founded by two former SOM faculty) endowed a prize bearing his name that is awarded annually to the doctoral student in Mathematics who exhibits superior leadership and scholarship skills.

Mr. Robert Price (MS Appl. Math 1958), former CEO of Control Data Corporation, made a donation to the School that is being used to offer “signing bonuses” to selected outstanding graduate level applicants.



Beyond these donors’ contributions, we finance our awards by relying on donations from the SOM faculty. If you would like to join the faculty in supporting the Graduate Program of the SOM, please consider contributing to the SOM Graduate Students Fund: 370000074. If you would like to endow a specific fellowship or award, please let us know as well. The next generation of professional mathematicians thanks you!

-Luca Dieci
Graduate Coordinator



Luca Dieci (R) with Suleyman Ulusoy, the winner of 2007 outstanding Graduate TA award.

Graduate Student Profile: Adam Marcus, PhD in ACO



Adam Wade Marcus received his BA/MA in Mathematics from Washington University in St. Louis in 2003. He was then admitted to the School of Mathematics at Georgia Tech as a Vigre Fellow, for doctoral studies in the Algorithm, Combinatorics, and Optimizations (ACO) Program. But, before joining the program in Fall 2004, Adam spent a year in Budapest working with Gábor Tardos at the Rényi Institute. By the time he joined us, Adam had received an NSF graduate fellowship.



Adam’s advisor, Dr. Prasad Tetali (above right), describes him as “being very unique in that he did everything backwards: In his first year, he practically did enough for a thesis, then found an advisor, finished the qualifying exams, and scrambled in the end to complete course requirements! Needless to say, he is very original, creative, highly motivated, and has been a pleasure to work with.”

In Spring 2006, he volunteered to teach a Linear and Discrete Mathematics recitation section in the School of Mathematics. In Summer 2006, Adam was off to the Microsoft Research Center to work with László Lovász, and in Fall 2006 he was at Tel Aviv University working with Noga Alon.

In June, Adam received the inaugural 2008 SIAM Denes Konig Prize for a junior researcher who has done outstanding research in an area of discrete mathematics. His research resulted in two papers: M. Klazar and A. Marcus, “Extensions of the Linear Bound in the Furedi-Hajnal Conjecture,” *Advances in Applied Mathematics*, 38 (2006), 258-266, and A. Marcus and G. Tardos, “Excluded Permutation Matrices and the Stanley-Wilf Conjecture,” the *Journal of Combinatorial Theory*, Series A 107 (2004), 153-160.

What does Adam do in his free time? He coaches Georgia American Regions Mathematics League (ARML) students. His work on the Hexagramma Mysticum will appear in *The Triangle Book*, which Steve Sigur, another Georgia ARML coach, is coauthoring with John H. Conway. Last summer Adam taught in the Hampshire College Summer Studies in Mathematics program for talented high school students.

In Fall 2008, Adam will be a Gibbs Assistant Professor in Applied Mathematics at Yale University.
Adam’s webpage: www.math.gatech.edu/~adam

Graduate Program Statistics Spring 2008

Graduate Students	Male	Female	Total
MS Quantitative and Computational Finance	19	5	24
MS Mathematics	16	1	17
MS Statistics	0	3	3
PhD Mathematics	48	5	53
PhD Algorithms, Combinatorics, and Optimization	12	2	14
PhD Bioinformatics	2	0	2
Total	97	16	113

Graduate Awards

Prizes and Fellowships:

Adam Marcus, a 4th year ACO student and summer '08 PhD recipient, will receive the inaugural 2008 SIAM Denes Konig Prize for a junior researcher who has done outstanding research in an area of discrete mathematics. (See the profile on Adam on page 13.)

Fulbright Fellowship: **David Howard** (2007-2008) in the Czech Republic.

National Consortium of Physical Sciences Fellowship: **Amanda Pascoe** (2006 to present)

NSF Fellowship: **Adam Marcus** (2004 to present) and **Carl Yerger** (2005 to present)

Georgia Tech Fellowships and Awards:



Christina "Teena" Carroll (seated) and **Mitch Keller** (on the left) were the 2007 and 2008 recipients of the CETL/BP Outstanding Teaching Assistant Awards. The award

recognized their commitment to teaching Georgia Tech's undergraduates. Only one TA can be nominated from each school or department for this annual award, and the School of Mathematics has had a winner for the past four years. Past mathematics teaching assistants who were recipients of this prestigious institute award are: Dr. Diana Thomas (1995), Dr. Eugene Belogay (1998), Jiahui "Michael" Jiang (1999), Dr. Shobhana Murali (2001), Nguyen Le Truong (2005) and Michael Ryan Haynes (2006).

The 2008 Graduate Student Symposium was held in March. Our PhD students **Mitch Keller** and **Stephen Young** did very well in the "Oral Presentation" category and won "Best Oral" and "Runner-up" in the College of Sciences.

D'Onofrio Fellowship: **Alessandro Pugliese** (2007-2008)

Georgia Tech Institute Fellowship: **Luke Postle** (2007 to present)

Goizueta Fellowship: **David Krumm** (2007-2008)

School of Mathematics Fellowships and Awards:



Ian Palmer (on page 12) and **Kun Zhao** (on the left) won the John R. Festa Fellowship in 2008. This fellowship is

awarded to a graduate student in the School of Mathematics who exhibits superior academic and leadership skills. Ian is being recognized for his leadership role in the SOM as the Graduate Student Representative, the organizer of the Research Horizons Seminar and the coordinator of outreach to new students. Kun has been an invaluable asset and worthy of praise for his role in the annual orientation workshop for new international students and his continuing mentoring role throughout the year. **David Jimenez** won the John R. Festa Fellowship in 2007 and **Mitch Keller** in 2006.

Kun Zhao won the 2008 Top Graduate Student Award for superior academic and research performance. He is working with Ronghua Pan on hyperbolic PDEs. Previous winners were Armen Vagharshakyan (2007) and Adam Marcus (2006). Beginning in 2008, this award carries a cash amount provided by donations made to the graduate program.

Selma Yildirim and **Stephen Young** are the recipients of the 2008 School of Mathematics Outstanding Graduate Teaching



Assistant Awards that include a cash award as well. The prize was announced at the annual SOM Teaching Assistant Appreciation reception. Past recipients were Dr. Suleyman Ulusoy (photo on page 12), Dr. Christel Hohenegger and Dr. Torsten Inkmann (both in 2006).

The Undergraduate Program

The Undergraduate Program of the School of Mathematics, thanks to student, staff and faculty activity, is going very well. The Math program's enrollment has grown over the last four years from about 90 to 140 students, largely due to the efforts of former undergraduate coordinators Yang Wang and Michael Lacey.

The outlook on mathematical careers has changed. In addition to the standard fields of research and teaching, mathematicians now find positions in engineering, the medical sciences and the financial industry. Thus, our program now offers a number of diverse degrees. Students can graduate with a B.S. in Applied Mathematics or Discrete Mathematics, and both of these come with a business option and a research option.

We have had some truly excellent students and so it was difficult to select the Junior and Senior Mathematics Prize winners for 2007 and 2008. The Junior prize went to AJ Friend in 2007 and to Nicole Larsen in 2008. The Senior prize was awarded to Adam Tart in 2007 and Brian Benson in 2008. All are absolutely outstanding students in that they not only excelled in class work, but also in research and outreach. Nat Chafee, Michael Lacey and Russell Smith have graciously donated some of the prize money.

To facilitate student adjustment to university life, the School has created a number of activities that enhance the undergraduate experience. One is the course GT 1000 that is taught by Enid Steinbart. (See below on the left with



undergraduate Cindy Phillips.) The course is designed to present more about our undergraduate program and introduce potential mathematical career opportunities to the incoming freshmen.

Likewise we try to engage undergraduates in research. Another opportunity, funded in large part by the National Science Foundation, supports undergraduate students who are doing research for two months during the summer. For the past three years, Matt Baker has coordinated this program with some help from various other faculty members.

Many of our advanced undergraduates serve as teaching assistants in various lower level courses.



Undergraduate TA Girardo Viza and Kara Grodzinsky

In order to improve the quality of their teaching, Klara Grodzinsky and Rena Brakebill created a 'TA Development Program'. Likewise, we have a number of international students serving as graduate TAs in our classes. In order to improve their language skills as well as their cultural understanding of our students, Cathy Jacobson created a 'Language Program for International Teaching Assistants'. All of this had a very positive impact on our quality of instruction in the classroom and we received the Board of Regents' 2005 Teaching Excellence Award' for these model programs.

There are a number of mathematical activities held during the year. Cindy Phillips started 'Club Math' that meets regularly for puzzle solving and socializing. This year's president is AJ Friend (see his profile on page 17). Because AJ is studying in



High School Math Competition (HSMC) organizing team

Budapest, Hungary at the moment, Brian Benson and Cindy Phillips are helping out by organizing the activities. Additionally, Pi Mu Epsilon Society's 'Beta Chapter of Georgia' has recently inducted ten new members. This group is the main sponsor of our annual High School Math Competition. These are very important activities, since they emphasize among other things, the recreational aspect of Mathematics; it is fun to think and to solve puzzles.



Undergrad TA Robert Brinson and calculus student

The School regularly takes part in the Putnam Exam, an activity initiated by Yang Wang but now taken over by Matt Baker. In the 2006 competition, the Georgia Tech team ranked 39 out of 402 teams. The Georgia Tech student with the highest score was Charles Martin, who scored 49 points and was ranked 100 out of 3640 participants. Adam Tart was ranked 320.5 and Jonathan Loesch 390.5.

In the 2007 Putnam Exam we had four participants in the top 300 nationwide: Stefan Froehlich (score 38, rank 135), Dragos Ilas (score 30, rank 221), Jonathan Loesch (score 28, rank 260), and Will Drobny (score 24, rank 292). Stefan is a sophomore and Will is a freshman so we will have a

promising team in the next year or two. In addition, Rob Ward scored 20, Aisha Arroyo 13, and Srdjan Lesaja 11. The Putnam Exam is a nationwide exam. That it is difficult is an understatement; in fact, the median score is 0 points!

A large part of our success is due to the smooth daily operation of our undergraduate program. Our special thanks go to the following individuals: Rena Brakebill, for an absolutely superb job in scheduling of classes and an infinity of other good deeds; Enid Steinbart, for a terrific job in advising students; Sharon McDowell, who does a marvelous job heading up the Undergraduate Office and keeping us all in good spirits.

Again, many thanks to you all.
-Michael Loss
Undergraduate Coordinator



L to R: Rena Brakebill, Sharon McDowell, Enid Steinbart, Michael Loss

Undergraduate Student Profile: Arthur J. Friend, Senior Applied Mathematics Major

Originally from Connecticut, Arthur J. 'AJ' Friend started at Georgia Tech in the fall of 2005 ready to study mathematics. Why did he choose Georgia Tech? "It was the warmest school I got into," he jokes.

Why math? He liked math in high school and saw math as the most challenging subject one could study in college. While enjoying balmy Atlanta weather, AJ has kept busy academically with classes, undergraduate research, and independent study (topology).

His accomplishments have not gone unnoticed. AJ received the Goldwater Award in 2006 and was chosen Outstanding Junior math major in the spring of 2007.

AJ has also kept moving. In the fall of 2006 he participated in the Mathematics Advanced Study Semesters (MASS) program at Penn State. The MASS program combines advanced learning with research initiation and provides a highly charged interactive environment among a critical mass of talented and motivated students and a committed group of strong research faculty. AJ's research with Professor Alberto Bressan and several MASS students addressed the optimal strategies for containing forest fires. Furthermore, AJ is spending the spring 2008 term on another continent as part of the Budapest Semester in Mathematics.

AJ wrote : "It's been a lot of fun so far. I love Budapest. There's always a lot going on and the

public transportation here is amazing, so it's really easy to get everywhere. I've also been doing some traveling...Vienna, Prague, Debrecen (the next largest city in Hungary), Spain and Morocco for spring break, and hopefully a bunch of other places whenever we can find time during the semester.

Mathwise, I'm taking Functional Analysis, Set Theory, Mathematical Physics, and Differential Geometry. The classes have been challenging, and most of the professors here are really interesting. It's also great to be studying in a country where they take a lot of pride in their math education. It's always funny to hear

a professor mention how some topic he's teaching us is taught in middle school in Hungary. So all in all, I'm having a great time."

AJ is active in the School of Math beyond his own classes. This past fall, AJ was one of four Team Leaders for GT 1000 MAT: Introduction to College Life. This section of GT 1000 is limited to freshman Applied Math and Discrete Math majors, who directly benefit from AJ's experiences and insight into math and life at Georgia Tech. He was also a Teaching Assistant for Calculus II and is the current president of Georgia Tech Club Math. After graduating from Georgia Tech in the spring of 2009, AJ plans to attend graduate school—in mathematics, of course.

- Enid Steinbart



Undergraduate Program Statistics Spring 2008

Undergraduate Students	Male	Female	Total
Discrete Mathematics	29	5	34
Applied Mathematics	66	38	104
Total	95	43	138

Undergraduate Awards



George Alexander "Ander" Steele won the 2007 Sigma Xi Best Undergraduate Research Award. He received a plaque and cash award, while Dr. Matt Baker, who served as

Ander's faculty mentor, was also honored with a commemorative plaque. Mr. Steel earned a B.S. in Applied Mathematics in the Spring of 2007 and is in a math graduate program at Boston University. While he was at Tech, he worked as a math undergraduate teaching assistant for two years.



Brian Nakamura, under the supervision of Dr. Mohammad Ghomi, worked on the Alexandrov Conjecture. Brian presented his results and won the Outstanding Poster Award

for the College of Sciences at the Spring 2007 Undergraduate Research Symposium.



Adam Tart, the first-prize winner of the 2004 GT High School Mathematics Competition, was recognized as the Outstanding SOM Senior in Spring 2007. Adam

was a math undergraduate teaching assistant for three years. He earned a B.S. in Discrete Mathematics in Spring 2007 and will receive an M.S. in Statistics from the School of Industrial and Systems Engineering this term.

Mr. Tart also won the highly prestigious George J. Mitchell Scholarship to study in Ireland beginning in the Fall of 2008. The Mitchell Scholarship is named for former Senate Majority Leader George Mitchell who spearheaded the historic Good Friday Agreement of 1998 that produced peace in Northern Ireland. Each year, the Mitchell Scholarship recognizes 12 outstanding young

Americans who exhibit the highest standards of academic excellence, leadership and community service. Adam will pursue a Master's in Mobile Networking and Computing at the University College Cork in Ireland.

Arthur "AJ" Friend was recognized by the School of Mathematics as the Outstanding Junior in 2007. (See AJ's profile in this issue.)



Richard Reeve Ingle was named 2007 Student of the Year by the Cooperative Education Division of the American Society of Engineering Education (CED – ASEE). Reeve has been a math undergraduate teaching assistant since Spring 2007. He served on the selection committee for the 2008-2009 undergraduate teaching assistant program.



On September 26, 2007, the astronaut Jim Lovell, awarded a \$10,000 Astronaut Scholarship Foundation (ASF) Scholarship to fourth-year Applied Mathematics and Physics

double major **Nicole Larsen**. This prestigious award is one of 19 made annually. The scholarships are awarded to students who have demonstrated exceptional performance, initiative and creativity in science or engineering. Ms. Larsen has been working on an undergraduate research project titled "Enumerating Pseudoknotted RNA Secondary Structures" with Dr. Christine Heitsch. "Nicole has amazing talents and drives; she is already working at a graduate student level. I am looking forward to seeing her develop into an extraordinary researcher," said her research advisor, Dr. Heitsch.



Undergraduate Awards

SOM Outstanding Junior and Senior Prize winners for 2008:

Nicole Larsen is the Outstanding Junior Prize winner for 2008. She is a second-term mathematics undergraduate teaching assistant and was on the organizing committee for the 2008 High School Mathematics Competition.

Another student leader and Club Math organizer, **Brian Benson**, was awarded the Outstanding Senior Prize for 2008. Brian has also assisted with the High School Math Competition for the past two years. He plans to attend graduate school at the University of Illinois at Urbana-Champaign.

SOM Outstanding Undergraduate Teaching Assistants:

Each spring, entirely funded by faculty donations, the School of Mathematics hosts the Teaching Assistant (TA) Appreciation Reception during which outstanding graduate and undergraduate TAs receive cash awards as well as recognition of superior performances in the classroom.

Cindy Phillips (an Applied Mathematics senior) and **Girardo Viza** (B.S. in Applied Mathematics and Physics, Spring 2008—on page 15) are the winners of the 2008



Outstanding Undergraduate TA Awards this year. Beyond the classroom, Cindy founded Club Math, and has been very involved in organizing the High School Math Competition for the past two years. Girardo served on the selection committee for the 2008-2009 undergraduate teaching assistant program.

Alexander Block (B.S. in Applied Mathematics, Spring 2007) and **Stephanie Lasher** (B.S. in Industrial Engineering, Fall 2007) won the Outstanding Undergraduate TA Awards in 2007.



SOM Sponsored Conferences

May 5-9, 2008: New Directions in Algorithms, Combinatorics, and Optimization

This conference took place in the heart of the Georgia Tech campus in the Klaus Advanced Computing Building. The central theme of this conference was combinatorics and its applications in theoretical computer science and operations

research, and honored the 65th birthday of William T. Trotter. It was coordinated by the Algorithms, Combinatorics and Optimization (ACO) Program, a multidisciplinary program sponsored jointly by the College of Computing, the H. Milton Stewart School of Industrial and Systems Engineering and the School of Mathematics.



Thank a Teacher - 2007

"Thank a Teacher" is a new program designed by the Center for the Enhancement of Teaching and Learning (CETL) to give Georgia Tech students an easy way to show their appreciation to their instructors—faculty or TAs—who have made a difference in their education. It's a simple idea: students send a thank-you note to someone who has helped them learn. In doing so, they let Georgia Tech instructors know that students value good teaching.

Some of the actual sentiments expressed are:



To: Dr. Jean Bellissard
From: Student in Calculus II
"Thank you for teaching me how to be a good student. You are an excellent teacher!"



To: Dr. Stephen Demko
From: Student in Math IS22
"I would have no clue about what I was doing in math if I had not come to you. Thank you."

To: Dr. Luca Dieci
From: Student with Teaching Assistantship

"It is great that I can express my thank you for all that you've done for me and other students. Thank you very much for your kind attention and support."



To: GTA John Pearson
From: Student in Math IS02

"I just wanted to tell you thank you for all the help that you provided me and the whole class throughout this semester of Calculus II...When answering questions, you were straightforward on the answers, but you also made us solve our own problems by throwing back questions at us so we could learn how to do a problem instead of copying your work. You were very understanding and answered some of our "silly" questions without putting us on the spot. I really appreciate everything..."



Listed below are the Math faculty members and teaching assistants who were recipients of thank you notes after the Fall term, 2007. Congratulations to all!

Faculty:

Fred Andrew
Jean Bellissard
Johan Belinfante
Dmitriy Bilyk
Stephen Demko
Luca Dieci
John Etnyre
John Elton
Mike Evans
Jeff Geronimo

Klara Grodzinsky
Katherine Hurley
Cathy Jacobson
Thang Le
Doron Lubinsky
Mona Meddin
Tom Morley
Avram Sidi
Zsolt Talata
Yang Wang

Graduate TAs:

Trevis Litherland
John Pearson
Jean Savinien

Undergraduate TAs:

Jonathan Eisen
Abhishek Pandey

High School Math Competition - 2008

The High School Math Competition (HSMC) is a Georgia Tech tradition that was revived in 2004 by mathematics honor society Pi Mu Epsilon members Stephanie Bent, Alan Michaels, Patricia Pichardo and Nguyen Truong, along with their faculty sponsor, Dr. Yang Wang. Hosted by Pi Mu Epsilon, as well as the School of Mathematics (SOM) and the College of Sciences, the competition gives the potentially matriculating students a glimpse into the rigors of college math while familiarizing them with the beautiful midtown campus.

Over three hundred students from across Georgia and four neighboring states descended upon Georgia Tech's Instructional Center on the morning of February 23. For some, this meant leaving home at 4:00 a.m., like the students from the A. R. Johnson Health, Science, and Engineering Magnet School of Augusta, Georgia. After a welcoming breakfast, the students were challenged by the first portion of the competition, a ninety-minute multiple choice exam. This served to narrow the field for the second portion, a ciphering round that consisted of ten fast-paced questions to be answered within three minutes each.



Photo by: Dr. Tom Morley

As these demanding rounds took place, professors from the School of Mathematics met with parents and coaches who asked questions about the academic program and any other concerns they had about Georgia Tech. Also, Georgia Tech volunteers led various activities such as frisbee, chess, soccer, or touring the campus for participants who had free time in their schedules.

Upon completion of the second round scoring, the finalists were announced and gathered to compete in the five question proof-based exam. The results from the final portion of the competition determined that Tianqi Wu, a ninth-grader from Parkview HS, and Howard Tong, a senior from Lakeside HS, were the Junior Varsity and Varsity champions, respectively. The champions, along with several other close competitors, won substantial scholarships to Georgia Tech generously supported by donations from Invesco and others.

Among the seventy schools that were represented, the Northview High School Junior Varsity and Varsity teams won top team honors. Equally as impressive was the Gwinnett School of Math, Science, and Technology. This school was chartered in 2007, and despite having only one grade level so far, it earned fourth place in the Junior Varsity competition.

The impact of this year's event, building on recruitment successes from past years' competitions, was tremendous. Of the 129 graduating high school seniors who participated in this year's competition, 65 have been accepted to Georgia Tech. Clearly, the expansion of the High School Math Competition is paramount, for it acts as one of Georgia Tech's most important recruitment tools.

The high school math teacher honored this year was Steve Sigur from The Paideia School in Atlanta. He has taught for over three decades and has been an American Regions Mathematics League (ARML) coach for the last 23 years. Steve was named the ARML Outstanding

Coach of the Year at Penn State in June 2007. He is working on a book, soon to be published, with John Conway at Princeton named *The Triangle Book*.

Congratulations to the 2008 School of Math organizers: Students—David Jimenez, Mitch Keller, Nicole Larsen, Cindy Phillips; Staff—Christy Dalton, Sharon McDowell, Annette Rohrs; Faculty—Rena Brakebill, Michael Loss, Tom Morley.

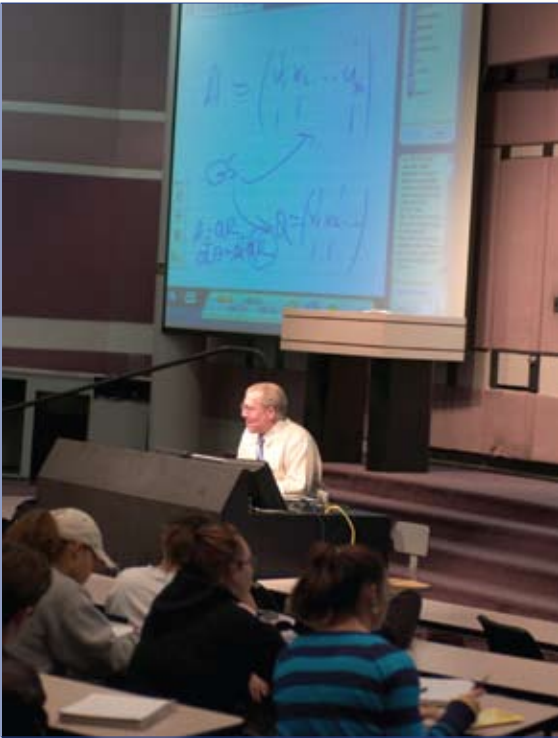
For more information on the HSMC, go to www.math.gatech.edu/hsmc

- Giles Santomauro, Applied Mathematics Major and Undergraduate Teaching Assistant



Outreach Profile: Dr. Thomas Morley, Faculty

In Spring 2007, Dr. Thomas Morley was honored as the recipient of the Class of 1934 Outstanding Innovative Use of Education Technology award. When communicating the news of the award, Dr. William Hunt, Committee Chair, wrote that his committee was particularly impressed by the K-12 outreach component of Dr. Morley's work as reflected in the nomination materials prepared by Dr. Fred Andrew. Dr. Morley received a commemorative plaque plus a \$7,500 award. Dr. Morley also serves on the Georgia Tech Executive Board as a College of Sciences faculty representative.



More recently, Dr. Morley has been named the 2008 Center for Education Integrating Science, Mathematics, and Computing (CEISMC) Professor of Mathematics for his K-12 outreach. Georgia Tech developed a pilot program to allow students from participating high schools to take Calculus II and III via Tech's Distance Learning and Professional Education unit. Dr. Morley has been teaching these distance learning classes since Fall 2005.

The partners developing the program included the School of Mathematics, CEISMC and the Office of Undergraduate Admissions. Ninety-nine students from the North Fulton and Cobb school systems are in the program this academic year and the Gwinnett school system will join the program in Fall 2008. Dr. Morley has been involved in the development of the mathematics curriculum in the new Georgia Mathematics Performance Standard. He also offers summer workshops to elementary and middle school teachers.

Ms. Adell Atwood, Math Support Specialist, Fulton County School System, writes: "I have had the pleasure of working with Dr. Morley for the past three summers in the GT/Fulton County Schools Math Support Program. I am constantly amazed by the variety of his interests and his ability to explain mathematics in a way that makes sense to the K-12 teachers. We stay in touch with him all during the year for explanations. He is always willing and available to help."

A favorite mathematics professor on the Georgia Tech campus, Dr. Morley also influences potential teachers. His former student, Russell Krenek, currently serving as a Calculus III Undergraduate Teaching Assistant, writes the following:

"As a student in Dr. Morley's freshman Calculus II and III classes, I learned what to expect from college level math courses. Dr. Morley was the perfect professor to have because he always stopped what he was doing and went out of his way to explain a math concept.

Over this past summer, I took another math course with him on engineering applications of partial differential equations. This course was more challenging, but I knew I would succeed because I had Dr. Morley there to help me. After completing the course and making an A, Dr. Morley informed me that the mathematics department was looking for teaching assistants to help teach freshmen and sophomore students. He wondered if I would like

to teach. I was thrilled to have the opportunity to give back to the Georgia Tech community and teach freshmen under Dr. Morley in much in the same way calculus had been taught to me.

Working with Dr. Morley has been a wonderful experience. I was later given the opportunity to teach gifted high school students Calculus III via distance learning along with my regular students on campus at Georgia Tech. There is no doubt in my mind that my success as an instructor is due to Dr. Morley. Words cannot express how thankful I am to have had these opportunities to encourage and help other math students."

Outreach Profile—Undergraduate Blackili R. Milhose

Last summer, Blackili Rudi Milhose, a discrete math and computer science senior, was in Barcelona with the College of Computing Study Abroad program. Apart from studying algorithms, he was invited to participate in the first International Stencil Graffiti Conference called Difusor. He had always dabbled with spray painting, but having the opportunity to paint along side some of the most respected graffiti artists in the world fueled his passion for this art.



Upon his return in the fall of 2007, Blackili became a math undergraduate teaching assistant and continued his interest in outreach with art. He also spoke at a public forum called Pecha Kucha about the importance of street art and worked on several public art projects around Atlanta. Currently, he is working for the College of Architecture by painting a mural on a student-built Mad Housers hut in order to engage people on the issue of homelessness.

This summer (2008), Mr. Milhose has been invited to Barcelona to work on computer science research as well as to be a teaching assistant for an architecture study abroad class on urbanism and material culture.

www.difusor.org/index.php
www.pecha-kucha.org
www.madhousers.org

Robert H. Kasriel (1918-2007)



Dr. Robert H. Kasriel died peacefully of cancer at the age of 88 on April 24, 2007. He was Professor Emeritus at Georgia Tech where he taught for over 30 years. Dr. Kasriel was born in the Ybor City section of Tampa, FL. He received his bachelor's degree from the University of Tampa

where he was elected President of the student body. He enlisted in the US Army Air Corps during WWII. He married Ernestine Moskowitz in January 1946. In 1953, Kasriel was awarded a PhD in mathematics from the University of Virginia. He joined the mathematics faculty at Georgia Tech in 1954, where he specialized in topology. Dr. Kasriel supervised four PhD dissertations and his first PhD student was George Cain who went on to become an outstanding Georgia Tech professor as well. In addition to publishing many articles on mathematics, Kasriel published an internationally well received text book titled *Undergraduate Topology* in 1971.

His honors included the Ferst Sigma Xi Research Award (1962), President of the Georgia Tech chapter of the Society of Sigma Xi (1966-1967) and the Outstanding Teacher Award at Georgia Tech in 1983. He was an honorary member of the American Math Society, having been a member for 50+ years. Dr. Kasriel retired from Georgia Tech in 1984. He is survived by his wife, Ernestine, his children Sarita and David Kasriel, daughter-in-law Catherine Rhodes Kasriel, and grandsons Joseph and Daniel (all of Atlanta).

Remembering...

Bob Kasriel? Ah, yes. Bob Kasriel. I have a story, too.

My story is an illustration of what a good friend he was to me, and what a kind person he was. I joined the faculty of the School of Mathematics in 1966, fresh out of the Army. My wife and I, with two children in tow, chose an apartment near the corner of Clairmont and Briarcliff. We had only one car in the Fall of 1966. MARTA did not exist. There was a bus system with a bus that went through the intersection of Briarcliff and Clairmont. One could not depend on the announced

schedules, so it was necessary to get to the corner early. After I boarded the bus, it would take about an hour to get within walking distance of Georgia Tech.

At that time, Bob Kasriel lived some two miles closer to Tech off Briarcliff. When he heard me talking about the commute one day in the lounge, he offered a solution. He'd come get me. That meant he saved me at least an hour a day in commuting time. And, it cost him about an hour a day to do this. I got more than an hour per day with this arrangement. I also got an hour to talk with Kasriel. What better way to start a brand new assistant professor who was coming off a tour with the Army, and ready to begin an academic career?

The main accomplishment in those early months at Georgia Tech was that I established a thirty year friendship with Bob Kasriel. During all those thirty years, he continued to be a good and kind friend.

-Jim Herod

Bob and I shared an office in the Old Shop when I first came to Tech and later, when we moved to Skiles, our offices were next to each other. We had many conversations about our common interests in mathematics and teaching methods that were very helpful to me. We were both from Florida and Bob had spent some of his Army time in Orlando, my hometown.

-Bill Smythe

The only quote from Bob that comes to mind is when he told me that he thought it was more interesting to prove a theorem than to solve a problem. Since we could not agree, we agreed to disagree.

-Jamie Goode

I don't know quite what to say—he was such an important and emotional part of my life that it is extremely difficult to say anything. He was my teacher, my advisor, my colleague, my coauthor and my friend. I simply loved him as I have loved few others in my life. He was named the Best Teacher of the Year and had a Best Research Paper of the Year—he did it all.

-George Cain

Daniel A. Robinson (1932-2007)



Dr. Daniel A. Robinson's courageous battle following open-heart surgery in December came to a peaceful end on January 31, 2007. He was a professor emeritus in the School of Mathematics at the Georgia Institute of Technology after having taught here for 48 years. Robinson received

his bachelor's degree from the New York State College for Teachers (now SUNY-Albany), his master's from Rensselaer Polytechnic Institute, and his PhD in 1964 from the University of Wisconsin at Madison.

Dr. Robinson's field of interest was Algebra (loops and loop rings) and he was primarily responsible for the current interest in Bol loops, the most important area of loop theory studied today. His fundamental thesis, written at the University of Wisconsin under the supervision of Richard Bruck and Marshall Osborn and published in the world-renowned Transactions of the American Mathematical Society, is often quoted forty years later.

His honors included an NSF Science Faculty Fellowship for 1963-1964, and the First Sigma Xi Research Award for both 1967 and 1980. During his career, he wrote over 100 reviews for Mathematical Reviews and supervised two PhD dissertations. He was an honorary member of the American Mathematical Society having been a contributing member for over 50 years.

Dr. Robinson is survived by his loving wife, Adelle "Fritzie" Robinson, and daughters, Zoe and her husband Chris Whiting of Marietta GA, Cassandra and her husband Hack Heyward of Bend OR, and Danielle Robinson of Marietta GA, as well as four grandchildren.

Remembering...

Back in the '70s and '80s Dan Robinson and Fritzie, Don Friedlen, Jackie and I, and sometimes others such as Bill Green or David Ho, would gather pretty regularly at Piccadilly Cafeteria on Friday nights for supper.

Dan had a wry sense of humor. For example, he had one of his daughters with him one day at Piccadilly. He asked me, "Bill, have you met my daughter, Zoe?"

I replied something like, "Hi Zoe - nice to meet you." Then Dan said, "Oh, this isn't Zoe - this is Danielle." Another time, after being in the hospital with breathing difficulties (he had pulmonary fibrosis, I believe), he told me that a nurse had asked him how his breathing was doing, to which Dan replied, "Oh, it comes and goes." Of course the nurse didn't get the joke at all.

Dan was an excellent teacher as well as a brilliant mathematician. He kept a plaque on his office wall given to him by one of his Honors classes. The inscription read, "Best Damn Prof", if I remember correctly.

-Bill Smythe

A student came in for advising. As they looked at her transcript she said that her name had changed because she had gotten married over the summer. Dan then said, "I don't remember advising you to do that."

-Bill Green

My formative mathematical classes were all with Daniel Robinson: Real Analysis I & II and Abstract Algebra I & II. By the time I took Dr. Robinson's courses, he had been teaching mathematics for forty years, and had refined his routine to rote. He performed remembrances of precise logical arguments at the chalkboard, looking occasionally to the floor and smiling to himself at points he thought particularly clever.

Dr. Robinson instilled in us a firm sense of proof and attention to detail—something that continues to serve me as well as anything else I learned in college. He teased at all of the conditions of a theorem, showing how each was essential via counterexamples. He proved the most general form of a theorem that could be presented and proved at an introductory level.

Dr. Robinson's classes were where I learned to scrap my first draft proofs with their scribbles, stricken lines and white out, and present only the nicely written final version of my arguments. Dr. Robinson showed us just this respect with his lectures and handouts and would accept nothing less. I found Dr. Robinson to be an honest man with good taste who stayed with his favorite subject until he died.

-David Eger

Notes from the ProofWriters...

Dear *ProofReaders*,

The little journal in your hands is the first issue of our School of Mathematics (SOM) newsletter.

Almost everybody connected to Tech has emotional ties to the SOM. Many honed their math skills here, some got their first F's and almost everyone has been exposed to the dry sense of humor that mathematicians sometimes possess. The goal of this newsletter is to renew your emotional connection to the SOM and to show you that this place is thriving and is as lively as ever.

As we, your intrepid editorial team, began to explore newsletter possibilities, we found a wealth of newsworthy accomplishments throughout the Tech math community. The quality and the amount of material collected by Rena Brakebill was monumental and exceeded all of our expectations.

The striking layout and cover design of this newsletter we owe to the skill of Janet Ziebell in the College of Sciences. Producing this first newsletter was possible only because

of her invaluable assistance. Our thanks also to Julie Aiken who suggested the clever name *ProofReader*.

Michael Loss instigated this whole enterprise, and nudged us along with humor and patience as we stitched it together. We got many faculty members involved; a number wrote articles, but Cathy Jacobson took it upon herself to edit every single article in this newsletter. If it reads gracefully, you must assume that it was Cathy's editorial job. The responsibility for the accuracy of the content stays, of course, with the person who wrote it in the first place.

Our goal is to have a newsletter once every year and we need your support. If you have any story related to the SOM, please let us know about it at editor@math.gatech.edu. Furthermore, give us feedback of any kind. We promise to read it. We also promise to remember praise!

...the Editorial Team



Cathy Jacobson

Rena Brakebill

Michael Loss

Cover Image: Carl Friedrich Gauss, painting, c. 1850, by Christian Albrecht Jensen (1792-1870), used with the permission of akg-images, London, The Arts & History Picture Library.

This publication has been printed on FSC 100% Pure premium paper made entirely from virgin fiber, ensuring that all of the trees used to manufacture these papers come from responsibly-managed, sustainable forests. This paper is also Carbon Neutral because the manufacturer, Neenah, is a member of the Chicago Climate Exchange (CCX), the world's first and North America's only voluntary, legally binding greenhouse gas emission reduction registry and trading system. Neenah paper has committed to track, report and reduce greenhouse gas emissions. These reductions and additional offsets that Neenah has committed to will offset 100% of the emissions associated with the manufacturing of this paper. This paper is also manufactured with 100% renewable energy. Now feel free to recycle this publication.

Let us hear from you!
Alumni Classnotes Information Needed

What’s going on in your professional or personal life? Tell us all about it.

Name: _____
E-mail Address: _____
Degree and Class: _____
Snail mail Address (New?) _____

Please send your information and photos to: *ProofReader* Editors, School of Mathematics, Georgia Institute of Technology, Atlanta, GA 30332-0160; or e-mail information to: editor@math.gatech.edu. If accepted, we reserve the right to edit *ProofReader* submissions for length and style.



Why Make A Gift



Ranked among the top 25 mathematics’ departments of all public universities, the School of Mathematics has a solid reputation as a nationally recognized institution for mathematics. Private support for students and faculty is essential for the School to attract the very best and brightest minds needed for improving the quality of research and teaching.

For more information about supporting the College of Sciences, please contact:

Philip Bonfiglio
Director of Development
College of Sciences
Georgia Institute of Technology
Atlanta, GA 30332-0365
Direct Line: 404-894-3529
Fax: 404-894-7466



College of
Sciences

School of Mathematics
Georgia Institute of Technology
Atlanta, Georgia 30332-0160 U.S.A.

Postage

Return Service Requested