



Department of Mathematics

#### Letter from the Chair

Fall 2000

Another year has begun and summer is preparing to yield the stage to fall. The Canada geese are even beginning to be restless and thinking about flying south.

I am delighted to announce that the NSF VIGRE grant has landed. The Department has now received the first installment of its five year \$3.6 million grant from the National Science Foundation. The NSF VIGRE grant supports undergraduate students, graduate students, and postdoctoral students. For example, the NSF VIGRE grant will support as many as 9 new postdoctoral positions during the third year. Together with the Doob **Research Assistant Professor** positions, this means that in the academic year 2002-2003, the Department of Mathematics will have 18 postdoctoral faculty members.

The NSF VIGRE grant also has funds for 12 full-time graduate student fellowships each year. This is very important because graduate fellowship funding is an area where the UIUC mathematics program critically needs continuing funding. The NSF VIGRE grant also provides support for Research Experiences for Undergraduate Students (REUs). Each year there are funds for 6 REU positions during the year and 12 REU positions during the summer.

The main goal of the NSF VIGRE grant is to foster interactions between people at different levels in our mathematics program. We have not only been doing that in the past, but this funding has energized the department to do even more towards linking undergraduate students, graduate students, and the faculty.

I am pleased to announce that two of our faculty members have been promoted. Sergei Ivanov has been promoted to Full Professor. Ivanov has also been named a University Scholar. He received his Ph.D. at Moscow State University in 1988 and joined our department in 1993. He has been a Beckman Scholar, a member of the Center for Advanced Study, and a Sloan Research Fellow.

John Sullivan has been promoted to Associate Professor with tenure. Sullivan received his Ph.D. from Princeton in 1990 where he was awarded both an NSF Graduate Fellowship and a Sloan Dissertation Fellowship. Before joining our department in 1996, he was an Assistant Professor at the University of Minnesota where he was a Mathematical Sciences Research Institute Fellow in 1993-94. He received the Beckman Research Award for 1997-99. He is also a fellow in the Theoretical and Applied Mechanics Department at UIUC, and is affiliated with the Computational Science and Engineering Program.

This fall, four new faculty members are joining the department, as well as seven new postdoctoral assistant professors. See pages 6-8 for further details. Also, in this academic year many research mathematicians will be visiting the department; some are coming for extended periods, others for a short time. See page 10 for a list of this year's visitors.

In the summer, the highly successful Millennial Number Theory Conference drew over two hundred visitors from around the world. This meeting was organized by A.J. Hildebrand, Bruce Berndt, Nigel Boston, Harold Diamond, Walter Philipp, and other local

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University of Illinois at Urbana-Champaign

## Letter from the Chair, continued

number theory faculty. This was perhaps the largest meeting ever held whose focus was entirely on number theory.

Also held here this summer was the very well attended annual meeting of the Association for Symbolic Logic (ASL), organized by Ward Henson, Carl Jockusch, Anand Pillay, Lou van den Dries, ASL staff associate Joanne Fetzner, and departmental conference coordinator Betsy Gillies.

There are more meetings being planned for this year. There is the usual rush of students in the hallways between classes, seminars in progress, conversations about mathematics in the halls and in the lounge, grant proposals being written, and plans being made for more and deeper interdisciplinary interactions with other departments. The fall term is off to a good start and we are all looking forward to an exciting and worthwhile academic year.

Yours truly,

how that Joseph Rosenblatt



The essence of mathematics lies in its freedom. —George Cantor

#### **Special Year in Number Theory ends**

The Special Year in Number Theory at the University of Illinois concludes this fall with a conference on q-Series with Applications to Combinatorics, Number Theory and Physics. This meeting, which is being organized by Bruce Berndt and Ken Ono (University of Wisconsin), will be held October 26-28, on the UIUC campus.

In August, Nigel Boston and Chris Skinner (Institute for Advanced Study, Princeton) organized a two-week instructional conference for graduate students on the proof of Fermat's Last Theorem. The conference attracted 16 participants. The daily program consisted of morning lectures given by Boston and Skinner, followed in the afternoon by group sessions in which students worked on projects in small groups. At the end of the workshop, students presented talks on these projects.

The highlight of the Special Year was the Millennial Conference on Number Theory, held May 21-26 on the UIUC campus. The conference was a huge success and was probably the largest general number theory conference ever held. The final tally shows that 276 number theorists from 30 countries attended the conference and 157 scientific talks and three historical talks were given.

The special events at the conference included a welcoming reception, a trip to Allerton Park, an evening of musical and theatrical performances in the Levis Faculty center, a conference banquet featuring several short speeches honoring Paul Bateman, an evening lecture by Fields Medalist Jean Bourgain, and an evening of historical talks and reminiscences. The conference concluded with a wellattended "survivors party" held in Altgeld Hall.

The organization of the conference went smoothly, thanks to the work of conference coordinator Betsy Gillies and the help of many graduate students, faculty and staff. The feedback from conference participants was uniformly positive; one of the plenary speakers called this the best organized conference he has ever attended.

A proceeding of the Millennial Conference, expected to comprise two volumes totaling 1000 pages, will be published by mid 2001. In addition to a traditional style conference proceedings, the publisher, A K Peters Inc., will put out a smaller paperback volume containing selected survey talks given at the conference. This volume will be targeted at a broad audience and aggressively marketed.

A group photo of the conference participants, taken on the steps of the Foellinger Auditorium, is available for \$5 postage paid. Contact Harold Diamond (diamond@math.uiuc.edu) if you want a photo.

Also available is a conference T-shirt, featuring a picture of Altgeld Hall on the front and an intriguing mathematical equation with a millennial theme on the back. T-shirts are \$5 each and can be purchased from Bruce Berndt (berndt@math.uiuc.edu).

For more information, including a scanned version of the group photo, visit the conference website at:

http://www.math.uiuc.edu/nt2000/millennial.

#### Congratulations to student and staff award winners

The results of several awards were not available for the Spring 2000 issue of the Math Times, and are therefore reported here. The awards were presented at a ceremony in May 2000.

**Elizabeth Denne**, a third year graduate student in topology/geometry, **Lia Petracovici**, a fifth year graduate student in complex dynamics, and **Sandy Spiroff**, a fifth year graduate student in commutative algebra, were winners of the department's TA Instructional Award. A committee of faculty, graduate and undergraduate students determines the winners. Awards are based on classroom observation, comments from students, and a written report by the nominees describing their teaching goals.

**Mark Bauer**, a fourth year graduate student in algebraic number theory, was awarded the Irving Reiner Memorial Award. The Reiner Prize is awarded to one or more graduate students in recognition of outstanding scholastic achievement in the field of algebra. This is the thirteenth year that the prize has been awarded.

The Hohn-Nash Award is given in recognition of outstanding scholarship and promise in applied

#### **Retirees annual lunch**

The third annual luncheon for all retired department faculty members and their spouses will be held this year on Thursday, October 26 at Kennedy's Restaurant in Urbana. After lunch, there will be brief talks on what is happening in the undergraduate and graduate programs. Retired faculty can name current faculty that they would like to have invited to the luncheon. Emeritus Professor Hiram Paley (paley@math.uiuc.edu) is in charge of arrangements.

#### **Rare books exhibit**

During the summer, an exhibit of rare mathematical books, entitled Number Theory for the Millennium, was held at the UIUC Main Library. This exhibit, curated by **Steve Ullom** and **Bruce Reznick**, included five books from the 16th century, a first edition of Disquisitiones Arithmeticae by Gauss, and works by Barrow, Euler, Hilbert (lecture notes from courses), Jacobi, Lagrange, Laplace, and many others. A website about the exhibit is under construction. mathematics. Two prizes are given each year. This year, the second prize was shared. First Prize went to **Jenny Steichen**, a fifth year graduate student specializing in stochastic analysis. Second Prize was awarded to **Mark Bauer**, a fourth year graduate student in algebraic number theory, and **Tao Jiang**, a fifth year graduate student specializing in combinatorics and optimization, who will receive his Ph.D. this fall.

The 2000 UIUC Undergraduate Math Contest was held April 15, 2000. Sixteen students participated in the contest. **David Dueber**, a freshman and a newcomer to the UIUC contest scene, and **Ken Scheiwe**, a junior who placed 6th in last year's contest, tied for First Prize. **Kaushik Roy** was awarded Third Prize. Problems and solutions to the contest can be seen on the web at www.math.uiuc.edu/~hildebr/putnam.

The Outstanding Department Non-Academic Staff Award was presented to **Joyce Roberts.** Joyce is a program administrative assistant in the department's business office and has been with the department for 13 years. This award recognizes outstanding staff contributions to the department and the university through leadership and work excellence. This is the first year that this award has been given.



### VIGRE undergraduate programs announced

With part of the funding received from the National Science Foundation Vertical Integration of Research and Education (VIGRE) grant, the department has put several new programs in place. Graham Evans, undergraduate programs director, has announced two new programs for undergraduate students in the department of mathematics. These programs provide a substantial increase in funding for undergraduate research. One program, Research Experience for Undergraduates (REUs), has positions for six undergraduate students during the year and 12 undergraduate students during the summer to do research with a faculty member.

The grant also provides funding for four positions for undergraduates to work with a faculty member teaching a lower level undergraduate course. This program, called Teacher Training for Undergraduates, will involve the student in all steps of teaching a course and provides hands-on experience for undergraduates contemplating entering the teaching profession. The training involves designing the syllabus, writing and grading examinations, and giving lectures.

#### **Illinois Cryptography Center created**

The creation of the Illinois Center for Cryptography and Information Protection will be announced at the second Midwest Arithmetical Geometry in Cryptography (MAGC) meeting, to be held November 17-19, 2000 at the Coordinated Science Laboratory on the UIUC campus. This is the first multidisciplinary center for information security in the U.S., and is modelled after the Centre for Applied Cryptographic Research (CACR) in Canada.

To mark this event, the director of CACR, Alfred Menezes, and the leaders in cryptography in Essen, Germany, and Paris, France, Gerhard Frey and Francois Morain, have agreed to be plenary speakers.

The initial director of the center will be **Nigel Boston**. He envisages interaction between participating groups (collaboration with CNRS is beginning, thanks to the reciprocal agreement) and with industry (he has secured funding from Motorola Labs in Schaumburg, IL).

UIUC mathematicians involved include new assistant professors **Iwan Duursma** and **Andreas Stein**. They will work with engineers and computer scientists on topics such as the security of (hyper)elliptic curve cryptosystems and mathematical foundations of watermarking. A website for the center is under construction.

## **Mentoring for TAs**

The department has started a mentoring program for teaching assistants. All new TAs are now assigned to a trained, experienced TA who serves as a teaching mentor and who will visit their classrooms, consult with them and participate with them in workshops related to teaching. The mentors for this term are Craig Davis, Elizabeth Denne, Magdalena Musat, Pedro Poitevin, Andrew Rizzo, and Richard Smarz.

For the mentors, the mentoring is part of their TA assignment. Funding is provided by the Department of Mathematics and the Office of the Provost, through a grant written by Paul Weichsel and Karen Mortensen.

#### Graduate student stats

There are 199 graduate students in the math department this fall (135 male students, 64 female), Phillip Griffith, director of graduate studies, has announced. Of this number, 70 are American citizens, 27 come from Korea, 26 from China, 10 from India, 7 from Taiwan, 6 from Romania, 6 from Thailand, 6 from Germany and 3 from Canada.

Thirty-three students have fellowships. Funding for these fellowships comes from the VIGRE grant, a GAANN grant from the U.S. Department of Education, and university and named fellowships. About three-quarters of the graduate students are teaching assistants.



Left hand/right hand

#### Faculty notes -

The faculty are involved in diverse research and teaching activities around the country and internationally. Here are some examples of these activities.

Maarten Bergvelt spent three months this summer at the Max Planck Institute for Mathematics in Bonn, Germany. It is situated in the middle of downtown Bonn, with a view from some offices of the Beethoven statue in one of the main squares. It rained almost every day, giving him plenty of time to work. He also gave a talk there under the title "Vertex Varieties and Integrable Systems."

Harold Diamond was the lecturer for a week at a four week instructional conference on Number Theory, held at Kent State University this summer. The program was sponsored by the Institute for Mathematics and its Applications (IMA), and was attended by graduate students from IMA institutions throughout the U.S. Participants included Jason Gibson and Diana White from UIUC, along with Tsz-Ho Chan of the University of Michigan, a former undergraduate at UIUC.

During the summer, George Francis gave invited talks in Seattle at a mini-symposium at Microsoft Research and at the Millennial Open Symposium on the Arts and Interdisciplinary Computing (MOSAIC 2000) held at the University of Washington. He also gave an invited talk entitled "Metarealistic Rendering of 4-Dimensional and non-Euclidean Phenomena" at the Second Annual Conference of the International Society of the Arts, Mathematics, and Architecture at SUNY Albany. In September, Professor Francis

gave two Buckingham lectures and a colloquium at Miami University of Ohio. In October, he will present a lecture entitled "Real-time Interactive Computer Animation of Low Dimensional Homotopies" at the University of Bologna Mathematics Department Conference "Matematica e Cultura: Arte, Tecnologia e Immagini."

In June, **Julian Palmore** participated in the 68th Military Operations Research Society Symposium held at the U.S. Air Force Academy in Colorado Springs. The symposium is the culmination of the society's work of the previous year. He is a member of the Board of Directors of the society, and during 1999-2000 was vice president for professional affairs.

In the summer he was appointed chair of the AMS Menger Prize Committee. The committee directs AMS participation in the International Science and Engineering Fair.

Also during the summer he developed a course for spring semester 2001 for the Mathematics Department and ACDIS, the arms control program at UIUC. The course is entitled "Technology and Security: Preventive Defense Against Weapons of Mass Destruction" and is being offered as section M-1 of Math 351. The course description can be found at www.math.uiuc.edu/~palmore/ math351-m1. He is offering a course on the History of Mathematics and Physics in the spring.

In September, Professor Palmore visited the RAND Corp. in Santa Monica, CA, the Naval Postgraduate School in Monterey, the Monterey Institute for International Studies, and consulted with scientists at Stanford University. He has been invited to give two talks at the Naval Postgraduate School in October on the subject of national missile defense.

He is an editor of a special issue of the journal Military Operations Research on "Warfare Analysis and Complexity —The New Sciences" published in September.

**Robert Jerrard** is spending the fall semester at the Max Planck Institute for Mathematics in Leipzig, Germany.

**Derek Robinson** gave a lecture at the Ohio State-Denison Conference on Group Theory in Columbus in May.

Will Galway presented a paper on "Dissecting a Sieve to Cut its Need for Space" at the ANTS IV conference held in Leiden, The Netherlands, in July. Before and after the conference Will visited the University of Ulm, Germany, and the University of Bath, England. Will is a former graduate student of Harold Diamond, and is now here in a dual position as a visiting lecturer and a visiting systems consultant.

# *Math Times* now available on the web

Issues of the *Math Times* are now available on the web in pdf format. Go to www.math.uiuc.edu/ mathtimes to see the latest issues.

If you have suggestions for articles or news items, please send them to the editors (see the *Math Times* webpage for more information about how to submit articles and news items).

#### Four new faculty join department

Four new assistant professors joined the UIUC Department of Mathematics this fall. They are Iwan Duursma, Ilya Kapovich, Andreas Stein and Alexandru Zaharescu.



Iwan Duursma

Iwan Duursma, a native of The Netherlands, wrote his dissertation on "Decoding Codes from Curves and Cyclic Codes." He was awarded his Ph.D. in 1993 in mathematics from Eindhoven University of Technology. Earlier he had received Master's degrees from both Delft University of Technology and the University of Amsterdam. He is interested in cryptography and has been applying the theory of algebraic curves to cryptography, work he says is fun. Along with other mathematicians in this field, he is working to make this theoretical mathematics approach applicable so that people can use encryption to ensure that information they send is secure.

Professor Duursma, who speaks Dutch, English, French, Italian, Spanish and German, has been a visiting researcher at the University of Puerto Rico and a senior member of the technical staff in New Jersey at AT&T's Research Laboratory. He was in France at the University of Limoges before coming to Champaign-Urbana with his wife this fall. Among the nonmathematical activities he enjoys are swimming, hiking, and playing bridge.

**Ilya Kapovich** came to the United States after receiving his undergraduate degree from Russia's Novosibirsk University in 1992. Despite the cultural shock of leaving the campus at Novosibirsk for New York City, he immediately enrolled at the CUNY Graduate Center in New York where he was awarded both a Master's and a Ph.D. in 1996. He then spent two years at Rutgers University in New Jersey and one year in Israel at



Ilya Kapovich

Hebrew University. His recent research has been in geometric and combinatorial group theory, in lowdimensional topology, and Kleinian groups. He enjoys teaching and looks forward to working with graduate students.

He likes hiking being out in the country, and hunting for wild mushrooms.

Andreas Stein is investigating how algebraic curves, especially elliptic and hyperelliptic curves, can be used to devise efficient and secure public-key cryptosystems, a field which he enjoys. Furthermore, he is working to develop fast algorithms for computing invariants in function fields. A native of Germany, he attended the University of Saar-landes where he held a Siemens Ph.D. scholarship and was a research associate. His dissertation was on algorithms in real quadratic function fields.

After he received his diploma and doctorate in mathematics, he went to Canada where he was a postdoctoral fellow first at the University of Manitoba and then at the University of Waterloo. Also, for twelve years he developed software for computational algebra and was a lead programmer in a computer algebra group at Saarlandes. He is very interested in music and he plays the recorder, guitar, and piano. He is also a soccer and squash player, as well as a long-distance runner.

Alexandru Zaharescu is from the Massachusetts Institute of Technology where he has been an instructor and from the Institute of Mathematics of the Roumanian Academy in Bucharest where he was a researcher. After receiving



Andreas Stein

his B.S. in 1986 from the Roumanian Academy, he came to the United States and attended Princeton University where he was awarded both a Master's and a Ph.D. His



Luis Alvarez-Consul

thesis title was "Quadratic Diophantine Inequalities." In his last year at Princeton he was awarded a Sloan Foundation Doctoral Dissertation Fellowship.

He is interested in everything related to number theory, from analytic and algebraic number theory, especially the distribution of prime numbers, to transcendental numbers. He has taught classes for both undergraduates and graduate students at MIT.

The department has also hired another excellent mathematician, **Charles Rezk**, who will join the department in Fall 2001. Since receiving his Ph.D. from the Massachusetts Institute of Technology in May 1996, where he was awarded a Sloan Doctoral Dissertation Fellowship, he has been a visiting Assistant Professor at Northwestern University. Last year he was at the Institute for Advanced Study.

#### **Doob postdoctoral assistant professors**

Three new J.L. Doob research assistant professors arrived this fall to begin their three year terms. These positions are named for Emeritus Professor Joseph Doob, a long time member of the department who received the Presidential Medal of Science.

Luis Alvarez-Consul is from Spain where he received his Ph.D. on gauge theory and held a predoctoral fellowship at the Universidad Autonoma in Madrid. Even though teaching was not required, he taught a problems class of mathematics for physicists and chemists in order to get experience and found that he enjoyed teaching. As a student he made several visits



Peter Brinkmann

to the United Kingdom, to the Department of Mathematical Sciences at the University of Liverpool and to the Mathematical Institute in Oxford.

**Peter Brinkmann**, a native of Germany, received his Vordiplom from the University of Osnabrück, Germany, and his Diplom from the University of Bonn. He spent one year at the University of Tennessee while working as a research assistant at the Oak Ridge National Laboratory. This year he received a Ph.D. from the University of Utah where he was a teaching fellow. His research is in geometric group theory.

Before coming to Utah, he was a summer associate at McKinsey & Co. in Cologne and spent six months in Paris at the Institut Henry Poincaré at a special semester on low-dimensional geometry and topology. Before coming here, he visited the University of California at Berkeley as a CMI Liftoff Fellow.

Marco Schlichting is from Paris where he received his Ph.D. this spring on developing the negative K-theory of exact categories. Born in East Germany, he was 16 when the wall came down and there was no longer east or west, only one Germany, the country where he finished his undergraduate education. His graduate studies were completed at the University of Paris VII, where he became fluent in French. His research interests include higher and lower algebraic K-theory, homotopy theory and triangulated categories. He likes to walk and also to play the guitar.



Marco Schlichting

#### VIGRE postdoctoral assistant professors

Three mathematicians who have recently received their Ph.D.s joined the faculty this fall as VIGRE research assistant professors. The funding for these appointments is from the Vertical Integration of Research and Education (VIGRE) grant that was awarded to the department in 2000 from the National Science Foundation. Each appointment is for three years.

Sean Sather-Wagstaff received his A.B. in mathematics from the University of California at Berkeley and his Ph.D. from the University of Utah. His research is in the field of commutative algebra. During the final year of his dissertation research, he was awarded a University Research Fellowship. Before coming to UIUC he spent the summer as a Liftoff Mathematician, funded by the Clay Mathematic Institute, at the University of Kansas. He and his wife have settled into a house in Urbana with their hedgehog, gecko and three cats.

Karen Shuman comes from Georgia by way of Dartmouth College in New Hampshire, where she received her Ph.D. Her thesis



Sean Sather-Wagstaff

title was "Signal Processing Bases and the Jacobi Group."

At the AMS/MAA joint meeting last winter she gave a presentation on complete signal processing bases generated by an action of the Jacobi group. She received a B.A. with highest honors from Agnes Scott College where she worked as a mathematics tutor. At Dartmouth she was a teaching assistant and a lecturer. Professor Shuman, who is a keen swimmer, has bought a house in Urbana where she lives with her two cats.

Jozef Skokan was born in Czechoslovakia, a country that has



Karen Shuman

now divided into the Czech and Slovak Republics. His family lives in the Slovak Republic where he grew up. Jozef received his Master's degree from the Czech Technical University (CVUT) in Prague. In 1995, he moved to Atlanta, GA, to do his graduate work at Emory University, from which he received his Ph.D. this past summer. His dissertation topic was "Uniformity of Set Systems." He was a teaching assistant in Prague, and taught a number of different courses at Emory University where he received the prize for



Jozef Skokan

distinguished undergraduate instruction.

## **CPSD** postdoc

Yangsuk Ko, a native of Korea, received a B.S. from Seoul National University and his Ph.D, from Purdue University where, as a graduate student, he received a grant from the Purdue Research Foundation and the Excellence in Teaching Award. His research interests are in partial differential equations and applied mathematics. His postdoctoral appointment is funded by the Center for Process Simulation and Design and the Department of Mathematics.



Yangsuk Ko

Department of Mathematics, UIUC

#### After Math: alumni news

Lawrence Boxer (Ph.D. 1976, Hamstrom) is coauthor of *Algorithms Sequential and Parallel: A Unified Approach*, a textbook that takes a new approach to the teaching of computer algorithms by integrating its treatment of sequential and parallel algorithms. Dr. Boxer is professor of computer and information sciences at Niagara University, NY, where he has been chair of the department since 1992. His recent research has been in the areas of algorithms, computational geometry, and digital topology. He is an associate editor of the *Journal of Computing and Information*.

If you have news to contribute to *Alumni After Math*, please send the information to Tori Corkery, Asst. Editor, *Math Times*, 263 Altgeld Hall, 1409 W. Green St., Urbana, IL 61801, or via e-mail to corkery@math.uiuc.edu. In addition to your news item, be sure to include your name, address, phone, e-mail, year of graduation, degree and advisor. In cases where we receive more news items than we can accommodate in an issue, we will include them on a first received– first included basis as space permits.



Cable knot and companion



This photo was taken at the Princeton University Bicentennial Conference, "Problems in Mathematics," in 1946. There are many famous mathematicians in this picture. One of them was a UIUC Department of Mathematics faculty member. Go to the UIUC Department of Mathematics website (http://www.math.uiuc.edu/People/princeton\_photo.html) to see the key for this picture.

#### Visiting mathematics faculty and scholars

This academic year, many research mathematicians will be visiting the Department of Mathematics; some coming for extended periods, others for a short time. Visiting Professors are:

Vishwa Dumir, Punjab University, India Dmitry Fon-Der-Flaas, Institute of Mathematics, Novosibirsk, Russia Evgenii Gordon, Nizhnii Novgorod State University Alexander Isaev, Australian National University Manos Lydakis, University of Bielefeld, Germany Margaret Symington, George Institute of Technology Ae Ja Yee, Korea Advanced Institute of Science & Technology Visiting Scholars are: Oscar Garcia-Prada, Universidad Autonoma de Madrid, Spain Chongkyu Han, Seoul National University, Korea Yoshiyasu Ishigami, University of Electro-Communications, Japan Piotr Kowalski, Uniwersytet Wroclawski, Poland Olivier Lessman, Swiss Federal Institute of Technology Jose Llorente, Universidad Autonoma de Barcelona, Spain Mike Newman, Australian National University Artur Peikosz, Politechniki Krakowskiej, Poland

#### Some have left us

#### Ross Lee Finney, 1933-2000

Ross Lee Finney III, a former faculty member in the UIUC mathematics department and the author of widely used mathematical textbooks, died on August 3, 2000 in Carmel Valley, CA.

Finney wrote many textbooks on various aspects of calculus. For almost 25 years he collaborated with MIT's George Thompson to write the highly successful *Calculus and Analytic Geometry*, which recently went into its 10th edition. A third edition of another book, *Calculus*, was released last year. He also wrote research papers, articles, book chapters, and parts of a widely used calculus text for advanced placement programs for high school students.

He was in the UIUC mathematics department from 1966 until he resigned in 1980. While here he wrote textbooks and developed mathematics curriculums for schools in Africa. He also worked to improve the teaching of mathematics in China. He received his undergraduate and Ph.D. degrees from the University of Michigan and was a Fulbright scholar at the Poincaré Institute in Paris in 1956-57.

#### Vytas Gylys, 1927-2000

Vytas Gylys died on July 11, 2000 in Richardson, Texas. Gylys was born May 9, 1927 in Kaunas, Lithuania. He received his Ph.D. in 1963 from the UIUC Department of Mathematics. He specialized in analysis under the direction of Professor P.W. Ketchum. Gylys worked for 26 years at Texas Instruments.

#### Million dollar math

The department Colloquium Committee is scheduling a series of colloquia this year on the seven "Millenium Prize Problems" proposed by the Clay Mathematics Institute (CMI), Cambridge, MA. The Scientific Advisory Board of CMI selected these problems, focusing on important classic questions that have resisted solution over the years. CMI is offering a one million dollar prize for the solution of each problem. A leading specialist in the domain in question has formulated each problem. The problems can be found at CMI's website www.claymath.org/ prize\_problems. The prize will only be awarded two years after publication in a reputable journal.

Heini Halberstam, UIUC Professor Emeritus, opened the departmental colloquium series on September 28 with a talk on the Riemann Hypothesis. Future lectures will be given on the other problems: P versus NP, The Hodge Conjecture, The Poincaré Conjecture, Yang-Mills Existence and Mass Gap, Navier-Stokes Existence and Smoothness, and The Birch and Swinnerton-Dyer Conjecture.

For more information about upcoming lectures, see the colloquium website at: www.math.uiuc.edu/Colloquia.



#### New faces in the mathematics library

"I'm looking forward to meeting and getting to know more of the mathematics faculty," says **Tim Cole**, the new mathematics librarian. "I've already met several members of the faculty, and I've been impressed with their interest and in-depth knowledge of the mathematics library and its collections." On September 1, Tim Cole's interim appointment as mathematics librarian was made permanent.

Cole received his B.S. in aeronautical and astronautical engineering in 1978 and his M.S. in library and information science in 1979 from the University of Illinois. That year he joined the UIUC library faculty. He has worked primarily at the Engineering Library, where he was the acting engineering librarian from August 1999 until March 2000, when he came to the Mathematics Library.

Over the last eleven years, he has worked to develop libraryrelated automated systems, and to enhance public interfaces to the online catalog and other library-wide bibliographic databases. In the spring semesters he teaches at the Graduate School of Library and Information Science.

Also new to the Mathematics Library this fall is library graduate assistant, **Candace Homco-Ryan**. Candace, who has a B.S. in biology, is working towards her M.S. in library and information science. She is responsible for the Mathematics Library website, reference and related information services, and collection development in statistics.

The Mathematics Library is open Monday-Thursday 8:30 a.m. to 10 p.m.; Fridays 8:30 a.m. to 5 p.m.; Saturdays 1 to 5 p.m.; and Sundays 1 to 10 p.m.

How to	o Donate
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#### **Department of Mathematics Contribution Form**

The Department of Mathematics welcomes gifts from alumni and friends. They help support our students, faculty, library, and renovation projects. Use this form to make your contribution.

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#### **Braunfeld continues math education activities**

Though retired, **Peter Braunfeld** continues to be active in mathematics education. Last spring he worked with a group of mathematicians, mathematics educators, teachers, and school administrators from around the state of Illinois to develop materials to use in statewide workshop programs to help middle school teachers improve their teaching of mathematics. This project was funded by the Illinois State Board of Education.

He spent the summer as a visiting senior scientist at the Education Development Center (EDC) in Newton, MA, where he worked with EDC staff on a variety of mathematics related projects, including creating an on-line database of mathematics problems for teachers to use as supplements in their teaching ("Problems with a Point").

For the Fall 2000 semester, Professor Braunfeld has organized a series of ten talks by distinguished, nationally recognized mathematics educators entitled "Issues in K-12 Mathematics Education — 2000." Details about the lecture series can be found on the web at: http://www.math.uiuc.edu/k-12math.

Later this fall, Braunfeld will give an invited talk at the annual meeting of the Illinois Council of Mathematics Teachers. He will discuss the last 50 years of school mathematics reform and ask "What did we do right? What did we do wrong? Where do we go from here?"



Department of Mathematics University of Illinois at Urbana-Champaign 273 Altgeld Hall (MC-382) 1409 W. Green Street Urbana, IL 61801

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