INDEX

A MESSAGE FROM THE CHAIR

Craig A. Tracy

As we begin another academic year, it is my pleasure to report that the Mathematics Department is thriving after experiencing several years of budgetary shortfalls. We continue to renew our faculty ranks through vigorous recruitment efforts. This year Dr. Naoki Saito joins us as Associate Professor of Mathematics. We also recruited two new Visiting Research Assistant Professors, Dr. Bumsig Kim and Dr. MingQing Xiao. You will find articles introducing the new faculty in this issue of the Newsletter. We welcome our new faculty and look forward to the contributions they will make to the Department and the University.

We also welcome two new staff members. Ms. Joyce Favrot joined us this April as Undergraduate Coordinator. Joyce came to us from the College of Engineering where she had worked for several years in both undergraduate and graduate programs. Among Joyce's many talents are her enthusiasm and her supportive attitude toward our majors and other students enrolled in mathematics courses. In August, we hired Ms. Sharon Boire as part-time grants and accounting assistant. Due to a dramatic increase in faculty research grants, our Business Office needed additional support, and Sharon has filled that need in an exceptional manner. Sharon also coordinates special events for the Department (including the production of this newsletter).

There are several initiatives the Department is undertaking or building upon this academic year. We will continue the graduate student recruitment and outreach efforts begun last year and continue to seek financial support and internship opportunities for our new and continuing graduate students. These efforts are led by Professors Angela Cheer, Chair of the Graduate Group in Applied Mathematics, and John Hunter, Vice Chair for Graduate Affairs.

We are making improvements in our undergraduate program by introducing "The Calculus Room," an open laboratory for all students enrolled in the MAT 16 series. The Calculus Room is open afternoons, Monday through Friday, and is staffed by teaching assistants eager to help students with homework problems or with quiz and exam reviews. Professor Abigail Thompson, Vice Chair for Undergraduate Affairs, worked hard to establish the Calculus Room. Professor Thompson also started a newsletter and electronic mailing list for all Mathematics majors as a way of improving communication between Department personnel and our majors.

Another highlight is the dramatic increase in the number of Mathematics faculty members obtaining research funding through extramural sources. Their efforts bring recognition to the Department, provide research opportunities for students to work with faculty, and, in some cases, increase our ties with industry and national laboratories. We are very appreciative of the support we receive from the College of Letters & Science and from the Office of the Vice Chancellor for Research in the form of matching funds for research efforts. We expect our faculty's productivity to continue and look forward to seeing the results of their research.

We will continue to keep you informed of the activities of the Department and welcome any inquiries or comments from our readers. Please send your correspondence, in care of the Department, to Ms. Sharon Boire, Editorial Assistant, or contact her by electronic mail (boire@math.ucdavis.edu) or phone (530-754-2140). We especially enjoy hearing from our alumni and invite you to complete the form located at the back of the newsletter to inform us of changes in your career or personal life, in particular any awards or honors you have received.

Internships, Careers, Students, and You

Carole Hom

Alumni on the UCD campus chatting with faculty and groups of students on a drizzly January day... what is this, has Picnic Day moved to winter quarter??? No, it's the Department of Mathematics Internship and Career Fair. For several years, our department has asked mathematics alumni to spend a few hours at a job fair, co-sponsored by the UCD Internship and Career Center, that targets undergrads and grad students in mathematics. Last year, over 60 such students took advantage of this opportunity to meet with Kristina Dance ('95), Michelle Echelberry ('87),), Anne Goodchild ('95), Laura Loos ('95), Tony Manzitto ('88), Fred Taverner ('87), and others. The 1998 fair takes place on Tuesday, January 20 from 2:00 - 5:00 p.m. in the East Conference Room of the M.U. If you would like to represent your firm at the 1998 Mathematics Internship and Career Fair, please contact Dr. Carole Hom at 530-752-4776 (clhom@ucdavis.edu), or our undergraduate coordinator, Joyce Favrot, at 530-752-8130. We'd be pleased to have you.

W.K. Schwarze Scholarship Awarded to Curtis Feist

At the annual Departmental Awards Ceremony on June 5, 1997, the Department awarded the William Karl Schwarze Scholarship in Mathematics to Curtis Feist. The presentation was made by Dr. Peter Rock, Dean of the Division of Mathematical and Physical Sciences. Curtis, who received a $10,000 scholarship, expects to receive a Ph.D. in mathematics in June 1998 and plans to teach at the college or university level. The scholarship was made possible by a bequest in the amount of $10,000 annually made to the Department by William Karl Schwarze who received his bachelor's degree in our Department and subsequently became a high school teacher of mathematics in San Francisco. Mr. Schwarze remembered his studies in the Department with such fondness that he decided to leave funds for students in our Department who demonstrate outstanding mathematical scholarship and exceptional promise of making a strong professional contribution as a mathematics teacher and educator at the pre-college or undergraduate college level.

Curtis received his Bachelor and Master of Science degrees in Applied Mathematics from the California Polytechnic State University, San Luis Obispo. As an undergraduate at Cal Poly, Curtis was interested in both mathematics and teaching. He tutored high school students and students in Cal Poly's Minority Engineering Program, and served as a volunteer with the Upward Bound Program. After graduation, Curtis worked as a substitute teacher at Arroyo Grande High School in the Lucia Mar Unified School District and was usually there 4 days a week. He was soon offered a long-term substitute assignment at Arroyo Grande, but to fulfill his dream of one day earning his Ph.D. in Mathematics, he declined the assignment and returned to Cal Poly to enter the Master's Degree program in mathematics.

Here at UC Davis, Curtis has continued to strive for excellence in teaching. He received a Letter of Commendation from the department chair for his outstanding student teaching evaluations, became a regular invited speaker at such events as seminars for new teaching assistants and career day seminars for mathematics majors-where his combination of high school and college teaching experience makes him quite popular. Last year, Curtis began using our new computer lab in conjunction with his teaching, including *Mathematica* for his multi-variable calculus courses and *Matlab* for linear algebra.

In 1996, Curtis was awarded the UC Davis Teaching Award for Outstanding Graduate Students. This campus-wide award is presented by the chancellor to several students each year.

Spring Mathematics Contest

The winners of this contest in the Spring of 1997 were:

First Prize - Will C. Buck

Second Prize - Henry Childs

Third Prize - a tie: Pete Storm and Ben Storch

Michael Barnard Wins the Fourth Robert Lewis Wasser Prize

The Robert Lewis Wasser Prize, in the amount of $500, was presented at the annual Departmental Awards Ceremony by Dr. Peter Rock, Dean of the Division of Mathematical and Physical Sciences. It was made from funds received from the endowment of the Robert Lewis Wasser Memorial Fund in excess of $10,000 named in memory of Robert Lewis Wasser, a junior student in our Department, tragically killed in a car accident on September 11, 1993. The prize is awarded to the winner of the Robert Lewis Wasser Memorial Contest conducted annually for freshmen and sophomore students at Davis.

This year's winner, Michael Barnard, is a freshman at UC Davis where he has received A's in his mathematics courses so far. He is currently a physics major, but is giving serious consideration to becoming a double major in physics and mathematics. Mike is the oldest son of two Davis alumni. Both parents encouraged him in his education. His father, who majored in chemistry and is now at Aerojet, worked with him on mathematics and science. Mike liked to work on problems on his own even before high school. After he entered Ponderosa High School in Shingle Springs, El Dorado County, he participated in the American High School Mathematics Examination taken by high school students typically in their junior and senior years. He, however, participated in each of his four years in high school. The maximum score possible on the Contest is 150. The Contest is very challenging so that only a few students score above 100, and the students who do are invited to participate in the so-called American Invitational Mathematics Examination. Mike scored above 100 in three of his four years in high school and was, therefore, invited to--and did indeed participate--in this mathematical examination three times. Because of his achievements in mathematics, Mike received a school-wide award of achievement in mathematics from Ponderosa High School. Besides working out mathematics problems on his own, his hobbies include a lot of reading, particularly science fiction, and sketching pictures

The prize was handed to him by Mrs. Vera May Wasser, Robert Wasser's grandmother, the initiator and main contributor to the Fund. Also present at the ceremony were Robert Wasser's mother, Cheryl Booth, and his stepfather Michael Booth.

Kowk Hay Fong and Boris Senderzon received honorable mentions.

The 1997 Prize for the Outstanding Teacher of Lower Division Mathematics

The 1997 Prize for the Outstanding Teacher of Lower Division Mathematics was awarded at the annual Departmental Awards Ceremony on June 5, 1997, by Professor Craig Tracy, Chair of the Department. The recipient was Curtis Feist, a graduate student in the department. Professor Tracy read these comments from Curtis' student evaluations: "He has been the most understandable, valuable instructor I've had in the 21 series of calculus. His lectures are basic and packed with useful information, brought down to an understandable level." "I found the instructor to be more than a teacher; he motivated me and others to learn all there was to learn from this class and he made it fun while learning, and I thank him for it." "This is by far the best instructor I have had. His teaching style was such that the material was clear and I had a firm grasp of the concepts. Office hours were of great benefit. If I went to office hours with a question, I always left with complete understanding of the problem or concept." "This is a fantastic teacher. I would totally recommend this teacher to anyone - both those who hate math and love math. Great job!!!"

This is the first time in the history of the Department that the recipient of the Prize for the Outstanding Teacher of Lower Division

Mathematics is also the recipient of the William Karl Schwarze Scholarship in Mathematics.

1995-1996 President's Award for Research Excellence

Leslie Levine was the winner of this award, which was accidentally omitted from last year's newsletter. Congratulations Leslie! We apologize for the oversight.

The President's Award, now referred to as "The Chancellor's Award for Excellence in Undergraduate Education," is presented each year to one graduating senior for excellence of their undergraduate thesis. However, at the 1995-1996 commencement, two students were honored because they both excelled. The winner is chosen by a committee made up of the Associate Deans of the undergraduate colleges or schools. The winner receives a cash award, a plaque, and a certificate. An award is also given to the winning student's faculty mentor.

1995-1996 Pro-Femina Mentor Award

Congratulations to Carole Hom who was the winner of this award, which was also accidentally omitted from last year's newsletter. Our sincere apologies.

The Outstanding Mentor Awards include $1,000 for research support and honors "Academic Senate and Academic Federation members nominated for successfully mentoring students in research and professional development." Those selected were described as having had "a significant impact on their student's growth and advancement in research." For example, Carole encouraged a student to pursue her interest in mathematics in addition to a pre-medical school program. Great job, Carole!

Upcoming Conferences to be held at UC Davis

UC Davis will be sponsoring two conferences in April, 1998. **The American Mathematical Society (AMS)** Western Sectional Meeting, April 25-26, 1998. Founded in 1888, AMS now has approximately 30,000 members, including mathematicians throughout the United States and around the world. It continues to fulfill its mission with programs that promote mathematical research, increase the awareness of its value to society, and foster excellence in mathematics education. Our faculty member, William Thurston, has been invited by AMS to give a one-hour address at the meeting. In addition, the following Special Sessions will be organized by Davis faculty members.

David Barnette: Graph Theory

Joel Hass, Dmitry Fuchs, Ramin Naimi, and William Thurston: The geometry and topology of 3-manifolds

John Hunter and Blake Temple: Nonlinear Analysis

Greg Kuperberg and Albert Schwarz: Mathematical Physics and Topology

Alex Mogilner: Mathematical Biology

Motohico Mulase and Bruno Nachtergaele: Dynamical Systems and Mathematical Physics

Simultaneously, a conference on Nonlinear Analysis and Mathematical Physics will be held in Davis on April 23-26, 1998, co-sponsored by the **California Coordinating Committee on Non-Linear Science (CCCNLS)**, the **Mathematical Sciences Research Institute (MSRI)** Berkeley, and the **Department of Mathematics, University of Michigan**. This conference is dedicated to the 60th birthday of Professor Joel Smoller. Professor Smoller, presently a Professor of Mathematics at the University of Michigan, is a pioneering mathematician whose contributions have influenced modern analysis during the last several decades. Anticipate speakers are Tai Ping Liu, Peter Lax, James Glimm, Shing-Tung Yau, and Avner Friedman. The organizing committee consists of Motohico Mulase, Bruno Nachtergaele, and Blake Temple (Chair).

For more information on either of these conferences, please contact Sharon Boire in the Mathematics Department at boire@math.ucdavis.edu.

Angela Cheer receives

recognition from graduate students

Matt Williams

At the end of the 96-97 school year, the graduate students decided to use the remaining funds of the Galois Group to show appreciation to some member of the Department who had gone above professional obligation to help the graduate students. Last year the club bought Kathy LaGiusa a nice jewelry box in appreciation for her efforts. This year, we nominated several professors, a staff member, and even a graduate student. After several days of voting, a majority of the graduate students decided that Angela Cheer should be this year's winner of "The Award for Outstanding Service to Graduate Students." All of us who know Angela are not surprised at this result. In her first year as chair of the GGAM, she has been very open to ideas and input from the graduate students. We have all appreciated the fact that she is easy to approach about any problems or concerns we may have about the applied program. We have all come to know her for the high expectations she sets for her students as well as for herself and her colleagues. It is very important to her that the students get involved in the political decisions which affect them.

Angela received a gift certificate to Soga's restaurant at the annual Department Awards Ceremony on June 5, 1997. She only recently had time to get away from the children and spend a quiet evening with her husband. She thanks all graduate students for their wonderful gesture. Of course, the graduate students are not the only ones who appreciate Angela's hard work: Peter Leung, the former Director of the Asian American Studies Program also nominated her for an award which she received last year.

Angela reminds all graduate students who have not received a nameplate for their office door to stop by and see her. She is not distributing them through the mailboxes because she wants a chance to meet every graduate student at least once while they are here. This remarkable type of personal attention is what has won the admiration and respect of the many people around her.

Update on our recently

"Retired" Professors

Sherman Stein, Professor Emeritus

Professors Alder and Kreith have been recalled to teach during the 97-98 academic year.

Professor Alder is serving as chair of the steering committee of the NSF-sponsored campus project, *Minority Undergraduate Research Participation in the Mathematical and Physical Sciences*. He served this year on the State committee that prepared the *Mathematics Framework* for grades K-12 to replace the 1992 version. He also chaired four MAA Committees, including the one that selects the national recipients for the Distinguished Teaching Awards, and is a member of two other MAA committees, including one advising NCTM on revision of its *Standards*.

Professor Benson has been working the last two years on a book, *The Moment of Proof*, to be published by Oxford University Press. The book seeks to communicate the joy of mathematical discovery.

Professor Chakerian has been working with Professor Kreith on the Starting with Math inservice program for teachers together with correlate courses. The two are also writing a book, *Iterative Algebra*, to be published by Springer-Verlag. He also is assisting Professor Kreith in an Extension course for high school students based on classroom materials developed along with the book. His paper *Bodies with Similar Projections*, written with E. Lutwak, appeared in the Transactions of the AMS and *Integral Geometry in Minkowski Spaces* in Contemporary Mathematics.

Professor Cutler taught Math 108 in the winter quarter of 1997 and spent the spring quarter at UC San Diego. There he continued his study of forcing which was aided by four lectures by Noa Golding, a set theorist at Occidental College. He also continued learning C++, using the book by Deitel and Deitel, "C++, How to Program." In addition he tested software for TCI Software and continued to work with Professor Sylvia on a text suitable for Math 108.

Professor Kreith continued to pursue his interests in mathematics education, serving as graduate MAT adviser and teaching Math 71B. He also offered a summer workshop for New York City high school teachers called *The Mathematics of Global Change* and a Chautauqua course for college faculty, *Using Stella II to Model Environmental Change*. He also served as guest editor of the special Sept-Oct, 1997 issue of the student magazine QUANTUM, which focuses on *The Limits of Growth* and advances in computer technology. In addition he developed with other department faculty an Extension program Starting with Math to make content-based inservice programs available to area schools and districts.

A mini-symposium in honor of Professor Pfeffer on the occasion of his 60^{th} birthday was held in Palermo, Italy on October 29, 1997.

Professor Stein was the luncheon speaker at the Southern California Section of the MAA meeting in November. He also gave talks at the Sacramento Country Day School to some 300 6-12 graders, and two talks at the December 1996 Asilomar conference. His trade book, designed to have everyone appreciate mathematics, *Strength in Numbers*, was published by John Wiley & Sons. (See the American Scientist of Sept-Oct, 1997 for a review.) A paper on the combinatorics of identities was published in Algebra Universalis.

Professor Tamura continued his study of semigroups, conducting joint research with Bob Dickinson of Livermore on subdirect products of *Z*. He also contributed a translation of Prof. Shoda's reminiscences to a book about Emmy Noether. He continued to write for Math. Reviews and Zentralblatt and publish award-winning Tanka poems in Japanese. He reports that his former student, Kunitaka Shoji, will be a visitor at the University of Nebraska and Monash University, Australia, studying combinatoral semigroup theory, group theory, and their applications.

In Memoriam

The Department suffered the loss of two of its emeriti faculty members with the death of Professor George A. Baker on December 13, 1996, at the age of 93 and Professor Edward J. Tully on November 15, 1995, at the age of 65.

Professor Baker came to UCD as the second member of the mathematics department and a junior statistician in the Experiment Station in 1937. During his time at UCD until his retirement in 1971, he devoted his efforts not only to teaching but to the application of the then relatively new field of statistics to the benefit of agriculture. He contributed more than 100 papers to professional journals. He was the 1956 faculty research lecturer at UCD, the highest honor for outstanding research conferred annually upon a member of the UCD faculty to one of its members. He was also the author of a book "Statistical Techniques Based on Probabilistic Models" in 1962. He was elected as a Fellow of the Institute of Mathematical Statistics and a Fellow of the American Association for the Advancement of Science.

Professor Tully joined the Department in 1963 and remained until his retirement in 1992. His research interests were in mathematical linguistics, algebra, and semi-groups. He served on several Ph.D. committees for students of Professor Tamura.

New Faculty

by Angela Cheer

The Mathematics Department welcomes Professor Naoki Saito as a new member of our Faculty. Professor Saito is originally from Chiba Prefecture (neighbor of Tokyo) in Japan. He obtained his bachelor's and master's degrees from the University of Tokyo before joining the private firm of Schlumberger as a research scientist in 1984. Naoki took a leave from Schlumberger to earn a doctorate. He received the first Applied Mathematics Ph.D. degree granted by the Department of Mathematics at Yale University in 1994. His current work centers around the application of wavelets and related techniques to problems arising in geophysics and medical imaging.

When asked about his reasons for leaving Industry for Academia, he said that "after 13+ years with Schlumberger, I wanted to explore a new possibility, I wanted to work not only on geophysical problems offered by Schlumberger, but also in different fields such as medical imaging, vision, perception, and other industrial problems through collaborations with people with different backgrounds. In order to pursue this, I thought that it would be the best for me to go to academia." In addition, he stated, "Over the years, I really enjoyed working with several summer interns at Schlumberger. As a result, I got interested in educating students by introducing them to realistic and practical problems." When asked about the reasons for having chosen to come to UC Davis, he replied: "UC Davis in general, and the Mathematics Department in particular, is encouraging interdisciplinary research in applied and computational mathematics, and I thought that this direction fitted my own objectives extremely well." He also said that "the lifestyle in California is very attractive for both my wife and me. Davis offers a safe, friendly, and international atmosphere."

Professor Saito has two children, Tomoya and Yuta, ages 8 and 4 years, respectively. They already like living in Davis a lot. In particular, Tomoya likes the feeling of independence associated with being able to ride his bike to school. They are not smitten by 'tamagotchis', so we will not see Naoki busily picking up after his children's cyber pets during office hours. Naoki's wife, Mayumi, teaches Japanese language. Before moving to Davis, she taught at SUNY Purchase in White Plains. Her other interests include playing tennis and visiting museums. In addition to mathematics, Naoki has other talents. He is an accomplished jazz guitarist. We must have him perform in our next Math Department talent show.

News from the Undergraduate Program

in Mathematics

Abigail Thompson, Vice Chair

for Undergraduate Affairs

We had an exceptional group of mathematics majors graduating in 1997. This was reflected in the number of departmental citations awarded. The five citations for excellence in mathematics were given to Michael Aigner, Tamara Bouma, Michael Bice, Sean Mullen, and Pete Storm. Aigner, Bice, and Mullen will be continuing their mathematics studies in graduate school at Stanford, UCSB, and UC Davis, respectively, while Bouma and Storm have begun careers at IBM and Lincoln Labs. Another graduating senior is now a commissioned officer in the United States Air Force, others are in industry, and several have begun teaching credential programs.

This year we are introducing some new initiatives in the undergraduate program. One of them is The Calculus Room. We've opened up one classroom every weekday afternoon from noon to five and staffed it with TAs, who are available to help with any and all questions from students in Math 16 (calculus for students with biological or social science majors). This should make it far easier for the thousands(!) of math 16 students to get help when they need it.

We've also started a Math Majors Newsletter. This is a monthly e-mail newsletter designed to keep our majors informed about events and opportunities as they become available. Suggestions or items for the newsletter can be sent to Professor Thompson at uvchair@math.ucdavis.edu. The newsletter will also be available online from the department's web page.

Undergraduate Peer Advisor

Rebecca Lee, a senior in Mathematics, has been appointed as our fourth Peer Advisor for the 1997-98 academic year. The Peer Advisor is trained to help students get a perspective from a student's point of view in addition to that of a faculty member, and help students with questions about major/university requirements, GE requirements, departmental programs, internship and career information, course selection and RSVP, graduate school admission and requirements, transfer student concerns, and all campus resources.

Awards to Davis Graduates

at UC Santa Barbara

Former UCD graduate, Karen Horton (B.S. 1995), was awarded the 1996-1997 Academic Senate Outstanding Teaching Assistant Award in the Mathematical, Life & Physical Sciences at UCSB. Karen is the first person in the Mathematics Department at UCSB to ever win this campus award.

Also, UCD graduate, Nancy Heinschel (B.S. 1995), received the 1997 Raymond L. Wilder Award at UCSB. This award is made annually to graduating seniors and first year graduate students in Mathematics for outstanding academic achievement.

Picnic Day 1997

Abigail Thompson

Picnic Day 1997 was a great event. The Mathematics Department hosted a departmental display in the walkway between Kerr Hall and Wellman. The display showcased the research activities of the department, with beautiful graphics contributed by Professors Gravner and Hass, and graduate student Rick Vaughn, and continuous videos of numerical simulations contributed by a collaborative group of graduate students and faculty, including post-doc Igor Aleinov and Professors Puckett, Buonocore, and Verosub from the Graduate Group in Applied Mathematics. The display also featured puzzles and problems, from knotted handcuffs to writhing möbius bands. One nine year old stayed for an hour and a half, worked every problem, and required parental assistance to lug away his trove of candy prizes. The display was very popular; this may be the only time we've seen crowds of people fighting for pencils to work mathematics problems voluntarily. The display was organized by Professor Thompson and Dr. Ali Dad-del, and was staffed by them together with a large group of graduate student volunteers.

News from the Graduate Program

in Mathematics

John Hunter, Vice Chair

for Graduate Affairs

The Graduate Program in Mathematics and the Graduate Group in Applied Mathematics were awarded a GAANN (Graduate Assistance in Areas of National Need) grant by the U.S. Department of Education starting in September 1997. This grant provides fellowships for up to six graduate students for the next three years.

Ten new graduate students joined the Mathematics program this year: Justin Abbott, Bradley Crane, Thaddeus Edens, Dmitry Gerenrot, Lola Muldrew, Elizabeth O'Neil, James Peirce, Michael Scott, Benjamin Storch, and Genevieve Walsh. Bradley, Lola, Genevieve, and Regina Parsons, a continuing graduate student in Mathematics, have GAANN Fellowships. Thaddeus has a Mathematics Fellowship.

Following the award of a large number of Ph.D. degrees in the academic year 1995-96, fewer students graduated in 1996-97. Three students completed their Ph.D. in Mathematics: Judith Epstein wrote a dissertation "On the Invariants and Isotopies of Legendrian and Transverse Knots," and Tom Winckler wrote a dissertation on "Stable Cohomology of the Invariants of the Lie Subalgebra L1Hn of the Lie Algebra of Hamiltonian Vector Fields." Professor Dmitry Fuchs was the advisor of both students. Oleg Zaboronsky, with Professor Albert Schwarz as his advisor, wrote a dissertation on "Localization and Supergeometry." Oleg is currently a visiting member of the Institute for Advanced Study at Princeton, NJ.

Seven students received an M.A. degree in Mathematics: Jennifer Henry, Jennifer Hurt, Kenneth Low, James Matthews, Maike Meyer, Regina Parsons, and Michelle Rogers. Maike, Jennifer Henry, Jennifer Hurt, and Regina are continuing in the Mathematics Ph.D. program, while Kenneth, James, and Michelle have left the department. James also received an MAT (Master of Arts in Teaching) degree, and is currently a lecturer at the College of the Dessert, Palm Dessert, CA. Two other MAT degrees were awarded to Lisa Feintech and Anne Haney. Lisa is working in Santa Cruz, and Anne is teaching Mathematics and Statistics at Fairfield High School.

Several special awards went to Mathematics graduate students: Curtis Feist received both the Department's Schwarze Scholarship in Mathematics and the Prize for the Outstanding Teacher of Lower Division Mathematics for 1996-97. Lisa Korf received a Dissertation Year Fellowship from the University.

News from the Graduate Group in Applied Mathematics

Angela Cheer

Chair, GGAM

Many exciting events occurred last year in the Graduate Group in Applied Mathematics (GGAM). Here are some of the highlights.

Faculty:

There are 53 faculty members in the GGAM. These members are from the School of Engineering, the Division of Biological Science, the School of Medicine, the School of Management, and the Division of Mathematical and Physical Sciences. The current chair of the GGAM is Prof. A. Cheer. The executive committee of the GGAM consists of Professors Hastings, Keizer, Krener, and Temple. This year we welcome four new members, Prof. Michael Turelli from Population Biology, Prof. Bernd Hamann from Computer Science, Prof. Naoki Saito from Mathematics, and Prof. Glaucio Paulino from Civil and Environmental Engineering.

Students:

Currently there are 31 graduate students enrolled in the GGAM. Of these, eight are new. We extend our warm welcome to Yuan-Wei Jin and Long Li, from China, Heath Miller, from SUNY Buffalo, Sean Mullen , from U.C.Davis, Carmeliza Navasca from U.C. Berkeley, Mao-lin Ni also from China, David Raske from the Univ. of Washington, and Randall Robertson from Bringham Young.

Congratulations to the following seven GGAM students who received advanced degrees last year. * John Dell'Aera, M.A., Advisor Prof. Levy. Thesis: Design of Lossless FIR Multi-filter Banks for Constructing a Basis for L2(R). Employed by TRW. * Geoffory Gibbons, M.A., Advisor Prof. G. Puckett. Thesis: Second-Order Approximations of Hele-Shaw Flow. Employed by Hughes Aircraft. * Audrey Robinson, M.A., Advisor Prof. J. Hunter. Thesis: Hamiltonian System and Resonant Wave Interactions. * Thomas Rutaganira, Ph.D., Advisor Profs. A. Cheer and H. Dwyer. Dissertation: Numerical Simulation of Blood Flow in Arteries: Effect of Elastic Walls. Employed by ICFMCFD as a Research Scientist. * Tanya Seph, M.A., Advisor Prof. J. Hunter. Thesis: The Spreading of Droplets. * Alicia Swan, M.A., Advisor Prof. A. Hastings. Thesis: Using Reachable Sets to Define a New Measure of Genetic Distance. Enrolled in the Ph.D. program in Ecology. * Binh Truong, Ph.D., Advisor J. Hunter. Dissertation: Generation of Gravitational Waves by Acoustic Wave Interactions. March 1997. Employed by Napa Valley College as an instructor.

The U.S. Department of Education funded the Mathematics Department's GAANN proposal last year. The first GAANN fellowships have been awarded to the following students: D. Brown, M. Nelsen, S. Mullen, R. Robertson; B. Crane, R. Parsons, L. Muldrew, and G. Walsh, and. The first four are students in the GGAM and the second four are enrolled in the Graduate Program in Mathematics. H. Miller was awarded a fellowship by the NSF-RTG in Nonlinear Dynamics in Biology, and M. Williams was awarded an internship to work at Los Alamos National Labs as a Graduate Research Associate. Congratulations to these students!

Courses:

In order to strengthen further the ties of our program to research in industry and national laboratories, the GGAM offered a special series of lectures in Computational Finance this past summer. The lecture series was given by Dr. A. Mayo from I.B.M.'s T.J. Watson Research Center in Yorktown Heights. This series opened up possibilities for students to work in the exciting and quickly developing area of Computational Finance. This winter Dr. D. Brown, team leader of the Scientific Computation section at Los Alamos National Laboratories, will be giving a course on "Numerics and Overtures". It is a course that is expected to attract as many students as it does faculty. In addition to these courses, new courses aimed at the interface between mathematics and biology have been introduced into our curriculum. These are Biofluiddynamics and Scientific Computations with applications to Biology. The Biofluiddynamics course was offered last Spring and the Scientific Computation course is being offered for the first time this fall.

Seminars:

Professor Carla Wofsy, from the University of New Mexico, was a NSF visiting professor last year. She organized a very successful seminar series of high profile women in mathematics and science. Speakers included Professors M.A. R. Koehl and N. Koppell. The graduate students also ran a very successful seminar series. The following students put in a lot of effort: W. Bertel, S. Chan, T. Kim, S. Lundy, B. Mazzag, M. Nelsen, and M. Williams. This fall A. Braden and D. Brown took on the lion share of the organization of the seminar series.

New Research Assistant Professors

at Davis

Dmitry Fuchs and Art Krener

The Department is very pleased to announce the appointment this year of two Visiting Research Assistant Professors. These visiting faculty members are selected from an outstanding pool of applicants, generally new Ph.D.s working in research areas that are closely related to the research interests of faculty members here at UC Davis. Since its inception in 1992 many young scholars have had the opportunity to teach and do research under the auspices of this program.

Bumsig Kim received his bachelor's degree from Seoul National University in 1989 and his Ph.D. from Berkeley in 1996 with

Alexander Givental as his advisor. His main interests are mirror symmetry and quantum cohomology. He will be working with Professor Albert Schwarz. For a mathematician of his age, Bumsig is exceptionally broadly educated. He possesses an extensive knowledge of algebraic topology, algebraic geometry, representation theory, quantum mechanics, etc. We all will gain a lot from contacts with Bumsig.

MingQing Xiao comes to us from the University of Illinois where he recently completed his Ph.D. in Mathematics. His area of research is systems and control, partial differential equations, and dynamical systems. While at Illinois, MingQing worked with Professor Tamer Basar of the Decision and Control Laboratory on the optimal robust contol of distributed parameter and infinite dimensional systems. This area is known as infinite dimensional H-Infinity control theory. Prior to coming to Illinois, MingQing earned a Masters degree in Applied Mathematics from Zhongshan University in China.

MingQing will be collaborating with Professor Art Krener on the theory of infinite dimensional observers for nonlinear dynamical systems and the control of compressors.

Life After Davis

Submitted by Laura Loos (B.S. '96)

When I came to Davis, I chose mathematics as my major because it was the most challenging class I experienced in high school. It was not a particularly misguided reason to choose a major, and probably more successful than tossing a dart. I continued for the first year out of sheer momentum. The Emerging Scholars Program (a calculus lab run in conjunction with the first year series) opened up the world that would fascinate me enough to stay for three more years.

The reasons I stayed with mathematics changed by class, by professor, by moment, but always included the beauty, the logic, the safety, the lack of boundaries, and the challenge. I never knew if it was mathematics that I loved or these attributes. The mathematics I learned and the learning processes used as I explored this world are inextricably linked in my appreciation of my education.

I chose to dive into the professional work world out of college rather than continuing with my mathematics education out of necessity to prove to myself I could survive outside of academia. I joined a consulting firm whose expertise is in implementing large scale business systems. My response to "What do you do for a living?" takes fifteen minutes on a good day, when I am sure of what I do. Consulting challenged me in a different way than mathematics. It included the challenges of people, of uncertainty, of change, and of the illogical.

My day to day activities have not included a single integral or even required me to recall a single theorem. However, more than once, I have been able to correct a business decision by recognizing an individual was reversing the implication of a statement. The skills I received from my mathematics education at Davis have allowed me to critically analyze system architectures, business decisions, implications of system design changes, and identify the root causes of system errors. They are all puzzles to solve, proofs to follow to their logical conclusion. I am still in love with the world to which Davis introduced me and remember my undergraduate years as some of the best ones of my life.

Submitted by Mas Kimura (Ph.D. '96)

I was at UC Davis for a very long time. I arrived as a freshman undergraduate in the Fall of 1986 and finally left as a graduate student in the Summer of 1995--a time span of nine years. So it was difficult for me to leave behind the place that I had called home for nearly a decade. But the sad reality is that you can't get tenure as a graduate student no matter how much you beg. *Sigh* So, having failed to complete my dissertation on time (I was a sixth year graduate student when I left), I decided instead to take a full-time position as a Visiting Lecturer at the University of Wisconsin at Eau Claire.

I can describe Wisconsin in one word: very cold (well, OK, two words). The snow first landed on the ground in mid-October and finally melted in late May. During this seven month winter, there was a stretch of ten days or so of subzero weather. It was so cold, in fact, that customers at the local K-Mart left their car engines running while in the parking lot, out of fear that their engines would freeze otherwise. Not surprisingly, my notion of what was considered cold was altered forever. Eventually, my body adjusted to the climate: I gained 15 pounds.

During my stay in Eau Claire, I continued working on my dissertation. I was fortunate to be able to return to Davis during academic breaks so that I could consult with my thesis advisor, Professor Motohico Mulase, on my dissertation. In fact, it was during the Christmas break and Spring break that two major breakthroughs occurred, considerably strengthening the results of my dissertation. I eventually finished the paper in the Summer of 1996--a full year after I had left Davis.

Since then, I have moved yet again--this time to Williamsburg, Virginia, where I am currently a Visiting Assistant Professor of Mathematics at the College of William and Mary. I teach three courses per semester (mostly Calculus) and supervise graduate student TAs for the Math Department. I feel very fortunate to be teaching at a school with students of such high caliber. As for research, I am currently collaborating with Pol Vanhaecke, a Visiting Research Assistant Professor at Davis, on a project that we started during my visit to Davis this past summer. Hopefully, my teaching experience at William and Mary and any research I conduct will eventually enable me to secure a tenure-track position at a small liberal arts college.

In addition to work, I try to enjoy life a little. Currently, that means learning origami (Japanese paper folding), getting back into squash, learning some social dance, and taking care of my new pet kitten (which, at the time of this writing, I have yet to give a name.) Oh, and, of course, enjoying the warm weather.

ALUMNI NEWS

- **Tamara Bierman** (1993, BS) is a $1^{st}/2^{nd}$ grade bilingual teacher at Cesar Chavez School in Oxnard, CA. In May 1997, she married Tim Thosnell, a 1994 graduate from UCD.
- **Elyon DeKoven** (1994, MA) has been working for Hewlett Packard Research Labs in Palo Alto, CA. He is married and has a new baby daughter (born July 4, 1997).
- **Daniel Faletti** (1989, MAD-Business Administration) is a Senior Cost Analyst for The Permanente Medical Group, Inc.,in Oakland, CA.
- **Ricardo Fierro** (1985, BS) received a Ph.D. in mathematics from UCSD in 1992 and is now an Assistant Professor of Mathematics at California State University, San Marcos, in North County San Diego, CA.
- **Sarah Gertmenian** (1992, BA) spent two years in the Peace Corps in the West Indies island of St. Vincent and the Grenadines teaching secondary school mathematics and is now applying for veterinary school**.**
- **Shelley (Meyer) Gillett** (1993, BS) is a mathematics teacher at Corona del Mar High School in Newport Beach, CA.
- **Anne Goodchild** (1995, BS) is a Research Analyst at Applied Decision Analysis in Menlo Park, CA. She is getting married next year, and currently works with Kristina Dance, another UCD alumna.
- **Rita Hurst** (M.S. '95) is employed by Carl Corporation in Denver, Colorado.
- **Virginia Lau** (1990, BS) is a Project Environmental Scientist for Dames & Moore Environmental Engineering in San Francisco, CA.
- **Jeff Lovitt** (1995, BA) is a Project Manager for Design Build Systems in San Jose, CA.
- **Stephen Pearcy** (1993, BA) is a 2^{nd} year law student at Golden Gate University School of Law in San Francisco, CA. In March 1996, he married **Virginia Johnson**, a 2^{nd} year law student at U.C. Berkeley. Virginia graduated from UCD with a BS in mathematics in 1995.
- **Mohammad Saleem** (1988, PhD) is an Associate Professor at San Jose State University and an AMES Associate for NASA AMES Research Center.
- **Lynn Seals** (1994, BA) is a mathematics teacher at Fairfield High School in Fairfield, CA.
- **Luke Simcik** (Ph.D.'95) is teaching at Cabrillo College in Santa Cruz, CA.
- **Eric Steger** (1993, BS) is a substitute teacher for the Fremont Union High School District in Sunnyvale and Cupertino, CA.

He is currently in graduate school at San Jose State University.

- **John Thoo** (1992, MA) is an instructor at Yuba College in Marysville, CA.
- **Xiaojun Wang** (Ph.D. '95) is a software engineer at Silicon Valley Research Inc.
- **Jennifer (Dance) Wanless** (1994, MAT) is a teacher of mathematics at San Luis Obispo High School in CA.

The Department of Mathematics

Newsletter Editorial

Henry L. Alder, Editor in Chief

It is a great pleasure to be once again this Newsletter's Editor in Chief and thus have the welcome opportunity to send you greetings from the department from which you graduated and to tell you how delighted we are to read, upon receipt of your Alumni News Update Form, of the achievements in your careers.

We are also very pleased with your many comments such as "I enjoy reading the newsletter and hope to continue receiving it" or "I love getting the Newsletter!" or "I enjoyed reading the life after Davis stories," or suggesting "Quarterly Newsletter." We try to follow as many of your suggestions as possible. Note that this Newsletter again includes two "Life After Davis" articles. Also the Newsletter has proved to be so popular that we now have it produced professionally.

We hope you like it even better than the previous issues. We also hope that you are pleased to read that the department is thriving both in its teaching and research missions. Just yesterday a student in my class this fall chatted with me and volunteered: "Here I am a junior in mathematics, and I have not had a bad teacher in mathematics yet."

We also have added a new column on "Awards to Davis Graduates" at institutions you have joined after you left Davis. Please let us know of additional such awards and honors you may have received. We can only include them in the next Newsletter if you let us know about them.

One of you asked that the Newsletter provide "opportunity to meet old alumni." The best way to achieve this that I can think of is for all of you to keep us advised of your current position, address, and other information by returning the Alumni News Form so that you can then contact alumni living close by.

The Department of Mathematics Newsletter

EDITOR IN CHIEF

- Henry L. Alder, Professor Emeritus

EDITORIAL BOARD

- Sharon Boire, Editorial Assistant
- Angela Cheer, Chair, GGAM
- John Gehrmann, Production Assistant
- John Hunter, Vice Chair for Graduate Affairs
- Judith Ryan, Department Manager
- Sherman Stein, Professor Emeritus
- Abigail Thompson, Vice Chair for Undergraduate Affairs

More information about the department is available on our web site at:

http://www.math.ucdavis.edu

A VERY IMPORTANT NOTE

UC Davis, the City of Davis, and most of Yolo County changed to the NEW 530 area code effective November 1, 1997.

Please update your phone list.