

View from the Chair's Office - Mel Hochster



This has been an exciting year for the Department, and certainly for me as Chair. We hired six new faculty members: Assistant Professor Dmitriy Boyarchenko (representation theory), and Associate Professors Thomas Lam (combinatorics), Kartik Prasanna (number theory), and Michael Zieve (algebra and number theory) are already here, while Associate Professor David

Speyer (tropical geometry) and Professor Mark Rudelson (analysis) will arrive in 2010-11. New faculty are profiled on page 4. Daniel Forger was promoted to the rank of Associate Professor with tenure, and Stephen DeBacker, Harm Derksen, and Mattias Jonsson to the rank of Professor. See page 3 for more faculty highlights.

We mourn the loss of our longtime friend and colleague, Professor Emeritus George Piranian (p. 16). He will be long remembered.

Al Taylor retired this year after many years of service to the Department, including two three year terms as Chair. He will be greatly missed, but I am hoping and expecting that he will still be around the Department a great deal. Dee Huddock and Rosemarie Aris retired from our staff this year, and I wish them the best while at the same time wonder how we will survive without them.

The Regents have awarded Bill Fulton the Oscar Zariski Distinguished University Professorship in Mathematics, and Karen Smith became the new M. S. Keeler Chair in Mathematics, the position formerly held by Bill.

An external review of the Mathematics Department was conducted during the third week in March by a Committee consisting of Michael Artin, Rob Calderbank, Herb Clemens, George Papanicolaou and Karen Uhlenbeck. Their assessment of the Department was very positive—here is the first paragraph of the report:

“The quality of the Mathematics faculty is outstanding, and the Department is the center of a vibrant mathematical community. The great variety of advanced courses makes

Fulton Named Distinguished University Professor

Professor William Fulton has been named the Oscar Zariski Distinguished University Professor of Mathematics. Appointment to a Distinguished University Professorship is one of the highest honors conferred by the University upon a faculty member. Mathematics faculty members Hyman Bass, Mel Hochster and Professor Emeritus Fred Gehring previously received this recognition.



Fulton received a Ph.D. in mathematics from Princeton University in 1966 and came to U-M in 1998 following a distinguished career at Brown University (1970-87) and the University of Chicago (1987-98). He was appointed as the first M.S. Keeler Professor of Mathematics. Fulton was elected to the National Academy of Sciences in 1997, and to the American Academy of Arts and Sciences in 1998. In 2000 he was named a Foreign Member of the Royal Swedish Academy of Sciences. These are honors that go only to the very top tier of mathematicians in the world.

Although his interests are very broad, most of Fulton's work has been in the field of algebraic geometry (the study of geometric properties of solutions of polynomial equations) and neighboring areas. Since a great many of the most important problems in mathematics and

Inside

View from the Chair's Office	1
Fulton Professorship	1
External Review	2
Faculty News	3
New Faculty	4
Al Taylor Retires	5
Calculus Concept Inventory	6-7
Graduate Program News	8-10
Undergraduate Program	11-12
Actuarial Program News	13
Donors	14
Alumni News	15
In Memoriam	16
Development Highlights	17
Math T-shirts	18
Alumni Reply Form	19

External Review

View from the Chair's Office

(continued from page 1)

This year the Department was fortunate to have an external review done by several outside experts in the field. Departments at major universities regularly undergo review by peers to provide feedback on current operations, corroboration on successes, and advice for possible improvements.

The review committee consisted of Chair Robert Calderbank (Princeton), Michael Artin (M.I.T.), Herbert Clemens (Ohio State), George Papanicolaou (Stanford), and Karen Uhlenbeck (Texas). Their three day visit in March, 2009, included meetings in the Department with all levels of faculty, as well as graduate and undergraduate students. The committee also met with deans and associate deans in the College of Literature, Science and the Arts and the Rackham Graduate School. Their findings were presented in an extensive report to College and Department administration.

The committee referred to the Department as the center of a vibrant mathematical community. It praised the active success of the applied mathematics research and interdisciplinary activities. The introductory Calculus program and the Inquiry Based Learning project were recognized as being outstanding components of the curriculum. The committee felt that U-M's commitment to mathematics education distinguished it among the top tier mathematics departments.

Upon examining the composition of the faculty, the committee encour-

aged the Department to continue hiring in the applied mathematics programs, with particular emphasis on developing joint appointments with other disciplines such as business, engineering, education, and statistics. The committee cited that the large number of term assistant professors—or postdoctoral faculty—contribute greatly to the dynamic atmosphere of the Department. These term professors are an integral part of the instructional core, and contribute to the vibrant research environment.

Once again the Michigan Calculus program was cited as a major strength of the Department (see page 6 for more information). The committee felt that the program could be enhanced if more senior faculty were involved in both the Introductory Calculus training program and the Inquiry Based Learning initiative. The committee recognized the striking increase in undergraduate math majors—from 125 in 2000 to 345 currently. Approximately 50% of the majors are in the Actuarial/Financial track. The committee was impressed by the Actuarial program's longevity and its established network of alumni, as well as connections with insurance and pension companies.

The graduate program was cited as having a high completion rate and a low average time to degree. The committee indicated that the number and variety of graduate courses and seminars offered is “almost unparalleled” at other institutions. The satisfaction of the graduate students with their education, as well as the instructional training they received, is high relative to other U-M departments. The committee encouraged the Department to continue recruiting underrepresented minorities, and to partner with other units in recruiting activities.

The Department is pleased to have had the opportunity to showcase our successes to experts in the field. The useful feedback will be considered by the Department and College when developing future goals.

Michigan attractive to graduate students and potential faculty.” During the Fall Semester there will be a dialogue between the Department and the College concerning the results of the External Review (see article on page 2).

The Department's interactive method of teaching calculus in Math 115 did impressively well in a multi-institution assessment made using a new Calculus Concept Inventory examination that tests the students at the beginning and end of the course in order to factor out the effect of prior background in the subject (see pages 6-7).

The Department is still planning to make space available on its website for former and current students, faculty, visiting scholars, and staff, as well as their families to provide contact and brief biographical information. If you return the form on page 19 we will be in touch with you about this. Once this is started, information about how to participate will be available on our website.

Everyone knows that economic times are hard, and the State of Michigan has serious problems. The University of Michigan has fared reasonably well under these circumstances, partly because, increasingly, much of the general fund comes from tuition rather than from state appropriations, and partly because income from endowment is averaged over a seven year interval. Nonetheless, there will likely be tough times ahead, and the Provost has a three year plan that will involve taking a close look at all activities and deciding which ones are the most important to continue if resources are very limited. This will undoubtedly be a challenging time for the University and the Department.

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See more news on our website
www.math.lsa.umich.edu

Faculty Kudos

Hyman Bass was recently elected to the National Academy of Education. He is one of ten education leaders elected to membership this year for their pioneering efforts in educational research and policy development. The National Academy of Education is an honorary society that currently has 174 members, who are elected on the basis of outstanding scholarship or contributions to education.

Jeffrey Lagarias gave the 2009 Erdős Memorial Lecture at the March Spring Central Section Meeting of the American Mathematical Society. His talk, "From Apollonian circle packings to Fibonacci numbers," described results in number theory and group theory that arise from Apollonian circle packings, and contrasted some of the properties relating to the circles' curvatures with those of Fibonacci and Lucas numbers. The Erdős Memorial Lecture is an annual invited address named for the prolific

mathematician Paul Erdős, who died in 1996.

Joel Smoller received the George David Birkhoff Prize. The prize is awarded jointly by AMS and SIAM once every three years for an outstanding contribution to "applied mathematics in the highest and broadest sense."

The brief citation for the 2009 award states "To Joel Smoller for his leadership, originality, depth, and breadth of work in dynamical systems, differential equations, mathematical biology, shock wave theory, and general relativity." More detailed information is available at <http://www.ams.org/prizes/birkhoff-prize.html>



Robert Megginson received the Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics from the Mathematical Association of America. The award is intended to be the most prestigious for service offered by the Association, and honors distinguished contributions to mathematics and mathematical education.

Actuarial Program Director, **Curtis Huntington**, is featured in an article in the Fall 2008 issue of the LSA Magazine. The full article is available on the LSA website.

Stephen DeBacker received a promotion to full professor.

Harm Derksen received a promotion to full professor.

Daniel Forger received a promotion from assistant professor to associate professor with tenure.

Mattias Jonsson received a promotion to full professor.

Keeler Professorship

Karen Smith has been named the M.S. Keeler Professor of Mathematics. The Keeler Professorship was established in 1995 with a gift from Mike Keeler, and was originally held by William Fulton. Smith joined the U-M Department of Mathematics in 1996 as an associate professor, and was promoted to professor in 2001.



Smith received her undergraduate degree from Princeton and her Ph.D. from U-M in 1993. While a graduate student she won a Rackham Disting-

uished Dissertation Award, an Outstanding Teaching Assistant Award, and the Sumner Myers prize for best thesis. Her dissertation solved two outstanding problems in commutative algebra in what was then a relatively new area, tight closure theory, and she was immediately recognized as one of the world's leading experts in the field.

As her research career progressed, Smith connected tight closure to the behavior of differential operators, to certain special module structures on local cohomology, and to the cohomology of bundles on algebraic varieties. All of her research is characterized by amazing originality, imagination and perception. Smith's recognition for her research includes a National Science Foundation

Postdoctoral Fellowship and CAREER Award, Sloan Research Award, Fulbright Award from Finland, and the Satter Research Prize from the American Mathematical Society.

In the Department, Smith's mentoring of young mathematicians and teaching record have both been stellar. She has supervised eight Ph.D. dissertations and has several current students. Her presence in the Department and research capabilities help to attract young algebraic geometers. She willingly takes on courses that other faculty may be reluctant to teach. In recognition of her success, Smith has received the Neary Award for Faculty Excellence and a Faculty Recognition Award, both of which are significant honors from U-M.

New Faculty

Dmitriy Boyarchenko

Dmitriy Boyarchenko joined the Department in September 2009 as an assistant professor. He received his bachelor's degree from the University of Pennsylvania, and his Ph.D. from the University of Chicago in 2007. Since that time he has been an L.E. Dickson Instructor at



the University of Chicago, and was a member of the Institute for Advanced Study in 2008.

Boyarchenko's research has been in the area of geometric representation theory. He produced results in areas as diverse as algebraic geometry, partial differential equations, non-commutative algebra, symplectic geometry, and representation theory.

While at the University of Chicago, Boyarchenko had the opportunity to establish a very solid teaching record and gained experience mentoring at the graduate and undergraduate level. He guided students in the Directed Reading Program through topics such as algebraic number theory, complex analysis, and differential geometry, and directed projects in the Research Experiences for Undergraduates Program.

Thomas Lam

Thomas Lam joined the Department in September 2009 as an associate professor.

Lam received his bachelor's degree from the University of New South Wales and Ph.D. from the Massachusetts Institute of Technology in 2005. Since graduating he has been a Benjamin Pierce Assistant Professor



at Harvard University, and postdoctoral fellow at the American Institute of Mathematics.

Lam's research is in algebraic combinatorics, particularly with problems arising in geometry and representation theory. He has published over 20 papers, several in high-ranking journals, and has some impressive and truly important results. He has been awarded a Clay Liftoff Fellowship, and recently received a Sloan Fellowship. Lam has proven to be an effective instructor, which was recognized at Harvard University with a teaching award in 2008.

Kartik Prasanna

Kartik Prassana joined the Department in September 2009 as an associate professor. He received his master's degree from the Indian Institute of Technology, and his Ph.D. from Princeton University in 2003. He was an assistant professor at the University of California, Los Angeles, and in 2006 was appointed as an assistant professor at the University of Maryland.



Prasanna is viewed as a leader in his generation of number theorists with research that has had significant impact on several of the many subspecialties in the area. His research represents outstanding work, and has appeared in top mathematics journals. In his teaching career, Prasanna has taught a variety of courses for a wide spectrum of students. His efforts were recognized by the University of California with the Robert Sorgenfrey Distinguished Teaching Award.

Michael Zieve

Michael Zieve joined the Department in September 2009 as an associate professor. He received his bachelor's degree from Harvard University, and his Ph.D. from the University of California, Berkeley, in 1996. From 2000-2007,

Zieve was a researcher at the Center for Communications Research at Princeton. He has also held teaching and research appointments at the University of Southern California, the Mathematical Sciences Research Institute, Leiden University, and the Institute for Advanced Study.



Zieve's research touches many areas including algebra, number theory, algebraic geometry, dynamical systems, discrete mathematics, theoretical computer science, and cryptography. He has done extensive study of polynomial functions over various sorts of fields, and has also worked on algorithmic aspects of algebra. Zieve has written 36 papers with 37 coauthors. His gregarious nature and enthusiasm for the subject contribute to his success as a teacher. He was named an Outstanding Graduate Student Instructor at Berkeley. Even when he was out of academia, Zieve sought out opportunities to teach at all levels, working with undergraduates and middle school students through a National Science Foundation Summer Program.

Math Problem

Does there exist a polynomial with integral coefficients, such that $P(0) = 1$, $P(2) = 3$, and $P(4) = 9$?

Answer elsewhere in the newsletter

Al Taylor Retires

B. Alan Taylor, Professor of Mathematics in the College of Literature, Science, and the Arts, retired from active faculty status on May 31, 2009.

Taylor attended the University of Kansas where he received his B.A. in 1961 and M.A. in 1962. He earned his Ph.D. in mathematics in 1965 from the University of Illinois (Urbana). He joined the University of Michigan faculty in 1965 as a T.H. Hildebrandt Research Instructor and was promoted through the ranks to professor in 1974.

Taylor's research is in complex analysis. His early work studied the zeros of analytic functions and their connection with the classification of closed ideals in algebras of such functions. The connection of this work with classical potential theory and the problem of extending it to functions of several complex variables led him to the study of pluripotential theory, a new area of study in the theory of functions of several complex variables. Much of his research throughout the 1970s and 1980s was fundamental in establishing the tools and principles of this field. His latest research has focused on how geometric properties of analytic varieties influence the growth rates possible for plurisubharmonic and analytic functions and the connection of these properties with properties of linear partial differential operators. Considered a generous and prolific writer, Taylor authored or co-authored over 120 research papers.

A well liked and effective lecturer, Taylor taught mathematics courses at all levels, from freshman through graduate. He was the dissertation advisor for ten doctoral students and served on many doctoral committees, both inside and outside the Mathematics Department. Taylor established a seminar on Teach-



ing Mathematics whose audience included faculty from the School of Education and Mathematics that has helped advance the pedagogy of the Department. He worked tirelessly during his tenure in the promotion and support of the Department's introductory calculus program.

Taylor was active in Departmental governance and administration, serving as Chair of the Honors and Doctoral Committees, Associate Chair for Graduate Affairs, and six years as Department Chair (1994-97, 1998-01). During his tenure as Chair, the Department saw a surge in the hiring of faculty in pure and applied mathematics. He was instrumental in bringing very strong tenured faculty members to the Department, as well as outstanding young mathematicians. His leadership helped to establish the Applied and Interdisciplinary Mathematics Graduate Program. Taylor was instrumental in establishing the Mathematics Career Day, bringing alumni to campus to talk to students about career options for mathematics majors, as well as the Mathematics Awards Ceremony that recognizes outstanding students.

Besides his outstanding service to the U-M, Taylor's service to the mathematics community included six years as Chair of the Mathematical Reviews Editorial Committee and ten years as Associate Treasurer and Member of the Board of Trustees of the American Mathematical Society. In 1995 Taylor was named an Alexander von Humboldt Senior Fellow. He received the Excellence in Education Award from the College of Literature, Science, and the Arts in 1992 and 1996.

William Fulton

(continued from page 1)

science lead to such equations, the field has long stood at the center of mathematics. Fulton's presence in the Department helped to transform an already strong, important and vital research group into a leading center of algebraic geometry in the United States, and arguably the world.

Through his research, writing and teaching, Fulton has set the shape of large parts of the landscape of contemporary algebraic geometry. His famous book, *Intersection Theory*, was awarded the Leroy P. Steele Prize for mathematics exposition by the American Mathematical Society. His major research thrust currently is the writing, with several coauthors, of three books, on toric varieties, equivariant cohomology, and stacks.

Fulton's devotion to the cause of education is evidenced through his success as a mentor of students and young faculty. He has been instrumental in shaping several generations of students and young researchers. His presence in the Department has attracted many strong postdoctoral researchers, and helped to secure permanent faculty members who also had offers elsewhere.

Fulton honors Oscar Zariski (1899-1986) with the naming of this Professorship. Zariski was one of the most influential algebraic geometers of the 20th century. He completed his doctorate in mathematics at the University of Rome in 1924, and immigrated to the United States in 1927. Zariski served on the faculty of Johns Hopkins University until 1947, and then moved to Harvard, where he remained until his retirement in 1969. His work reformulated algebraic geometry in terms of modern algebra and provided the basis for its 20th century development. Their paths crossed in 1980 when Fulton solved a famous conjecture of Zariski about plane curves.

Calculus Concept Inventory

The U-M Mathematics Department has for many years had a unique focus on Calculus teaching. The instructional methods and teacher training have been recognized over the years as innovative and effective among its peer institutions. This year the U-M participated in a test of conceptual gain in understanding using the Calculus Concept Inventory (CCI).

Background

The CCI was developed under an NSF grant by a panel of experts led by mathematician Jerome Epstein of Polytechnic University. The instrument is designed to test the concepts of differential Calculus with 22 multiple choice questions in the form of a pre-test and post-test. The normalized gain of the class is determined by the percent of correct answers using the following formula:

$$\text{Gain} = (\text{mean post-test score of class} - \text{mean pre-test score of class}) \div (100 - \text{mean pre-test score of class})$$

Studies on similar inventories used in other academic subjects, particularly Physics, show that the normalized gain is independent of students' prior knowledge, but highly related to teaching methodology. The Physics research has indicated that classrooms that are "interactively engaged" (*i.e.*, students are continually engaged in developing concepts and strategies to solve problems, testing solutions, and receiving immediate feedback), show more significant normalized gains than traditional lecture classrooms. Prior to the fall of 2008, the CCI had been administered to approximately 2000 students in 25 universities and colleges. The normalized gains from all schools were very low, ranging from 0.08 to 0.20. Exceptions to these results were from three specific instructors striving to teach in an interactively engaged (IE) style.

U-M Testing and Results

In the fall 2008 semester the CCI was administered to all sections of Calculus I at U-M. There were 51 sections, each with 32 or fewer students. Instructors in the course have full responsibility for teaching their individual sections. All new math instructors at U-M (faculty and graduate students) attend a week-long training workshop designed to help them teach in the IE style. For the semester, 96% of the students in Calculus I took both the pre- and post- CCI tests. On the post-test, students were asked to rate the perceived interactivity level of the classroom, and the percentage of time spent on interactively engaged activities.

The U-M Calculus program achieved outstanding results on the CCI. The average gain over all 51 sections was 0.35, and 10 sections had a gain of 0.40 to 0.44. These 10 highest scoring sections also had the highest scores for perceived interactivity, and were reported as spending the most time on interactively engaged activities.

U-M Calculus Training

It is clear that the IE style of teaching can be fostered and developed; over one third of the Calculus I sections at U-M in the Fall 2008 semester were taught by instructors new to the course. All new instructors within the Mathematics Department, including graduate students, post-doctoral faculty and tenure-track faculty, participate in a week-long training program that introduces the concepts of the IE classroom. This hands-on training includes activities for the classroom, actual role playing and practice, and handling challenges that may arise.

Karen Rhea, a senior lecturer with the Department, is the director of the Freshman-Sophomore program and manages the training program as well as the Calculus I course. "The instructor training is one of the significant factors in the success of our Calculus program," Rhea says. "I believe that this type of training is unique on campus." In addition, there are weekly meetings for the Calculus I instructors to discuss activities and provide feedback and support. While each instructor independently manages their sections of the course, there is a great deal of collaboration. From the initial training, the instructors bond both professionally and socially, helping them to acclimate to the Department.

The conceptual understanding of the students in all of the introductory courses is continually assessed through regular quizzes as well as standardized exams. "I am pleased that our students have shown significant conceptual gains as measured by the CCI" says Rhea. U-M Mathematics will continue to encourage the IE teaching style in Calculus I and other courses, in particular the Inquiry Based Learning courses. In all of these courses, there is an emphasis on the underlying *ideas* of the course as well as development of skills. In the related articles, two instructors share their experiences with learning and teaching Michigan Calculus.



Calculus students working on group projects

***Join us for the Michigan Reception at the
Joint AMS Meetings in San Francisco, CA,
Friday, January 15, 2010
5:30–7:00 PM***

Pacific Room J. San Francisco Marriott

www.math.lsa.umich.edu/alumni

Interactively Engaged (IE) Classrooms from the Instructor's View

Here a postdoc and graduate student share their experiences teaching Michigan Calculus in an IE classroom for the first time.

Christopher Mooney

Christopher Mooney joined the Mathematics Department in September 2008 as a postdoc assistant professor. He received his Ph.D. from UW-Milwaukee. His research is in the area of geometric group theory.



Coming into the calculus program at Michigan was a novel experience for me. Having taught for the previous six years using the traditional lecture style with its traditional focus on computations and proofs, the movement to this new paradigm was certainly challenging. I quickly became a convert, however, when I discovered the amazing fact that students really can learn underlying ideas. Students who are taught under the traditional lecture style may learn to compute the derivative or integral of a function, but more often than not they do not understand the reasoning. For the engineers and accountants going into the field, it is much more important that they understand the meaning of the derivative rather than simply how to compute it. But if they forget how to take the derivative and remember why they need to, they are much better off than if they simply remember the computation, which is something any computer can do.

For me there are two key new ideas in this nontraditional way of teaching calculus. The first is an increased emphasis on understanding and interpretation rather than simply on computation. The book we use is especially helpful in facilitating this. It has more narrative than books I have used in the past, and the thought-provoking problems usually had some real-world context. One of the problems which will remain etched in my memory as the “Classic Michigan Calculus Problem” is that of interpreting the derivative in the simplest possible terms. Of course the students find this exercise particularly challenging, but it was a very useful application of using derivatives to solve word problems.

The second new idea is the practical side of the first. Through a movement away from lecture and towards group work and open discussion in the classroom, students develop a deeper understanding of the subject. Students would work in groups, with me moving from group to group watching them struggle and discuss. I would find a student who had the correct answer and have them do it on the board. The students’ natural nervousness abated when they discovered that they didn’t have to get their answer perfect. As a class we would help them fix their mistakes and everyone would learn. The conceptual understanding of the subject is strengthened when

students use and experiment with new ideas immediately upon being introduced to them.

None of this is possible without the effective training that we received. I was definitely on board with the conceptual emphasis, but the movement towards group work and away from lecture I found quite uncomfortable. The trainers emphasized the importance of it and modeled it for us, which helped immensely in implementation. I discovered that the students were much more engaged with the concepts than when they simply watched me do it on the board. I now find this teaching style to be more effective and enjoyable for both parties.

Geoffrey Scott

Geoffrey Scott joined the Mathematics Department as a graduate student in 2008. He received his undergraduate degree from Dartmouth College and is interested in studying topology.

Throughout the week of teacher training, the program directors make it clear that calculus is taught differently at Michigan. Through role-playing sessions, we learn not only the basics of lecturing, but also techniques to make class engaging and interactive, and ways to emphasize conceptual understanding above mere symbol manipulation.

Like all instructors in the calculus sequence, I lecture for only about half of the allotted class time. During the other half, the class works on problems while I visit with small groups of students at a time. This practice helps students internalize the lesson before class ends. At most schools, a student could attend a lecture on Monday and be unaware they need help until they attempt their homework several days later. At Michigan, since students work on problems during class, we can immediately resolve any confusions that may arise.

Towards the goal of emphasizing conceptual understanding, Michigan has adopted non-traditional syllabi and assignments for the calculus sequence. To be sure that students are absorbing the concepts, we require them to work weekly with a group of peers on difficult problems, and to hand in not just their solutions but also a detailed account of the reasoning behind their work. Since most groups arrive at the correct numerical solution to each problem, their homework grade is based mostly on the soundness and completeness of their reasoning.

Many incoming students expect their intro calculus class to be lifeless. By making class a cooperative and interactive experience, we ensure that they’re engaged. I feel that most students leave the class understanding the material on a quite deep level. It makes the class very satisfying to teach.

2008-09 Graduate Program Fellowships & Awards

The Wirt and Mary Cornwell Prize in Mathematics

Paul D. Johnson
Alan M. Stapledon

Mathematics Scholarship Fund

Mark Shoemaker

Arthur Herbert Copeland, Sr. Memorial Scholar

Samuel Altschul
Jordan Watkins

Cameron & John Courtney Scholarship

Sarah Mayes
Geoffrey Scott

Carroll V. Newsom Scholarship

Aubrey daCunha

CONACYT

Gerardo Hernandez
Luis Nunez Betancourt

Fulbright Scholar

Richard Vasques

E.S. & A.C. Everett Memorial Scholarship

Darragh Rooney

G. Cleaves Byers Endowment

Sara Lapan

Gabrielle & Sophie Rainich Fellowship

Fidel Jimenez

Luther Claborn Mathematics Fellows

Florian Block

Juha Heinonen Memorial Graduate Student Fellowship

Qian Yin

Mathematics Alumni/Alumnae Scholarship

Andrey Mishchenko
Nicholas Rupprecht

Mathematics Department Graduate Fellowship

Timothy Ferguson
Aurel Fulger
Seung Jin Lee

Zachary Scherr
Austin Shapiro
Paul Shearer
Brian Wyman

Mathematics Research Assistantship Fellowship

Benjamin Weiss

National Physical Science Consortium Fellowship

Marie Snipes

National Defense Science and Engineering Graduate Fellowship

Michael Chmutov
Ross Kravitz

National Science Foundation Fellow

David Constantine

Natural Science & Engineering Research Council of Canada Scholarship

Eugene Eisenstein

President's Challenge for Graduate Support

Peter Bosler
Max Glick
Robin Lassonde
Jeffrey Meyer
Ashley Selegue

Rackham One-Term Dissertation Fellows

Marc Krawitz
Nicolas Rupprecht
Hao Xing

Rackham Predoctoral Fellow

Cagatay Kutluhan
Kevin Tucker

Rackham Science Award (RSA)

Ricardo Portilla
Ashley Wheeler

Research Training Grant (RTG)- Algebra

David Anderson
Jonathan Bober
Daniel Hernandez
Brian Jurgelewicz
Kelli Talaska

Chelsea Walton
Emily Witt

Research Training Grant (RTG)- Geometry

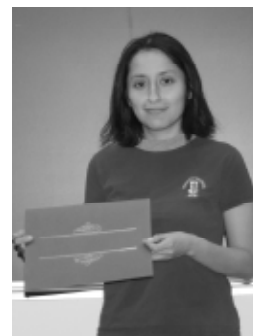
Christopher Hammond
Paul Johnson
Aaron Magid
Johanna Mangahas
Kyle Ormsby
Felipe Ramirez
Jordan Sahattchiev
Crystal Zeager

Sumner B. Myers Memorial Prize

Susan Sierra

Departmental Spring Scholarship

Sohhyun Chung
William Gignac
Huiying Gu
Shawn Henry
Xueying Hu
Yu-Jui Huang
Hyosang Kang
Jae Kyoung Kim
Marc Krawitz
Kin Kwan Leung
Sijun Liu
Zhipeng Liu
Linqun Ma
Joseph Marincel
Ajinkya More
Hieu Ngo
Tomoki Ohsawa
Kristofer-Roy Reyes
Julian Rosen
Lindsey Selegue
Luis Serrano
Nathan Totz
Aditi Vashist
Michael Von Korff
Ting Wang
Benjamin Weiss
Nina White
Jinchen Wu
Yilun Wu
Zhengjie Xu
Zhixian Zhu



Recent Ph.D. recipient
Liz Vivas

Recent Doctorate Degrees

Tigran Ananyan completed his dissertation “*Topics in Tight Closure Theory*” under the direction of Mel Hochster. Tigran will be an assistant professor at Adrian College.

David Anderson completed his dissertation “*Degeneracy and G_2 Flags*” under the direction of William Fulton. He will be a postdoctoral fellow at the University of Washington.

Arvind Baskaran completed the dissertation “*Modeling and Simulation of Hetero-epitaxial Growth*” under the direction of Peter Smereka. Arvind will be a postdoctoral fellow at the Institute for Pure and Applied Math at UCLA.

Jonathan Bober completed his dissertation “*Integer Ratios of Factorials, Hypergeometric Series, and Related Step Functions*” under the direction of Jeffrey Lagarias. He will be a postdoctoral fellow at the Institute for Advanced Study.

Katarina Bodova completed her dissertation “*Topics in Applied Stochastic Dynamics*” under the direction of Charlie Doering. She will be a postdoctoral fellow at Comenius University in Slovakia.

David Constantine completed his dissertation “*Hyperbolic Rank-Rigidity and Compact Forms of Homogeneous Spaces*” under the direction of Ralf Spatzier. He will be a L.E. Dickson Instructor at the University of Chicago.

Ellen Eischen completed her dissertation “ *P -adic Differential Operators on Automorphic Forms and Applications*” under the direction of Chris Skinner. She will be a Boas Assistant Professor at Northwestern University.

Oscar Fernandez completed his dissertation “*The Hamiltonization of Non-holonomic Systems and its Applications*” under the direction of Tony Bloch. He is an AGEP research fellow at U-M.

Leo Goldmakher completed his dissertation “*Multiplicative Mimicry and Improvements of the Polya-Vinogradov Theorem*” under the direction of Kannan Soundararajan. He will be a postdoctor-

al fellow at the University of Toronto.

Russell Golman completed his dissertation “*Essays on Population Learning Dynamics and Boundedly Rational Behavior*” under the direction of Andreas Blass. He will be a postdoctoral associate at Carnegie Mellon University.

Hester Graves completed the dissertation “*On Euclidean Ideal Classes*” under the direction of Nicholas Ramsey. She will be a Coleman Postdoctoral Fellow at Queen’s University in Canada.

Christopher Hammond completed his dissertation “*Invariants of Transformation Groups Acting on Real Hypersurfaces in Complex Spaces*” under the direction of David Barrett. He will be an assistant professor at Texas A & M University.



Associate Chair Sergey Fomin & Kyle Hoffman

Kyle Hofmann completed his dissertation “*Triangulation of Locally Semi-Algebraic Spaces*” under the direction of Mircea Mustata. He will be an applied research mathematician at the National Security Agency.

Paul Johnson completed his dissertation “*Equivariant Gromov-Witten Theory of One Dimensional Toric Stacks*” under the direction of Yongbin Ruan. He will be a postdoctoral research fellow at Imperial College in London.

Shin-Yao Jow completed the dissertation “*Mori Dream Spaces and Okounkov Bodies*” under the direction of Robert Lazarsfeld. Shin-Yao will be a lecturer at the University of Pennsylvania.

Wansu Kim completed the dissertation “*Galois Deformation Theory for Norm Fields and its Arithmetic Applications*” under the direction of Brian Con-

rad. Wansu will be a Chapman Fellow at the Imperial College in London.

Ryan Kinser completed his dissertation “*Rank Functors and Representation Rings of Quivers*” under the direction of Harm Derksen. He will be a postdoctoral fellow at the University of Connecticut.

Cagatay Kutluhan completed the dissertation “*Floer Homology and Symplectic Forms on $S^1 \times M$* ” under the direction of Dan Burns. Cagatay will be a postdoctoral fellow at the Mathematical Science Research Institute at Berkeley.

Michael Lieberman completed his dissertation “*Topological and Category-Theoretic Aspects of Abstract Elementary Classes*” under the direction of Andreas Blass. He will be a lecturer at the University of Pennsylvania.

Aaron Magid completed his dissertation “*Deformation Spaces of Kleinian Surface Groups are not Locally Connected*” under the direction of Dick Canary. He will be a NSF Postdoctoral Associate at the University of Maryland.

Ray Maleh completed his dissertation “*Fast Sparse Approximation Algorithms for Medical Imaging*” under the direction of Anna Gilbert.

Jessica Metcalf-Burton completed her dissertation “*Information Rates for Secret Sharing Over Various Access Structures*” under the direction of Andreas Blass.

Sourya Shrestha completed the dissertation “*Modeling Transmission and Evolutionary Dynamics of Infectious Diseases*” under the direction of Patrick Nelson.

Marie Snipes completed her dissertation “*Flat Forms in Banach Spaces*” under the direction of Juha Heinonen and Mario Bonk. She will be a visiting assistant professor at Kenyon College.

Alan Stapledon completed his dissertation “*The Geometry and Combinatorics of Ehrhart Δ -Vectors*” under the direction of Mircea Mustata. He will be a postdoctoral fellow at the Mathematical Science Research Institute at Berkeley.

Richard Vasques completed his dissertation “*Anisotropic Diffusion of Neutral Particles in Stochastic Media*” under the direction of Peter Smereka. He will be an associate consultant at McKinsey and Company in Brazil.



Richard Vasques

Liz Vivas completed her dissertation “*Fatou Bieberbach Domains and Automorphisms Tangent to the Identity*” under the direction of Berit Stensones. She will be an assistant professor at Purdue University.

Michael Weiss completed his dissertation “*Mathematical Sense, Mathematical Sensibility: The Role of the secondary Geometry Course in Teaching Students to be like Mathematicians*” under the direction of Hyman Bass. He will be an assistant professor at Oakland University (Michigan).

Marshall Williams completed his dissertation “*Metric Currents and Differentiable Structures*” under the direction of Juha Heinonen and Mario Bonk. He will be a postdoctoral research fellow at the University of Illinois at Chicago.

Hao Xing completed the dissertation “*Analysis of the Option Prices in Jump Diffusion Models*” under the direction of Erhan Bayraktar. Hao will be a postdoctoral research associate at Boston University.

Graduate Student Team Wins Bridge Tournament

A team of five U-M students, four of whom are pursuing their Ph.D. in mathematics, won the Flight C division of the Grand National Teams national bridge championship in July 2009. Teams qualify for the championship by winning their district title, and the event included teams from across the country. The divisions, or flights, are classified on the number of masterpoints accumulated by the players. Flight C is the lowest bracket, reserved for players with under 500 masterpoints (only about 30% of all American Contract Bridge League players have more than 500 master points).

The team, consisting of Mathematics graduate students Brian Wyman, Benjamin Weiss, Max Glick, and Zach Scherr, and U-M music major Zach Wasserman, represented District 12 (there are 25 districts in North America). A sixth member of the team, Jonathan Fleischmann, who did not make the trip, is a 2009 U-M graduate who has been playing with Wasserman since they were kids.

Weiss learned to play bridge at age nine with his grandfather, and started playing seriously with Wyman in gradu-



Zach Scherr, Bryan Wyman, Benjamin Weiss, Zachary Wasserman, and Max Glick

ate school. Wyman has been playing bridge for about six years. “Bridge is a great game that somehow has missed our generation,” he says. “When there are a bunch of younger people in an area that all play the game, they’ll tend to come together.” The team is grateful for the help of unofficial coach Mark Leonard of Ypsilanti. “Mark is a great mentor and mediator. Without his help, I don’t think we’d have come nearly this far.”

The atmosphere in the Department is conducive to their pastime. There is always a lunchtime bridge game hosted by the Chair in the common room, and there are usually games on Friday in the afternoon.

Graduate Research Highlight: A Tetrahedra Packing Breakthrough

Graduate student Elizabeth Chen formulated a system of densely packing tetrahedra the results of which achieved the highest known packing density at that time. In her 2008 article “*A dense packing of regular tetrahedra*” (*Discrete Comput. Geom.* 40, 214–240), Chen used a computer algebra system to optimize placement of the tetrahedra—solid figures with four triangular faces—in a “wagon wheel” type formation, and achieved a density of 77.86%. This was a vast improvement over the previous record of 71.75%. This research showed that tetrahedra can be packed more densely than spheres. Understanding the efficient packing of solids is key in the development of error-detecting and error-correcting codes used in the storage and compression of information for electronic transmission, as well as material science and engineering. A variant of Chen’s ingenious construction has since been developed by other scholars to achieve slightly more densely packed tetrahedra in a lattice formation.

Undergraduate Degree Recipients

Syazrah Abd Salam
Valerie Albers
Elizabeth Allen
Luay Almassalha
Emily Altman
Leandro Ao
Brian Ball
Jeffrey Barry
Benjamin Berman
Rebecca Bernard
Andrew Bollinger
Todd Boynton
Anthony Brune III
Sam Capone
Jose Carlo
Kwan Chan
Hasan Cheema
Daniel Cheong
Cheuk Man Chiu
Young Noh Choe
Bongseog Choi
Min Li Chong
Penn Chou
Sarah Chow
Jaewon Chung
Thomas Church
Bridget Conlon
Ryan Cotton

Sarah Dee
Kevin Dilks
Shiv Dixit
Fei Dong
James Dulin
Sahar Emambakhsh
Sam Espahbodi
Fan Fei
Michael Fenchel
Aaron Fenyes
Christine Ferrini
Michael Filicicchia
Sarah Forney
Stephen Gao
Andrew Giffin
Lauren Gillette
Pei Ying Goh
Blumie Gourarie
Mansi Goyal
Timothy Heath
Evan Herring
Bruce Hicks
Nancy Ho
Douglas Hom
Ju Hong
Varsha Hotchandani
Ping Hsieh
Alex Jacobson

Khizar Jahangir
Nikhil Joseph
Steve Kang
Katen Kapadia
Jenna Keefe
Kimberli Keller
Joo Lee Khoo
Bum June Kim
Megan King
Andrew Klein
Corey Kosch
Zachary Kramer
Anthony Kuehne
Christopher Kurdelski
Michele Lagrasso
Alexander Larson
Elizabeth Lee
Sungjun Lee
Edman Leung
Xuan Liang
Siew Gee Lim
Stephanie Lin
Larry Liou
Haoshun Liu
Hans Shu Lo
Wai Tak Louie
Sohini Mahapatra
Andrew Meier

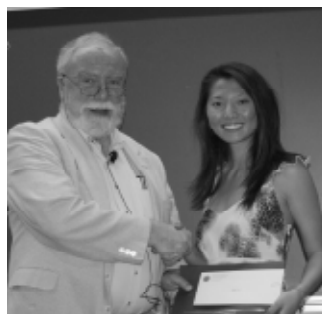
Max Mikulec
Amrit Misra
Galin Mitchener
Emily Mohon
Koki Momose
Derek Moree
Matthew Morlock
Joseph Most
Jessica Moton
Ania Musial
Zhengping Ng
Rose O'Hara
William Patterson III
Geoffrey Purvis
He Wei Quah
Whitney Rutherford
Erica Rutter
Bana Sakr
Emily Samra
Jonathan Schlossberg
Michael Schultz
Christina Seeber
Rahul Shah
Laura Shefner
John Shepard
Seth Siegel
Giffin Slick
James Somers

Eric Sorenson
Avinash Sridharan
Rohitkumar Srinivasa
Kevin Steinhelper
Myung Ki Suh
Cher Yang Tan
Jonathan Tang
Minyi Tang
Sharon Traiberman
Alexandru Trambitas
Tsang Tsang
Arthur Urban
Douglas Vandevusse
Narendra Vempati
Bettie Wade
Matthew Wadel
John Wanielista
Alfredo Wetzel
Katherine Williams
Sean Williamson
Yan Yee Ann Wong
Scott Woods
Gretchen Wrolstad
Britta Wunderlich
Yang Yang
Andrew Yeow
Suellen Yin

Charles Mather, Professor Stephen DeBacker, Paul Lewis, David Montague, Bychinsky Awards.



Professor Curtis Huntington presents a Huntington Award to Julia Kong.



Adam Dearing receives an Outstanding Achievement in Math Award from Professor Curtis Huntington.



Professor Curtis Huntington presents a Huntington Award to Caroline Morel.



Recipients of Outstanding Achievement in Math awards.

Undergraduate Awards

Putnam Competition

The Department's team for the 68th Annual William Lowell Putnam Competition placed 9th out of 405 teams in the competition. This is an outstanding result! The members of the team were Daniel Hermes, Jeffrey Madsen and Timothy Heath. The individual competition included 3627 students from across North America. Daniel Hermes placed highest of the UM students, tied at 65th. The placement of other UM students in the competition included Jeffrey Madsen (115), Zili Huang (189), Timothy Heath (225), Ruthi Hortsch and Paul Lewis (tied at 242), and Alex Carney (tied at 252).

The 25th Annual University of Michigan Undergraduate Mathematics Competition ended in a tie between Zili Huang and Jeffrey Madsen. Garrett Lyon placed third.

Margaret S. Huntington Awards in Actuarial Outreach

Alex T. Albaugh
Andrew D. Brown
Colin E. Fitzner
Mohammad K. Jawed
Julia Kong
Darin J. McLeskey
Kunal S. Mehta
Caroline E. Morel
Muneet K. Parhar
Silu Zuo

Evelyn O. Bychinsky Awards

recognizing underclass students who show exceptional promise in mathematics:

David C. Clyde
Mendel A. Feygelson
Ruthi Hortsch
Paul D. Lewis
Charles T. Mather
David W. Montague

Leon P. Zukowski Prize

recognizing outstanding service in the Mathematics Learning Center:

Benjamin P. Berman

Sumner B. Myers Award in Analysis

Daniel J. Hermes

William LeVeque Award in Number Theory

David W. Montague

Jack McLaughlin Award in Algebra

Wade M. Hindes

Mathematics Alumni/Alumnae Scholarship

Yun Choi

Outstanding Achievement in Mathematics Awards

Cheuk Man Chiu
Daniel T. Cook

Adam E. Dearing
Kevin Dilks
Aaron J. Fenyes
Amrit Misra
Sohini Mahapatra
Zhengping M. Ng
Samuel L. Rosenbaum
Laura E. Shefner

Otto Richter Memorial Prize in Actuarial Science

Siew Gee Lim

CIGNA Award in Actuarial Science

Su Jane Ling
Syed Nabil Shahabudin

Irving Wolfson Award in Actuarial Science

Joshua Z. Lim

Lois Zook Levy Award

recognizing an outstanding Mathematics student who plans to pursue a career in K-12 Mathematics education:

Emily L. Mohon

Michigan Mathematics Merit Scholar

Sam Espahbodi

Outstanding Graduating Senior

Timothy C. Heath



Putnam Competition participants Jeffrey Madsen, Zili Huang and Dan Hermes.



Emily Mohon receives the Lois Zook Levy Award from Chip Levy.



Chair Mel Hochester and Timothy Heath, the Outstanding Graduating Senior.

Actuarial Program News

Our programs in Actuarial and Financial Mathematics are extremely popular and continue to thrive. At last count, just over half of our undergraduate concentrators are enrolled in the Actuarial and Financial Mathematics concentration. Moreover, we have 10 Masters students focusing on Actuarial Mathematics. We currently have 7 Ph.D. students working on problems in insurance and finance, and two others finished their Ph.D.s last year.

Our students are well-recruited by employers. In 2008-2009, representatives from 15 companies visited campus to recruit our students for full-time positions and summer internships. Thus far, for the 2009-10 school year 12 company visits are confirmed, with more to come.

Our student-run actuarial club, Student Actuaries @ Michigan, or SAM, had a busy year. With more than 100 members, this group is one of the more active academically-focused groups on campus. Some of their activities include a field trip to Chicago to visit three actuarial companies and outreach to a local high school to promote the actuarial profession.

Students who are members of SAM and have completed courses related to the professional examinations (for example, Mathematics 425 – Probability for the first examination – Exam P/1) become eligible for a subsidization of their examination fees. These fees, particularly for college students are not trivial. The first two examinations cost \$200 each; the next ones are in the \$300-360 range. With increased enrollments and increased examination fees, the subsidization program has become a significant recurring expense.

Our April 2009 Cecil J. Nesbitt Commencement Lecturer was Thomas Terry (MA 1975), CEO of JP Morgan Compensation and Benefit Strategies. This was the seventh event in this series. It was attended by about 80 people, including graduating seniors, their families, and the faculty. This event is a high point of the actuarial academic year.

In October 2009, students, faculty, and alumni attended the Actuarial Alumni/ae Leadership Council to discuss future directions for the Michigan program. At right is a photo from the meeting.

At their annual meeting in Boston, the Society of Actuaries recognized our Actuarial and Financial Mathematics Program

Director, Professor Curtis Huntington, for his tremendous contributions to the profession by presenting him with a Presidential Award.

We here at University of Michigan also want to recognize and celebrate Professor Huntington's incredible contributions and dedication to our Department, College, University, and the profession at large. In his 16-year career at the U-M, Professor Huntington has worked tirelessly to prosper the actuarial program and the broader undergraduate mathematics program. In fact, one can argue convincingly that he single-handedly rescued the actuarial program at a time that it would have faltered. He has always been generous with his time, energy, and money. It's no secret that giving to the University is a cause that is near and dear to Professor Huntington's heart, and he leads by example.

Our Department is establishing a fund in Curtis Huntington's name that will be used to support the actuarial program. Information on contributing to the fund can be found on our webpage at <http://www.math.lsa.umich.edu/alumni/index.html>

The faculty and students look forward to hearing from you with any comments, questions or suggestions you might have. And, if your travels bring you though Ann Arbor, please let us know so that we can host a visit in our East Hall home.

Kristen Moore, Associate Professor of Mathematics



Actuarial Alumni/ae Leadership Council meeting: Kristen Moore, Susan Smith, Dave Hartman, Jason Flynn, Virginia Young, Curtis Huntington, Gabe Shaheen, Alexa Nerdrum, Alexander Xie (Pres., SAM'09), Tom Levy, Joe Marker, and Richard Ireland (VP, SAM'09). Missing from photo: Dan Arnold (photographer)

Solution to Math Problem

Suppose that $P(x)$ is such a polynomial. Write $P(x) = xQ(x) + 1$. Then $Q(x)$ has integral coefficients and $Q(2) = (3 - 1)/2 = 1$ and $Q(4) = (9 - 1)/4 = 2$. Write $Q(x) = 1 + (x - 2)R(x)$. Then $R(x)$ is a polynomial with integral coefficients and $R(4) = (2 - 1)/2 = 1/2$. Contradiction! Hence, no such polynomial $P(x)$ exists.

Many Thanks to our Generous Supporters

The following individuals, foundations and companies made contributions to the Mathematics Department between September 1, 2008 and August 31, 2009

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John L. Marakas
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Professor Curtis E. Huntington

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Owens-Illinois Charities Foundation

PricewaterhouseCoopers

Qualcomm Incorporated

Towers Perrin

Alumni News

Harold Randolph Dukes (BS 1946) completed the Industrial College of Armed Forces in 1971. He retired from the U.S. Air Force as a pilot and Lieutenant Colonel.

William G. Sutcliffe (BS 1960, PhD Physics U. Delaware 1969) spent four years in the Navy after his undergraduate career. After receiving his Ph.D., he joined the Lawrence Livermore National Lab, and stayed until his retirement in 1999. During his tenure he worked on numerous projects including developing large hydrodynamic and radiation transport computer codes; nuclear waste management and analysis of nuclear weapons systems; nonproliferation of nuclear weapon technology and materials disposition. Since retiring, he continues to serve as a part time consultant for the Lab. He also enjoys flying and providing flight instruction, and spending time with his wife, four children and ten grandchildren.

Mariano M. Mercado, Jr. (MS 1962) is a consulting actuary in the Philippines. He worked with the Philippine Government Service Insurance System from 1960–1968 and later with the Insular Life Assurance Company until 2000 as the company actuary and con-

sultant. During his career he wrote 13 reports and position papers on Philippine companies' insurance experiences and actuarial practices, and co-authored the 15th and 16th reports of the Retirement and Separation Benefit System of the Armed Forces of the Philippines. He also taught mathematics and structural design from 1956 to 1974 at the Manuel L. Quezon University.

Douglas Leonard (BS 1970, PhD Ohio State 1980) is a Professor in the Department of Mathematics and Statistics at Auburn University. He came back to U-M in August 2008 for the first day of the Hochster conference.

Barry Garelick (BA 1971) is an environmental protection specialist with the U.S. EPA. He maintains a keen interest in mathematics and mathematics education. He has published several web articles and blogs on the subject that have garnered extensive interest on the internet.

Christine Schaffran (BS 1971, MA Computer Science Columbia U. 1980) is a research assistant at the New York State Psychiatric Institute.

George Avrunin (BS 1972, PhD 1976) is a Professor at the University

of Massachusetts. In 2008 he started a 3-year term as Head of the Department of Mathematics and Statistics at UMass. His research has shifted almost completely to computer science, and he was named a Distinguished Scientist by the Association for Computing Machinery in 2006. He is an adjunct professor in the computer science department, but his primary appointment, classroom teaching, and administrative duties have remained in the math department.

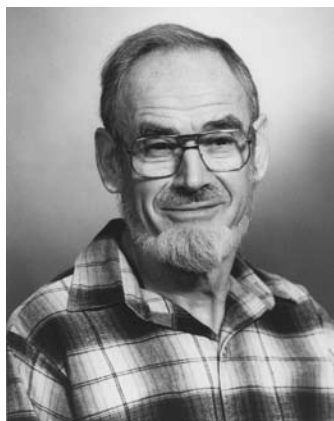
Martin Erickson (PhD 1987), Professor of Mathematics at Truman State University, has recently written the mathematical problem-solving book "Aha! Solutions" (MAA 2008) and the book "Pearls of Discrete Mathematics" (CRC Press, 2009).

E. Deronn Bowen – a.k.a. "Teach" (BS 1997, MA Eastern Michigan 2001, JD Univ. Miami expected 2010) is a Assistant Professor of Mathematics at Broward College and a Lecturer at the Univ. of Miami.

Jennifer (Hohmann) Walsh (BS 2000, MA Education Harvard 2003, MS School Administration Touro College 2006) is the Mathematics Department Chair for Sleepy Hollow Middle School and High School in New York.

In Memoriam - George Piranian

George Piranian, 95, died peacefully on August 31, 2009 at his home of 37 years on Englave Drive, Ann Arbor. George was born to Bertha Piranian (née Walser) and Badwagan Piranian on May 2, 1914 in Thalwil, Switzerland. In 1929 he moved with his family to Utah. When his family returned to Switzerland 2 years later, George remained in the U.S. and was informally adopted by a friend's family so he could continue his passion for education. He attended Utah State Agricultural College, where he earned a B.A. and M.S. in botany. A Rhodes Scholarship allowed him to study for 2 years at Oxford University, where he redirected his studies to mathematics. After spending a summer cycling around Europe, he returned to the U.S. to pursue a Ph.D. in mathematics at Rice Institute in Houston, Texas. As a graduate teaching assistant, George met a student, Joe Louise Mills, whom he married in 1941. In 1943 he completed his Ph.D. dissertation: *A Study of the Position and Nature of the Singularities of Functions Given by Their Taylor Series*.



George joined the University of Michigan Department of Mathematics in 1945 where he remained until his retirement in 1983 and afterwards as Professor Emeritus. In 1954 he became managing editor of the then floundering Michigan Mathematical Journal (MMJ), which, under his leadership, gained international recognition. He had strong ideas about how to run a journal and how to write mathematics. During his 20-year editorship of MMJ, he did not hesitate to make extensive stylistic revisions in manuscripts, sometimes to objections of the authors. His high standards for both the mathematics and exposition of the papers published established the MMJ as a respected publication and viable enterprise for the Michigan Department of Mathematics. George was an extremely active researcher and author himself, and published over 80 papers in complex function theory and related areas. In later years he was especially known for ingenious constructions of counterexamples, which became a specialty of sorts. He has an Erdős number of 1/14. Throughout his career George was very active in the honors program, serving as chair and member of the mathematics honors committee, and counseling honors students at the Department and University level.

His passion for life found many forms. George shared his love for literature by teaching a freshman literature seminar. For over two decades he and his wife, Louise, were active in the University of Michigan Sailing Club, where they taught,

raced, and helped with general service. He was a long time violist with fellow mathematicians in the Sub-Harmonic String Quartet.

Just as his mind was not limited to mathematics, his life was not constrained to intellectual pursuits. By the mid 1950s George was known as the man with a beard who rode his bike to work year around, until his doctor forbade it around 2001. Into his late 80s, he chopped and split all the wood for his and Louise's supplemental wood stove. Throughout his life he and his family spent many summers camping, hiking, and backpacking.

George is preceded in death by his brother, David, and his sister, Ausdrig. He is survived by his wife, Louise; his 5 daughters, Libby, Maggy, Inga, Barbara, and Deb; three grandchildren; great-grand children; and a great-great-grandson.

We Need You!

Want to get involved with the UM Department of Mathematics? Here are some areas where alumni participation is vital. Contact us if you are interested in working with us on these initiatives.

- Recommend the UM mathematics program to students interested in undergraduate or graduate studies.
- Participate in our annual Career Day, held each year in late October/early November.
- Visit the Department for afternoon tea (weekdays at 3:45 sharp) if you are in town for the weekend, including Homecoming, Parent's weekend, or the Presidential Society weekend.
- Be a mentor (in person or via email) to a current student.
- Set up a recruiting program with your company for graduating students.
- Offer internships in your company to mathematics students.
- Allow groups of mathematics students to visit your company.
- Give an informal talk to mathematics students about how you have used your math knowledge.

Email: math.mich@umich.edu
or call 734-647-4462

Development Highlights

First we would like to extend our sincere thanks to all of our supporters this year. It is not said enough how much we appreciate, need, and use all of the donations we received from our alumni and friends. All gifts—large or small, endowed or expendable, student support or general fund—are extremely important and helpful to achieving departmental goals. As indicated in this newsletter, your gifts extend to help many causes in the Department.

This year we received significant support to our Actuarial program in the form of a bequest. Ralph Edwards (MA 1935) passed away in April 2008, three years after his wife Norma (MS 1934). They left a portion of their estate to the Department. This gift will help to continue the excellence of the Actuarial/Financial mathematics program and assure the students have significant professional opportunities for years to come.

In May 2009, Mathematics alumnus Josef Blass (Ph.D 1971) and his wife Ewa Schlaff Blass (MD 1973) established the Maxwell and Marjorie Reade Graduate Fellowship in the Weiser Center for Russian and Eastern European Studies. Maxwell Reade worked tirelessly in his support of graduate students, and his efforts particularly impacted Josef and Ewa Blass. While this fund will support graduate students in Russian and Eastern European Studies, the Department of Mathematics also has an endowment honoring Maxwell Reade. The Emeritus Professor Maxwell Reade fund supports diversity and recruiting efforts at all levels within the Department of Mathematics. It is highly indicative of Maxwell Reade's impact on students that two separate funds at the U-M have been established in his honor.

As mentioned in the Actuarial Highlights column, there is a new fund being established to honor Curtis Huntington and his dedication to U-M and the actu-

arial profession. Additional information regarding the fund and how to donate can be found on our website at www.math.lsa.umich.edu/alumni. An alumnus and his father are in the process of establishing an endowed scholarship fund for the actuarial program. In addition, some monies earned by the Michigan Mathematical Journal have been endowed for the purpose of supporting prizes in undergraduate mathematics. The awards will be specific to various areas of mathematics, and include the Jack E. McLaughlin Award in Algebra and the William LeVeque Award in Number Theory, among others to be determined.

The Alumni Scholarship this year supported both undergraduate and graduate students. Here is some information on two recipients:

Undergraduate Student Yun Choi: Yun hails from Montville, NJ. He first attended U-M in 2003, and joined the U.S. Navy the following year. After serving three and a half years aboard the USS Hawes, including two deployments to the Persian Gulf as a combat systems operator, he was honorably discharged in 2007 and returned to U-M. Yun is entering his senior year in the Honors Program, concentrating in mathematics and economics. He has always enjoyed mathematics, and says after experiencing the excitement of research through the Research Experience for Undergraduates program, he decided to pursue a career in math. Yun feels that math's smaller classes allow for a closer interaction between the students and faculty.

Graduate Student Andrey Kurt Mishchenko: Kurt is a third year graduate student born in Kiev, Ukraine. He moved to New York at the age of four, and eventually attended the City College of New York. Kurt skipped some grades in his educational career, so he started college at age 16 and entered grad school at 19. He is currently studying circle packing under Professor Jeff Lagarias. He chose math as a career because he enjoys and excels at problem solving. He enjoys the social atmosphere of the Department and the many diverse seminars available each week.

Events

Department Colloquium

Every Tuesday at 4:00

American Mathematical Society

2010 Joint Mathematics Meetings

Michigan Reception

Friday, January 15, 2010

5:30 p.m. to 7:00 p.m.

Pacific J Room,
San Francisco Marriott

Marjorie Lee Browne Colloquium

Professor Rodrigo Bañuelos

January 18, 2010

Alexander Ziwet Lectures

Professor Chris Skinner,

January 26, 2010

G.Y. Rainich Lectures

Professor Terence Tao,

March 16, 2010

2010 Michigan Math and Science Scholars Summer Program

Two sessions for qualified high school students:

June 27–July 9, 2010

July 11–July 23, 2010

Please visit our website for additional information on these and other events in the Department.

www.math.lsa.umich.edu

Where's Your Math T-shirt Been?

Last year we asked for photos of you in your Math T-shirts to post on our website. <http://www.math.lsa.umich.edu/tshirts/>
The Math T-shirt was designed several years ago by math alumna Huey Fang (BS 2007) and has been worn proudly around the world! Here we include a few photos we have received. Keep the pictures coming! To order a shirt, contact math-ugrad-office@umich.edu



Undergrad Sam Faught at the Vatican.



Undergrad So-Young Nam at the University of Chicago Oriental Institute.



Undergrad Zili Huang in Budapest.



Undergrad student Karl Lundquist at the Teihuacan Pyramids, Mexico.



Alum Zach Maddock (BS 2008) proposes to Lauren at the 2009 gathering of current and recent Honors Math Students. She accepted!



The Hindes family of Port Huron, MI, with Math undergrad Wade (second from right).



Undergrad Justin Campbell in Manhattan.



Undergrad David Montague fishing in Newago, MI.

What Are You Doing?

We'd like to hear from you! Please complete and return this form for our alumni/ae files. You may mail it to the address below, fax it to 734-763-0937, or email the information to math.mich@umich.edu. See www.math.lsa.umich.edu/alumni/

Name _____

University of Michigan Degree(s) with years & advisors

Degrees from other Universities/Years

Home Address _____

City, State Zip _____

Home Phone _____ E-mail _____

Firm/Institution _____

Position _____ Business phone _____

☐ **This is a new address**

Information about yourself or comments on the newsletter: (unless you request otherwise, we will feel free to mention any of this in future newsletters)

☐ **Check here if you do NOT want this published in the next ContinuUM**

Please mail to Alumni Updates, University of Michigan, Department of Mathematics, 530 Church Street, 2074 East Hall,
Ann Arbor, MI 48109-1043; math.mich@umich.edu; fax 734-763-0937;
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