

Washington University

Department of

Mathematics

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(314) 935-6760

Washington University Mathematics Department

Newsletter

2004-2005

Inside this issue:

Letter from
the Chair

Graduate
News

Faculty News

Travel News

Undergraduate
News

Of Note

Letter From David Wright, Chair



I was hoping to know the result of our search before going to press with this, but it just wasn't to be. Nevertheless we can take great pride in the work of our Search Committee: Mohan Kumar, Quo-Shin Chi, Richard Rochberg, and Jody O'Sullivan. The candidates were truly outstanding. If we have to do it again next year, we will strive for the same quality. My compliments also to the Undergraduate Committee for getting together the new applied math sequence to be taught by Victor Wickerhauser next year, and for sorting through the 308-318 redundancy. In addition, to the Graduate and Statistics Committees for piloting the new core course in statistics to be taught next year by Zhengjun Zhang. Also, I'd like to thank the Graduate Committee, John McCarthy, Quo-Shin Chi, Rachel Roberts, John Shareshian, and Zhengjun Zhang for their tireless efforts in reviewing over 150 prospective Ph.D. and M.A. applications for admission in Fall, 2005. We have made offers to 13 Ph.D. and four M.A. for prospective candidates.

Very soon I will be asking everyone to begin thinking and talking about long range planning for the department. This will entail such matters as (1) overall strategy for maximizing the level of research produced by our faculty; (2) strategy for strengthening our relationship with the administration; (3) future directions in undergraduate curriculum and course development; (4) improving our graduate program; (5) how to broaden the statistics program; (6) future hiring; (7) bringing visitors to the department; (8) improving our interdisciplinary role in the university. We will have some meetings in which briefings on the "state of the department" from me and our Graduate and Undergraduate Chairs will hopefully stimulate some brainstorming and get the ideas flowing. Your ideas about how to approach this most effectively are certainly welcome.

Thanks to all of you, my friends, for your support and encouragement during my first year as your Chair.

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Mathematics

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(314) 935-6760

Washington University Mathematics Department

Newsletter

2004-2005

Graduate Student News:

On September 18th and 19th, 2004, graduate students Saida Sultanic, Greg Knese, David Opela and Prasad Vegulla attended the Wabash Modern Analysis Mini Conference, along with Professor John McCarthy.



On September 30, 2004 Leonid Kovalev gave two talks at the University of Arkansas in Fayetteville, entitled, "Optimal Holder regularity for non-divergence elliptic equations in the plane,". On November 3rd, Leonid also spoke at the University of Michigan on " Quasiregular gradient mappings,".

On May 4, 2004 Cindy Traub was the recipient of the Robert H. McDowell Excellence in Teaching Award, which was presented to her by Professor

Steven Krantz.

For the Fall 2004 school year we welcomed 13 Ph.D. students and three Master's students. Below are their names and undergraduate institutions:

Ph.D.

Haley Abel	Vanderbilt University
Rob Brieler	Saint Louis University
Jonathan Browder	Washington and Lee University
Joe Bohanon	Evangel University
Scott Cook	Southern Nazarene University
Michael Deutsch	University of Missouri
Chunlin Fan	Sichuan University
Jim Gill	Knox College
Robert Houska	Washington University
Xiao Huang	University of Science & Technology of China
Emily Ronshausen	California State University
Nicholas Sedlock	Carnegie Mellon University
Yajun Wang	Nankai University

M.A.

Chen Lin	Washington University
Allen McCoy	New York University
Xiaoqiong Yu	Wahun University of Science & Technology

Washington University

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Mathematics

www.math.wustl.edu

(314) 935-6760

Washington University Mathematics Department

Newsletter

2004-2005

We also congratulate the following students on receiving their degrees:

December 2003 M.A. Graduates

Amei
Ben Braun
Kristy Engel
Greg Knese
Kim Patti
Prasad Vegulla
Wei Zhu

May 2004 M.A. Graduates

Fatima Ali
Jeff Blanchard
Ellen Campbell

May 2004 Ph.D. Graduates

Jing Zhang

Jing Zhang has moved to Columbia, Missouri and taken a teaching position at the University of Missouri, Columbia.



Seth Howell

Seth Howell has relocated to Washington, D.C. where he is currently working for the US Army.

FROM A FRIEND AND RHODES SCHOLAR . . .

Hello Math Department!

December, 2004

I'm chasing the sunset west from London to Minneapolis on an awfully long (but inexpensive) flight via Reykjavik. I've spent the last ten weeks in Oxford thoroughly enjoying my first term. Oxford is an incredible city so full of history I learn something new about

it every day without even trying. This morning I learned that Boyle, of Boyle's Law fame, was a fellow in the University College. The first editor of the Oxford English Dictionary lived down the street from me. C.S. Lewis and J.R.R. Tolkien met to discuss religion in the pub where I had Thanksgiving dinner. It just never fails to amaze me.

I've taken something of a new identity at Oxford as a graduate student in sociology, but can't quite let go of my mathematical roots. I'm working on expanding some mathematical models of how social interaction might influence individuals' beliefs and actions. The models can (hopefully) be applied to everything from riot behavior to adoption of new technologies. I also spend an awful lot of time in topology seminars, at least compared to most sociology students. . .

Outside of libraries and classrooms, I spend a fair amount of time on the Isis—the river usually known as the Thames, except, for some reason, in Oxford. I've started rowing. Don't laugh—it's true! I'm also a coxswain for the men's crew team at my college.

Washington University
Department of
Mathematics
www.math.wustl.edu

Washington University Mathematics Department Newsletter 2004-2005

It's been quite a challenge, albeit not of the sort I expected at Oxford.

And finally, I'm looking forward to some great travel plans. I'm headed to Capetown, South Africa, Victoria Falls, and Mozambique in March and hopefully Stockholm in July.

So, if you're in London anytime in the next year and half, send me an e-mail at allsion.gilmore@green.ox.ac.uk. Oxford is only one and a half hours from London by bus and

I love to show people around.

Best,

Alli Gilmore



Faculty News:

A Few Words from Professor Steven Krantz . . .

May, 2004

As the 2003-2004 academic year draws to a close, it is well to review the many events that have marked our lives in the past nine months.

This was the Sesquicentennial year for the university (I fervently hope that this is the last time that I will have to type that tedious word). The Math Department held a Sesquicentennial (oops!) Conference in early October that was a great success-attended by many distinguished mathematicians. Dean Macias even came to the Panel Discussion.

Very sadly, our colleague and friend Marty Silverstein died in January of 2004. His enthusiasm and buoyancy will be missed by us all. A Memorial event in his honor was held at the end of March. Friends and collaborators of Marty from as far away as China attended the Memorial.

Guido and the wavelets gang put on an international conference in March. Attendance was high, and there were a number of excellent talks. The conference was sponsored by the NSF and by the math department.

On the hiring front, we have hired a new Assistant Professor of Statistics, Nan Lin. And we have hired a new Chauvenet Instructor, Jae-Hyouk Lee.

Recent news is that the department got a new GAANN Grant to support our graduate program. It should be mentioned that, thanks to the efforts of Professor John McCarthy (and Professor Jack Shapiro, who served while John was on leave), our graduate program is booming.

Of course, the term of Steve Krantz as Chairman is drawing to a close on June 30. The next missive of this nature will be coming to you from David Wright, the incoming Chairman.

-Steven G. Krantz

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Washington University Mathematics Department

Newsletter

2004-2005

On May 4, 2004, Professor John Shareshain (center) received the Guido L. Weiss (right) Teaching Service Award, presented to him by former chairman Steve Krantz (left).



Spanning the Globe: Faculty Travel

Professor John McCarthy:

In July I went to Newcastle, England to give a talk at IWOTA (International Workshop on Operator Theory and Applications). The most impressive part of the conference was the formal reception with the Lord Mayor, in which everyone at the conference was announced in turn to the room, then introduced to the Mayor. Not an easy job being Mayor!

In August, I went to a conference in Dublin to honor Joe Cima turning 70. Greg and Prasad came too, and learned the joys of Irish food. I ate at Burdock's Fish and Chip on Dame Street. Since my student days, it has gotten much fancier (you now get napkins and they have a printed menu!) and more expensive (from 1.10 punts to about 5 Euro for smoked cod and chips) but remains tasty and very filling.

In September, I drove to the Wabash Extra-mural Analysis Seminar in Indianapolis, along with Greg, Prasad, Bo, David and Saida. I don't think they liked my choice of books on tape—I'll try harder next time.

-John

Well, better late than never. . .

Professor Richard Rochberg: The American Mathematical Society-Indian Mathematical Society Joint Meeting in Bangalore India in **December, 2003** included a special session, Algebraic and Geometric Methods in Multivariable Operator Theory. I was invited to give a talk at the session.

I checked and found that even with good connections the travel time would be at least 24 hours and my initial thoughts were to not go. However, Nan pointed out to me that if I didn't go to this meeting I would probably never go to India, and that if I did go it would be a wonderful opportunity for the two of us to take a vacation.

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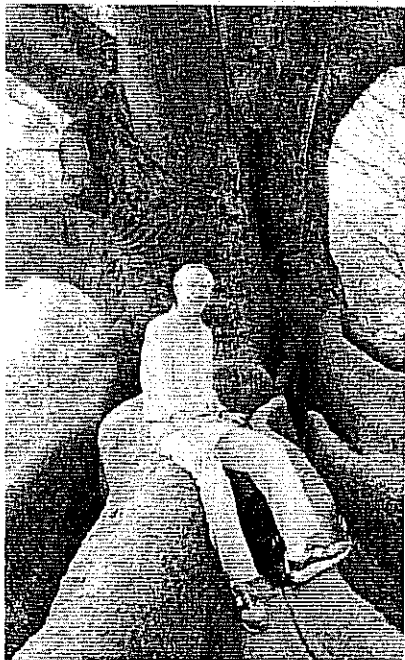
Washington University

Department of
Mathematics

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Washington University Mathematics Department Newsletter 2004-2005



We went to India for two weeks. The first week we were pure tourists; the second week was vacation mixed with the conference.

We flew into and out of Mumbai (formerly Bombay) and spent several days there. One of the highlights was the trip to Elephanta Island, 10 miles out from the harbor. The touristic highlight of the island is a 7th century Hindu temple with spectacular carvings. But what was most wonderful about the visit was the ambiance. The island is extremely popular as a place for family day excursions. The playing and picnicking families generated much more emotional warmth than one usually find at popular tourist spots.

The meeting in Bangalore was very productive professionally and I spent most of my time at the meeting. Nan did an unusually large amount of shopping. The official reason was that Bangalore is in the middle of a spectacular building boom. Hence most of the sidewalks are torn up and it isn't really possible to see the city by walking around. It made sense to me at the time.

We had a great trip.

Undergraduate News, 2004:

In the Spring of 2004, the department graduated 25 majors, down just a bit in number from the past few years. Of these students, 17 also had at least one other major and three earned master's degrees along with their A.B. Four graduating majors earned honors in mathematics, along with eight earning honors in another department, five other students received College Honors.

The following Departmental prizes were awarded in 2004:

Middlemiss Prize: Roman Garnett, Allison Gilmore and Craig Mermel

Martin Silverstein Award: Robert Houska

Washington
University
Department of
Mathematics
www.math.wustl.edu

Washington University Mathematics Department
Newsletter
2004-2005

Twelve of these majors have entered graduate programs in areas such as mathematics, statistics, computer science, chemistry, economics, genetic epidemiology, humanities, medicine, physics, and sociology. A few of these are remaining at Washington University, but others are heading off to places like Harvard, University of Chicago, University of California-San Diego, Oxford, University of Colorado, Northeastern University, and the University of Illinois.

We particularly congratulate Allison Gilmore who is the recipient of Rhodes Scholarship in Oxford.

Other majors have found or are looking for jobs in derivatives, analysis, secondary teaching, computer work and the National Security Agency.

Putnam Competition, December 2004:

Students from 515 colleges and universities in the US and Canada participated in the 2004 competition, which is held on the first Saturday in December each year.

There were a total 411 school teams. The Washington University team was ranked 40th. Out of the 3730 individual students who took the exam, we congratulate: WU sophomore Jon Pinyan who ranked 38th nationally. Other top scorers included: Po-Hsai Lai and Ben Robinson in the top 10% and Justin Gilmer, Igor Konfiskhar, Nathaniel Watson and Eric Wofsey, in the top 20%. C

Since 1976, Washington University teams have placed in the "top ten" in 18 of 29 competitions, including eleven "top five" performances.

Spring 2005:



In Spring, 2005 the department hosted the **Jerome Loeb Undergraduate Lecture**, with speaker and WU Alumnus Prof. Richard S. Laugesen, from the University of Illinois. His talk, entitled, "The Power and Beauty of Undergraduate Mathematics: Two Case Studies," was given in **Crow Hall Room 201**, on March 24 at 4:30pm. The department also hosted a tea in honor of this talk in Cupples I.

Washington
University
Department of
Mathematics
www.math.wustl.edu

Washington University Mathematics Department
Newsletter
2004-2005

OF NOTE . . .

Kirk Lecture Series

In February 2004, the Math Department Hosted the Kirk Lecture Series. Professor Brian Blank hosted Professor Michael Taylor, from the University of North Carolina, Chapel Hill.

To the delight of the Mathematics Department, in April 2004 Mrs. Houston Kirk and her son Carson came to St. Louis for a visit. Along with a tour of the Mathematics Department, Prof. David Wright, Chair, hosted a luncheon in their honor at the Whittemore House.



On **April 7, 2005** the Kirk Lecture Series will continue with Prof. Lai-Sang Young from the Courant Institute, who will give a talk entitled, "Unraveling the Mystery of Strange Attractors". The Mathematics Department will host a tea in our lounge at 4:00pm, before the talk at 4:30pm.

The Martin L. Silverstein Fund

In honor of our recently departed colleague and friend Marty Silverstein, the Department of Mathematics at Washington University established a fund in his name. Gifts made to this fund will be used to endow the Silverstein Undergraduate Prize. Donations are tax deductible. 2004's recipient was Robert Houska, who was an undergraduate at Washington University at the time, he has now been accepted into our Ph.D. Program.

Marty was a vital and dynamic part of the mathematical life at Washington University. His contributions to our faculty, students and alumni are far-reaching and can still be felt to this day. Donations may be sent to:

The Silverstein Fund
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Saint Louis, MO 63130-4899

Washington
University
Department of
Mathematics
www.math.wustl.edu

Washington University Mathematics Department
Newsletter
2004-2005

Congratulations To . . .

Ellen and Nik Weaver who welcomed **Julian Ivan Weaver**, on November 23, 2004 at 12:03pm, at 6 lbs. 12 oz .

Tami and Michael Hamm, who welcomed **Reuven "Ruby" Hamm**, on August 13, 2004.



*Analysis Conference on the Interplay of Complex Variables, Probability and Partial
Differential Equations.*

Sponsored By: The National Science Foundation

The Washington University Department of Mathematics will host an international Analysis Conference on the Interplay of Complex Variables, Probability and Partial Differential Equations from May 11 to May 14, 2005. The afternoon session on May 14 will be devoted to celebrating the mathematical achievements of **Professor Albert Baernstein**, on the occasion of this 65th birthday.

The Organizing Committee members for this event are Nicola Arcozzi (Bologna), Daniel Girela (Malaga), Richard Laugesen (Urbana-Champaign), Juan Manfredi (Pittsburgh) and Guido Weiss (Saint Louis).

Washington
University
Department of
Mathematics
www.math.wustl.edu

Washington University Mathematics Department
Newsletter
2004-2005

Mitchell H. Taibleson, Ph.D.

Mitchell H. Taibleson, Ph.D., emeritus professor of mathematics in Arts & Sciences and a pioneer in the development of several areas of mathematics died at Barnes-Jewish Hospital on Saturday, Oct. 16, 2004. He was 74 and a resident of St. Louis.

His family and companion, Marilyn Krukowski, Ph.D., professor emerita of biology in Arts & Sciences, announced that Taibleson's death resulted from complications following recent surgery.

Taibleson was born in Oak Park, Ill., a Chicago suburb, in 1929. His mathematical education was unusual.

He entered graduate school in the fall of 1958 at the University of Chicago without having earned an undergraduate degree. In two years, he earned a master's degree; two years later he earned a doctorate.

Washington University appointed him an assistant professor of mathematics in 1962 and promoted him to professor in 1969. From 1970-1973, he served as chair of the mathematics department.

He retired in 2000 after a very distinguished career.

Taibleson's early work focused on function spaces, an area of mathematics with fundamental applications to engineering, physics and statistics. Soon after, he and his collaborators developed the theory of harmonic analysis on local fields.

He became interested in various statistical problems associated with the field of psychiatry and served from 1973-1975 as research professor of mathematics in the Department of Psychiatry at the School of Medicine. During the period, he published a number of technical papers on statistical issues in psychiatry.



Thereafter, he returned to the study of function spaces and began publishing a lengthy series of papers, resulting in being acknowledged as worldwide authority on the topic.

An important part of Taibleson's career involved the teaching and mentoring of students and postdoctoral fellows. He was the dissertation advisor for 12 WUSTL doctoral students.

Taibleson is survived by his brother, Walter; three children, Judith, David and Michael; and five grandchildren. His wife of more than 50 years, Charlotte, died in 2000.

A funeral service was held at the Mausoleum Chapel of New Mount Siani Cemetery in St. Louis on October 24th.

The photo and portions of this article are from the "Record," published on October 24, 2005, Vol. 29, No. 11, and have been adapted with permission.

Washington
University
Department of
Mathematics
www.math.wustl.edu

Washington University Mathematics Department Newsletter 2004-2005

Mathematics Library



The Mathematics Library, located in Cupples I on the ground floor, offers many services to our students and faculty. Library hours are **Monday through Friday, 8:30am-5:00pm**, and is open after hours but patrons must fill out the "Manual Check-out" slip. Our library also offers a document delivery service. Usually, a needed article is requested through our Inter Library Loan Service, located in the Olin Library. However, if an article is needed in a shorter amount of time, please see our librarian, Barbara Luszczynska. The article can usually be faxed over on the same day or the next. However, this type of rushed document is more costly for the library.

If Barbara is not available, she has three very knowledgeable student assistants who will be happy to help you in the library. They are Safwan Ali, Sundeep Gupta and Ryan Alexander. For more information or any questions please contact Barbara Luszczynska, at barbara@math.wustl.edu or 935-6177.

History of Samuel Cupples

Cupples Hall I is one of one of three buildings given to the University in 1900 by **Samuel Cupples**. The other two buildings donated by Cupples are Cupples II Hall and the Cupples Engineering Building, which was torn down in the 1960s to make room for Bryan Hall.

Born in 1831, **Samuel Cupples** was a St. Louis woodenware merchant and business partner of Robert Brookings. With the Brookings Brothers, Cupples grew his company to enormous proportions. He also built "Cupples Station" in downtown St. Louis to aid in the transport of goods from the river to the railroad; the station became the most valuable asset to St. Louis merchants. After joining the Board of Directors at Washington University, Cupples, with the agreement of Brookings, turned all company assets totaling 4 million dollars over to the University. In addition, donated funds for the construction of three new buildings.

Washington University

Department of

Mathematics

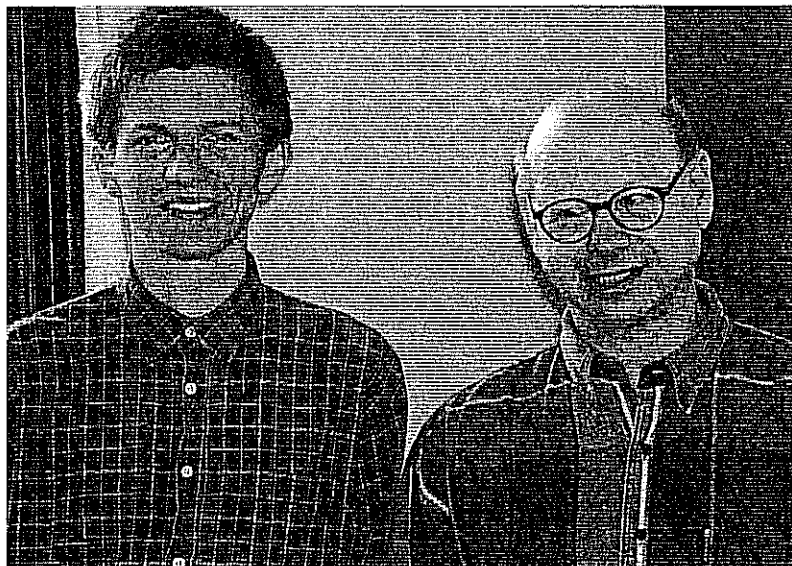
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(314) 935-6760

Washington University Mathematics Department

Newsletter

2004-2005



From the pen of Leonid Kovalev:

This has been a very eventful academic year for me. It began with a visit to our southern neighbors at University of Arkansas. After I gave two talks in one day, the friendly Mathematics Department folks put a picture with me on their main webpage <http://www.uark.edu/depts/mathinfo/> (You can see me sitting on the bench behind an icosahedral bamboo star.)

After that I headed northeast, for talks at University of Michigan, Ann Arbor, and University of Illinois, Urbana-Champaign. Both visits were very productive in terms of research. A trip to Atlanta was equally productive, although in a different way: I had an interview with Al Boggess, the chairman of Texas A&M Mathematics Department. A month later, I accepted a postdoctoral offer from A&M. I was told that I will be called an Aggie, but that is fine as long as I don't have to actually do any agricultural work.

Most recently, I defended my dissertation "Orientation-preserving Sobolev mappings". I owe thanks to my Ph.D. advisor Albert Baernstein (pictured above), and to the Dissertation Committee members: Carl Bender, Eliot Fried, John McCarthy, Richard Rochberg and Victor Wickerhauser.



The Mathematics Department offers Leonid our heartfelt congratulations and best wishes for his very bright future!

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Washington University Mathematics Department

Newsletter

2004-2005



Thank you very much to everyone who contributed to this edition of our Mathematics Department Newsletter!

A very special "Thank You" to Professor Ron Freiwald, Professor Blake Thornton, Bettie Martin and Mary Ann Stenner for all of their great ideas and excellent proofreading skills!

To view this newsletter edition online, see our webpage, <http://www.math.wustl.edu/newsletter>.

If you would like to be added to our Mathematics Department mailing list to receive our weekly Talk Lists, please e-mail Sara Quigley at sara@math.wustl.edu or call 935-6760. You may also see our Talk List, updated daily, on our departmental webpage, www.math.wustl.edu.