

PURview

DEPARTMENT OF MATHEMATICS • WEST LAFAYETTE, INDIANA • JULY 2006

Building Name Honors Felix Haas

Name change acknowledges contributions of former mathematics professor, dean, and provost.



Photo by Tim Korb

Felix Haas offered remarks to the Board of Trustees following their vote to rename the former Computer Science Building "Felix Haas Hall." Computer Science will move in August to the newly constructed Richard and Patricia Lawson Computer Science Building.

The Purdue Board of Trustees voted on June 2 to rename the Computer Science Building after Felix Haas, the Arthur G. Hansen Professor Emeritus of Mathematics. Haas helped create the Department of Computer Science, the first such program of its kind in the U.S., over 40 years ago during his term as provost. The building will be known as Felix Haas Hall.

Haas was dean of the School of Science from 1962 (when Science separated from the School of Humanities, Social Science and Education) to 1974. He served as provost from 1974 to 1986.

After his retirement from the university in 1991, Haas continued to maintain an office in the Mathematics Department and regularly taught an undergraduate course until last fall.

When Haas came to Purdue, the Division of Mathematical Sciences consisted of the Mathematics Department and the Statistical Laboratory, which was in charge of the university's data processing. Haas soon recommended that the division be restructured to three teaching departments—Computer Science, Mathematics, and Statistics—as well as two service units, the Statistical Laboratory and the newly created Purdue Computing Center.

Haas was born in Austria, left his homeland at age 17, and then worked in a garment factory and a smelting factory. He served in the U.S. Army field artillery from 1943-46. He entered MIT in 1946 and received bachelor's, master's, and doctoral degrees. In 1952 he began teaching at Princeton University, moved next to Wayne State University, and then to Purdue in 1961, when he was hired as head of the Division of Mathematical Sciences.

"The fact that Purdue wanted to name a building after me came as quite a surprise, but I am very much honored by this decision," Haas said.

from the Head



Leonard Lipshitz

Each summer as we assemble another issue of *PURview*, we reflect on departmental activities and events of the past academic year. Of significance in 2005-06 was the high number of faculty who received special recognition. Here on the West Lafayette campus, Jeff Beckley was voted the top teacher in the College by science students, Steve Bell won the university's top teaching award, and Purdue paid homage to Felix Haas by naming a campus building in his honor.

Throughout his tenures as head, dean, and provost, Phil Haas believed that administrators should remain grounded in the core missions of the university. Despite the many demands on his time, he managed to teach a mathematics course most semesters. For many semesters after his official retirement from the University, Phil continued to teach a course for us gratis. His long career was dedicated to students, faculty, and mathematics. We will miss his regular presence in the department now that he has decided to stop teaching in the classroom.

While our newsletter highlights events of the past year, we also aim to provide you with glimpses of the future. Dedicated to the missions of teaching and research, our faculty and staff are constantly focused on future outcomes. We work hard to prepare students of all majors who will leave the university to function and flourish in a technological society. Likewise, the mathematical research of our faculty extends beyond the present. Their published results not only contribute to the core knowledge of various mathematical subfields, but in many instances, other researchers will draw on their work to solve problems in pure mathematics, or their results may ultimately have applications in business and industry.

This issue provides a variety of articles on topics ranging from human interest to individual achievement to research initiatives to mathematics in public art. We hope these pages give you a sense of pride in the accomplishments of students and faculty at your alma mater, while at the same time providing a window to the bright future of mathematics at Purdue.

Math *PURview* is published annually for alumni and friends of the Purdue Mathematics Department. We welcome your comments and suggestions for future issues.

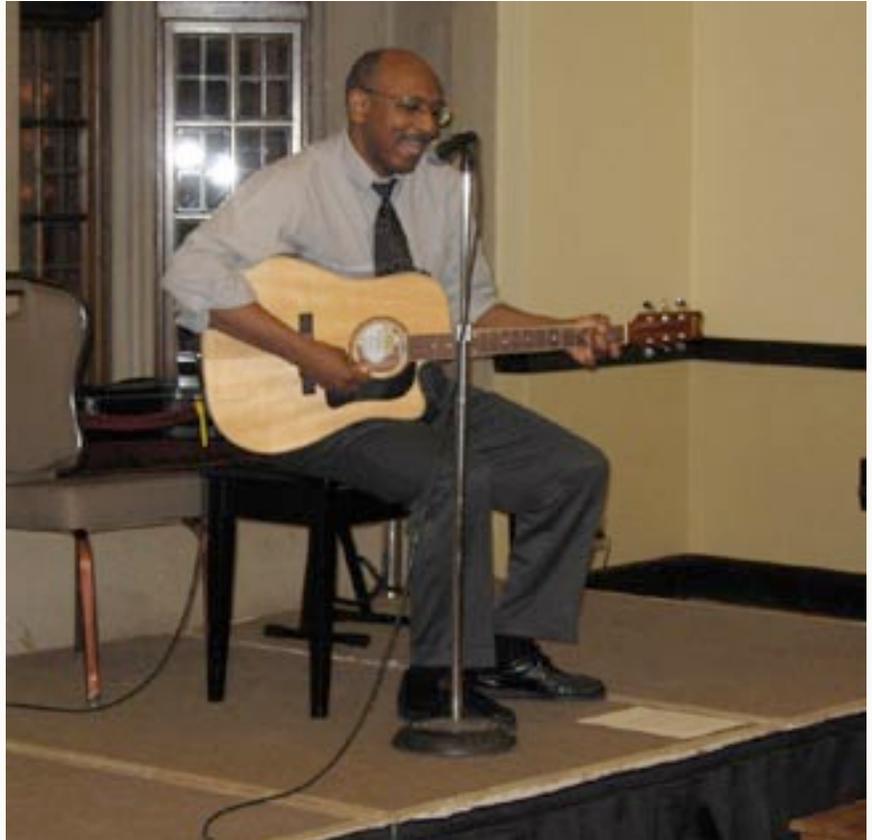
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Johnny, unplugged!

After finishing out two terms as Graduate Chairman, Professor Johnny Brown is stepping down in August during halcyon days for the graduate program. Never in the history of the program has a Graduate Chair had so much fellowship money to distribute. During Johnny's tenure, a two million dollar VIGRE grant from the National Science Foundation included over 50 fellowship-years for Ph.D. students. (A fellowship-year is the amount of money needed to support one graduate student for one year.) Two GAANN grants from the National Department of Education gave another 50 fellowship-years.



Professor Johnny Brown

The more fellowships, the more work for the Graduate Chair, and if you ask Johnny about it, he will say, "Where do you think all my hair went?"

To attract enough high caliber students to the program in order to fill all the fellowships, Johnny threw elaborate "Recruiting Weekends" each spring where successful applicants from North America were given all-expense paid trips to campus to attend a special program that highlights Purdue's Ph.D. and Masters programs. This year, a memorable moment during the weekend saw Johnny singing classic hits by John Cougar Mellencamp and Eric Clapton in the annual Math Department Talent Show (see photo).

Many math departments in the country give the title of "Associate Head" to the Graduate Chair, and for good reason. The health and vitality of our graduate program put us on the map as a department and are a principal reason for our high national ranking. Many thanks to Johnny Brown for serving with such energy and gusto, and best wishes to the new Graduate Chair, Professor Fabio Milner, who takes over in the fall.

Maarten de Hoop Appointed Center Director

by Heather Connell

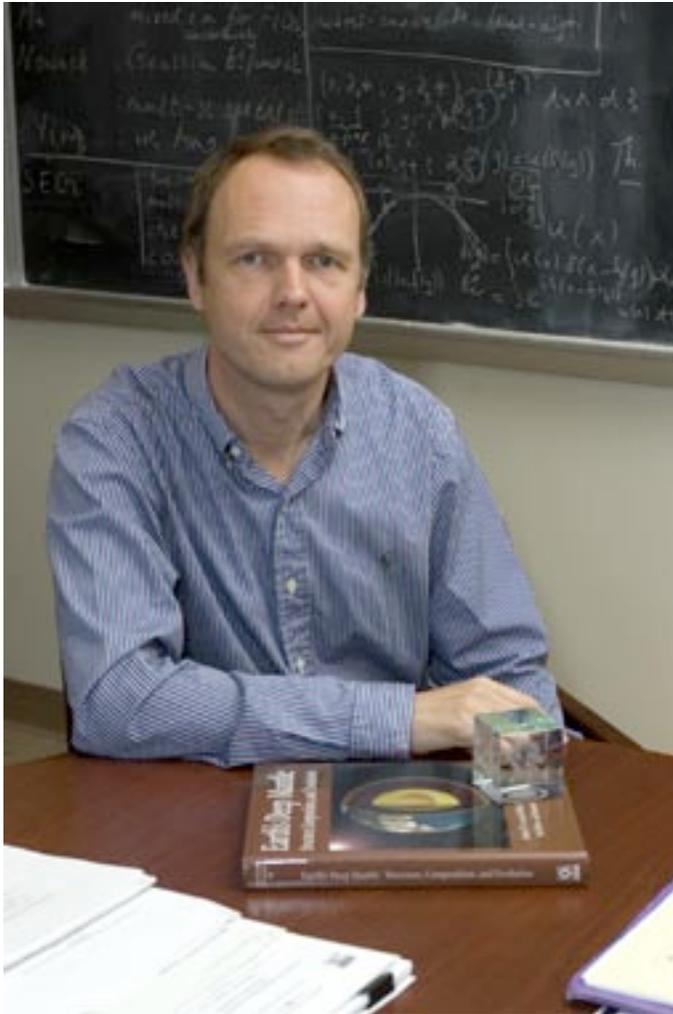


Photo by Mark Simons

Maarten de Hoop displays a crystal replica of the world's first seismograph that he received this summer while giving a presentation at Peking University in China. According to Chinese history, the first seismograph was designed in 132 A.D. and resembled a very large urn. It was said to have had eight dragon heads on the outside of it, with each one facing the eight principal directions of the compass. Below each of the dragons was a toad with its mouth opened toward the dragon. During an earthquake, one of the dragons would release a ball into the mouth of the toad below it. The direction of the shaking determined which dragon released its ball. This would give off a sound, letting people know when and in which direction an earthquake had occurred. The design of this seismograph is connected with concepts from modern applied harmonic analysis.

Professor Maarten V. de Hoop joined the faculty last August as the Director of the Center for Computational and Applied Mathematics (CCAM) and as Professor of Mathematics and Earth and Atmospheric Sciences.

A native of the Netherlands, Maarten earned his bachelor's degree in physics with mathematics and astronomy and his master's in theoretical physics at Utrecht University. He received his Ph.D. degree in technical sciences at Delft University of Technology.

Prior to his arrival at Purdue, Maarten served on the faculty of the Colorado School of Mines from 1995 to 2005, where he was Co-Leader of the Center for Wave Phenomena in the Department of Mathematical and Computer Sciences. He was previously with Koninklijke/Shell from 1985-92, and with Schlumberger's Cambridge, England laboratory, where he was a program leader and senior research scientist from 1992-95.

Maarten's areas of expertise include inverse problems and microlocal analysis applied to reflection seismology, global seismology, and ocean acoustics focusing on the study of Earth's sedimentary basins, upper and lower mantle, and core-mantle boundary; multi-dimensional imaging, inverse scattering, and tomography; development of multiscale methods and nonlinear theories of generalized functions applied to wave scattering and inverse scattering in media of low regularity, and in highly discontinuous and random media; development of numerical approaches based on techniques from microlocal analysis and computational harmonic analysis combined; and coupling geodynamical processes to seismic regularity and anisotropy.

During the past year, Maarten worked to form several new initiatives here on campus. In the spring semester he and Dongbin Xiu prepared, in collaboration with faculty in Computer Science, a computational nanotechnology seminar series jointly with the Computing Research

Institute (CRI). Maarten initiated a monthly series for CCAM faculty with each serving as a rotating speaker on an area of particular expertise or interest in the field of mathematics. He also initiated and co-organized a "Visiting Scientist Program" in the Mathematics Department. John Cushman organized the spring 2006



series, titled “Porous Media,” which featured speakers from Case Western Reserve University, Stanford University, University of California-Berkeley, University of Texas-Austin, and MIT.

In addition, the Center frequently hosted guests from other universities for collaboration and research discussions. Fedrik Andersson was a long-term visitor from Lund University, with which CCAM is in the process of formalizing a collaboration.

Maarten’s administrative activities included serving as co-chair of the Search Committee in applied mathematics (COALESCE); two new faculty members were hired, and they will join CCAM in August. Maarten is a member of the Alumni and Corporate Relations Committee in the Department of Earth and Atmospheric Sciences. He was also appointed a member of the Cyber Center Director Search Committee and of the Computing Research Institute Steering Committee.

Perhaps the most significant development since his arrival has been Maarten’s formation of a mathematical geophysics program, the Geomathematical Imaging Group, to develop a new generation of imaging, inverse scattering, and tomography methods for the study of Earth’s interior—of great interest to energy companies engaged in oil and gas exploration. This is a cross-disciplinary program being developed in conjunction with the Department of Earth and Atmospheric Sciences, the Department of Physics, the Department of Statistics, and CRI. Maarten is setting up an international consortium involving Purdue researchers and leading energy-production oil companies. GMIG’s approach to reflection seismology and global seismology will be followed, the structural target being from local, near surface to planetary scale.

Maarten’s awards include the 1996 J. Clarence Karcher Award from the Society of Exploration Geophysicists, and the award for young scientists in 1991 from the International Society for Analysis, Its Applications and Computation. He is an Institute of Physics (IOP) Fellow. Maarten currently serves as a member of the editorial boards for *Wave Motion* and the *Journal of Applied Geophysics*, and he is a member of the steering committee for *Applied Inverse Problems* in 2007.

Editor’s note: Heather Connell joined the Mathematics Department in March as administrative assistant to Maarten de Hoop and CCAM.

NEW ARRIVALS

The Mathematics Department also welcomed the following new faculty members last fall.

MINHYONG KIM

Professor of Mathematics

Background: B.S. (1982) in mathematics, Seoul National University; Ph.D. (1990) in mathematics, Yale University

Area of focus: arithmetic algebraic geometry

<http://www.math.purdue.edu/~kimm>



MICHAEL G. ROECKNER

Professor of Mathematics and Statistics

Background: Diplom (1982), Doktor (1984), and Habilitation (1987) in mathematics, University of Bielefeld

Area of focus: stochastic analysis and applications

<http://www.math.purdue.edu/~roeckner>



MONICA TORRES

Assistant Professor of Mathematics

Background: B.S. (1993) in computer science, ITESM, Queretaro, Mexico; M.S. (1997) in mathematics, CIMAT, Guanajuato, Mexico; Ph.D. (2002) in mathematics, University of Texas at Austin

Areas of focus: partial differential equations, calculus of variations, geometric measure theory and applications, nonlinear conservation laws and shock waves, computational methods for solving PDE, and related analysis

<http://www.math.purdue.edu/~torres>



DONGBIN XIU

Assistant Professor of Mathematics and Earth and Atmospheric Sciences

Background: B.S. (1993) in mechanics, Zhejiang University; M.S. (1999) in mechanical engineering, University of Virginia; Ph.D. (2003) in applied mathematics, Brown University

Areas of focus: stochastic modeling in engineering applications; high-order and spectral methods for PDE; multiscale simulations; large-scale, interdisciplinary computations of complex systems

<http://www.math.purdue.edu/~dxiu>



No sabia que era tan divertido!



Math Club Tutors Local School Kids

by Amber Meyerratken

“Kyle, pick me next!” A classroom at Sunnyside Middle School was filled with the voices of 6th, 7th, and 8th graders as Kyle Riggs, one of the members of Math Club participating in a tutoring program to help limited English-speaking students excel in math, was writing up practice problems on the overhead projector. The Math Club received a grant from Indiana Campus Compact for the project, as well as the support and a match fund from the Purdue Department of Mathematics.

English Language Learners in levels 1 & 2 generally struggle in math partly because of lack of background knowledge and/or linguistic skills. This outreach program was created during the spring 2006 semester to allow Math Club members to share their knowledge as they taught and tutored middle school students on a one-on-one basis to meet the various skill needs of the individual students.

On Mondays and Fridays, we arrived at Sunnyside prepared with fun lessons to meet the eager learners. Teaching about ratios using M&M candies and studying mean, median, and mode using skittles were among the activities we brought. Math games and delicious



treats were an added bonus to motivate these students to participate, gain math skills, and develop a very positive attitude towards mathematics.

During lessons, students were initially reluctant to volunteer, afraid of giving false answers. Our goal was to have all of the students participate each session, so we decided to offer candy to each student that volunteered, regardless of whether or not their answer was the correct one. Once the treats were offered, they all paid attention, took notes, and sometimes even before any

To wrap up the program, we had a pizza party where we presented our young learners with t-shirts that we designed, certificates, and played several math games including fraction bingo, a game where mixed fractions were called and students had to convert them to proper fractions to find the numbers on their boards. In exchange, Sunnyside students had an unexpected surprise for all of us. They had designed a large banner depicting the Purdue Boilermaker train where each of our names appeared inside of a cloud coming from



Editor's note: The author of this article, Math Club President Amber Meyerratken, was a 2006 Outstanding Junior in the College of Science.

Photos and items given to Math Club members by Sunnyside students are on display outside the Math Library.



Kyle Riggs (back left) and Amber Meyerratken (back right) with their students at Sunnyside Middle School. Other Math Club members who participated in the tutoring project were Julie Wetherill, Paul Kamber, Emily Jones, and Matteo Mannino.

one of us asked a question, arms were waving in mid-air with bodies barely touching their seats.

To make the lessons relevant, we worked with the math teachers who lent us math textbooks used by each grade level. They also told us in advance what topics the students would be studying in their math classes so that we could pre-teach the material. Additionally, students brought us homework assignments that they did not understand and we taught and reviewed the material to help them better succeed in their regular classes.

the smokestack. They put each of their names inside a star to represent their logo (the Sunnyside Stars) to show the relationship made between the Purdue Math Department and Sunnyside. The also gave each of us hand-made thank you cards to show their appreciation.

In a final class reflection, one student who initially held negative views about math said to her ELL teacher "No sabia que era tan divertido," which means, "I had no idea that it was so much fun." She and her peers felt that math is no longer beyond their comprehension.

continued from page 11

leagues at UT-Arlington, University of Utah, University of Arkansas, and University of Missouri. Once here, they quickly became involved in teaching and research activities. They ran a seminar out of David Eisenbud's book *The Geometry of Syzygies*. Christine and her thesis advisor, Professor Bernd Ulrich, talked about research and job strategies. She submitted her thesis as a paper, resubmitted changes, finished the goals of her original thesis problem (that she once thought were impossible), and worked on other research with their Tulane collaborator. Christine also helped out with our grad recruitment weekend in late March.

Brent and his advisor, Professor William Heinzer, met at least once a week to discuss research, and Brent participated in a seminar run by Professor Heinzer's students. Brent resubmitted his thesis as a paper, worked on other research, and finished a paper with their Tulane colleague.

During the winter, Brent and Christine re-entered the job market and happily both secured good positions in northern Louisiana. After finishing up a productive semester here, they have moved on to their new home and jobs.

Next year *will* be better for the couple, and we wish them all the best!

Rice University, November 2005. Fifty years after their pioneering work on alternating direction implicit (ADI) methods, Jim Douglas, Jr. (left), Donald Peaceman, and Henry Rachford attended a conference organized to honor them and celebrate a legacy that continues to grow. Douglas is Purdue's Compere and Marcella Loveless Distinguished Professor Emeritus of Computational Mathematics.



Celebrating

Grand

Achievements



S. S. Abhyankar, Marshall Distinguished Professor of Mathematics

Fifty years after the publication of their seminal work, **Jim Douglas, Jr.**, Donald Peaceman, and Henry Rachford, the three developers of the alternating direction implicit (ADI) scheme, were honored with a conference organized by Rice University, the University of Texas at Austin, the University of Houston, and ExxonMobil's Upstream Research Company. Initiated in large part by Richard Tapia of the Rice CAAM department, the conference was held on the campus of Rice University in November 2005 to honor this work and to recognize the importance of operator-splitting (OS) methods. Over 100 attendees from academia and industry participated.

The ADI scheme is a numerical method for solving the heat equation (a parabolic partial differential equation) in two dimensions. The method was quickly extended to three dimensions. The impact of their work on the oil industry was immediate; this new idea resulted in the development of more accurate and efficient computational methods for reservoir simulation. Furthermore, the theoretical and practical aspects of the ADI method led to extensions, generalizations, and ensuing applications far beyond the original application of reservoir simulation.

Before coming to Purdue in 1987, Douglas was on the faculties of Rice University (1957-67) and the University of Chicago (1967-87). He was affiliated with the Exxon Production Research Company for many years. During his career Douglas has advised more than 40 doctoral students and 60 postdocs.

For further information about the ADI scheme and the conference, refer to the March 2006 issue of *SIAM News* at <http://www.siam.org/news/news.php?id=913>.

On March 25, students and colleagues of **Shreeram S. Abhyankar** met in the Department of Mathematics at Purdue to celebrate Professor Abhyankar's 75th birthday.

In the morning, Ganesh Sundaram, one of Abhyankar's former students, now of Bell Labs, spoke to the group about Abhyankar's work in Galois theory in a talk entitled "Describing Galois extensions." In the afternoon there were informal discussions of mathematics. A birthday dinner was held in the Purdue Memorial Union in the evening.

Abhyankar was a student of Harvard professor Oscar Zariski, who laid the foundations of modern algebraic geometry. After visiting positions at Columbia, Cornell, Princeton, Johns Hopkins, and Harvard, Abhyankar joined the faculty at Purdue in 1963. Since 1967 he has been the Marshall Distinguished Professor of Mathematics. His research may be broadly divided into three areas: resolution of singularities, affine geometry, and Galois theory.

Abhyankar has authored more than 166 papers and 13 books and has given 474 invited talks. He has graduated 25 Ph.D. students and is now supervising 4 graduate students. Abhyankar's most recent Ph.D. student,

Valeria Grant Perez, defended her thesis on May 5 and has just accepted a position at IUPUI. Because she will be close to West Lafayette, she and Abhyankar will be able to continue working together.

Abhyankar recently completed *Lectures on Algebra, Volume I*, a textbook based on his Purdue courses on commutative algebra, to be published in fall 2006 by World Scientific.

vements

Steve Bell is the fourth Purdue mathematics professor to win a Murphy Award.

Professor Steven Bell was one of five Purdue faculty members who received Outstanding Undergraduate Teaching Awards in Memory of Charles B. Murphy at the University Honors Convocation on April 9. The award recognizes exemplary teaching in all phases of undergraduate instruction at the West Lafayette campus and is the University's highest teaching award.

Bell has been on the mathematics faculty since 1984. He teaches a variety of courses including Differential Equations for Engineering and the Sciences, Linear Algebra and Differential Equations, Functions of a Complex Variable I, and Honors Calculus. Last spring he received the department's Joel Spira Award for undergraduate service teaching.

Highly active in the department's VIGRE program, Bell has mentored several undergraduates in NSF-sponsored summer REUs (research experience for undergraduates).

According to one of his former students, Damir Dzhafarov (now a mathematics graduate student at Chicago), "He took me, an undergraduate, seriously, and treated me more like a colleague than a student, which provided me with much-needed self respect and self esteem and undoubtedly also helped me to complete my project."

The offspring of two music teachers, Bell was introduced very early to teaching as a vocation.

"A lot of college math is like playing scales and arpeggios in order to have a skill in place when D-flat major finally strikes," Bell says. "I try to have my math classes make a little bit of beautiful music every now and then, in between all the drilling."

Previous Murphy Award winners from the Purdue Mathematics Department were Johnny Brown (1999), Robert Zink (1996), and William Fuller (1976).

Bell Wins 2006 Murphy Teaching Award

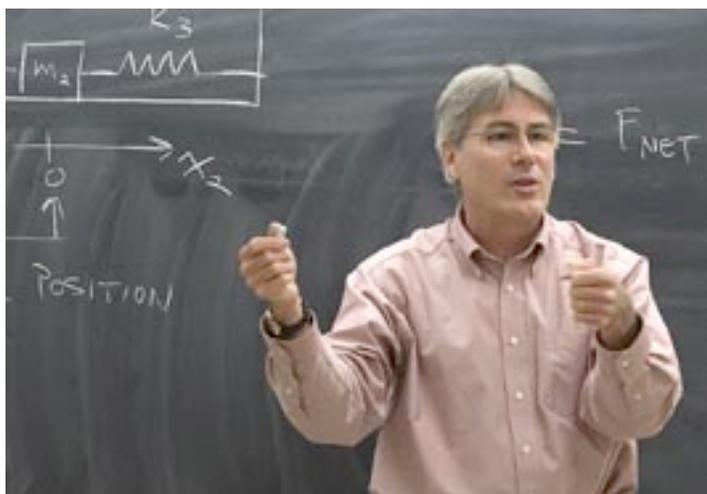


Photo by Mark Simons

Professor Steve Bell explains the formula for calculating tension and stretch of a spring in his MA 262 Differential Equations class. Bell is the recipient of a \$10,000 2006 Murphy Award, Purdue's highest undergraduate teaching honor.

Math Connections

In December 2005, it was announced that Michael Viscardi, a 16-year-old mathematician from San Diego, won the prestigious Siemens-Westinghouse Competition, beating more than 1,000 other teenagers for a \$100,000 college scholarship he will use at Harvard to study mathematics.

Viscardi's winning project was a short paper on the Bergman kernel and the Dirichlet problem, research that grew out of Purdue math professor Steve Bell's recent work on complexity in complex analysis (see the Summer 2002 issue of *Math PURview* at www.math.purdue.edu/about/purview/).

Bell showed that the Bergman kernel associated to a region in the plane is generated by just three functions of one complex variable, even if the domain has many holes punched out of it. Michael Viscardi, under the direction of UCSD math professor, Peter Ebenfelt, improved Bell's result to just two functions in case the region has no holes, and he made important connections of his work to the problem of determining when the solution to the classical Dirichlet problem with rational data is rational. (The Dirichlet problem is to find a harmonic function on a region with prescribed boundary values. It is equivalent to the physical problem of finding the temperature in a sheet of metal, only knowing the temperature on the edges.)

In addition to the \$100,000, Michael was also selected by ABC news to be the Person of the Week, and his story ran on network television December 9, 2005.

"I was delighted to learn that the young man had won so much money by writing about the Bergman kernel," says Bell.

Bell himself earned extra money by writing about the kernel as a young man. He and Polish mathematician, Ewa Ligocka, won AMS Bergman Prizes in 1990 for their joint 1980 six-page paper on how to use the Bergman kernel to show that biholomorphic mappings extend smoothly to the boundary in several complex variables.

Bell says, "Ewa and I each got \$20,000 for that paper. When I think about how much money each word of my three-page half was worth, I can truly say, there's gold in that there kernel! And Michal Viscardi has struck the mother lode!"

Professor Bell and Michael Viscardi's mentor, Peter Ebenfelt, have been collaborating with University of Arkansas math professor Dima Khavinson and Swedish mathematician Harold Shapiro on a larger project. They have determined exactly when the Dirichlet problem of a plane region satisfies the property that solutions to the problem with rational boundary data are themselves rational. The striking answer is: only if the region is a perfect disc. The team of four mathematicians was thrilled when young Viscardi came up with a crucial lemma needed in the work. Viscardi showed that, in the case where there are no holes in the region, the rational to rational condition is equivalent to the Bergman kernel being rational, which is further equivalent to the Riemann mapping function being rational. Once his point was understood, answers started falling in place until the problem was ultimately solved.

Any Old Port in a Storm!

When Brent Strunk and Christine Cumming earned Ph.D. degrees in mathematics last year, their futures looked bright. After a summer wedding, the two headed to New Orleans, where Brent had accepted a postdoc position at Tulane University and Christine had secured a teaching position. But then, just as the fall semester was about to begin, Mother Nature intervened and Hurricane Katrina devastated New Orleans.

Christine and Brent were safely out of New Orleans during the storm, having evacuated to a relative's in Texas. Once it was evident that Tulane would be closed indefinitely, the two decided to seek other employment and a new place to live. They contacted their former advisors here, and visiting positions were arranged for the spring semester.

The couple spent the remainder of the fall packing up their household in preparation for the temporary move back to West Lafayette and did a bit of traveling, visiting col-



Christine Cumming and Brent Strunk

continued on page 7

Beckley voted CoS Outstanding Undergraduate Teacher

Each year, science undergraduate students, polled by the Science Student Council, select the faculty member whose teaching has had the greatest impact on science majors.

This year's winner was Jeffrey Beckley, who is employed by the Mathematics and Statistics Departments as Professional Actuary in Residence. Beckley has taught MA/STAT 170 (Introduction to Actuarial Science) and MA 370 (Interest Theory) since 2004.

After graduating from Ball State University with a degree in actuarial science, Beckley held executive positions with Lafayette Life Insurance and Standard Life Insurance before starting his own firm, Beckley & Associates, in 1986. His actuarial consulting firm was purchased in 1999 by Deloitte & Touche, for whom Beckley worked until 2004.

From 1981-1995, Beckley served on several of the Society of Actuaries committees that write the actuarial exams. He began by writing exam questions and eventually became the Chairperson of the Examination committee and, finally, Vice General Chairperson of the Education and Examination Committee.

Beckley is a Fellow of the Society of Actuaries and a member of the American Academy of Actuaries. He won the 2001 President's Award for outstanding service to the Society of Actuaries. He previously served on the Ball State actuarial advisory board and has been on Purdue's actuarial science advisory board since 1998.



Jeff Beckley

Faculty Notes

Jaroslaw Wlodarczyk will deliver an invited lecture at the Algebraic and Complex Geometry section meeting of the 2006 International Congress of Mathematicians in Madrid, Spain. ICM2006 will run August 22-30. Following the long standing tradition of these congresses, it will be a major scientific event, bringing together mathematicians from all over the world and demonstrating the vital role of mathematics in our society. The ICM takes place every four years.

Freydoon Shahidi has been invited to give a plenary talk at a conference in honor of Leonard Euler's 300 birthday in St. Petersburg, Russia in June 2007. The conference is one of several organized next summer by the Russian Academy of Science and the Euler Foundation in St. Petersburg to celebrate the occasion. Euler spent more than 30 years in St. Petersburg, and it was during this period that he invented zeta-functions and Euler products, one of Shahidi's main research subjects.

Jim Douglas, Jr. was appointed "Pesquisador Emerito" (Honorary Researcher) at the Laboratorio Nacional de Computacao Cientifica in Rio de Janeiro, Brazil. He is the first to be so named at the LNCC.

Promotions: **Hans Ulrich Walther** to Associate Professor; **Plamen Stefanov** to full Professor.

Retirement: **Stephen Weingram**.

Among the top ten teachers in the College of Science in 2006, as selected by undergraduate science majors, were mathematics professors Johnny Brown and Eleftherios Zachmanoglou.

2006 Distinguished Mathematics Alumna

Nancy Skancke was among ten Purdue Science alumni who visited the West Lafayette campus on April 7 to receive Distinguished Alumni awards.

After graduating from Purdue in 1972 with a B.S. (Honors) in mathematics, Nancy attended George Washington University Law School, where she received the J.D. with Honors in 1975.

Nancy is a partner in the law firm Grammer, Kissel, Robbins, Skancke & Edwards (GKRSE), which specializes in energy, environmental, natural resources, and general administrative law, including related federal appellate and state judicial proceedings. Located in Washington, DC, the firm maintains a national practice and represents clients throughout the country.

Nancy represents clients in the areas of energy and administrative law. She also advises on regulatory compliance, assists in strategic planning, and handles complex litigation. For clients and trade associations, Nancy has drafted and interprets federal and state legislation on energy issues, including extensive work on the Energy Policy Act of 2005. Nancy is an officer in the National Hydropower Association, the only national trade association dedicated exclusively to representing the interests of the hydropower industry.

Nancy's commercial energy practice involves negotiating contracts and disputes, assisting in mergers and acquisitions involving hydroelectric facilities, commercial counseling, strategic planning, and litigating unresolvable disputes in the federal and state courts and agencies. On commercial issues, Nancy has served as counsel to municipalities, small and large companies, trade associations and individuals. She is a Life Fellow of the American Bar Foundation.

Nancy and her husband, Steven Skancke, have two children, Carolyn and Matthew, and live in Great Falls, Virginia.



Nancy Skancke

Career Highlights

- 1993 Founding Partner, GKRSE
- 1991 Associate/Partner, Baller Hammet
- 1975 Attorney/Partner, Ross, Marsh, Foster

MATHEMATICS UNDERGRADUATE AWARDS

<i>Eugene V. Schenkman Memorial Award</i>	Bradley Rodgers
<i>Glen E. Baxter Memorial Award</i>	Joshua Robinson
<i>Michael Golomb Mathematics Award</i>	Kyle Riggs
<i>Meyer Jerison Memorial Award in Analysis</i>	Eleanor Gamble Akira Matsudaira
<i>Merrill E. Shanks Memorial Award</i>	Deborah Simon
<i>Senior Achievement Award</i>	Eleanor Gamble Akira Matsudaira Jacob Noparstak Bess Walker Christopher Willmore
<i>MAA Math Competition Team (2nd place)</i>	Kyle Riggs Bradley Rodgers Christopher Willmore
<i>Putnam Exam Recognition</i>	Bradley Rodgers
<i>Problem of the Week</i>	
<i>First Prize Award</i>	Alan Bernstein Rahul Kumar
<i>Certificates of Merit</i>	Akira Matsudaira Arman Sabbaghi Tomasz Czajka Thomas Engelsman Kevin Libby

Student Achievements



Kyle Riggs, Christopher Willmore, and Bradley Rodgers placed second at the MAA Spring 2006 Section meeting competition held at Taylor University on March 17-18.

As a special incentive, **CIGNA/Towers-Perrin** provides awards to actuarial science students each time they pass a Society of Actuaries exam (\$150 per exam). In fall 2005, 48 students received awards (4 students passed 2 exams and received \$300). In spring 2006, 5 students received awards (2 passed 2 exams and received \$300).

Each year the Mathematics Department recognizes the superior performances of graduate teaching assistants by awarding “Excellence in Teaching Awards” (see photo at right). In addition, CETA—the Committee on the Education of Teaching Assistants—annually asks departments to nominate 2% of their TAs for a university-wide award. We usually choose nominees from among those who received departmental Excellence in Teaching Awards that year. The winners of this year’s CETA awards taught some of the most difficult courses TAs are permitted to teach, and they consistently did an excellent job. Congratulations to Parsa Bakhtary, Louiza Fouli, Travis Miller, and Philip Mummert.

One of the highest honors for graduate teaching assistants at Purdue University is to be inducted as an Associate Fellow of the Teaching Academy. The Teaching Academy provides leadership and serves as a catalyst to enhance and strengthen the quality of undergraduate, graduate, and outreach teaching and learning.

Nominees for an Associate Fellowship must be past winners of the CETA award. They are nominated by their department, and they write an essay about their teaching philosophy—which some find harder to do than passing the MA 544 qual. Since the founding of the Teaching Academy more than 10 years ago, only 34 TAs have been accepted as Associates. Four of them were Mathematics TAs. The most recent was accepted this year—congratulations to James Price.



Professors R. Bañuelos and J. Brown with winners of 2005-06 Excellence in Teaching Awards. Left to right: Louiza Fouli, Janette Jaques, Erin Moss, Travis Miller, Parsa Bakhtary, Philip Mummert.



Mathematics Scholarship recipients (left to right): Joshua Robinson, Kenton McKasson, Lance Aschliman, Margaret Brown, James Martindale, and Matthew Barrett.



Mathematics advisors Janice Thomaz, Celeste Furtner, and Cara Wetzel present Richard Penney with the annual "Advisors Award." Professor Penney is Director of the Actuarial Science program.

College of Science Student Awards

Matthew Barrett received the 2006 CoS Undergraduate Research Award. The \$3000 award will be combined with SURF (Summer Undergraduate Research Fellowship), a joint program with the College of Engineering, enabling Matthew to do summer research with other student and faculty researchers from across campus.

Amber Meyerratken received the Spira Undergraduate Summer Research Award.

Outstanding mathematics and actuarial science majors recognized by CoS are too numerous to list here. A complete listing is available at <http://www.science.purdue.edu/news/articles/studentawards040906.asp>. Congratulations to all!

Award-winning students and scholarship recipients were recognized at the annual departmental awards program on April 27.

MATHEMATICS SCHOLARSHIPS

Alton D. and Juanita S. Andrews Memorial Scholarship

Lance Aschliman, Kevin Query, Katherine Quinn

Leonard D. and Anna W. Berkovitz Scholarship

Matthew Barrett, Bradley Rodgers, Jamie Wiegandt

Mark Hopy Memorial Scholarship

Matthew Barrett, Bradley Rodgers

Virginia Mashin Scholarship

Jennifer Hicks, Sarah Wilson

Arthur Rosenthal Scholarship

Zachary Blackwood, Margaret Brown, Jie Chen,

Joshua Lawrence, David Meyer, Patrick Odarczenko,

Christina Patrick, Kelly Richardson, Timothy Terlep,

Lauren Vickroy

Jean E. Rubin Scholarship

Jennifer Aschenbrenner, Jennifer Bolam, Collin

Burru, Amy Coleman, Danielle Corona, Laurence

Forshaw, Dustin Grogg, Timothy Grosso, Philip

Hebda, Ian Jones, Anthony Lam, Theresa Schmall,

Samantha Thomas

Helen Clark Wight Scholarship

Ashley Barnholt, Linley Johnson, Shauna McClure,

Kenton McKasson, Arman Sabbaghi

Andris Z. Zoltners Scholarship

James Martindale

ACTUARIAL SCIENCE AWARDS

Swiss-Re

Mohd. Hafiz Ab Hamid, T.J. Clinch, Laura Delaney,

Xiaoli Zhang, Amanda Brown, Kyle Bauer

Lincoln

Rahul Jyoti, Kristen Dyson, Rachel Smith

GRADUATE AWARDS

Gerald R. MacLane Award

Pak Tung Ho

Carl Cowen Exceptional Promise Award

Samantha Cash

T.T. Moh Award

Lingyun Qiu

Teaching Academy – Associate Fellow

James C. Price

Committee for the Education of Teaching Assistants

(CETA) – Celebrate Graduate Student Teaching

Parsa Bakhtary, Louiza Fouli, Travis Miller, Philip

Mummert

Local Artists Construct Mural at MSRI

Future visitors to the Mathematical Sciences Research Institute in Berkeley, California will likely stop to admire a mural created by Lafayette artists Scott Frankenberger and Linda Vanderkolk.

In early February, Frankenberger, Purdue alumnus and former visiting ceramics instructor, and Vanderkolk, coordinator for foundations design classes in Purdue's Visual and Performing Arts department, installed a 30-foot by 5-foot tile mural on an exterior wall of the MSRI. Their



design, "Tessellation Tango," was selected two years ago in an international design competition.

The mural is made from 950 diamond-shaped ceramic tiles that create a pattern similar to M.C. Escher's work using bird shapes. The tiles, made by the artists, vary in color and fit together like puzzle pieces. The mural is based on the placement pattern of different colored cubes. The left side

pattern is orderly, but the right is nearly chaotic. On many of the tiles, the artists inscribed terms, formulas, and symbols.

Both Frankenberger and Vanderkolk were top math students in their high schools. They started college as math majors but switched to art. The two artists previously teamed up to create a mural at Ivy Tech's main hall. "Tessellation Tango" is Frankenberger's fourth public mural. He also has murals at Purdue's Food Science Building and at Caterpillar in Lafayette.

Photos by Natalie Leimkuhler



Detail of "Tessellation Tango"

Math
PURview

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