Berkeley
Mathematics
Newsletter

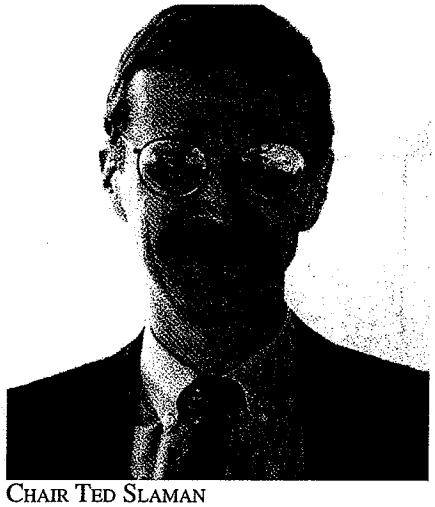
A newsletter of the Department of Mathematics and Center for Pure and Applied Mathematics at the University of California, Berkeley

Fall 2003 Vol. X, No. 1

MESSAGE FROM THE CHAIR

THEODORE A. SLAMAN

It was August 18th, a few weeks ago, and because of a sabbatical year in Germany, I had not set foot in Evans Hall since September 2nd of the previous year. When I stepped out of the elevator on the 9th floor I had a surprisingly strong sensation — I was



CHAIR TED SLAMAN

happy. Berkeley is a great place for mathematics and I was back.

Now, with my return to Berkeley, I begin my term as Chair of the Department. Professor W. Hugh Woodin was Chair last year and Professor Calvin Moore was Chair during the six years before that. Cal Moore was an exemplary Chair and I will say more about his service to the Department and the University below. But Woodin's service is also remarkable. In his one-year term, he was faced with surging enrollments and severe cuts to the departmental budget. Woodin learned the Chair's job in record time. By a sequence of excellent decisions, he met the budgetary constraints and minimized the effects on our educational and research programs. We are a more Spartan operation, but we are still operating. Thanks to Hugh for his leadership, intelligence, and good judgment.

Who can predict what will happen next with the California State Government? We in the Department are being conservative, planning for another lean budget year, and hoping for better years after this one.

Do not get the impression that we will spend all of our time minimizing our losses. This year we hope to hire two new faculty members. Believe it or not, there are brilliant mathematicians who are not yet members of our Department. It should be exciting to see which of them we can attract.

I have known for years that Berkeley is a great place for mathematics. I am discovering that the Berkeley Mathematics Department and the Physical Sciences Division of the College of Letters and Science are great places for people: faculty, administration, and staff. I am looking forward to working with them as they teach me the ropes of my new job.

FACULTY

Welcome to the new postdoctoral members of the Department. We are joined by Ioana Dumitriu (PhD 2003, MIT), Olga Golts (PhD 2000, University of Wisconsin, Madison), Ilan Hirshberg (PhD 2003, UCB), Paul Krause (PhD 2002, Instituto Nacional de Matematica Pura e Aplicada), Ovidiu Savin (PhD 2003, University of Texas, Austin), Panos Stinis (PhD 2003, Columbia University, NY), Martin Weismann (PhD 2003, Harvard University), and Alexander Yong (PhD 2003, University of Michigan).

Welcome also to Miller Visiting Professor Max Karoubi (University of Paris 7) and Visiting Professor Garth Dales (Leeds University).

I referred to Professor Calvin Moore's service earlier. It was officially recognized by the University when he was awarded the Berkeley Citation, one of UC Berkeley's highest honors, at the State of the Mathematics Department meeting on September 16, 2003. The Citation is given to a handful of people each year to recognize their combination of extraordinary scholarship and outstanding service to the university. The award was presented to Professor Moore by Chancellor and Professor Emeritus I. Michael Heyman.

(continued on page 11)

Highlights

What's inside:

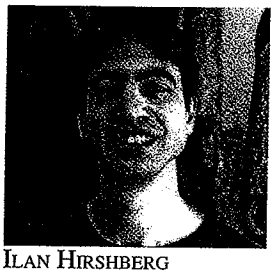
POSTDOCTORAL FACULTY AND FELLOWS

HARUKO BRUCE

Ioana Dumitriu, a Miller Research fellow, received her PhD this year from MIT. Dr. Dumitriu's primary research interest is in the field of random matrices, and in particular the classical beta-Hermite (Gaussian) and beta-Laguerre (Wishart) ensembles, with applications ranging from log-gas theory to mechanical statistics and computational biology. Her approach involves applying numerical linear algebra algorithms stochastically and using combinatorial tools to study eigenvalue statistics, in an attempt to provide a unified, arbitrary-beta theory. Secondary interests include two-person combinatorial and probabilistic games.

Olga Golts, a Charles B. Morrey, Jr. Assistant Professor, received her PhD in 2000, from the University of Wisconsin-Madison. Her fields of interest lie in the areas of linear and multilinear algebra, and matrix theory. In the areas of matrix analysis and approximation theory, she is currently working on the inverse eigenvalue problem for nonnegative matrices and on approximation orders provided by shift-invariant subspaces of Sobolev spaces.

Ilan Hirshberg, a Lecturer and Postgraduate Researcher, received his PhD this year from UC Berkeley. His research interests include C*-algebras, k-theory, and noncommutative dynamics.



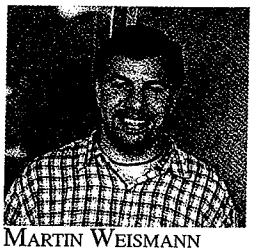
ILAN HIRSHBERG

Paul Krause, a Lecturer, received his PhD in 2002 from Instituto Nacional de Matematica Pura e Aplicada. His area of interest lies in the area of Fluid Dynamics. He is currently conducting research on analyzing the quality of models for the large-scale mechanics of multi-scale flows through information theory.

Ovidiu Savin, a Miller Research Fellow, received his PhD this year from the University of Texas, Austin. His field of interest is in partial differential equations.

Panos Stinis received his PhD from Columbia University this year in applied mathematics. His fields of interests are numerical methods, stochastic algorithms, and optimal prediction. He will be working on problems in optimal prediction.

Martin Weismann, an NSF Postdoctoral Fellow, received his PhD this year from Harvard University. His research interests include representation theory of p-adic groups, automorphic forms, and number theory. He is currently working with automorphic forms on a group of type D4 and an octonionic generalization of the work of Jacquet, Langlands, and Waldspurger.



MARTIN WEISMANN

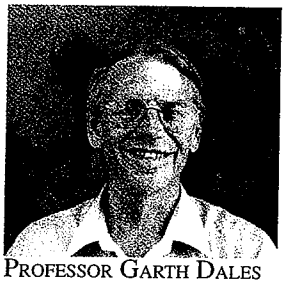
Alexander Yong, a Visiting Assistant Professor, received his PhD this year from the University of Michigan. His research interests lie in the field of combinatorics and its relations to algebraic geometry, commutative algebra and representation theory. In recent years, he has been working on Schubert calculus and related topics.

ALEXANDER YONG

VISITING FACULTY

Visiting from the Université de Paris 7, the Department is pleased to welcome **Professor Max Karoubi** as a Miller Visiting Research Professor for the Fall Semester. He is a leading expert in the area of K-theory and Algebraic Topology, and is currently working on quantum differential calculus on topological spaces.

Visiting from the University of Leeds in England, the Department is also pleased to welcome **Professor H. Garth Dales** as a Visiting Professor. He has had a distinguished research career working both in the theory of Banach algebras and also in related issues in set theory. Ω



PROFESSOR GARTH DALES

HONORS AND AWARDS

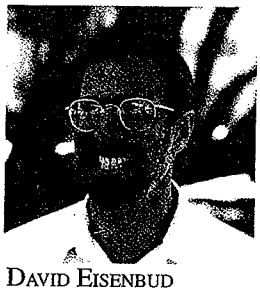
Professor Alexandre Chorin received an honorary doctorate from the Technion-Israel Institute of Technology.


ALEXANDRE CHORIN

Professor James Demmel was an invited speaker at the International Congress of Industrial and Applied Mathematics in Sydney this past year. The title of his talk was *"Accurate and Efficient Algorithms for Floating Point Computation."* (www.iciam.org)


JAMES DEMMEL

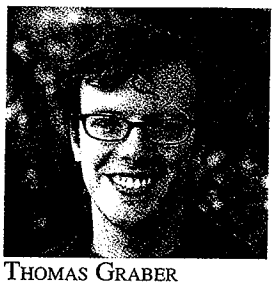
Professor David Eisenbud began his term as President of the American Mathematical Society on February 1, 2003. This term will last until 2005. He also gave one of the four invited addresses in Zurich in January 2003, on the occasion of the hundredth anniversary of the birth of B. van der Waerden.


DAVID EISENBUD

Professor L. Craig Evans was inducted into the American Academy of Arts and Sciences.


CRAIG EVANS

Professor Thomas Graber received a Sloan Research Fellowship. The Sloan Research Fellowships are given to those who show outstanding promise in their research.


THOMAS GRABER

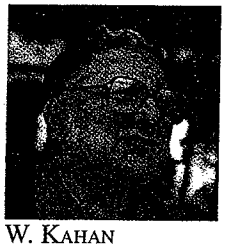
Professor Robin Hartshorne was invited to give an address in Zurich in January 2003, on the occasion of the hundredth anniversary of the birth of B. van der Waerden. He was also invited to give the opening address at the 225th anniversary meeting of the Dutch Mathematical Society, the Wiskundig Genootschap, in Nijmegen in May 2003.


ROBIN HARTSHORNE

Professor Michael Hutchings also received a Sloan Research Fellowship.


MICHAEL HUTCHINGS

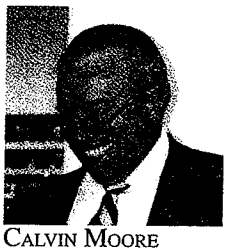
Professor W. Kahan was inducted into the American Academy of Arts and Sciences in mid-October 2003.


W. KAHAN


ALAN KNUTSON

Professor Alan Knutson was M.S. Keeler Lecturer at the University of Michigan.

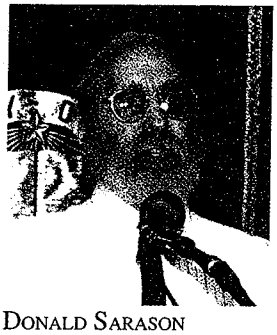
Professor Calvin Moore was awarded the Berkeley Citation, one of UC Berkeley's highest honors, in recognition of his extraordinary scholarship and outstanding service to the university.


CALVIN MOORE


LIOR PACHTER

Professor Lior Pachter was another in this department who received a Sloan Research Fellowship.

Professor Donald Sarason received the 2002-2003 Distinguished Teaching Award in May 2003 from a vote by the undergraduate students. This award was established in 1983 by the Mathematics Undergraduate Student Association (MUSA). It is presented by MUSA and the graduating class to the professor who, in the judgement of the students, contributed most greatly to their mathematical studies.


DONALD SARASON

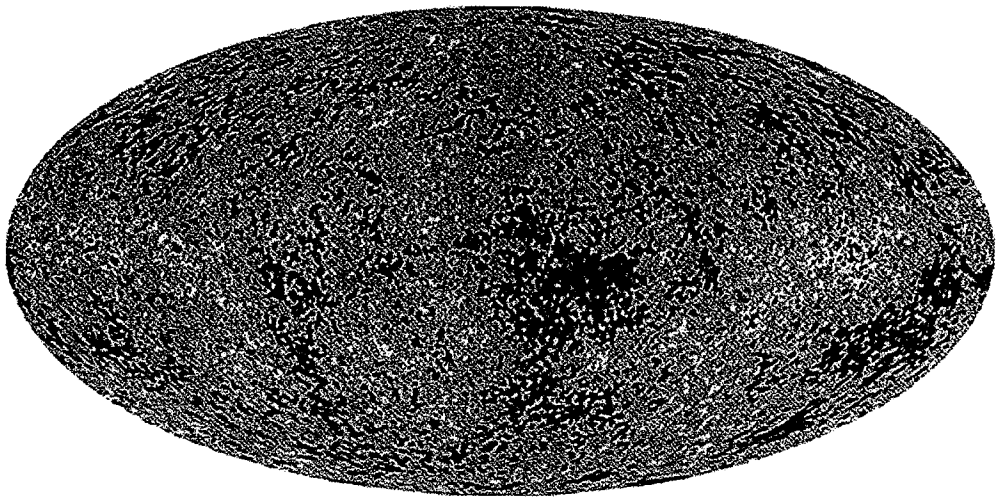
Professor Jonathan Shewchuk in the Computer Science Department was awarded the Wilkinson Prize this summer. This prize is awarded for excellent contributions to mathematical and numerical software. Though not a member of the Mathematics Depart-

(continued on page 10)

FEATURE ARTICLE: Dark Energy Illuminated

The 1998 *Science* Breakthrough of the Year was the observation of the accelerating expansion of the universe. The actual observation was of distant supernovae of a special type. These particular supernovae are designated *Type Ia Supernovae* and they have the remarkable feature that their intrinsic brightness is essentially uniform from one supernova to another with the small variations being strongly correlated with their light curves. Further, these supernovae are bright, typically out shining, though only briefly, the entire galaxy in which they are located. This remarkable coincidence of features makes these supernovae ideal for measuring distances on a cosmic scale. By comparing the apparent brightness of the observed supernovae with the red shift of their spectra, investigators drew their startling conclusion.

What is accelerating the expansion of the universe? It is called *Dark Energy* and its existence is one of the great mysteries of modern science.



A PLANAR PROJECTION OF THE WMAP MICROWAVE SKY

PICTURE FROM THE NASA/WMAP SCIENCE TEAM.

Within the last year, the existence of Dark Energy has been independently confirmed by data from the Sloan Digital Sky Survey (SDSS) and NASA's Wilkinson Microwave Anisotropy Probe (WMAP). SDSS is an ambitious program to map the distances and positions of more than a million galaxies and quasars and WMAP is a program to produce a high-resolution map of the temperature (or "color") of the cosmic microwave background.

How did this data point to Dark Energy?

In 1967 our own Rainer Sachs in collaboration with Arthur M. Wolfe (Department of Physics, UCSD) showed how variations in the early Universe caused anisotropies (irregularities) in the microwave background, the faint radiation (light) left over from the Big Bang. The anisotropies come in the form of temperature variations in the detailed observations of the microwave background. This *Sachs-Wolfe Effect* was confirmed and measured 25 years later by the Cosmic Background Explorer Satellite (COBE), an earlier version of WMAP. The observations give strong support to the notion that the lumpy collection of stars and galaxies we see in the Universe today started out as density fluctuations in the early Universe.

In the *Integrated Sachs-Wolfe* (ISW) effect, temperature fluctuations could also arise from an increase in the temperature of the radiation of the cosmic microwave background that has passed through large-scale structures (galactic clusters) in the universe. However, according to current cosmological models, this indicates either an appropriate degree of spatial curvature or the presence of Dark Energy. However, observations of the CMB (specifically the angular scale of the strongest fluctuations, the so-called 'first peak') already tell us that the spatial curvature vanishes within small errors. So the observation of the ISW effect must be due to Dark Energy.

To measure the ISW effect, one needs two detailed maps of the sky: the first showing the cosmic microwave background (supplied by WMAP) and the second showing the distribution of galaxies (supplied by SDSS). By correlating observed hot spots with large-scale structures, the ISW effect can be (and was) verified. Thus, the presence of Dark Energy is confirmed.

These exciting results were announced last summer (reported in the New York Times on June 3, 2003) by Ryan Scranton (University of Pittsburgh), Andrew Connolly (University of Pittsburgh), Bob Nichol (Carnegie Mellon University), and Albert Stebbins (NASA/Fermilab Astrophysics Center).

The SDSS project runs through 2006. By that time there should be over twice as much data available. That should be enough data to detect the ISW effect with higher confidence and accuracy, reveal more of the nature of Dark Energy, and perhaps solve the riddle of what it is.

These recent observations are the most direct detection of Dark Energy so far. They all but rule out the simpler view of the universe in which gravity is the dominant long-range force.

References

Glanz, James. Cosmic Motion Revealed. *Science*, 282(5397):2156-2157, December 1998.

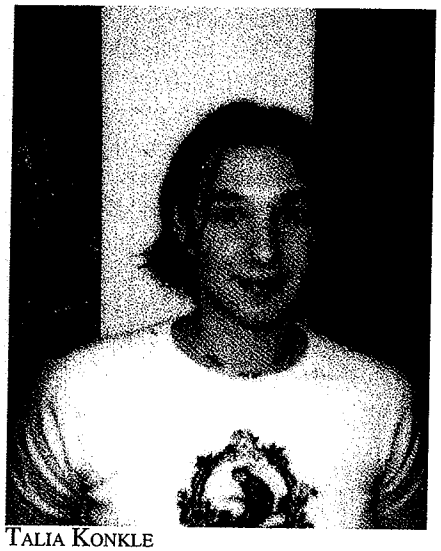
Sachs, R. K. and A. M. Wolfe. Perturbations of a Cosmological Model and Angular Variations of the Microwave Background. *The Astrophysical Journal*, 147:73-90, January 1967. Ω

PERSPECTIVE FROM AN UNDERGRADUATE

TALIA KONKLE

31 AUGUST 2003

This summer I stumbled across a swell of interest in an interdisciplinary mathematical field. There is a newly established Mathematical Biosciences Institute (MBI) at the Ohio State University, which is under the direction of Avner Friedman. (This mathematician turns out papers like monthly newsletters, received a $10 million dollar NSF grant to create the MBI, and also happens to be one of the most soft-spoken, friendly, and warm-hearted mathematicians I've ever met.) At a three-week summer program, the 23 participants (undergraduate and graduate students, professors, and high school teachers) worked with differential equations to model neurons and explore different neuronal circuitry. (I'll admit that had I known that partial and ordinary DifEqs were the main mathematical content before I landed in Ohio, I would have been terrified and doubted my place to be there with only Math 54 ODE (ordinary differential equation) exposure... However, after three weeks of practice, I am much less afraid of differential equations than before.)



TALIA KONKLE

I imagined that the combination of Mathematics and Biology would draw an interesting participant pool. Unexpectedly, one of the most-asked questions was: "So, are you a math person *or* a bio person?" And surprisingly few people said, "Both." As an undergrad doing a double major in Applied Math and Cognitive Science, I've struggled with how I can interconnect these two disciplines. I came to the MBI expecting a group of people who were older, wiser, and had already discovered the interfacing answer. But what I found were mathematicians and biologists, both of whom thought that the combination "sounded cool."

I think you can break it down like this: Mathematicians really like solving cool problems. And, Biologists have a lot of cool problems to be solved. Here is a pairing which has a lot of potential, and a field which is on the up-and-up. But what I also observed at the MBI was this: they have some expert mathematicians, and a couple expert biologists, and no one with a full capacity to interface. Here is a need, and interestingly, it's one that undergraduates can fill most readily!

We need people who not only toss around mathematical concepts with ease but also can conceptualize biological problems set on a biologically-backgrounded stage. At the MBI, I expected to find an answer on how to interface math and neurobiology... and what I found is that they have some idea but ultimately, *they don't know the answer!* But they do have $10 million and 10 years to work on figuring this out!

The fringe of our intellectual knowledge is not only at the far-reaching expertise of each field but at the boundaries between fields. I cite psych-econ and the recent Nobel prizes awarded in "Behavioral Economics." Or human-computer interactions, or Mathematical Biosciences... junctures are all over the place, and the need for interdisciplinary knowledge and interfacing is going to be the next big thing with our advancing technological society. The money is going to the people who have the vision to see the interdisciplinary connections, to the people who have the expertise in both fields to illuminate the boundaries and invent the connecting bridges.

So enough for the big vision. Let's talk about implementation for undergraduates at UC Berkeley. One graduate student from Case Western confided in me that doing a research program in the summer was one of the best things I could do if I wanted to go to gradute school. I listened eagerly as she continued. "I did an REU (Research Experience for Undergraduates) one summer," (I remembered Catherine Pauling encouraging me to explore the REU website, though I never did), "and as soon as the grad schools heard that, I was basically in. Yeah, test scores and letters of rec are really important, but the REU was like a golden ticket."

Ok ok, so I guess it's worth it to take the time to get "plugged in" to the opportunities, even if she was exaggerating a little. Want to explore the math research websites or take a jaunt up to the 9th floor of Evans to stare at the poster-filled wall? How about dropping in on the math advisors and hear what new opportunities have rolled in for math undergraduates? Sure why not, I'll do it. Time to put my once-dormant math side back in the game. Ω

HONORS FOR UNDERGRADS

ALICE T. SCHAFER MATHEMATICS PRIZE FOR 2003

The Mathematics Department has nominated Lynn Scow, undergraduate senior in Mathematics, for the 2003 Alice T. Schafer Mathematics Prize, a nationwide award for outstanding undergraduate women in mathematics. Lynn's focus has been in logic but she is expanding her exploration to other areas of mathematics and plans to continue with graduate studies.


LYNN SCOW

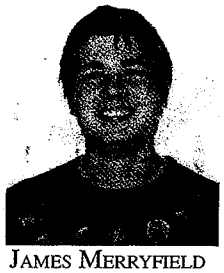
Mathematical Contest in Modeling (MCM)

Undergraduate teams are forming for the twentieth annual competition to be held in February 2004. This fall, Professor Sachs has sponsored a special topics class coordinated by senior, Nathaniel Singer, to further students' knowledge of modeling and encourage teams to form. Students not in the class but interested in competing should contact Catherine Pauling or Alison Thompson in 964 or 965 Evans Hall.

UCB Putnam Team Ranked Fourth

(behind Harvard, Princeton, and Duke) in the 63rd Annual William Lowell Putnam Competition held December 7th, 2002. For the second year in a row, the Berkeley team placed 4th. The team was comprised of UCB juniors, James Merryfield and Austin Shapiro, and visiting student, Boris Bukh, from City College San Francisco. Additionally, James Merryfield placed within the 18 highest ranking individuals, and Austin Shapiro received honorable mention in the individual category. Ω


BORIS BUKH


JAMES MERRYFIELD


AUSTIN SHAPIRO

MUSA

DIEP HOANG

This year we have a new line-up of events with the help of our enthusiastic officers. MUSA's goal is to strengthen the role and involvement of math undergraduates in the Department. (MUSA is the Mathematics Undergraduate Students Association.) We hope to increase our exposure to current math majors as well as to those students who are considering the mathematics major. In doing so, we held PEER ADVISING NIGHT in October, took a trip to MSRI (Mathematical Sciences Research Institute) in November, organized faculty/student BOWLING NIGHT (mid-November), and are coordinating a faculty/student DINNER. We want to encourage students and faculty to develop a continuing connection that extends beyond the timeframe of classroom learning MUSA's web site is http://musa.berkeley.edu/. Ω

NEW TOOLS FOR RESEARCH

ANN JENSEN, LIBRARIAN

Two separate influences — contracting budgets and advancing technology — have converged to present new opportunities and features in the library this academic year. Budgetary limitations necessitated cancellations of print subscriptions to several titles for which we have ongoing and reliable electronic equivalents. At the same time, enhanced technology makes accessing those and other print and electronic resources more seamless from within our library catalogs and major article indexes.

From a MELVYL catalog record, or a MathSciNet review, a click on [UCelinks] will take you directly to the article or journal (as long as we have a licensed subscription). If UCB does not have an electronic license or the item is not in electronic form, the [UCelinks] will provide a template for you to submit to REQUEST (a function to speed the borrowing process) for an interlibrary loan. Electronic items requested in this way can be received as electronic files.

From within Pathfinder (the local Berkeley catalog) you may now request items held at NRLF (Northern Regional Library Facilty). Book chapters and journal articles may be received as electronic files; whole volumes will be delivered to the Math Library as before.

In the midst of change and severe budget constraints, the library's goal remains constant: to assist you to obtain the materials you need for your teaching and research in a timely and easy manner. Ω

MSRI at 21

David Eisenbud, Director

Perhaps this is the age of maturity, but MSRI feels young every year at this time, with new programs and workshops in full swing. (MSRI is the Mathematical Sciences Research Institute.) This year is a year of geometry: Differential (all year), Discrete and Combinatorial (fall), and Real Algebraic (spring). As usual there is a wide range of other activities, including a workshop on the Genetics of Complex Diseases, and another on Mathematical Neurobiology.

To be able to host such activities in the style they deserve, we're busy solidifying the plans for our building extension, with groundbreaking planned for May. The Simons Auditorium and the Austine McDonnell Hearst Library (both far nicer and larger than our present facilities) will be the centerpieces of what's to be called Chern Hall. Warm thanks to all who've helped make this possible!

This full plate of research activities is our primary mandate; but we have lots of fun on the side as well. Here are some random notes: We'll host a group of Berkeley undergraduates (MUSA) on the first of what I hope will become a regular series of pilgrimages to our hilltop — some of these will be our future members, others will just be there for a sense of the possibilities. We've released a film, "Funny Numbers", of the public conversation between Bob Osserman, Steve Martin, and Robin Williams that took place in San Francisco last year ("The Three Comedians"?) Not so funny, but also very interesting, George Csiscery (known for his film "N is a Number" about Paul Erdös, among many others) finished a biographical film about Vaughan Jones and Hendrik Lenstra under our auspices; if you miss seeing Hendrik in the corridors, or can't physically follow Vaughan onto a sailboard, here's a chance to visit. We recently organized a Commonwealth Club event where William Randolph Hearst III interviewed Barry Mazur about his new popular book, "Imagining Numbers, (Especially the Square Root of Minus Fifteen)".

A wonderful staff helps me manage all this activity, headed by Deputy Directors Robert Megginson and Hugo Rossi (two this year because I'm increasingly busy as AMS president.) Lots more is going on than I can describe here. For more information, have a look at our website: www.msri.org, or at Emissary, the newsletter of the Mathematical Sciences Research Institute. It contains in-depth articles on various MSRI activities, as well as announcements of upcoming events. You can find it at www.msri.org/publications/emissary/index.html, and subscribe to it if you prefer the paper version. Ω

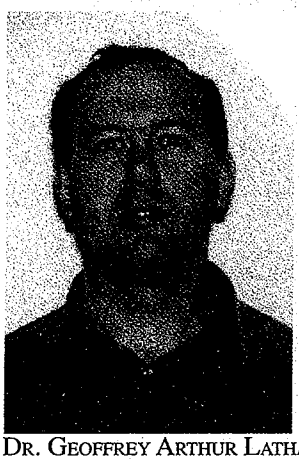
ALUMNUS MEMORIAM

DR. GEOFFREY ARTHUR LATHAM

BE. BSc. MSc. PHD. MBA.

April 6, 1959 - December 30, 2001

Geoffrey passed away unexpectedly in Adelaide, South Australia on 30th December 2001 from a massive heart attack. He was born in Bundaberg, Queensland, Australia on 6th April 1959.



Dr. Geoffrey Arthur Latham

Always a high achiever in his academic pursuits, Geoffrey received a Bachelor of Engineering degree in 1980 and a Bachelor of Science in 1981 with First Class Honours at Queensland University. Geoffrey received a University Gold Medal for outstanding merit in Mathematics at the 1982 graduation.

He moved to Canberra, Australian Capital Territory in 1983 to undertake his Master of Science at the Australian National University in the Department of Theoretical Physics, receiving his Master of Science Degree in 1985. Geoffrey's achievements were recognized by the Government, and he received a scholarship to complete his PhD at the University of California in Berkeley. He received his PhD in Original Research in Applied Mathematics on 23rd May 1989.

He returned to Australia in 1989. He recently worked for the Department of Defense in Adelaide in the Defense, Science, and Technology Organization as a Principal Research Scientist in the Secure Communications Branch.

Geoffrey received his MBA (Master of Business Administration) at Sydney University in New South Wales, Australia on 26th May 2000.

He was a prodigious publisher of scientific papers, all of which were of the highest professional standards, reflecting not only his profound knowledge and very special ability, but also his attention to detail and his insistence on professional integrity. His mathematical prowess will be a sad loss.

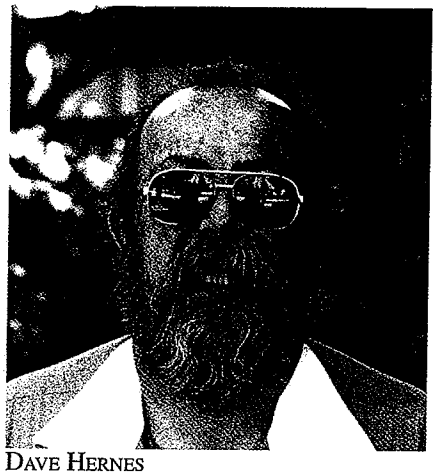
Geoffrey is survived by his Mother and Father, and brothers Steve, David, and Shane Latham.

MANAGER'S FINAL REPORT

LOU MAULL

A FOND FAREWELL

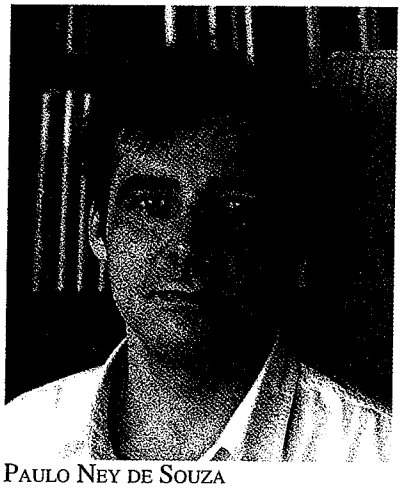
The academic year 2002-03 closed with the retirement of long-time staff member Dave Hernes. Dave served the University for 24 years, 14 of them in Mathematics. He began his UC career in 1979 at Berkeley's Computer Center. He later worked at Environmental Health and Safety and the Regents' Treasurer's Office before coming to Math in 1989. He retired last July 8th. Dave will be remembered as the first staff person most people associated with the Department met, as well as the last. The spectrum of his duties in the Department ran the gamut from key control and managing computer accounts to the management of Evans Hall. Dave had a vast network



DAVE HERNES

of colleagues across the campus that ranged from campus custodians to Vice Chancellors. He received many awards during his tenure in the Department including several Distinguished Service Awards, Chancellor's Outstanding Staff Awards, and a Chancellor's Community Service Award. He was very active in the Berkeley Staff Assembly and volunteered every year to help put on the campus-wide Staff Appreciation Day. I think what he most looked forward to each year was the annual Holiday Toy and Food Drive on campus. His office was the hub for this activity that involved many buildings on campus. He gave gladly of his time and energy and it was a success because of both. Dave will be sorely missed by all of us. We are grateful for his many years of good work in behalf of the mission of the Department and the Campus.

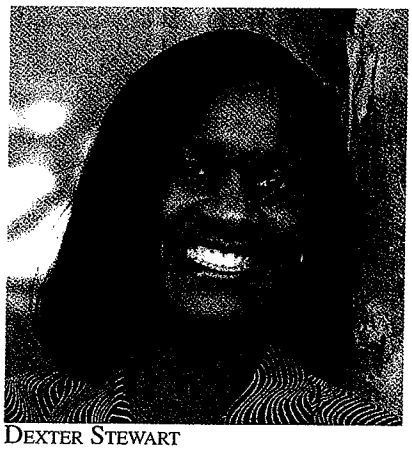
In the middle of the 2002-03 academic year, we also bid farewell to our long-time colleague Paulo Ney de Souza who was laid off due to budget cuts. Paulo Ney began his career at Berkeley as a graduate student and was hired into a career staff position as a Programmer/ Analyst in 1990. Over the course of his



PAULO NEY DE SOUZA

tenure in the Department, our computing structure mushroomed in size and complexity. Paulo Ney was instrumental in developing an environment that encouraged the expansion of computing to include instruction. With the support of the Department, he has returned to active graduate student status and is working on finishing his PhD in Mathematics. We thank him for his many years of service to the Department and wish him the best as he pursues his degree.

Departing from the staff last July 3rd was Dexter Stewart. After a short 2 years, Dexter was recruited by our sister Department, Astronomy, for a Student Affairs Officer II position. It was a promotion for Dexter who is in charge of



DEXTER STEWART

undergraduate and graduate programs for their department. In her nearly 20-year career on campus, Dexter has worked at Intercollegiate Athletics, the Scheduling Office in the Office of the Registrar, completed an internship at I-House, was the graduate SAO at the College of Chemistry, and was an undergraduate SAO here in Math. All of us congratulate Dexter in her new position!

CHANGING PLACES AND NEW FACES

We have successfully recruited for Dave Hernes' replacement and I am very happy to introduce Mary Pepple. Mary has assumed all the duties that Dave performed as Evans Hall Building Coordinator and Mathematics Facilities Specialist. Mary has 15 years campus experience; 13 years with Housing and Dining services as a Facilities Manager at several of their sites, including the

MARY PEPPLE

Foothill Housing Complex, Clark Kerr Campus, the Faculty Apartments, and Ramona's, just to name a few. We are very pleased to have someone with Mary's expertise following in Dave's footsteps. Please join me in welcoming the newest member of our staff.

I am very pleased to announce that Alison Thompson has been promoted to the Student Affairs Officer position previously held by Dexter Stewart in our Undergraduate Programs. Alison previously coordinated the Undergraduate Programs Front Office. She came to Mathematics from the Haas School where she worked in undergraduate ad-

(continued on page 9)

MANAGER'S FINAL REPORT

(continued from page 8)

ALISON THOMPSON

vising. We are filling her position in the Front Office with temporary staff for the next year.

Marsha Snow has moved to our Graduate Office. This is a permanent change and I think one that pleases her. Due to budget cuts, Thomas Brown, the supervisor for Graduate Affairs, along

MARSHA SNOW

with Vice Chair Ole Hald, have carried the graduate student load for the last year. Thomas is grateful to once again have staff support in his office.

I am pleased to report that the Vice Chancellor for Research has provided temporary funds for a third position in our Center for Pure and Applied Mathematics to provide long-needed research support for Bernice Gangale and Jeanne Coffee. We are in the process of recruiting for this position. The successful candidate will take on the research travel reimbursements that Stephanie Caselli currently does, as well as the research personnel and payroll work that Mike Kim does. We hope to have completed recruitment by Thanksgiving.

CAMPUS ON-LINE SYSTEMS MOVE ON

The Human Resources Management System that I mentioned last year has been on-line for one year now. It is a complex, time-consuming, and not robust system. This new personnel system was supposed to roll seamlessly into the payroll system, but that has not yet happened. We continue to expect to go live with on-line payroll later this fall, the same we expected last year this time.

Our enrollments continue to rise, resources lose ground, workloads increase, and budget cuts are again the Great Issue. We have commenced 2003-04 with unsettled prospects for 2004-05, and the currently forecasted economic future for the State of California is especially disheartening. We continue the struggle to provide the best education possible for our students.

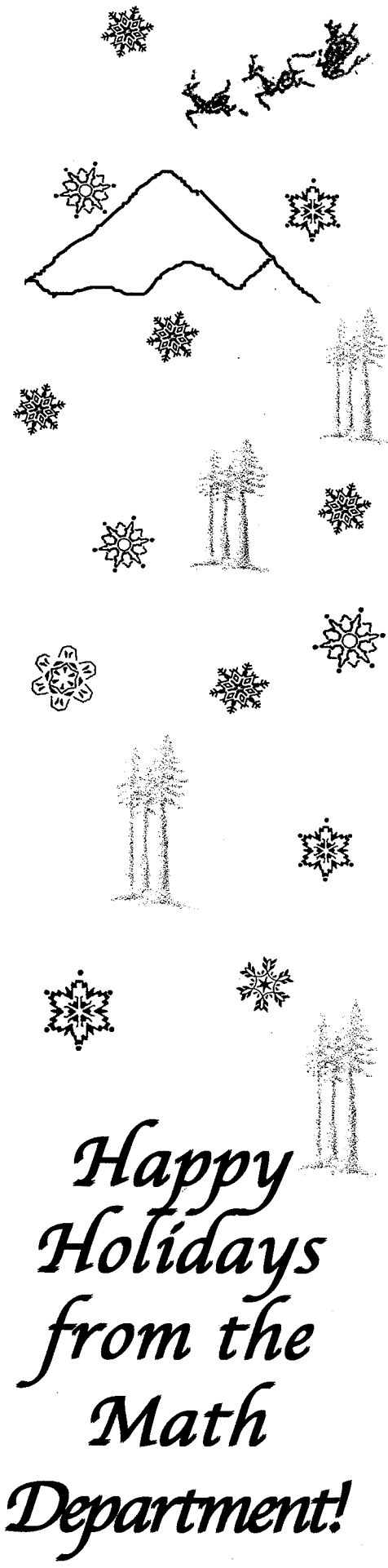
MY FAREWELL

This is my last Manager's Report. I will be retiring from University service at the end of this coming January. We have begun the recruitment for my replacement and the hope is to have the next Manager in place by the first of January. It has been my pleasure to be of service to this wonderful Department for the past 11 years, the last 6+ as Manager. I've been on campus since 1982 when I started working in Graduate Division in the Appointments unit. In 1987 I moved to the Center for Research in Management where I was the Finance Assistant. In 1992 I made my last department move to Mathematics. I will miss all of my friends and colleagues in the Department and across campus. I thank you all very much for the opportunity to work in this most excellent community.

My regards to all.

Ω

LOU MAULL



HONORS AND AWARDS

(continued from page 3)

ment, Shewchuk has fairly close connections to some members of the Mathematics Department: Demmel, Gu, and Kahan, among others. We are very proud of him.

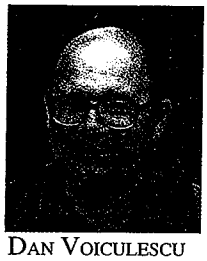
Professor James Sethian was Littlehill Lecturer at the British Applied Mathematics Colloquium in Southhampton, United Kingdom.

Professor Theodore Slaman was plenary lecturer at the British Mathematics Colloquium in Birmingham, United Kingdom.

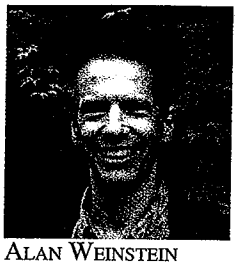
Professor Bernd Sturmfels received two honors: a John von Neumann Professorship (Summer 2003) at the Technical University of Munich and a Hewlett-Packard Research Professorship (academic year 2003/2004) at MSRI Berkeley.

BERND STURMFELS

Professor Dan Voiculescu gave a plenary lecture at the Congress of the International Association for Mathematical Physics in Lisbon this summer. He has also been invited to give the Rademacher lectures at the University of Pennsylvania next Spring.



DAN VOICULESCU



ALAN WEINSTEIN

Professor Alan Weinstein received an honorary doctorate (Doctorate Honoris Causa) from Utrecht University, The Netherlands.

Professor W. Hugh Woodin was plenary lecturer at the International Congress of Logic, Methodology, and Philosophy of Science in Oviedo, Spain. Ω

HUGH WOODIN

Alumni News & Update Form

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MESSAGE FROM THE CHAIR

(continued from page 1)

I have several other faculty awards, honors, and accomplishments to report.

Assistant Professors Thomas Graber, Michael Hutchings, and Lior Pachter received Sloan Research Fellowships. Sloan Research Fellowships are designed to identify those who show the most outstanding promise of making fundamental contributions to new knowledge. It is remarkable to have three awards made to members of the same department.

Professors L. Craig Evans and William Kahan were inducted into the American Academy of the Arts and Sciences.

Professor David Eisenbud began his term as President of the American Mathematical Society on February 1, 2003. His term ends in 2005.

Professor Bernd Sturmfels spent the summer of 2003 as the John von Neumann Professor at the Technical University of Munich and is spending the academic year 2003/04 as a Hewlett-Packard Research Professor at MSRI.

Professor Alan Weinstein received an honorary doctorate (Doctor Honoris Causa) from Utrecht University, The Netherlands.

Berkeley faculty were well traveled this year: James Demmel was plenary lecturer at the International Congress of Industrial and Applied Mathematics in Sydney, Australia; Robin Hartshorne was invited speaker on the occasion of the hundredth anniversary of the birth of B. van der Waerden, Zurich, Switzerland and opening speaker at the 225th meeting of the Dutch Mathematical Society, the Wiskundig Genootschap, in Nijmegen, The Netherlands; Alan Knutson was M.S. Keeler Lecturer at the University of Michigan; James Sethian was Littlehill Lecturer at the British Applied Mathematics Colloquium in Southhampton, UK; Theodore Slaman was plenary lecturer at the British Mathematics Colloquium in Birmingham, UK; Dan-Virgil Voiculescu was plenary lecturer at the Congress of the International Association for Mathematical Physics, Lisbon, Portugal; and W. Hugh Woodin was plenary lecturer at the International Congress of Logic, Methodology, and Philosophy of Science in Oviedo, Spain.

GRADUATES

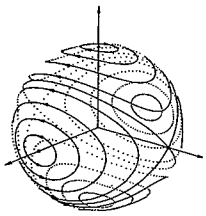
Mike Develin graduated this past year, supervised by Bernd Sturmfels, and received the American Institute of Mathematics's prestigious five-year fellowship.

Elizabeth Scott, Ben Webster, and Andy Wand were awarded NSF graduate research fellowships.

UNDERGRADUATES

The Berkeley team in the Putnam Mathematical Competition, Boris Bukh, James M. Merryfield, and Austin W. Shapiro, placed 4th among 336 institutions. Additionally, Merryfield and Shapiro received Honorable Mentions in individual competition among 2954 participants. Ω

THE DEPARTMENT OF MATHEMATICS



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CAL DAY 2004

CAL DAY 2004 is almost here!

On this special day when the University shows off what goes on around here there are many places of interest to visit, fun things to do, lectures, demonstrations, and displays to see, even some shopping of international gifts.

And of course, in the Math Department, there are refreshments and videos all day long! This year the Department of Mathematics will show a new video entitled "Magical Universe." After it aired on KQED, the San Francisco Bay Area's public TV station, we ordered it to show to visitors. It's quite an impressive video!

In addition, there are book sales and T-shirt sales by the Mathematics Undergraduate Student Association and course advisors available to answer questions for students interested in Mathematics or Applied Mathematics as their major.

If anyone were interested in giving a short talk or participating in a panel of alumni to talk about where a math degree has led them in their lives, I'd be happy to organize a time and place for this special event. Send email to rondi@math.berkeley.edu.

CAL DAY will be on Saturday, April 17, 2004 Open from 9 am - 4 pm. Come join the fun!

Ω

GRATEFUL THANKS TO OUR FRIENDS

The Department of Mathematics extends heartfelt thanks to all our donors over the past years for their generous support. Our donors have contributed to the strength and vitality of our students and the Department. The list of our donors from 1995-2003 can be found on the departmental website at http://math.berkeley.edu/.

We apologize if we have omitted anyone. Please do let us know if that is the case. A special thanks to all our donors who wish to remain anonymous. Ω

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