

LITTLE by little

THE NEWSLETTER OF THE DEPARTMENT OF MATHEMATICS AT THE UNIVERSITY OF FLORIDA
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THE SUMMER SCHOOL IN ALGORITHMIC RANDOMNESS

by Douglas Cenzler

Editorial Note: In previous issues of the newsletter, we have reported on how the department in cooperation with 9 other universities, including Chicago and UC Berkeley, had been awarded an NSF Focused Research Group grant in Algorithmic Randomness. Here is how the summer school associated with this proposal unfolded.

The University of Florida hosted the Algorithmic Randomness Summer School during June 8–19, 2008 with \$30,000 support from the National Science Foundation. Doug Cenzler organized this meeting with help from graduate students **Paul Brodhead** and **Ali Dashti**. Participants were housed in the Beaty Towers residence hall, with easy access to the nearby campus cafeteria and also to the swimming pool. The conference kicked off with a reception in the Little Hall Atrium and concluded with a party at the Cenzers. A group of participants enjoyed tubing down the Ichetucknee on a free day during the meeting.

Tutorials were given by Jan Reimann (UC Berkeley): Introduction to Algorithmic Randomness; Andre Nies (Auckland, NZ): Randomness in Computability; John Hitchcock (Wyoming): Algorithmic Randomness in Computational Complexity.

There were seven research talks, including one by Brodhead and one by former UF postdoc **Rebecca Weber** (now Assistant Professor at Dartmouth). More than 20 graduate students and postdocs attended, including participants from England,

France, Germany, Japan, Singapore and South Africa, as well as the Universities of California, Chicago, Michigan and Wisconsin and also 5 of our own students.

Staff member **Margaret Somers** handled the reimbursements and other paperwork with her usual excellent efficiency, and also provided substantial refreshments during the conference, so that participants could concentrate on their scientific activities.

There was some excitement when two of the visitors en route from Germany were temporarily detained in Charlotte, NC by homeland security. It seems that visitors coming for a “school” need a special (S1) visa and may not be admitted under a Tourist Visa. The officials at the Charlotte airport called Professor Cenzler on his cell phone while he was at the Gainesville airport picking up conference participants. Fortunately, he was able to convince them that these young men were actually mathematicians and that our summer school was in reality a scientific conference (for which a Tourist Visa is sufficient). So the German students were released from detention and were able to catch a flight to Gainesville later that night. In another amusing bureaucratic aspect, the participants were required to sign an attendance sheet each day in order to receive the promised support.



Attendees Gather in Front of Little Hall

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SPRING TOPOLOGY AND DYNAMICAL SYSTEMS CONFERENCE AND THE ULAM CENTENNIAL CONFERENCE

by Phil Boyland

The University of Florida Department of Mathematics hosted the 43rd Annual Spring Topology and Dynamical Systems Conference (STDC) followed by the Ulam Centennial Conference (ULAM100) from Saturday, March 7 through Wednesday, March 11, 2009. Over 250 participants attended the conferences; there were 14 plenary talks, 12 semi-plenary talks, and over 125 additional invited talks in 11 parallel special sessions. [Ed., it was indeed an impressive sight to see the tour busses arrive from the Clarion Inn at 8:30 am and disgorge a group of over 200 participants into the Little Hall parking lot.] Department members **Lou Block**, **Phil Boyland**, **Beverly Brechner**, **Sasha Dranishnikov**, and **Jed Keesling** formed the conference organizing committee.

The Annual Spring Topology and Dynamical Systems Conferences are among the most successful series of topology/dynamics conferences in the nation. The STDC series began in 1967 at the University of Arizona and has been held yearly ever since, including several times at UF. It has grown both in size and scope and now includes active researchers in many fields including geometric topology, geometric group theory, continuum theory, set theoretic topology, and dynamical systems.

Stanislaw Ulam, one of the preeminent mathematical scientists of the 20th century, was a Graduate Research Professor at the University of Florida from 1974 through 1984, and would have turned 100 in spring, 2009. In light of Ulam's many contributions to topology, dynamics, and related fields, it was felt fitting that we should combine the annual STDC with an Ulam Centennial celebration.

While the public perhaps best remembers Ulam for his crucial insight during the development of the hydrogen bomb, his scientific and mathematical contributions were wide and deep. They include the Monte Carlo method for numerical simulations, the Fermi-Ulam model and the Fermi-Pasta-Ulam problem in mechanics/dynamical systems, the Ulam conjectures in number theory and graph theory, Ulam's work on measurable cardinals in set theory, the Oxtoby-Ulam Theorem in ergodic theory, the Borsuk-Ulam Theorem in topology, and his work on the Scottish Book¹. During Stan's tenure at UF, he had active interactions with numerous mathematics,

science and engineering faculty.

The Ulam Centennial Conference was designed to reflect this depth and variety of Ulam's contributions. We were very fortunate in having many experts here at the University of Florida with knowledge of the various areas of Ulam's research and many faculty members made significant contributions to the conference organization. **DeLeenheer**, **Martcheva**, and **Pilyugin** organized a session on BioMathematics; **Bona** a session on Combinatorics; **Klauder** and **Shabanov** a session on Ulam's Contributions to Physics; **Zapletal** a session on Ergodic Theory and Set Theoretic Complexity; **Chen**, **Ritter**, and **Wilson** put together a session on Image Processing. In addition, department members were instrumental in the organization of most of the usual STDC Special Sessions with **Rudiyak** in Geometric Topology, **Brechner** in Continuum Theory, and **Block** in Dynamical Systems. **Dranishnikov** coordinated all the plenary and semi-plenary speakers.

The STDC took place March 7–9 and consisted of its traditional mixture of parallel special sessions, plenary and semi-plenary lectures. One of the conference highlights was the department's 11th Annual Ulam Colloquium given by **Dan Maudlin**. Professor Maudlin was a collaborator of Ulam when they were both colleagues here in the UF Mathematics Department, and Dan is now a Regents Professor at the University of North Texas. His talk, "Reflections on Stan Ulam: The person and his mathematical problems," began with personal recollections of Stan's many interests and talents, and then gave



Graduate Research Professor Stanislaw Ulam Speaking at UF

detailed descriptions of the recent progress on several of the areas of Ulam's mathematical interests. The talk was followed by a barbecue, serving dinner to more than 200 people on the ground floor of Little Hall (graciously arranged by **Margaret Somers** and helpers on a pleasant sunny Sunday). Among the many plenary speakers was **Albert Fathi**, attending the conference from the Ecole Normale Supérieure in Lyons, France. While Fathi was on the faculty during the late 1980's, newsletter editor Paul Ehrlich had suggested to him a problem in General Relativity in May 1988. Twenty years later, Fathi and his collaborators applied Kolmogorov, Arnold, Moser theory (KAM) to resolve this problem. Reflecting his knowledge of recent American political slogans, Fathi jestingly suggested a modified slogan during his lecture in which he was discussing his approach to resolving the outstanding relativity problem with these dynamical system methods as "Yes, we KAM."

The Ulam Centennial Conference took place March 10th and 11th and consisted of plenary talks given by international experts in areas of Ulam's work interspersed with the parallel sessions organized by UF faculty described above. More than 90 participants attended the conference banquet. After dinner, **Nikki Cooper** of Los Alamos National Laboratory delighted the audience with her illustrated lecture, "Stan Ulam—The Heart of the Matter."

The National Science Foundation, the University of Florida College of Liberal Arts and Sciences, the Office of Research, the Department of Mathematics, and the Center for Applied Mathematics supported the conference. In addition, we were very fortunate that our Office Manager, Margaret Somers, took the initiative of applying to the Alachua County Visitors and Convention Bureau. The resulting funding allowed us to provide comfortable transportation and high quality conference materials for the participants.

Inspired by the breadth and depth of Stan Ulam's work, the conferences brought together workers in many areas of science and mathematics. Over five days, students and active researchers had ample opportunities to keep abreast of the latest developments in their field, to learn about exciting developments in areas related to their own work, and to begin and continue fruitful collaborations. All in all, it was an exciting and successful five days.

1. The Scottish Cafe was the cafe in Lwow, Poland, where mathematicians met to spend their afternoons discussing mathematics problems. Ulam has recalled that the tables of the cafe had marble tops, so that at first they wrote directly on the tables in pencil. Then Banach's wife provided them with a large notebook in which proposed problems and answers were written. This book became known as the Scottish Book.

REPORT FROM THE CHAIR

by Jed Keesling



Alladi



DebRoy



Bhargava



Boyland



Cenzer



Chen



D'Anieri



Dorsey



Dranishnikov



Glover



Hager



Keesling



Knudson



Mair



Martcheva



McCullough



Pilyugin



Robinson



Shabanov



Smith



Thompson



Zhang

My first year as Chair has ended. It was a difficult time to say the least. There was economic dislocation of global proportions. Threats of budget cuts at UF created tension throughout the campus. There were countless meetings. No one had a clear idea what the future held. The anxiety was tangible. I am proud to say that our department handled the strain with composure. The dust has now settled. We hope that the worst has past and that fairer winds will blow soon. The long-term economic indicators give us hope.

Mathematics suffered some loss, but we did not suffer the worst that we imagined. On the other hand, the year had its successes. These have lifted our spirits. Here are a few of the accomplishments that we are celebrating.

- Alexander Dranishnikov was promoted to Distinguished Professor. Miklos Bona, Philip Boyland, Sergei Pilyugin, Yuli Rudyak, and Jindrich Zapletal were promoted to Full Professor. Jane Smith was promoted to Master Lecturer.
- Jindrich Zapletal began his J. E. Purkynů Fellowship awarded by the Czech Academy of Sciences.
- Bill Hager was awarded a UFRF Professorship.
- Sergei Shabanov was awarded Teacher of the Year by the College of Liberal Arts and Sciences. He was also awarded Teacher of the Year by UF. He was the only one receiving this award at the university level.
- John Thompson was awarded the Abel Prize.
- Doug Cenzer and Scott McCullough were given SPP awards.
- We hired our candidate of first choice in PDE. Lei Zhang has an excellent record of publication and grant funding in his field. In addition to his own research, he will be working with Yunmei Chen in the area of image processing.
- The department has a new administration with Jed Keesling as Chair, Rick Smith as Associate Chair, and Paul Robinson as Graduate Coordinator.
- Krishna Alladi and Pham Tiep organized a student workshop and two conferences on quadratic and higher degree forms. NSF funded the activities.
- The grant awards to the

Department of Mathematics over the past four years have averaged \$1M.

- There were grant awards and continuing grant involvement by the following faculty: Jay Gopalakrishnan, Krishna Alladi, Frank Garvan, Alex Berkovich, Jindrich Zapletal, Doug Cenzer, Scott McCullough, Bill Hager, Yunmei Chen, Richard Crew, Sergei Pilyugin, Maia Martcheva, Patrick DeLeenheer, Pham Tiep, Phil Boyland, Mike Jury, Miklos Bona, Sergei Shabanov, Paul Robinson, Alex Turull, Rick Smith, Jed Keesling, and Sasha Dranishnikov.
- Kevin Knudson was hired as Director of the Honors Program. He has his tenure in our department. Joe Glover from Mathematics is now Provost. Bernard Mair, also from Mathematics, is Associate Provost of Undergraduate Education. So, we have a number of our faculty in high places at UF.
- Phil Boyland organized the Ulam Centennial Conference. It hosted over 350 mathematicians from around the world. It was held in coordination with the Spring Topology Conference, STDC 2009. It was partially funded by NSF.
- The SIAM Gators graduate students hosted a very successful SIAM conference. NSF funded the conference. The Faculty Advisor for the group is Sergei Pilyugin and the president is Swati DebRoy.
- Kevin Keating coached the UF Putnam team. It placed 12th in

a national field of more than 400. This is a remarkable achievement.

- One of our graduates, Dongxing Wang, made a substantial contribution to the department. Through his generosity and matching funds from Exxon we will in a few short years have an endowment amounting to \$150,000.
- The department committed to improve high school teaching through its involvement in UFTeach and Florida PROMiSE.
- The department is cooperating with Engineering to produce an improved Calculus for Engineers. Lockheed-Martin is funding the effort. Bob Atkins, one of our own graduates, is part of the Lockheed-Martin team of engineers who are working with the department.
- Our department would be helpless without our efficient staff. Two of our staff were recognized with promotions this year. Sandy Gagnon was promoted to Administrative Assistant and Margaret Somers was promoted to Office Manager.
- We are also celebrating the appointment of Paul D'Anieri as Dean of CLAS and Alan Dorsey as Associate Dean for Natural and Mathematical Sciences.

The list is not complete. I hope that others of you enjoyed successes as well. Let us know about them so that we can celebrate with you.

CURRICULAR DEVELOPMENT IN BIOMATHEMATICS

Editorial note: Given ongoing developments in the Biomathematics group in the department, it seemed timely to ask them to provide us with an update on this exciting progress. Professors Patrick Deleenheer and Maia Martcheva obliged me and wrote the following paragraphs for the newsletter.

A Decade of Biomathematics

by Patrick DeLeenheer

In the fall, 2009, it will be 10 years ago that our department started building a research group in the area of biomathematics. The hiring of Sergei S. Pilyugin marked the occasion. Initially and actually for the most part of half of the decade, Sergei “was” the entire biomathematics group, but that did not start him from striking up fruitful collaborations with people in the chemical engineering department (eventually leading up to the co-chairing of a PhD student dissertation), course development (in particular of the BioMath with the design of a new course supported by the Howard Hughes Medical Institute), and the organization of a conference devoted to theoretical immunology.

Maia Martcheva (hired in 2003) and myself (hired in 2004) were easily absorbed in the picture. We almost immediately found joint research projects to work on with Pilyugin, and these are still bearing fruit today.

In 2005, Maia decided that she missed student life a little bit too much, and with the help of NSF funds, she returned to the classroom to take courses (and exams !) from zoologists. A year later she returned to our department, admittedly appearing a bit more tired than before she left, but with fresh research contacts in the Zoology Department. The latest development in this relationship is her participation in the IGERT (ed.—see the following article) along with graduate student IGERT Fellows **Joseph Lucchetti** and **Olivia Prosper**.

A recent milestone in our program is the PhD degree of **Scott Keeran**, the first graduate student receiving a PhD degree for work in biomathematics in 2007 (his advisor is Pilyugin). His work has been published in a series of papers in the *Journal of Discrete and Continuous Dynamical Systems—B*. Scott is still in the department, working as an adjunct instructor and also continuing as a postdoc, with support from Pilyugin’s current NSF grant.

As a group, we are looking forward to the further development of a biomathematics track in the undergraduate and graduate mathematics degree program, and to the recruitment of graduate students, possibly in the IGERT context, who will eventually become the billboards for the education in biomathematics that UF provides. Their presence is already starting to make an impact. A recent example is their splendid organization of a daylong session in biomathematics during the 2nd SIAM Student Conference, in which researchers from Arizona State, University of Miami, Michigan Tech, Pennsylvania State, and Florida State spoke, in addition to speakers from the University of Florida.

Although our department has historically been recognized primarily as a pure mathematics department, we consider ourselves fortunate to be given the opportunity and the unwavering support to help grow and develop it in a more applied direction.



The IGERT Program

by Maia Martcheva

The Department of Mathematics at UF is one of the departments participating in the NSF funded QSE3 (Quantitative Spatial Ecology, Evolution, and Environment) IGERT program at the interface of biological and mathematical sciences. IGERT (Integrative Graduate Education and Research Traineeship) grants provide stipends, tuition and fees for PhD level training of US citizens and permanent residents. The QSE3 IGERT involves students and faculty from 10 programs and departments (Biology, Mathematics, Statistics, Wildlife Ecology & Conservation, Geography, Fisheries & Aquatic Sciences, Forest Resources & Conservation, Agricultural & Biological Engineering, Infectious Diseases & Pathology [Veterinary Medicine], Computer & Information Science & Engineering) at UF and outside clients from state, federal, and international agencies. Approximately 5 IGERT Fellows will be recruited each year for five years. The IGERT also attracts IGERT Affiliates, graduate students in the participating units, who are not supported by the IGERT, but participate in many of IGERT activities based on their interests. IGERT Fellows participate in the IGERT Colloquium while in the IGERT, take classes from complementary disciplines (e.g., mathematicians take biology classes, while biologists take mathematics classes), in their second year as Fellows, and participate in an integrative, multidisciplinary research project in their third year. IGERT Fellows have a major advisor in their home department, and a co-advisor in the complementary discipline. The Director of the program, **Benjamin Bolker** (Biology), is assisted by the IGERT Council in running the IGERT. The IGERT Council currently consists of **Emilo Bruna** (Wildlife Ecology & Conservation), **Mary Christman** (Statistics), **Kaoru Kitajima** (Biology), **Maia Martcheva** (Mathematics), **Craig Osenberg** (Biology), and **Jane Southworth** (Geography). Two graduate students from mathematics, **Joseph Lucchetti** and **Olivia Prosper**, are currently IGERT Fellows.



**Professor
Maia Martcheva**

One of the IGERT Fellows, Olivia Prosper, made the following comments herself on experiencing this program in an e-mail to the editor of the newsletter:

"I really enjoyed my first semester in the IGERT program. I found the weekly Spatial Dynamics colloquium interesting because I was exposed to a field with which I am not familiar, and I also got to see how my peers from other backgrounds went about solving problems posed by the speakers. I took a course in Ecology and Evolution of Infectious Diseases, which I found very interesting. I think that this course and future courses that I will take outside my department will allow me to get even more out of the colloquium."

**Biomath Professors Sergei Pilyugin and
Patrick De Leenheer with Igert Fellows
Olivia Prosper and Joseph Lucchetti**

ANTC II

by Krishnaswami Alladi

At the end of the highly successful *Special Years Program* which ran for six years (2001–2007), the Department of Mathematics decided to run a Program in Algebra, Number Theory and Combinatorics (ANTC) for a few years modeled along the lines of the Special Years Program, but enhanced by an instructional component. The first ANTC Program was in 2007–2008, and 2008–2009 witnessed the second such program.

The ANTC Program in 2008–2009 was highlighted by two international conferences on *Quadratic Forms, Sums of Squares, Theta Functions, and Integral Lattices*, March 11–15, 2009 and *Higher Degree Forms* on May 21–23, 2009. The Quadratic Forms Conference followed a *Student Workshop* on the same topic during March 7–10 and this provided the instructional component. The two conferences and workshop received significant funding from the National Science Foundation (project leaders—**Krishnaswami Alladi** and **Pham Tiep**), which provided complete support for all participants.

The areas of quadratic and higher degree forms have witnessed dramatic advances in recent years, most notably by Professor **Manjul Bhargava** of Princeton University. The two conferences were organized in consultation with Bhargava and were the first ever to focus on quadratic and higher degree forms, attracting leading researchers from around the world. The conference organizers besides me were Professors **George Andrews** (Penn State University) and my colleagues **Pham Tiep**, **Frank Garvan**, and **Alexander Berkovich**. Professor **Akshay Venkatesh** of Stanford

University delivered the Eleventh Erdos Colloquium on March 12, 2009 at the quadratic forms conference. In December 2008, Venkatesh had been awarded the SASTRA Ramanujan Prize, and in his Erdos Colloquium he spoke about “The geometry of numbers: old and new” which was related to his SASTRA Prize Lecture. Besides the Erdos Colloquium, plenary talks were delivered by Professors **George Andrews**, **Bruce Berndt** (Illinois), **Noam Elkies** (Harvard), **Robert Griess** (Michigan), **Jonathan Hanke** (Georgia), **Steve Milne** (Ohio State), **Ken Ono** (Wisconsin), **Raman Parimala** (Emory), **Rainer Schultze-Pillot** (Saarbrücken, Germany), and **John Thompson** (UF and Cambridge University). Also, there were about twenty research presentations of half-hour duration.

The Student Workshop was to prepare talented undergraduate students to understand the advanced lectures at the conference. Professor **Jonathan Hanke** of the University of Georgia (who had collaborated with Professor Bhargava to settle a famous problem on quadratic forms) was the Principal Instructor of the workshop. He gave four lectures, one each morning. His workshop lectures were augmented by afternoon talks by Professors **Roger Baker** (Brigham Young University), **Hershel Farkas** (Hebrew University, Jerusalem), and **Gabriel Nebe** (University of Aachen, Germany). The workshop attracted about 15 talented students from around the nation.

Leading up to the Conferences and Workshop were featured talks in the spring semester by mathematicians of world repute. Evan Pugh Professor **George Andrews** of Pennsylvania State University, who was a Dis-



Professor Manjul Bhargava was a plenary lecturer as well as consultant for the conference organization

tinguished Visiting Professor at UF for the entire spring semester, gave three talks in the theory of partitions and q-hypergeometric series: a Colloquium in early February, followed by a Number Theory Seminar and a Combinatorics Seminar. Incidentally, Professor Andrews began his term as the President of the American Mathematical Society in February 2009, and we are pleased that he was able to visit our department in spite of his many commitments.

As in previous years, Professor Andrews sponsored the **Ramanujan Colloquium** to be part of the program in ANTC. On February 29, 2009, Professor **Dorian Goldfeld** of Columbia University delivered this Third Ramanujan Colloquium on “Multiple Dirichlet Series”, and followed it with two number theory seminars.

The Center for Applied Mathematics (CAM) graciously allowed the CAM Colloquium to be part of the Program in ANTC II. Professor **Bertram Kostant** of MIT delivered the 2009 CAM Colloquium on April 14 on the topic “Some exotic finite subgroups of E_8 and certain 8-th degree polynomials.” Last year in the Math-IFT Colloquium, Kostant had spoken about the mathematics underlying Garrett Lisi’s “E₈

Theory of Everything in Physics.” Thus his CAM Colloquium this year was also at the interface of mathematics and physics.

The Program in ANTC for 2008–2009 ended with the Conference on Higher Degree Forms, May 21–23. Professor Manjul Bhargava gave two one-hour talks. The first of his two talks, which was the opening lecture of the conference, gave an overview of the subject. His two lectures were augmented by two more hour talks by his PhD students **Wei Ho** and **Melanie Wood**, also from Princeton University. We were further very pleased that Professor **Benedict Gross** (Harvard), who delivered the Erdos Colloquium in March 2003 during the Special Year in Algebra, returned to Gainesville to give an hour lecture at this conference. Professors **Gordon Savin** (Utah), **Detlev Hoffman** (Nottingham, England), and **Bruce Resnick** (Illinois) delivered other hour lectures. These were supplemented by research presentations of half-hour duration by Professors **Jaka Cimpric** and **Igor Klep** (Ljubljana, Slovenia), **Takashi Taniguchi** (Kobe, Japan), and **Michael Volpato** (New York).

There are plans to bring out the edited refereed proceedings of these two conferences.

FACULTY & STAFF NOTES

by Paul Ehrlich

In December 2008, Chair **Jed Keesling** announced that **Sandy Gagnon** had been promoted to Administrative Assistant and **Margaret Somers** had been promoted to Office Manager in recognition of their exemplary service. **Jan Lalgee** also joined the department as Senior Fiscal Assistant.

Professor **Bernard Mair** became Associate Provost for Undergraduate Affairs effective April 1, 2009. Among his many activities in recent years, Mair served as a founding member and secretary of the Society for Industrial and Applied Mathematics Activity Group on Imaging Sciences.

Faculty advisor Professor **Kevin Keating** reports that the spring, 2008 UF Putnam Examination team, consisting of **Masahiro Nakahara**, **Andrew Wright**, and **Jeff Yelton**, had a strong finish, coming in 12th.

Three faculty members participated in the Fifth World Congress of Nonlinear Analysis held during July 2–9, 2008 in Orlando, Florida. Professor **Paul Ehrlich** delivered an invited hour address on *Comparison Theory in Lorentzian and Riemannian Geometries* and was co-chair of an Organized Session on “Differential Geometry and General Relativity.” Professor **Jed Keesling** delivered a lecture on *Attractors and Inverse Limits*. Professor **Maia Martcheva** spoke in a Session on “Applied Dynamical Systems and Computations in Biology” on *Evolutionary consequences for predation for pathogens in prey*.

Faculty, PhD alumni, and current graduate students participated in the Winter Meetings of the American mathematics societies, held in Washington, D.C. in early January 2009. Professor **Douglas Cenzer** and PhD graduate Dr. **S. Ali Dashti** (PhD 2008) both participated in an AMS/ASL Special Session on Logic and Dynamical Systems. Cenzer spoke on *Decidability of countable closed subsets* and Dashti spoke on *Computable dynamics of real functions*. Professor **John Klauter** spoke in an AMS Special Session on Infinite Dimensional Analysis, Path Integrals, and Related Fields on *Non-renormalizability tamed*.

Professor **John Mayer**, PhD 1982, of the Department of Mathematics, University of Alabama at Birmingham, spoke in an AMS-MAA-MER Special Session on Mathematics and Education Reform on the topic of *Changing K–16 Classroom Practice*. Professor **Warren McGovern**, PhD 1998, spoke in an AMS Special Session on Commutative Algebra on *Prufer domains with Clifford class semigroups*. Professor **Tony Shaska** of Vloara University in Albania, PhD 2001, co-organized an AMS Special Session on Computational Algebraic and Analytic Geometry for Low-dimensional Varieties, and a co-author reported on joint work with Shaska on *Theta nulls of curves with automorphisms*. Finally current graduate student **Jiangtao Lu** reported in an AMS Session on Probability and Statistics on *A computational model for functional mapping of genes that regulate HIV drug therapy and virus load*, joint work with Professor **William Hager**.

Professor **Bruce Edwards** reports that the 9th edition of the text Larson and Edwards, *Calculus* has appeared.

Professor **Joseph Glover**, Provost of the University of Florida, represented UF at the inauguration of the

Gran Telescopio Canarias in July 2009 at Las Palmas de Gran Canaria on Spain's Canary Islands off the coast of Africa. UF owns 5% of the telescope, which guarantees our astronomers 20 nights of observations per year. This event was not only widely reported in newspapers, but Glover was shown on the national nightly news. (Photo, right.)

Professor **William Hager** gave an invited talk at the Banach Center Conference on 50 Years of Optimal Control <<http://oc2008.ibspan.waw.pl>>. He also gave a plenary talk at the VIth Brazilian Workshop on Continuous Optimization, which took place at the Institute of Mathematics, Statistics and Scientific Computing (IMECC) of the State University of Campinas in Campinas SP, Brazil, between July 28–31, 2008.

On April 16, 2009, at a university-wide ceremony under the auspices of UF President Bernard Machen and UF Provost Joseph Glover, Professor **Sergei Shabanov** received not only the CLAS Teacher of the Year Award, but was also astonished to receive the UF Teacher of the Year Award on top of the CLAS award. We congratulate him for this fine recognition.

Professor **Peter Sin** was a co-organizer of the 5-day workshop on *Invariants of Incident Matrices* held at the Banff International Research Station for Mathematical Innovation and Discovery during March 29–April 3, 2009. Graduate student **Ogul Arslan** also was a participant in the workshop. Sin lectured on “p-ranks of incidence matrices and modular representations of classical groups” and Arslan spoke on “Weyl modules and p-ranks.”

Professor **Stephen Summers** gave an invited address *Subsystems and independence in relativistic microscopic physics* and participated in a round table discussion at the Biennial Meeting of the Philosophy of Science Association, PSA 2008, in Pittsburg, PA, on November 6, 2008.

Professor **Pham Tiep** reports giving invited lectures at the MSRI Seminar on Representations of Finite Groups of Lie Type in Berkeley on May 14, 2008; lecturing in the Geometry and Topology Seminar at Cal Tech in November 14, 2009; and lecturing in the Algebra Seminar at the University of Southern California in Los Angeles on February 23, 2009.

The Annual Spring Tea and Day of Appreciation in the Department was held on the fine sunny Thursday of April 23, 2009. Actually, the festivities began at noon with a delicious catered barbeque and an excellent turnout from the students as well as faculty and staff. Beginning the award presentations, Professor **Kevin Keating** presented awards for the Pi Mu Epsilon student officers, then recognized the Putnam Team for their fine showing as noted above. Associate Chair **Rick Smith** then presented the Kermit Sigmon Award to **Jeff Yelton** and honored the Phi Beta Kappa Inductees, noting that this spring the Department of Mathematics had a large number of majors inducted into this organization. Professor **Richard Crew** again presented the Robert Long Prize Awards for an essay on mathematics, noting that this year, we had two very strong winners who were both mathematics undergraduates, **Lindsay Keegan** and **James Crooks**. Faculty advisor Professor **Sergei Pily-**



Dignitaries at the inauguration of the telescope with Provost Joseph Glover on the left and King Juan Carlos I of Spain in the middle in a brown suit

ugin for the SIAM Gators recognized the officers of this society, **Swati DebRoy**, **Souvik Bhattacharya**, **Cass Petrus**, **Shugang Tan**, and **Remy Ndangali**, especially for their work in organizing and running the SIAM Gators Student Conference held during early March entirely without faculty involvement. SIAM Gators President **DebRoy** was further recognized with a special certificate for her intensive work on this conference. Next, Professor **Phil Boyland** recognized the officers of the Graduate Mathematics Association, **Joseph Brennan**, **Lee Raney**, and **Kristin Luery**, and commented that the catalog of past qualifying exams, which this organization had put together for the new graduate students, had proved to be very popular. Graduate Coordinator Professor **Paul Robinson** then presented awards pertaining to our graduate degree programs as well as providing further comments and quotations from Ambrose Bierce, extending examples from past years. Paul commented that as a sign of the current fiscal austerity, the college had awarded only 15 CLAS Dissertation Fellowships, down from 20 in the past. Thus we were extremely fortunate that **Timothy Bonner** received this award during the spring semester, 2009. Paul also recognized the Masters and PhD degree recipients. Then Associate Chair **Rick Smith** took the podium to present the graduate student teaching awards. The selection committee identified seven students worthy of awards. **Dennis Ledis**, **JoAnn Lee**, **Robert Newton**, and **Ryan Sankarpersad** received Certificates of Merit. **Andrew Fisher**, **Ning Guo**, and **Jason Harrington** received Certificates of Excellence. These last three names (our quota as a department) were forwarded to the university-wide selection committee, and Andrew Fisher and Jason Harrington both received UF Graduate Student Teaching Awards. Next, Professor **David Drake**, for the 4th consecutive year, presented the Chat Yin Ho Scholarship Award. This year, **Andrew Fisher**, studying quaternionic structures in differential geometry under the direction of Professor **Paul Robinson**, received this award. Finally, Chair **Jed Keesling**, resumed the podium, and presented a 20-year service award to Administrative Assistant **Sandy Gagnon**. Accepting this award, Sandy provided a note of humor in relaying to us that she had been asked why in the heck anyone in their right mind would stay on the staff of this department for 20 years, relaying also that a past chair had even crowned the mathematics department as “the palace of the peculiar” in a typical humorous aside. These revelations were greeted with a large round of applause. Finally, the Chair commented that just having written 50 letters of evaluation, he had had the occasion to study everyone's teaching, and was very proud of our departmental efforts, but even more so of being able to conclude the recognition ceremony by recognizing Professor **Sergei Shabanov** for his receipt of the Teacher of the Year Award from UF as well as the Teacher of the Year Award from CLAS.

ALUMNI NEWS

by Paul Ehrlich

I sent Professor **Terry Mills**, PhD 1974, a reply to his recent news published in the last issue of the newsletter and informing him that Professor **David Wilson**, recently retired himself, recalled that Mills had been a student in his algebraic topology class during Wilson's first semester here in 1972. This note drew the following informative e-mail response from Mills in exchange:

That is correct. In addition, I was taught by Professors Martinez (complex analysis perhaps? certainly he taught me something about universal algebra; since then I have met George Gratzler); Walsh (real analysis; he also taught me to work hard, one of the most valuable lessons of my life); Varma was my PhD adviser on approximation theory, later he visited us here. As a result, colleagues and I in Bendigo have made many contributions to approximation theory; see our dept's web page (www.latrobe.edu.au/math). I knew Professors Cenzer, Drake; Sigmon was our graduate student coordinator. When I was a student there, I started 'The Evening Seminar'. This event was held on Wednesday nights at my house. I got sick of going to Colloquia and not understanding the talks and feeling too embarrassed to ask questions. So there were two rules about the Evening Seminar; first, I had to be able to understand the talk because it was in my house; second, I was allowed to ask questions—for the same reason I had a blackboard nailed to the wall in the dining room. Ernie Shult gave the first seminar on finite group theory. I wanted to know how large finite simple groups were constructed; it was all the rage then. About 30 people came to the first Seminar. I provided free beer. It started at 8pm and people were still there talking about math until 2 am. Wives would ring up and ask is my husband still there? Paul Erdos used to visit UF annually while Ulam visited; many social functions were organized for Erdos but graduate students were not involved. So I organized dinner for him at my house and *only* graduate students were invited. About 10 people came; everyone contributed to the meal in some way (salad, meat drinks, etc.). After the meal, Erdos gave us a talk on *Unsolved problems in number theory and what it would take to solve them*; we had him to ourselves in my dining room. It was one of the most fascinating experiences in my life.

Professor **Tony Shaska**, PhD 2001, is serving as Editor In Chief of the Albanian Journal of Mathematics, which is sponsored mainly by the University of Vlora where he is a faculty member and Rector.

A REQUEST

from Margaret Somers, Office Manager

If you would like to receive a copy of our on-line newsletter by e-mail, please e-mail Margaret Somers at msomers@ufl.edu with your name, mailing address, and e-mail address.

We received an interesting e-mail forwarded by Professor Rick Smith from one of our students, Dr. **Michael Damron**, who graduated in 2004 with a double degree in mathematics and computer engineering and is now finishing his doctoral work at the Courant Institute:

"...I was a student of each of you somewhere between 5–6 years ago. I wanted to give an update on how my mathematical career is going; I think it has been at least 2–3 years since I sent an e-mail to you.

I choose to work in probability theory and I passed my oral exams in Fall 2006. Throughout the next year, my advisers Charles Newman and Daniel Stein introduced me to several different problems. Each of these problems involved probability and more specifically statistical mechanics. I looked at spin glasses, independent percolation, invasion percolation, and stationary percolation. After a bit, I decided to work on a problem relating two different types of spin glass models (the Edwards-Anderson and the Sherrington-Kirkpatrick).

During my fourth year (2007–2008) I continued my research on spin glass models and spent the spring semester in Amsterdam at the Centrum voor Wiskunde en Informatica. This was the first time in my life that I have really learned to collaborate with other researchers. It was very beneficial—a postdoc, another PhD student and I made a somewhat comprehensive study of 2D invasion percolation. This paper, called Relations between invasion percolation and critical percolation in two dimension is available online on arXiv and was accepted to the Annals of Probability. Since my time in Amsterdam I have kept up this collaboration, and we plan a follow-up paper to arXiv on invasion percolation soon. As I said, I am very excited because this is the first time that I have really felt the synergistic effects of teamwork.

Last fall, I applied to postdoc positions and in the past month I have had a couple of offers. I was notified that I won an NSF postdoctoral fellowship and consequently I will be studying with Michael Aizeman at Princeton for the next 2–3 years.

So it appears that I am soon off to the next stage of my career. I hope everything is going well with you. I also want to thank again each of you for all of your help.

Best wishes,
Michael Damron

Professor **Adriana Nenciu**, PhD 2006, has accepted a tenure track position at Otterbein College in Ohio.

A NOTE OF THANKS

by Jed Keesling

It is again a pleasure to warmly thank all those who contributed to the support of our educational activities in the department during the past academic year. Donations received at the UF Foundation for the fiscal year through June 30, 2009 (not including the special donation mentioned in the Chair's Column) totaled \$ 7,400. Non-anonymous alumni and friends donations during the time period July 1, 2008 through June 30, 2009 included contributions from the **Accenture Foundation, Virginia Chow, Karen Fagin, Gregory S. Gardner, Thomas F. Hagan, William R. Hare, William A. Hemme, Edward K. Hinson, James D. Marshall, Warren W. McGovern, Albert J. Rodger, Robert W. Shuford, Irvin L. Smith, Nevins C. Smith, Lucinda F. Thomas, Dongxing Wang, and Li-Wei Watts.**

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