

# Math



# Times

*Department of Mathematics*

*Fall 2005*

## Letter from the Department Chair

We are proud to announce the promotions of Florin Boca to Associate Professor with tenure and of Eugene Lerman and Randy McCarthy to Professor. The promotions were approved by the Board of Trustees at their July meeting.

The College has managed again to reallocate funds for salary raises in a year when state funding for the University has not increased, for which we are grateful. Unintentional over-recruitment of freshmen, even more than last year, has stretched our teaching resources to the limit, and we are grateful to the College for temporarily funding additional graduate teaching assistantships to help bridge the gap.

The faculty are back in the classroom, and we are looking forward to recruiting new faculty members during the forthcoming hiring season. The new recruits will help to replace Professors Dornhoff, Griffith, and Lotz, who have retired, as we announced in the previous issue, as well as Professors Binder, Sullivan, and Varolin, who resigned this summer to take positions at other universities. We wish Professors Binder, Sullivan, and Varolin success in their new positions.

I value your support and welcome your feedback. We all thank you for helping to sustain the excellence of the department and for helping to preserve its unique position in American and international mathematics.



Sincerely,

Daniel R. Grayson  
Chair, Department of Mathematics

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The *Math Times* is published twice a year by the Department of Mathematics at the University of Illinois at Urbana-Champaign. The *Math Times* is available via the web in pdf format at [www.math.uiuc.edu/mathtimes/](http://www.math.uiuc.edu/mathtimes/).

If you would like to receive e-mail notification when a new issue is released, please send an e-mail to [mathtimes@math.uiuc.edu](mailto:mathtimes@math.uiuc.edu). Hardcopies of the newsletter will be mailed upon request.

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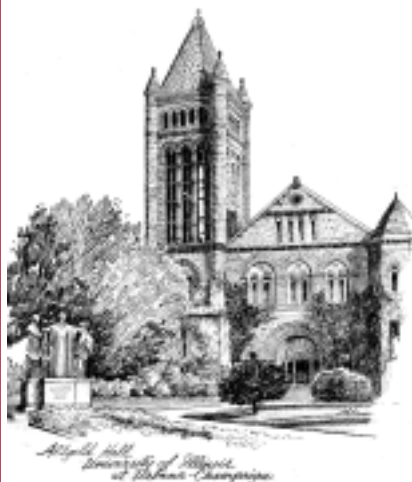
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## Reception at Joint Mathematics Meetings

The Department of Mathematics of the University of Illinois at Urbana-Champaign is hosting a reception at the annual meeting of the AMS and MAA from 5:15-7:00 p.m. on Saturday, January 14, 2006 in San Antonio, Texas. Everyone connected with the Department currently or in the past is encouraged to get together for conversation and to hear what's been happening on campus.

## Math Department hosts ICTM contest

The Department of Mathematics is proud to have hosted the 25th annual Illinois Council of Teachers of Mathematics High School State Finals. This contest brought over 3000 high school students and their teachers to the UIUC campus on a sunny Saturday in April. More than 200 high schools were represented. The high school students tested their knowledge, speed and ingenuity with individual tests, team events, math “relays” and oral presentations. For the teams that were able to arrive the Friday before the contest, the department’s undergraduate organization, MATRIX, sponsored an evening of recreation and pizza and a chance to meet Mathematics students and faculty. This is now our fifth year hosting the contest and data shows that approximately one third of high school seniors who come to campus for the state finals subsequently enroll at UIUC as undergraduates. The contest couldn’t take place without the generous efforts of about 250 student, faculty and staff volunteers, many of whom are themselves contest “alums.”

## Scholarships awarded

Congratulations go to the following LAS Secondary Education students who were honored at the College of Education Student Recognition Brunch held October 15, 2005. The mathematics undergraduates who received a William Chandler Bagley Scholarship are: Lindsay Babich, Scott Ball, Melissa Johnson, Katie Muren, Morgan Polikoff, and Abbey Rechner. Janelle Marie Bledsoe received a Robert L. and Rena M. Williams Scholarship.

## MATRIX: *the math club on campus*

Mathematical Advancement Through Research & Idea eXchange (MATRIX) is an organization dedicated to meeting the needs of today’s math students. MATRIX was started at the end of Spring 2004 semester in an effort to foster better relationships between existing math faculty and the students taking their courses. MATRIX events also enable students enrolled in math courses to meet other students and form study groups for their courses.

In an effort to promote fellowship between math-oriented individuals; including students, faculty and staff, MATRIX hosts round table discussions and social events with different guest math faculty members who can share information pertaining to math research opportunities and possible career paths for math majors. In addition to weekly meetings with the “problem of the week” up for discussion and study sessions, activities this fall include hosting a few of the Thursday afternoon receptions that are held before the department’s Mathematics Colloquia each week, and “pool with faculty at Legends” where students and faculty play some pool and get to know each other in an informal setting. To learn more about MATRIX, visit their website at [www.uiuc.edu/ro/matrix](http://www.uiuc.edu/ro/matrix).

# Altgeld Hall restoration continues

by Joyce Roberts

Altgeld Hall was designed by Nathan C. Ricker and James M. White, and construction was completed in 1897. There were several additions to the building, the last being added in 1956. In the early 1900s the second floor was the location for university administration, including the president and trustees, and the rest of the building housed the School of Library Science. In the 1920s the building housed the School of Law, and in the 1950s the building became home to the Department of Mathematics and the Mathematics Library, and remains so today.

Historical information and pictures of Altgeld Hall can be found on the department's website at <http://www.math.uiuc.edu/History/>.

Altgeld Hall is considered one of the finest examples of Richardsonian Romanesque architecture in Illinois, and was named after Illinois Governor John P. Altgeld. He was instrumental in the appropriation for and selection of the building's design and location. In 1970, Altgeld Hall was placed on the National Register of Historic Places.

The preservation of Altgeld Hall has been a priority for members of the Department of Mathematics, and their efforts have been supported by campus administration. In recent years foundational work was done by a preservation specialist, Brent Humecki, to identify the original decorative designs and colors used in those designs. He prepared stencils and a detailed report that will eventually be used in the restoration process. Last year, the carpet was removed and the wooden floor restored in the 3<sup>rd</sup> floor rotunda area. In addition, the light fixtures were replaced in the rotunda. Campus administration has a strategic plan for restoration of the historical buildings around the quad, and Altgeld Hall is



Fireplace in 313 Altgeld Hall. The Undergraduate Office recently relocated their offices to 313 Altgeld where visitors can enjoy the woodwork and view to the north from the tower windows.

on that list. The Department of Mathematics will continue to work with administration in the planning process.

One of the administrative offices for the Department of Mathematics has moved to the space where the president's office complex was located, and there are plans underway to restore this area to its original beauty. In addition, there is a plan to remove a wall that was erected in the mid-1900's to provide additional office and classroom space, but divided the room where the trustees originally met.

Both of these rooms house fireplaces that are beautiful and ornate, and have been hidden away from the public eye for years. Each hearth and front is decorated with glazed ceramic tile laid in a brick pattern. The fireplace inserts and grates are done in ornate wrought iron. The carved wood surrounds are most impressive, and include a double mantel, pillars on each side, and detailed scrollwork. The original beauty of the fireplaces has been very well preserved.

If you would like to become part of the restoration efforts with a monetary donation, go to the Department of Mathematics homepage, [www.math.uiuc.edu](http://www.math.uiuc.edu), and click on the button in the lower left corner marked, "give online" and choose "Altgeld Hall Restoration" from the drop-down menu.



Wall border uncovered during preservation research of Altgeld Hall.

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## News from the Graduate Office

■ **Changes in the front office.** Last summer Phil Griffith, Director of Graduate Studies since 2000, retired and handed over responsibility for the doctoral program to Steven Bradlow. At the same time Margit Messmer moved to Leeds, UK and left the Masters programs in the care of Karen Mortensen. Rick Gorvett remains the head of the Actuarial Sciences Masters program, and most of the real work in running the Graduate Program continues to be done expertly and efficiently by Lori Dick (Assistant to the DGS) and Marci Blocher (Graduate Secretary).

■ **New Ph.D.'s** In the period between Fall 2004 and Summer 2005, a total of eighteen new mathematics Ph.D.'s were deposited in the Graduate College. Ten of these most recent graduates took postdoctoral or temporary positions in mathematics departments (nine in research active departments), five went on to permanent academic positions (one in economics, the rest in mathematics), and two accepted jobs in industry (one in investment banking, and one with Wolfram, Inc.). We have high hopes for all of them.

■ **Incoming class.** Forty-two new students joined our Department at the beginning of this semester, including 29 in the Ph.D. program, 9 in the Actuarial Sciences Masters program and 4 in our other Masters programs. The members of this incoming class hail from eleven countries on five continents; twenty-one are from the USA, seven from China, six from Korea and one each from Brazil, Dominican Republic, Kenya, India, Rumania, Spain, Taiwan, and Thailand.

■ **Invited talks and conference presentations:** In the past year the following students in our graduate program gave invited presentations on their research.

o Fourth year student **Lucas Sabalka** spoke at four conferences last year, including an invited address at an AMS meeting in Albuquerque (October, 2004).

o Seventh year student **Hemanshu Kaul** has been invited to present his work at the Illinois Institute for Technology, Chicago in October 2005, and has been invited to chair a short session on Special Topics in Graphs & Networks at the annual INFORMS meeting in San Francisco, November 2005.

o Third year student **Nadia Masri** spoke in the Graduate Student Seminar at the University of Georgia.

o Fourth year student **Chris Lee** will present an invited paper at the January AMS meeting in San Antonio.

o Seventh year student **Iana Anguelova** presented an invited paper at the October AMS meeting in Annandale-on-Hudson, NY.

o Fourth year student **Gexin Yu** will present an invited talk at the 19th Midwest Conference on Combinatorics, Cryptography and Computing in Rochester, NY.

o Sixth year student **Stephanie Treneer** gave an invited talk at the Combinatorial and Additive Number Theory Conference (CANT 2005) in May, and will present an invited paper at the January AMS meeting in San Antonio.

o Seventh year student **Jinjia Li** presented an invited paper at the AMS meeting in Atlanta.

### ■ **Papers published in the past year:**

o Fourth year student **Lucas Sabalka** had two papers published in the last year, one in the journal *Algebraic and Geometric Topology*, and one in a *Contemporary Mathematics* volume on Group theory, statistics, and cryptography.

o Seventh year student **Hemanshu Kaul** had three papers accepted for publication in 2005; two are jointly authored with his advisor Sheldon Jacobson and will appear in the journal *Mathematical Programming*, and one is a joint publication with Professor A. Kostochka (UIUC) and will appear in the journal *Combinatorics, Probability and Computing*.

o Fourth year student **Maosheng Xiong** had a jointly authored paper (with Kegin Feng) published in the *Journal of Number Theory*.

o Sixth year student **Stephanie Treneer** has had a paper accepted for publication in the *Proceedings of the London Mathematical Society*.

o Seventh year student **Jinjia Li** published a paper in the *Journal of Algebra*.



■ **New Take-the-speaker-to-lunch program.** One of the great advantages of a large active department such as ours is that it is host to a steady stream of noteworthy visitors. The chance to interact with such visitors is an opportunity that should be exploited to the fullest. Recognizing that one easy way for graduate students to do so is through social events such as lunches and dinners, the Graduate Office is now offering to pay for the meal. (Well not quite: we'll subsidize up to \$8's worth). A handsome voucher designed with professional help from Tori Corkery is available from

the Graduate Office and can be redeemed in the Business Office.

■ **Fun facts:** The first Ph.D. was awarded by this department in 1903. Between that time and August 2005, there have been 1065 others. The average number per year over the last ten years is twenty. This represents approximately 10% of the total number per year produced by the top 48 research departments in the U.S. (i.e., by those classified as Group I in AMS Annual Surveys).

## Bradlow appointed Director of Graduate Studies

Steven Bradlow was appointed Director of Graduate Studies in July 2005. He received his PhD in 1988 from the University of Chicago. His thesis advisor was Karen Uhlenbeck. After a year at Stanford and a semester as an MSRI Postdoctoral Fellow, he spent two years as an S.E. Warschawski Assistant Professor in the UC San Diego mathematics department. In 1991 he was awarded an NSF-NATO Postdoctoral Fellowship to participate in a year-long program on Gauge Theory at the Mathematical Institute at Warwick University in the UK. He joined the UIUC Mathematics Department in 1992.



He has had two appointments at the UIUC Center for Advanced Study, one as a Beckman Fellow (in 1994) and one as an Associate (in 2002). In 2002 he went as a Clay Foundation Emissary to a workshop at the Schrödinger Institute in Vienna.

In his research Professor Bradlow studies vector bundles and moduli spaces. These play a central role in areas of mathematics such as algebraic geometry, complex differential geometry, symplectic geometry, and also in mathematical gauge theory, where they provide the setting for far-reaching generalizations of Maxwell's equations for electromagnetism. In his most recent work he and his collaborators have used moduli spaces of a special class of bundles called Higgs bundles to study questions in geometric group theory. Though he wishes he had a better understanding of it all, the problems he's interested in are caught up in the cascade of ideas which string theory has sent swirling through geometry.

He has published 25 papers in peer-reviewed journals and co-edited the Proceeding of the 1<sup>st</sup> USA/Brazil Workshop on Geometry, Topology and Physics.

He helped organize a workshop on Geometry, Topology and Physics in 1996 in Campinas, Brazil, a workshop on Higgs Bundles at MSRI in 2002, and was on the organizing committee for the joint meeting of the AMS, the London Math Society and the South African Math Society in Pretoria, South Africa

in 1997. He has also organized three special sessions at AMS meetings, one on Geometry and Physics, one on Extremal Metrics and Moduli Spaces, and one on Holomorphic Bundles and Complex Geometry. Together with John D'Angelo and Robert Leigh (Physics) he helped organize a 1999 Workshop on 'Mathematics from Physics - Recent Trends and New Development' which was held on this campus. He is on the Scientific Committee of the European Vector Bundles on Algebraic Curves (VBAC) group.

Professor Bradlow is a co-developer of **EggMath** [[chickscope.beckman.uiuc.edu/explore/eggmath/](http://chickscope.beckman.uiuc.edu/explore/eggmath/)], a popular website which has a collection of web-based modules covering topics in mathematics related to eggs. This was developed as part of the Beckman Institute's ChickScope project in which K-12 classes studied chicken embryo development using a remotely controlled magnetic resonance imaging (MRI) instrument.

He is married to Bridget Carragher and has two children.

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## New faculty



### **József Balogh, Assistant Professor**

Ph.D. 2001, University of Memphis

Balogh completed his Ph.D. in Mathematics with advisor Béla Bollobás at the University of Memphis. He received his Diploma (M.Sc.) in Mathematics with honors (summa cum laude) from Szeged University, Hungary in 1995. His honors include the K. Renyi Prize, awarded by the J. Bolyai Mathematical Society for outstanding research by undergraduate students (1993); and 2-time silver prize winner on the International Mathematical Olympiade (1989, 1990). After receiving his Ph.D., he held a Shannon Postdoctoral Fellowship at AT&T Labs, Shannon Laboratory; was a Visitor at Institute for Advanced Studies, Princeton, in 2002; and most recently was a Zassenhaus Assistant Professor at The Ohio State University from 2002-2005. His research areas include Bootstrap percolation, interacting particle systems, extremal graph theory, graph theory, hypergraphs, combinatorics, and discrete computational geometry. Jozsef is married; he and his wife are expecting their first child in November. He is a big soccer fan and chess player.

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### **Eduard-Wilhelm Kirr, Assistant Professor**

Ph.D. 2002, University of Michigan

Kirr, a native of Romania, received his Ph.D. from the University of Michigan while interning during summers for Bell Laboratories. Before coming to Urbana-Champaign he spent three years as a L. E. Dickson instructor at the University of Chicago. His main research concerns the theory and simulations of linear and nonlinear PDE's. Kirr is particularly interested in interactions between waves and finite dimensional dynamical systems and their applications in Quantum Mechanics, Statistical Physics, Optics and Fluid Dynamics. His hobbies include tennis and swimming. Kirr is married to Mirela Kirr; they have a seven year old son, Alex.

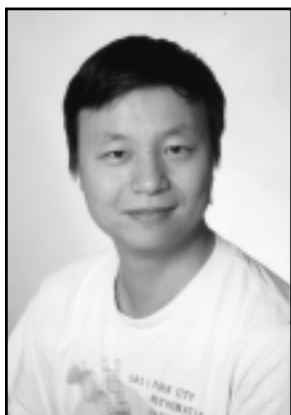
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### **Christopher Leininger, Assistant Professor**

Ph.D. 2002, University of Texas at Austin

Leininger received his Ph.D. from the University of Texas at Austin under the supervision of Alan Reid in May 2002. His initial work was in the geometry and topology of surfaces in hyperbolic 3-manifolds. He went to Barnard College and Columbia University where he held an NSF postdoc fellowship in conjunction with adjunct assistant professorships. Since the time of writing his thesis, Leininger has taken an interest in mapping class groups and Teichmüller theory with an eye toward the various connections to hyperbolic geometry. He was married to Katie Leininger in May 1995. Their son Kaleb (March 2003) and daughter Emily (April 2005) keep them on their toes.



### **Xiaochun Li, Assistant Professor**

Ph.D. 2001, University of Missouri at Columbia

Li, a native of China, was a Hedrick Assistant Professor in 2001-2004 at UCLA and held a position in 2004-2005 at the Institute for Advanced Study before coming to Illinois. His research interests are mainly in harmonic analysis. He and his wife have a 5-month-old son. Li enjoys classical music and playing “Go”, a board game originated from China 4000 years ago.



### **Christian Rosendal, Assistant Professor**

Ph.D. 2003, University of Paris, Pierre et Marie Curie, France

Rosendal did his graduate work on applications of descriptive set theory to the isomorphism theory of Banach spaces under the direction of Alain Louveau at the University of Paris, Pierre et Marie Curie. In the period after obtaining his Ph. D. he has mostly been engaged in a broad study of Polish groups arising in model theory and dynamics in order to understand them both as topological groups and as purely abstract groups. One successful part of this study has been to develop a theory of automatic continuity of group homomorphisms and apply this to different problems in dynamics and the theory of topological groups. Before getting caught up in the mathematical world, Christian worked at becoming a philosopher, and now, when not doing mathematics, he can often be found hiking and mountaineering in French, Spanish and Norwegian mountain ranges.



### **Zoi Rapti, J.L. Doob Research Assistant Professor**

Ph.D. 2004, University of Massachusetts, Amherst

Rapti studied in Athens, Greece where she received a B.S. in Mechanical Engineering. She then attended the University of Massachusetts at Amherst where she received her Ph.D. in Mathematics in 2004. After that she spent one year in Princeton, NJ at the Institute for Advanced Study. Her research interests are in applied mathematics. She has been studying the thermodynamics of nonlinear models for DNA denaturation using a transfer operator approach, and instabilities of the nonlinear Schrödinger equation using dynamical systems methods.

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## New faculty



### **William Hart, Visiting Assistant Professor**

Ph.D. 2004, Macquarie University

Hart obtained his Ph.D. at Macquarie University in Sydney, Australia. His supervisor was Alf van der Poorten and his thesis was in the area of explicit algebraic number theory and modular equations. Since then he has worked at the Mathematical Institute in Leiden, The Netherlands, with Peter Stevenhagen on various aspects of algebraic number theory, and he also studied some modern Iwasawa theory. His many (too many) hobbies currently include computer programming, "tricking" (its a kind of extreme sport), watching 80's movies and TV shows and writing expositions on various technical and also religious topics.



### **Anca-Magdalena Mustata, Visiting Assistant Professor**

Ph.D. 2003, University of Utah

Anca Mustata, a native of Romania, received her Ph.D. from the University of Utah under the supervision of Herbert Clemens. During 2003-2005 she was a postdoctoral fellow at the University of British Columbia under the supervision of Jim Bryan. She will be visiting MSRI during the Spring 2006 semester. Her interests are in the area of algebraic geometry inspired by physics, particularly Hilbert schemes of curves in special Calabi-Yau threefolds and moduli spaces of stable maps.



### **Andrei Mustata, Visiting Assistant Professor**

Ph.D. 2003, University of Utah

Andrei Mustata, a native of Romania, received his Ph.D. from the University of Utah under the supervision of Aaron Bertram. During 2003-2005 he was a postdoctoral fellow at the University of British Columbia, working with Kai Behrend. He will be visiting MSRI during the Spring 2006 semester. His current interests are in the area of algebraic geometry inspired by physics, particularly moduli spaces of stable maps. Andrei and Anca are married and have a five year old daughter, Anna.



### **Krzysztof Krupinski, Visiting Assistant Professor**

Ph.D. 2004, Wroclaw University, Poland

Krupinski, a native of Poland, received his Ph.D. from the Wroclaw University under the supervision of Professor Ludomir Newelski. After graduating in 2004, he spent one year working for the Polish Academy of Sciences. His research area concerns model theory and its connections with algebra and topology. Professionally demanding, privately he is a loving husband for his wife Kasia. Being in Illinois, he has found special joy in playing Frisbee.



## Service awards presented to staff

Department of Mathematics staff members, Kay Daly, Cherri Davison, and Sara Nelson, recently received service awards from the University of Illinois Board of Trustees.

**Kay Daly**, who received her 15 year service award, has been with the Department of Mathematics for the entire 15 years of service. She started as a Secretary II receptionist in the main office in July 1990. After a few years, she moved from the main office to work for the undergraduate director, Elliot Weinberg, and with the freshman advisor, Dianna Armstrong. She has been in the Undergraduate Math office ever since, working with Dianna and two other directors, Graham Evans and now Randy McCarthy. She enjoys the lively pace of the undergraduate office and finds dealing with the students a rewarding experience.

**Cherri Davison** received her 20 year service award. She was hired by the Department of Mathematics in October 1984 as a Clerk Typist II and started in the main office doing various duties, including technical typing and assisting Joann Hower with the faculty search. In 1989, she moved to the mathematics office in Illini Hall, where she worked with Peter Braunfeld for 3 years helping organize the summer camps for high school students and the math teacher workshops. Later she worked with Tony Peressini with the Distance Education Program, the Math Teacher Link Program and the Calculus & *Mathematica* Program. She also helped organize the Allerton Conference held at Allerton Park in 1993. During the next three years she worked with Karen Mortensen organizing the Illinois Council of Teachers of Mathematics (ICTM) State Math Contest Finals for over 2000 high school students from around the state. In 2003, Cherri completed the circle and returned to the main office where she performs a number of duties, one being receptionist for the department.



Cherri Davison, seated, Kay Daly (back left), and Sara Nelson receive service awards.

**Sara Nelson** received her 15 year service award. Sara, a native of Danville, graduated from Danville Area Junior College in 1969, moved to Champaign, and in August 1969 took a position as a Secretary III in the Conferences and Institutes section of the University of Illinois which was housed in Illini Hall at that time. She held that position for 8 years. The job was interesting—travels to Chicago, Rock Island, and New Orleans, to name a few, and almost weekly trips to Allerton House. She left the University in 1977 when she landed a series of typesetting jobs in industry. Sara returned to the University in 1997 with a position as a Secretary III in the Department of Mathematics where she continues to work in the main department office. Her skill in typing technical math papers continues to be a valuable resource to the faculty.

## On-line giving

Today, more than ever, the Department of Mathematics relies on the financial support of its alumni and friends. And now we've made giving even easier with online giving! Visit the department's homepage at [www.math.uiuc.edu](http://www.math.uiuc.edu) and click the "Give Online" icon. A complete list of available funds with descriptions can be found there. There are many different ways that you can support the department in its educational and research missions through student fellowships and scholarships, prizes and awards for undergraduate and graduate students, support for the library, or funds for maintaining Altgeld Hall. Giving in support of these and other important missions truly makes a difference by promoting excellence in the UIUC Department of Mathematics.

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## Faculty News

### ■ John D'Angelo

D'Angelo has received a three-year term appointment as a "Kenneth D. Schmidt Professorial Scholar" by the College of Liberal Arts and Sciences. The award, newly funded by a donation to LAS from Schmidt, a member of the University of Illinois Board of Trustees, will provide annual discretionary funds to support his activities. D'Angelo is spending fall 2005 as an Associate in the Center for Advanced Study.

### ■ Ilya Kapovich

Kapovich has been awarded a Humboldt Foundation Research Fellowship to work on a research project at Frankfurt University in Germany during the Spring 2006 semester.

### ■ Richard Laugesen

Over the summer, Laugesen conducted research in harmonic analysis at the University of Canterbury, New Zealand. He was supported by a Visiting Erskine Fellowship, funded by a generous bequest in the 1960s from an alumnus of the University of Canterbury.

### ■ Rick Gorvett

Gorvett, Director of the UIUC Actuarial Science Program, was named the State Farm Companies Foundation Scholar in Actuarial Science, at a ceremony last May. This position was created recently by a generous endowment from the State Farm Companies Foundation.

Gorvett was recently presented with the Casualty Actuarial Society Research Award for 2004, given by the American Risk & Insurance Association. This award honors the paper, published in the *Journal of Risk and Insurance*, which makes the most valuable contribution to research in casualty actuarial science.

The Actuarial Science Program has grown considerably in recent years, with currently over 250 undergraduate majors, and 25-30 graduate students. Gorvett, director of the program, reports that demand for our graduates, for both internships and permanent actuarial positions, continues to be good. Among other recent developments, State Farm has set up a Research Center, in the UIUC Research Park at the south end of campus, which hires a number of actuarial science students as interns each semester to work on several interesting and high-visibility projects.

### ■ Joseph Rosenblatt

In May 2005, Rosenblatt traveled in China for approximately three weeks. Rosenblatt gave talks while in Beijing at Beijing University and the Mathematical Institute in the Chinese Academy of Sciences. He visited the Harbin Institute of Technology, where he gave a talk and spoke with faculty and graduate students in the Department of Mathematics. He traveled to Jinan, where he gave a talk at Shandong University and met Professor Tao Zhan, the president of the university. Then Rosenblatt went to Shanghai and gave talks at two different universities in Shanghai about graduate studies and careers in mathematics. Rosenblatt is planning to return to Harbin next spring to give a series of lectures in ergodic theory and harmonic analysis.

### ■ Derek Robinson

In August, Robinson attended the conference "Groups-St. Andrews 2005" in St. Andrews, Scotland. He gave a one hour invited lecture entitled "The Maier-Schmid problem for infinite groups".

### ■ Aimo Hinkkanen

In the summer of 2005, Hinkkanen visited Finland and Switzerland. He gave a talk at the Computational Methods in Function Theory conference at the University of Joensuu, Finland. This series of conferences was initiated in 1989 to encourage contacts between mathematicians from the West and from the developing world, and meets about every fourth year. There were about 250 participants. Previous meetings were held in Chile, Malaysia, Cyprus, and Portugal. He also gave a talk at the Fourier Series Methods in Complex Analysis workshop at the University of Joensuu Research Station at Mekrijärvi, which is located about twenty miles from the easternmost point of the European Union. There were about 25 participants from ten countries.

He then gave an invited address at the XXth Rolf Nevanlinna Colloquium at the Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland. This conference series, which typically has about 150 participants, meets on an average every third year, mostly in Finland or Switzerland; but there have also been meetings in the United States, and the next one will be in Kyoto, Japan, in 2009. Finally, he visited the Universities of Joensuu and Helsinki to collaborate with colleagues there.

### ■ Julian Palmore

In June, Palmore became Director of the Program in Arms Control, Disarmament and International Security (ACDIS) in International Programs and Studies at UIUC. As director of ACDIS he has travelled to Alaska, the United Kingdom and California as part of an outreach program to promote cooperative and collaborative agreements with other national security and research programs. Four papers written by his students in the spring semester course Math 367-Mathematical Issues in National Security are being published. Two of the papers appeared in the September edition and a third will appear in the December edition of the international journal *Defense & Security Analysis* in a new section called "Fresh Perspectives"; and the fourth paper has been published in the inaugural fall edition of *The Illinois International Review*.

Palmore participated in two conferences in the UK at Wilton Park on "Missile defense and Europe" in May hosted by the U.S. Department of State and "Is U.S. counterterrorism policy working?" in July. He participated in a third conference at the end of September on "Chemical and Biological Weapons Proliferation: Developing New Responses". His article on missile defense and Europe will be published in the December edition of *Defense & Security Analysis*.

Next spring semester Palmore will offer a course Math 490 Mathematical Issues in National Security II

on mathematical topics introduced in the spring 2005 course. This topics course will examine in depth the mathematical underpinnings of missile defense, chemical-biological dispersion and various operations research issues.

### ■ John E. Wetzel

Wetzel received the Lester R. Ford Award in August 2005 at the Summer MathFest in Albuquerque, NM. Wetzel and his co-author, Steven Finch, received the award for their article "Lost in a Forest," *The American Mathematical Monthly*, October 2004, v. 111, no. 8, pp. 645-654. Wetzel is an Emeritus Professor in the Department, having been with the department since 1961. Finch received his Master's degree from the department in 1985. The Ford Award was established by the Mathematical Association of America (MAA) in 1964 to recognize authors of articles of expository excellence published in *The American Mathematical Monthly* or *Mathematics Magazine*.

### ■ Hiram Paley

Earlier in October, Paley was presented with the Roger Baldwin Award from the Roger Baldwin Foundation of the American Civil Liberties Union (ACLU) of Illinois. Paley, a Professor Emeritus, joined the UIUC Department of Mathematics in 1959. He is a former mayor of Urbana and has been a member of the ACLU since 1960.

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## Alumni News

**Dr. Wayne Nelson** of Schenectady, NY received the 2005 Lifetime Achievement Award of the Reliability Society of the Institute of Electrical and Electronic Engineers (IEEE). This award recognizes his many innovative developments of practical methods for analysis of reliability and accelerated test data, an effective and knowledgeable teaching of thousands of reliability practitioners, and skilled consulting which lengthened the life on many hundreds of clients' products, including toasters, heart pacemakers, car and jet engine components, and aluminum siding, among many others.

He also received the Shewhart Medal in 2004 which was awarded by the American Society for Quality. The Medal honors his career of outstanding technical leadership.

Dr. Nelson is a graduate of the California Institute of Technology and received his Ph.D. in 1965 from the University of Illinois. Formerly with General Electric Research & Development for 25 years, he now privately consults and gives courses for companies, professional societies, and universities. For his technical contributions, he was elected a Fellow of the Institute of Electrical and Electronic Engineers, the American Society for Quality, and the American Statistical Association. He recently spent four months in Argentina on a Fulbright Award doing research and lecturing on analysis of product reliability data.

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# Merit Workshop Program success continues

by Jennifer McNeilly

Established in 1987, the Merit Workshop Program in the Department of Mathematics was designed to address the issue of underrepresentation in mathematics and science-based majors. Merit sections are offered in the three semesters of the Calculus sequence. The program targets students with high potential who are members of groups such as ethnic minorities, women, and students from small/rural high schools. Students in these groups have traditionally been at high risk for failure in calculus.

Due to the initial success of the Math Merit Program, the Chemistry Department began their own Merit Program in 1990 and the Biological Sciences Merit Workshop Programs just began in 2004. Each summer a select group of students who have been accepted into the University are invited into the Merit Programs. Selection is based on a variety of information, including the student's major, class rank, and ACT Math subscores. All the Merit Workshop Programs work together in this recruitment process. The programs also collaborated recently to submit a grant proposal to the NSF and hope to continue such collaborations in the future.

Merit students attend 2-hour workshops in place of the usual hour-long discussion sections. The Merit TA creates a worksheet of problems that relate to the topics being covered in lecture, and the students work in small groups on those problems. While the problems are based on the material covered in lecture, they are intended to stretch each student's abilities to the fullest extent. The TA circulates around the classroom providing feedback to students as they work, but they provide few direct answers. Instead, students are encouraged to "talk mathematics" by thinking aloud and interacting with other students. Often, different groups of students are encouraged to compare answers and strategies.

This focus on student-student interactions helps in reaching one of the main goals of the Merit Program: to develop a community of scholars among the students. Merit students develop friendships based on common academic interests and often form lasting study groups that extend to other courses beyond calculus. Thus, the Merit program not only combats the high-risk these students face for failure in calculus, but also provides them with an academic and social support system.

Due to this active participation with the material and the community of scholars that develops through the Merit

program, Merit students often perform better in their calculus courses than students in traditional settings. In 7 of the 9 Fall semesters of Calculus I from 1994 to 2002, the students in the Merit sections earned a higher calculus grade point average than the non-Merit students. More specifically, the Merit African-American students earned a higher calculus GPA than the non-Merit African American students all 9 semesters; two of those semesters the Merit African-American students GPA was more than an entire point higher than their non-Merit peers. The female Merit students earned a higher calculus GPA than the non-Merit females 8 out of the 9 semesters. Results like these, as well as other quantitative and qualitative data, indicate the success of the Merit Workshop Program over the past 10 years. We hope these results continue and look forward to exploring ways to expand and improve the program even more.

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## Meet the director

Jennifer McNeilly, Director of the Merit Workshop Program in Mathematics, earned her Bachelor's (1999) and Master's (2001) degrees in the Teaching of Mathematics from the University of Illinois at Urbana-Champaign. The official position of Director of the Merit Workshop Program was created last year and Jennifer earned the position in August 2005 after a national search.

She has been involved with the Merit Program in one way or another since Fall 2000—first as a TA, then as unofficial director since Fall 2002, and now as official Director. In addition to working with the Merit Program, she has taught Math 125 (2001-2002), Math 114 (2002-2003), and Math 012 (2003 to present). On a more personal note, Jennifer is a "townie" who has lived in Champaign her entire life. She married her high school sweetheart in 1999 and they have two sons.



Jennifer McNeilly