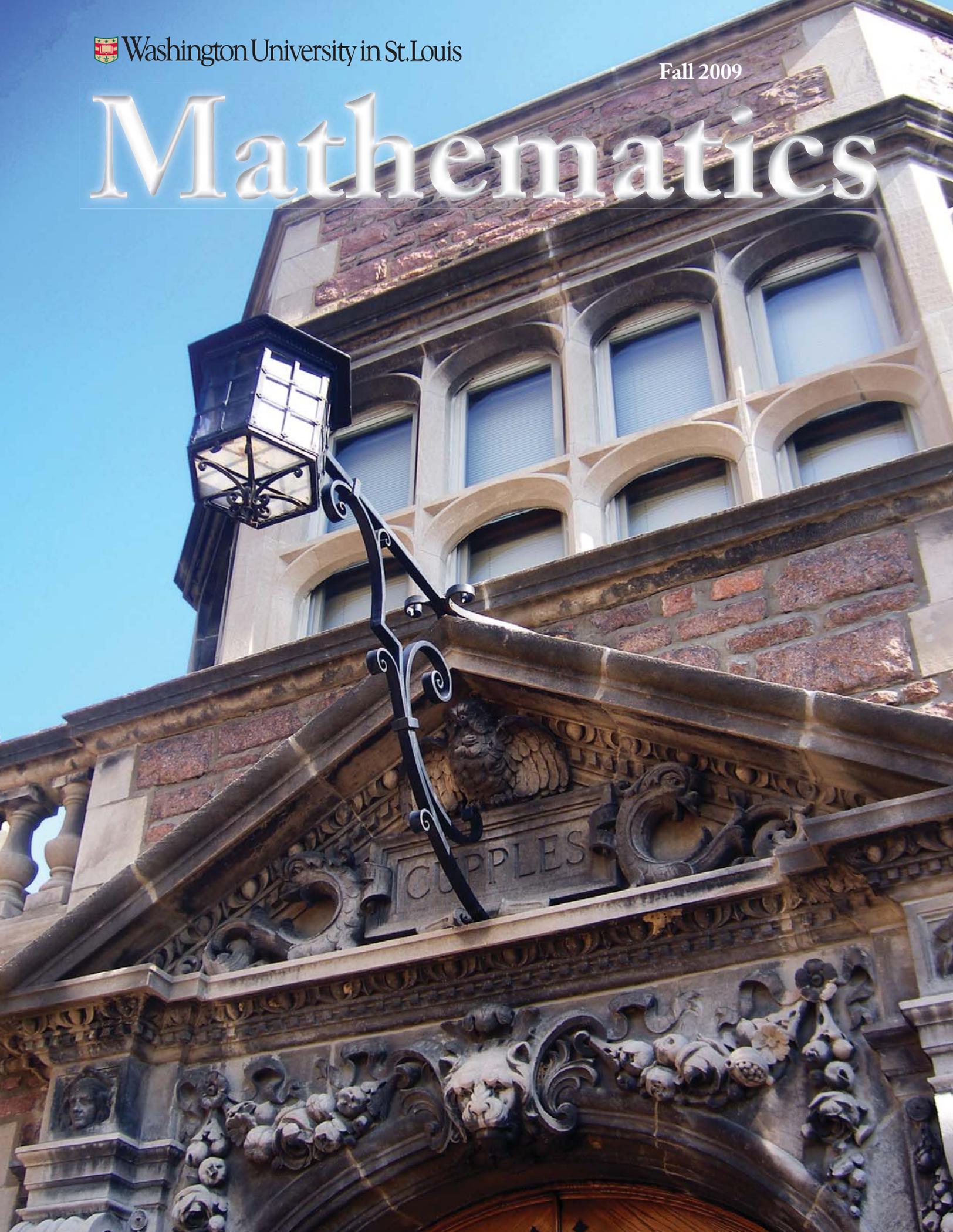


# Mathematics



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## New William Chauvenet Lecturer Kabe Moen

I received my Ph.D. From the University of Kansas in 2009, under the supervision of Rodolfo Torres and Carlos Pérez. My research interests are in classical harmonic analysis, especially weighted inequalities and wavelets.



Kabe & Andrea Moen

Recently, I have been working on more modern techniques in harmonic analysis such as bellman functions and heat flows. When I am not doing math I enjoy playing tennis, running, swimming, cycling and spending time with my wife, Andrea, and our two dogs. We are expecting our first child in August and are looking forward to moving back to Missouri (our home state) to become part of the Department of Mathematics at Washington University.

## Current Research Grants

<i>Principle Investigator</i>	<i>Grant Title</i>	<i>Funding Organization</i>
Quo-Shin Chi	DUPIN HYPERSURFACES AND THE KUIPER CONJECTURE	NSF
Gary Jensen	PROBLEMS IN LIE SPHERE GEOMETRY	NSF
Steven Krantz	COMPLEX GEOMETRY AT THE BANACH CENTER IN WARSAW	NSF
Mohan Kumar	VECTOR BUNDLES ON HYPERSURFACES National Security Agency	NSF
Nan Lin	STATISTICAL AGGREGATION IN MASSIVE DATA ENVIRONMENTS	NSF
John McCarthy	OPERATOR THEORY & COMPLEX GEOMETRY	NSF
Rachel Roberts	FIBRED S-MANIFOLDS AND BEYOND	NSF
Richard Rochberg	PROBLEMS IN FUNCTION THEORY & OPERATOR THEORY	NSF
John Shareshian	ENUMERATIVE ALGEBRAIC AND TOPOLOGICAL COMBINATORICS	NSF
John Shareshian	ALGEBRAIC, TOPOLOGICAL & ENUMERATIVE COMBINATORICS	NSF
Xiang Tang	DIFFERENTIAL GEOMETRY, NON-COMMUTATIVE GEOMETRY & QUANTIZATN	NSF
Guido Weiss	SOUTHWESTERN BELL FOUNDATION	Southwestern Bell

### *Key Personnel on other grants*

Jimin Ding	NEW DATA ANALYSIS METHODS FOR ACTIGRAPHY IN SLEEP MEDICINE	William Shannon,NIH
Nan Lin	PLASTICITY OF THE SYSTEMIC INFLAMMATORY RESPONSE	US NIH
John McCarthy	MONITORING DISEASE AND THERAPY IN DYSTROPHIN-DEFICIENT MUSCLE USING ULTRASOUND	US NIH
Edward Spitznagel	COMPARISON OF COMORBIDITY COLLECTION METHODS	US NIH
Edward Spitznagel	PRESCRIPTION DRUG MISUSE, ABUSE AND DEPENDENCE	US NIH
Edward Spitznagel	CENTER FOR RESEARCH ON MENTAL HEALTH IN SOCIAL SERVICES	US NIH

# MATHEMATICS

## Letter from the Chair

Welcome to the 2009-2010 academic year. What an interesting year we had in 2008-2009. We had the opportunity to host Professor Robert Osserman of Stanford University as the guest speaker for the Roever Colloquium. He gave two marvelous lectures, one to the department and one to the Washington University Lecture Series, on the mathematics and history surrounding the shape of the St. Louis arch. The Loeb Undergraduate Lecture speaker, Professor Ravi Vakil of Stanford, entertained and fascinated our undergraduates with a beautiful talk on doodling.

We graduated 10 Ph.D.s, an unusually large number. They are Haley Abel, Joseph Bohanon, Robert Brieler, Jonathan Browder, Chunlin Fan, James Gill, Emily Ronshausen, Larry Lin, Tim Lott, Bennett Standeven. See *page 7 for further details*

The past year saw the retirements of one of our former Chairs, Ed Wilson, who also served as Dean of the Graduate School. Another former Chair, Gary Jensen will be retiring after taking a sabbatical this year. Yet another of our colleagues, Cleon Yohe, will be retiring after taking a sabbatical in the spring. All these distinguished men have served the department extremely well, as department chairs, committee chairs, and in many other capacities. We look forward to their active presence in the department for years to come.

Last November the department underwent an external review which resulted in a report, issued in January, that, in my judgment, was extremely supportive of the department's goals for the next few years. The recommendation is that the department begin immediately to replenish itself from the current and upcoming retirements through an aggressive hiring effort. Though the economic recession threatens to put this on hold for awhile, some good news came from the Dean of the Faculty of Arts & Sciences in June: We will be conducting a search this fall for two junior positions. A search committee has been assembled and approved by our new dean consisting of Richard Rochberg (chair), Roya Beheshti, Mohan Kumar, Xiang Tang, and Carl Bender (of Physics).

Our senior statesman, the venerable Guido Weiss turned 80 last December. A conference in Bardonecchia, Italy, (a popular ski resort!) was held in June in honor of Guido. Guido remains very active; he was an invited speaker at a conference on Wavelets at DePaul in May, and he is one of our most popular teachers among graduate and undergraduate students.

I was honored to be an invited speaker at three conferences this year, all in the rising field of Affine Algebraic Geometry. One was in Bangalore, India, December 22-28 (That's right - over Christmas!). I'll say more about that in a separate article. The others were held in Montreal in June and in Nijmegen, Holland, in July. Also, much to my surprise (chagrin?!), I was elected to the Council of the American

Mathematical Society and attended my first council meeting in Chicago in April. I pledge to continue my quest to meet your needs as Chair while doing all this.

It is an honor to our department that Professor Steve Krantz has been offered and has accepted the position of Editor-in-Chief of the Notices of the American Mathematical Society. This is an extremely visible and prestigious position. Congratulations to Steve.

Our new William Chauvenet is Kabe Moen, who received his Ph.D. from the University of Kansas this year under Rodolfo Torres. Rodolfo is one of our former students. Kabe works in the area of Fourier analysis, singular integrals, and maximal operators. He will replace Geir Arne Hjelle, who has taken a position in private industry in Norway. We wish Geir Arne the very best. Meanwhile Rajan Mehta and Russ Woodrooffe continue their Chauvenet Instructorships.

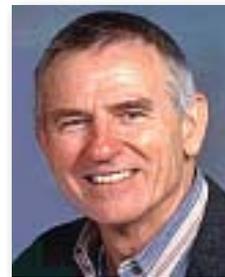
On leave this year will be Renato Feres in the fall, John Shreshian, Rachel Roberts and Cleon Yohe in the spring, and John McCarthy and Gary Jensen for both semesters. Renato will be at University of Massachusetts, Amhurst, John S Shreshian and Rachel Roberts will be at MSRI, and John McCarthy will be collaborating in Dublin, Ireland. Before leaving for the fall, Renato will be teaching the summer orientation for our incoming graduate students.

One of the things I have stressed to our dean is the importance of bringing in academic visitors for collaboration when we have department members on leave. Happily, we will have three such visitors this year. This fall we are joined by Visiting Professor Joe Lakey, an analyst from New Mexico State University, who will be with us both semesters of the academic year. Also visiting for the fall only will be Professor Arno van den Essen, an algebraist from Radboud University in the Netherlands, who will teach a graduate course on polynomial automorphisms. In the spring we will be joined by Professor Chandrasekhar Cowsik (the brother of Ram Cowsik of our Physics Department), who will teach a graduate course in Commutative Algebra.

The new Dean of the Faculty of Arts & Sciences, Gary Wihl, took command on July 1st. Gary comes to Washington University from Rice University, where he served as Dean of Humanities. I want to thank the outgoing interim dean, Ralph Quatrano; it was indeed a pleasure to work with him.

Please plan to come to the welcoming party at my house on the evening of Saturday, August 29th, at 7:00 pm. I look forward to seeing you all there.

David Wright



David Wright

# Prof. Edward Wilson Retires

Prof. Edward N. Wilson announced his retirement at the close of the 2008 Fall Semester. In early Spring the Mathematics Department and other Washington University colleagues celebrated with Professor Wilson at the Whittemore House. Ed mentioned that "he was very grateful to those who arranged the reception, to his many friends who attended, and for the very kind remarks made by the speakers". Despite being officially retired, Ed is continuing to work on research projects with the wavelet group, is continuing to co-advise two graduate students, and will teach the graduate complex analysis sequence next year.



## Conference on 'Affine Algebraic Geometry'

David Wright

December 22–28, 2008

Fireflies Intercultural Centre, Bangalore



It is not often that professional conferences extend over Christmas Day. I was honored to be an invited speaker at the Conference on Affine Algebraic Geometry which was held December 22-28, 2008, near Bangalore, India. Luckily I had no family planning to visit; also, the previous Christmas was spent with my wife Sandi in Acapulco, so having earned some credit, I accepted the invitation.

Although it was organized from the famous Tata Institute in Mumbai (where our own Mohan Kumar formerly served), the conference was held at a rustic institute called Fireflies International Centre while lies outside of Bangalore. It was truly a beautiful setting, surround by green pastures and farm animals. Fantastic meals were served buffet style under an outside pavilion, and evenings were spent socializing and talking mathematics under the stars. It was one of the most productive conferences I have ever attended.

Affine Algebraic Geometry is a field officially recognized by the AMS only recently, but the problems it addresses are very basic to mathematics and can be stated without technical machinery. It concerns itself with the geometry of affine space and its algebraic automorphisms. There have been significant breakthroughs in the last few years. A celebrated problem is the Jacobian Conjecture, which was dubbed one of the outstanding problems of the 21st century by Stephen Smale in his well-known treatise of 1998 in the *Mathematical Intelligencer*.

## Show Me Algebraic Geometry

The Algebraic Geometry Group organized the first "Show Me Algebraic Geometry" workshop hosted by Professor Mohan Kumar at Washington University in St. Louis, May 2-3, 2009. The workshop was partly funded by the NSF which was generously supplemented by the Mathematics Department. This NSF grant will allow us to

hold such workshops in the future. In the coming years, the next workshop is in 2010 and planned at University of Missouri in St. Louis. In 2011 the University of Missouri in Columbia, Missouri will host the workshop.

There were around thirty participants from nearby universities and six distinguished young speakers. The names of the speakers, their talk title and abstracts can be found at the web site <http://www.math.wustl.edu/smag1>.

The participants who arrived on May 1st got together at Mohan Kumar's house for dinner. On May 2nd, the dinner was at Pietro's. The participants from outside St. Louis stayed at the Cheshire Lodge on May 2nd.

## WU Frontiers in Science and Technology

Originally printed in the WU Record

A one-day interdisciplinary conference, Washington University Frontiers in Technology and Science, was held from 9 a.m.-4 p.m. April 25 in Cupples I, Room 199.

The conference was a series of talks targeted to both non-specialists and researchers in science, engineering and mathematics. Unlike most conferences, the object of WU Frontiers is to introduce the audience to diverse areas of research while focusing on unsolved challenges.



First row: Robert Pless (CSE, Engr), Roger Chamberlin (CSE, Engr), Sophia Hayes (Chem), Mark Alford (Physics), John McCarthy (Math)  
Second Row: Bruce Carlson (Bio), Lori Markson (Psych), Francesc Ferrer (Physics), Cynthia Lo (EECE, Engr), Gregory Yablonsky (EECE, Engr)  
Back Row: Scott Cook, Guy with hidden face, Tom Erez, Brian Maurizi, Mike Hughes, Kurt Thoroughman (BME, Engr), Nancy Saccone (Med School), Changguo Tang (Biochem Molec Biophys, Med School)

The speaker and the audience benefited from the interaction among different disciplines and from discussions with a variety of perspectives. In this way, new connections throughout the WUSTL campus were forged.

The focus was on young and mid-career speakers with the goal of allowing researchers to meet one another in a setting that encourages open communication. The conference consisted of seven 25-minute talks, each followed by a 15-minute question-and-answer session. The program was planned by Sophia Hayes, Ph.D., associate professor of chemistry, and John McCarthy, Ph.D., professor of mathematics, both in Arts & Sciences.

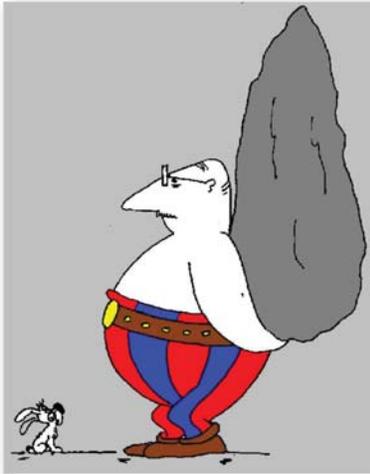
WU Frontiers was inspired by the Kavli Frontiers of Science conferences, run in conjunction with the National Academy of Science.

# A Celebration Honoring Guido Weiss

## Marco Peloso

June 15 to 19, 2009  
Bardonecchia, Italy

Our friend Guido was celebrated once more. From June 15 to 19, 2009, a conference was held in his honor to celebrate his 80th birthday.



The conference took place in Bardonecchia, Italy, a mountain resort on the Italian Alps that was part of the organization of the last winter Olympic games. The conference was organized by Guido's Italian friends and was attended by about 60 people. During the conference essentially all talks presented connection with previous collaborations with Guido, or were at least inspired by some earlier work by Guido. Guido himself delivered a lecture on his latest results, thus showing that he still is very active and successful.



The Italian harmonic analysis group was started by Prof. Figa'-Talamanca, but received tremendous inspiration by a summer course Guido delivered in 1976 at the Palazzo in Cortona. Guido's influence did not stop there. Since then there have been countless visits of Italian mathematicians to Washington University-- short and long, as students, postdocs and visiting professors. In fact, twenty-three Italian mathematicians visited the Department of Mathematics at Washington University and stayed for an extended period of time.

The conference in Bardonecchia was intended to thank Guido for his invaluable contribution to the creation of this solid group of colleagues, collaborators and friends. Needless to say, the conference was a great success. The atmosphere was exceptionally friendly. During the banquet dinner, many of the people that had the fortune to interact with Guido shared their memories with the others, and many amusing anecdotes were told. In all of these stories Guido's genuine friendship and kindness emerged clearly, and actually that was the recurrent theme.



Ricci, Weiss, Gigante, Figa-Talamanca, Bonami

Beyond his influence in the scenario of mathematics in Italy, we can safely say that Guido had an incredible career as a mathematician, and especially as a mentor. Guido had 40 Ph.D students and 61 collaborators, he published more than 130 research papers and 5 advanced books that are very highly considered in the mathematical community. But the greatest of Guido's quality was indisputably his ability in teaching, directing research, collaborating -- in other words, his generosity in sharing his knowledge and expertise.



Bonami, DeMichele, Tabacco, Roux, Weiss, Figa-Talamanca

## Welcome from the Director of Graduate Studies

On behalf of the Mathematics Department, I welcome the seven first year graduate students to our graduate program. I hope that you find the department and its various activities enjoyable and satisfying. I have always found the students and faculty a very closely knit group and hope you will strengthen the group further. I wish you the very best in your new venture and remember that all of us are here to help you achieve your dreams and goals. I welcome the returning students and hope you have had a fabulous summer. I request you to take our fresh graduate students into your fold and teach them the ropes as and when necessary. Wish you all a very successful and scholarly academic year. Let your scholarship and creativity bloom in the coming years.



Prof. N. Mohan Kumar

Professor N. Mohan Kumar

## Incoming Ph.D. Students For Fall

Ph.D.

Casey Boyett	Louisiana Tech
Chao (Karson) Chang	Sun Yat-Sen University
Liwei Chen	Zhejiang University
Jared Fuchs	Washington University in St. Louis
Joseph Hutchings	Washington University in St. Louis
Bingyuan Liu	Beijing University of Technology

Master's

Yao Xie	Shanghai Jiao Tong University
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## Congratulations 2009 Ph.D Graduates

*Haley Jane Abel* 2009 (S. Sawyer), The Role of Positive Selection in Molecular Evolution: Alternative Models for Within-Locus Selective Effects; University of Salt Lake, Post Doc, Salt Lake City, Utah

*Joseph Bohanon* 2009 (J. Shareshian), Groups in which the Normalizer of Every Non-normal Subgroup is Maximal, United States Federal Government, Consultant, Maryland

*Robert Anthony Brieler* 2009 (J. Shareshian), Symmetric and Alternating Groups as Monodromy Groups of Compact Riemann Surfaces: The Case of Four Branch Points, Southwestern Illinois College, Associate Professor, Belleville Illinois

*Jonathan D. Browder* 2009 (J. Shareshian), Proper Group Actions and the Face Structure of Simplicial Complexes, Acting Assistant Professor/Post Doc, University of Washington, Washington

*Chunlin Fan* 2009 (S. Sawyer), Contributions to the Theory of Copula, Consultant, Phoenix Arizona

*James Thomas Gill* 2009 (A. Baernstein), Functions of Finite Distortion in the Plane and a Lower Bound for the Weak-type Constant of the Beurling-Ahlfors Transform, University of Washington-Seattle, Assistant Professor/Post Doc, Seattle, Washington

*Yonhow (Larry) Lin* 2009 (R. Rochberg), The Interplay Between Harmonic Analysis, Function Theory and Operators

*Timothy Lott* 2009 (R. Roberts), Dehn Fillings of Hyperbolic Punctured-Torus Bundles, United State Federal Government, Consultant, Washington, District of Columbia

*Emily Ronshausen* 2009 (R. Feres), The Liouville Property in the Discrete Group-Action Setting, University of Arizona, Teaching Post Doc, University of Arizona, Tucson, Arizona

*Bennett James Standeven* 2009 (S. Krantz), The Role of First Order Logic in Complex Analysis of Several Variables

## Math Orientation Fall 2009

The 2009 Extended Graduate Orientation program for the new math graduate students will take place from August 3 through August 17. It is being coordinated by Renato Feres with the vital help of Mary Ann Stenner and the support of the graduate mentors: Kelly Bickel, Tim Chumley, Scott Cook, and Marina Dombromvskaya.

The program, which is now in its third year of existence, was put in place with the idea of helping to promote a supportive and friendly academic environment for the new students while getting them primed for the Fall classes. It was run with great success by Gary Jensen in 2007 and 2008.

At the core of the orientation program is a two week mini-course, which this year will be on the topic "p-adic analysis compared with real" based on a lovely text of same title by Svetlana Katok.



Chunlin Fan, James Gill, Joe Bohanon, Larry Lin, Rob Houska, Rob Brieler, Jonathan Browder

## Message from the Director of Undergraduate Studies

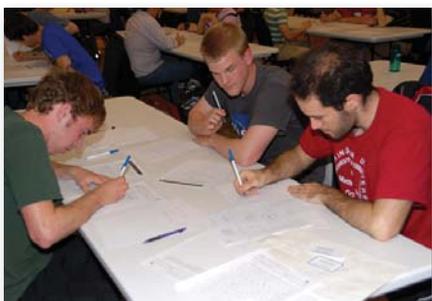
Ron Friewald

My detailed records on graduating math majors go back to 1992-1993, when 21 majors graduated. In 2008-2009, this number was 54, a record high. The number has been steadily increasing, year-by-year, since 2003 although the reason isn't clear to me. Perhaps it has something to do with the increasing math background of a lot of our students—more and more students enter WU with stronger math backgrounds. A freshman who arrives having completed Calculus III, or even more, is no longer a rarity, and the number of students who arrive ready to take Calculus III in their first semester has shown a clear trend upward since 1992—most dramatically in the last five years.

We have 105 majors “on the books” right now, most of whom will be juniors or seniors in fall 2010. This means that the next few years will probably produce high numbers of major graduates again. This is a good “problem” to have, but it does place some stress on class sizes, particularly in the 300-level courses.

The 2008-2009 class got off to a good start. At the time of their senior exit interviews in April, about 80% of them were able to describe definite plans:

- 3 to grad programs in math (at WUSTL and University of Maryland)
- 4 to grad programs in statistics or biostatistics (at SIUE, Michigan, Ohio State and Columbia)
- 2 to grad programs in education
- 13 to grad programs in other areas: computer science, operations research, operations management, financial engineering, economics, physics, and biophysics
- 15 to jobs in the “business world”
- 2 to med school (WUSTL, Yale)
- 1 to Teach for America



Jeremy diepenbrock, Jon Swenson, Alex Cloninger

This year the Ross Middlemiss Prize was awarded two graduating seniors, Alex Cloninger and Jon Swenson; the Putnam Prizes were shared by Jeremy Diepenbrock and Huajia Wang.

Three students completed senior honors theses:

- Igor Konfisakhar, Randomly Generated Covering and Almost-Covering Arrays (advisor: John Shreshian)
- Vivek Kulkarni, An Inquiry into the Optimality of Diseases (advisor: John McCarthy)
- Renee Short, On the Row Sums of the Character Tables of  $GL(2, q)$  (advisor: John Shreshian)

## Math Team Wins State

Originally printed in WU Record

Twelve Washington University students participated in the 68th William Lowell Putnam Mathematics Competition held on December 6, 2008. The Washington University Team, consisting of Jeremy Diepenbrock, Josh Moloney, and Andy Soffer, placed 48th among teams from 405 colleges and universities in the United States and Canada. Altogether, 3627 individual students from 545 colleges and universities participated.



Melissa Lim

Congratulations to the three Washington University students who ranked individually among the top 300: to Jeremy Diepenbrock (graduated in May 2009), to sophomore Tim Wiser, and freshman Alex Anderson.

In the competitions from 1976-2008, Washington University teams have placed in the “top ten” in 19 of 33 competitions, including eleven “top five” performances.

More information about the Putnam Competition is available at the web site <http://math.scu.edu/putnam/>. During the coming fall semester, there will be a “Putnam Problem Session” in which all students will be welcome to participate -- just for fun, or in preparation for the next competition.



Joe Hutchings

In late April, two Washington University teams took part in the 14th Missouri MAA Collegiate Mathematics Competition held on the campus of Truman State University (Kirksville, MO). The competition consists of two sessions (a total of five hours) in which the team members work together on problems that are in the Putnam style, although simpler. A total of 30 teams from 15 colleges and universities across the state participated. Congratulations to our two teams who took first and third place.

First Place WU Team A: Alex Cloninger, Jeremy Diepenbrock, Jon Swenson

Third Place WU Team B: Joe Hutchings, Melissa Lim, Andy Soffer



Jon Swenson

An archive of problems, solutions, and photos for the Missouri MAA Competitions is available at the web site [www.math-cs.ucmo.edu/~hchen/contest/](http://www.math-cs.ucmo.edu/~hchen/contest/).

## Robert Osserman



David Wright, Robert Osserman & Gary Jensen

The Gateway Arch soars above St. Louis. Eero Saarinen's awe-inspiring design is visually stunning, extraordinarily graceful and an architectural masterpiece, but it is also a mathematical marvel. Ever wondered about the shape of the Gateway Arch?

Pre-eminent mathematician Robert Osserman, Ph.D., certainly explained its mathematical mysteries in an Assembly Series lecture "How the Gateway Arch Got Its Shape" at 4 p.m. Wednesday, March 25, in Steinberg Hall Auditorium. The talk was co-sponsored by the Department of Mathematics in Arts & Sciences and The Washington University Lecture Series.

Osserman's visit coincides with an exhibition of Eero Saarinen's work, "Eero Saarinen: Shaping the Future," on view at the Mildred Lane Kemper Art Museum through April 27.

The Arch is known as a weighted catenary curve. In

Latin, catenary refers to a chain. Why did it take this particular shape? Could it be the most efficient way to equalize pressure of an arch? How does that work? And just how did the Arch get its shape? Was it a sketch or model made by Saarinen, or perhaps a mathematical equation? There are many questions and many surprising answers.

Osserman earned a doctorate at Harvard University, where he worked on geometric function theory and on differential geometry, combining the two in a new global theory of minimal surfaces. He also has worked on isoperimetric inequality and related geometric questions. He is the author of several books.

Immediately preceding Osserman's talk, the film "Monument to the Dream: America's Gateway Arch, an Engineering Triumph," by Academy Award-winning filmmaker Charles Guggenheim was shown at 3:30 p.m. in Steinberg Hall Auditorium.

Originally printed by the WU Record

## Math Circle

This past year was yet another successful year for the Washington University Math Circle. Our Math Circle is run by Dr. Blake Thornton with help from the faculty and graduate students. This year we ran two math circles, one for middle school (and younger) students and one for high school students. We again had great participation this year and the feedback from the students was fantastic.



Scott Cook, Math Circle students, Blake Thornton, David Jackson

This year we were able to receive help from undergraduate students who served as mentors. These student mentors were Jon Swenson, Leon Cui, Hassan Moore, Tanisa Tawichsri and Alex Cloninger. At least one mentor was present at each session and the students really responded well to this extra attention.

Due to the positive feedback during the school year, we

also held two full day sessions during the summer. On June 19 and again on July 24 students came to campus for 4 hours each day to participate in a math circle. The students who attended learned some new math and participated in various problem solving competitions. Students presented problems at the board and received feedback on their solutions from faculty and graduate students.

Many thanks to all who helped this year with the Math Circle, especially the various faculty and graduate students who gave presentations throughout the year.

This coming year the Washington University Math Circle will meet every Sunday. Visit our web page for more information:

[www.math.wustl.edu/mathcircle/](http://www.math.wustl.edu/mathcircle/)

## Math Library Closing

**Ruth Lewis**

The Mathematics Library is closing its location in Cupples I. The Washington University Libraries math collection and services will be at Olin Library by mid-August. Most of the math books and journals will be on Level B. Many journals, books and services are available 24/7 at <http://library.wustl.edu/>, including hours and links to the catalog and catalog services (such as, book request/renewal, MOBIUS request), online databases, and services (such as, reserves, interlibrary loan and Ask Us!)

The Math Research Guide <http://libguides.wustl.edu/math> is another site to explore. Suggestions welcome! If you have students who need to use the library, please contact Ruth Lewis to discuss a customized guide for your class.

Math-related library news is distributed at <http://wulibraries.typepad.com/mathnews> Please send your e-mail address to Ruth if you are not receiving her monthly summary and want it.

Ruth Lewis, the mathematics (and biology) librarian, is eager to help and hear from students and researchers. Questions, suggestions and complaints can be sent via e-mail to [rlewis@wustl.edu](mailto:rlewis@wustl.edu) or phone 935-4819. She will be in Olin Library, Level I, room 139 after August 17th. [Just ask at the Olin Library help desk for Ruth in room 139 and they will direct you.] Visitors are welcome; she is also happy to meet you in Cupples I if you prefer.

I benefit from the interaction among different disciplines and from discussions with a variety of perspectives. In this way, new connections throughout the WUSTL campus can be forged.

## Eccentric lives, 'art' are siblings' legacy

**Bill McClellan**

ST. LOUIS POST-DISPATCH  
07/15/2009

On the day after Christmas 2006, a St. Louis County EMS crew responded to a 911 call from a house in the upper-middle-class suburb of Olivette.

They found 91-year-old Betty Wynn lying in the dining room. She was surrounded by mounds of trash. Also in the house was the man who had made the call — Betty's 85-year-old brother, Sam Lachterman. He looked like an elderly Robinson Crusoe. He was dressed in tattered clothes. His long hair and beard were wildly unkempt.

The EMS crew put Betty on a stretcher and rushed her to St. John's Mercy Medical Center, where she was declared dead. Sam came along in the ambulance. A social worker told him he would not be allowed to return to the house. From what the EMS crew had said, the house would almost certainly be condemned. The social worker asked Sam for the name of a friend, somebody to call in this hour of need.

After a long moment's thought, he came up with a name — Pat Zollner. She was more Betty's friend than Sam's, but that was to be expected. Betty was the one who interacted with the outside world. When Olivette officials tried to force Betty and Sam to remove a dead tree in their backyard, Betty was the one who went to court to fight the city. She argued that the dead tree was a piece of art. The judge asked a Washington University art professor for help. The professor turned the matter over to his students. If the role of art is to get people talking about society's values, the dead tree is obviously art, one student said. Olivette dropped the case.

Zollner had met Betty years earlier. Zollner was working as a secretary at Washington University. Betty and Sam haunted the campus. Really, they were like ghostly spirits. They went to lectures and concerts, mostly ones at which food was served.

For a while, they lived in a car that they parked on a university parking lot. That got them banned from the campus, but the ban was lifted when sympathetic faculty intervened and argued that the brother and sister, both graduates of the university, were part of the fabric of the place.

The month after Betty's death, a standing-room-only crowd of about 120 faculty and staff members gathered in a second-story lounge at Washington University to remember Betty, a 1936 graduate of the School of Social

Work. She was remembered not for her work — she worked only briefly — but for the strange path she chose in life. Sam was at that gathering.

I saw him again some months later. I was speaking at the University of Missouri-St. Louis. My topic was something like, “St. Louis Characters.” Sam was sitting in the back of the room. By then, he looked less like Robinson Crusoe and more like Albert Einstein. His clothes were clean, but his white hair was still wild. Besides, while he might have been Robinson Crusoe in a certain sense — marooned on an island of his own making — he was closer to Einstein. He had a Ph.D. in math from Washington University, and he had been a math professor at St. Louis University from 1964 to 1974. Former students have told me he was a strange duck even then — not mean, but impatient with students who didn’t grasp mathematics as easily as he did. He quit in 1974. By the way, even when he was a professor, he lived with his sister. He never married. She had been married once, long ago and briefly.

Last week I got a call from Zollner. Sam died, she told me. She was at his house in Olivette. I drove over.

The first thing I noticed was how normal the place looked. Back when Betty was alive, the place was always something of a wreck, even from the outside. They had inherited the house from a brother. Or bought it from a brother. I was never sure.

Betty and Sam were unlikely suburbanites, and the house showed it. But after Betty died, Zollner and some friends cleaned it up and got everything up to code. Sam, who had been staying at Zollner’s house, moved back in. Now, it looked normal. Inside, too. Nothing fancy, but it was clean. That seemed remarkable. Sam was a pack rat. He had thousands of records. Classical music. He got most of them for nothing. When libraries began throwing them out, Sam scooped them up.

Did he ever listen to them? No, said Zollner. His turntable was broken. Somebody got him a new one, but he was too stubborn to use it. He intended to fix his, and that was that.

Zollner told me that toward the end, Sam admitted to some regrets. Long ago, he had a girlfriend. Maybe he should have married her and lived a more traditional life. Her name was Suzanne. I thought of the Leonard Cohen song — “She is wearing rags and feathers from Salvation Army counters” — which I have always associated with Betty, who was, regrets aside, Sam’s lifelong partner on a very odd journey.

As I left, I glanced into the backyard. The dead tree remains.

*reprinted with the permission of Bill McClellan*

## Budapest Semesters in Mathematics Program

*Andy Wilson is a senior major this year who spent the spring 2009 semester in the Budapest Semesters Program. He is pictured below in the center of the second row.*



I thoroughly enjoyed my time studying abroad in the Budapest Semesters in Mathematics program. I have to admit that, going into the program, I had almost no idea what to expect. I had decided that I wanted to study abroad, and Budapest seemed like the obvious way to accomplish this as a math major. I ended up spending a semester with a great group of people in a world-class city.

The city itself is an ideal place to live. I enjoy Bear’s Den and the South 40 as much as anyone, but the food and architecture in Budapest is more than a few steps above. The city is accepting of foreigners while still maintaining its cultural integrity, a feat that few other European cities are able to accomplish. Best of all, it is extremely affordable; it will probably be a long time before I stop complaining about the prices in American bars and restaurants to anyone who will listen.

I also really enjoyed my time with the students in the program. Everyone was friendly and outgoing, something that is not necessarily a given in a math program. It was refreshing to be a part of a group of people that could talk about both math and “normal stuff” (sports, music, etc.) without hesitation.

The academic quality of the program is unquestioned. The classes were small, covered unique topics, and were taught by brilliant teachers who made time for their students. The work load was heavy but we all learned to manage, and as a result, I learned more math in a semester than I had thought was possible.

If I had to make the decision again I would still choose to go to Budapest in a heartbeat. Although I only spent about five months there and probably know about five words of Hungarian, I feel like I have gained a city of my own and an experience that I will remember fondly for a long time.

# Richard Hunt



Richard A. Hunt, 71, the second student of Guido Weiss.

Purdue University Professor Emeritus of Mathematics, died at his West Lafayette residence on March 22, 2009 from Acute Myeloid Leukemia. He was born in St. Louis, Mo., on June 16, 1937, the son of Allen and Lucille Hunt. He is survived by Ann Hankins Hunt, his wife of 51 years, their children, John Hunt (RoseMary) and Julie Wolf (Peter), and grandchildren CJ Hunt, Joanna Hunt, Martina Wolf and Evan Wolf. He was preceded in death by his parents and one brother, Thomas.

Hunt's area of research was Harmonic Analysis; he was awarded the Salem Prix in 1969. His academic degrees were from Washington University in St. Louis and his teaching positions were at The University of Chicago and Princeton University. He came to Purdue in 1969 and retired in 2000. He received numerous outstanding teaching awards including the Amrine Visionary Award and published two Calculus textbooks. He was a Master Gardener. Prior to 2000 Professor Hunt took course work in landscape design; and, during retirement he worked as a landscape designer with colleagues at Garden-Art. His friends and customers frequently recognized him as he drove his beloved red MGA convertible around town.

Athletics were an important part of Richard Hunt's life; he earned four varsity letters in football at Washington University and played competitive handball from 1956 until 2008. He competed in the Circle City Handball tournament for many years; his last competition was in 2008. Taking garden tours with his wife, playing with his grandchildren, visiting with his family and playing poker with his math and statistic buddies added much joy to his active life.

If desired, memorial donations to Lafayette Urban Ministry (525 N. 4th Street, Lafayette, IN 47901) would be greatly appreciated. Send online condolences to [www.soller-baker.com](http://www.soller-baker.com)

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## Chairperson and Professor

David L. Wright Ph.D. Commutative Algebra: properties of algebras over an arbitrary base ring that might characterize them as polynomial or symmetric algebras; automorphism groups of polynomial algebras. Algebraic Geometry: geometry of affine  $n$ -space and its automorphisms.

## Elinor Anheuser Professor of Mathematics

Guido Weiss Ph.D., Interpolation of Operators; Harmonic Analysis: convolution operators on classical groups and Lie groups; relations of harmonic analysis to partial differential equations, especially Cauchy-Riemann systems; Hardy spaces; transference; wavelets.

## Professors

Albert Baernstein, II Ph.D. Complex Analysis.

Quo-Shin Chi Ph.D., Differential Geometry.

Renato Feres Ph.D., Differential Geometry, Dynamical Systems.

Ron Freiwald Ph.D., General Topology: structure of metric spaces with certain properties from descriptive set theory, such as absolute  $k$ -analytic sets; possible connections to the axioms of Set Theory.

Gary R. Jensen Ph.D., Differential Geometry: submanifolds of homogeneous spaces, contact, harmonic maps of surfaces into Riemannian spaces, the method of moving frames.

Steven G. Krantz Ph.D. Several Complex Variables; Harmonic Analysis, Partial Differential Equations, Geometry, Interpolation of Operators, Complex Function Theory, Real Analysis.

N. Mohan Kumar Ph.D., Algebraic Geometry, commutative algebra.

John McCarthy Ph.D., Analysis, especially Operator Theory and Function Spaces.

Rachel Roberts Ph.D., 1992. Low-dimensional Topology.

Richard Rochberg Ph.D., Complex Analysis, Harmonic Analysis, spaces of analytic functions, function algebras; interpolation theory.

Stanley Sawyer Ph.D., California Institute of Technology, 1964. Probability and Statistics; Population Biology, Mathematical Genetics.

John Shreshian Ph.D., Algebraic and Topological Combinatorics.

Edward Spitznagel Ph.D., Statistics and statistical computation; application of Statistics to medicine.

Nik Weaver Ph.D., Functional Analysis and quantization.

M. Victor Wickerhauser Ph.D. Harmonic Analysis, Wavelets, numerical algorithms for data compression.

## Associate Professors

Brian E. Blank Ph.D., Representations of Lie groups, Harmonic Analysis.

Jack Shapiro Ph.D. Algebraic  $K$ -theory; quadratic and hermitian forms over fields; homology and cohomology of the classical linear groups.

Cleon R. Yohe Ph.D. Algebras: relationship between the structure of a commutative ring and the properties of full matrix rings formed from it; structure of the endomorphism ring and the automorphism group of a module over a commutative Noetherian ring; computer generation of calculus examinations; computer algebra.

## Assistant Professors

Roya Beheshti Zavareh Ph.D., Algebraic Geometry, Arithmetic Geometry.

Jimin Ding Ph.D., Statistics.

Nan Lin Ph.D., Bioinformatics, Robust Statistics, Incomplete Data, Bayesian Modeling.

Xiang Tang Ph.D., Differential Geometry, Noncommutative Geometry, and Mathematical Physics.

## Coordinator of Lower Division Teaching

Blake Thornton Ph.D., Geometry.

## Chauvenet Lecturers

Rajan Mehta Ph.D., Supermanifolds, Lie groupoids and Lie algebroids, symplectic and Poisson geometry, equivariant cohomology, homotopy theory.

Kabe Moen Ph.D., Harmonic analysis: Applying classical techniques from Calderón-Zygmund theory along with more recent tools to study weighted inequalities for maximal and singular integral operators.

Russ Woodroffe Ph.D., Geometric combinatorics of posets, the subgroup lattice and related posets.

## Professors Emeriti

William M. Boothby Ph.D., Differential Geometry.

Lawrence Conlon Ph.D., Differential Topology, with special emphasis on foliated manifolds: smoothability of foliations, characteristic classes of foliations.

James A. Jenkins Ph.D. Complex Analysis.

Robert H. McDowell Ph.D., General Topology.

A. Edward Nussbaum Ph.D., Functional Analysis.

Edward N. Wilson Ph.D., Harmonic Analysis: Differential Geometry: groups of isometries homogeneous Riemannian manifolds; isospectral manifolds; generalizations of Harmonic Analysis on symmetric spaces.

## Staff

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