UNIVERSITY OF UTAH

MATHEMATICS DEPARTMENT NEWSLETTER

(1990-1991)

A WORD FROM THE CHAIRMAN

The first full academic year of the decade of the nineties nearly has passed now and, as you can see from below, it has been a year of great activities, changes and honors for the Department. While the decade of the eighties was the decade of declining enrollments in mathematics, science and engineering degree programs, this trend appears to have been reversed (we had a 6.7% increase in student credit hours over last year!); but we still have ways to go to reach the enrollment levels of the early eighties that, according to several national reports, appear needed to meet the demands of industry, government and educational institutions for mathematically literate employees. Our Department is working very hard on some of these problems and we are very proud of our accomplishments already made.

In the age of high technology, computers provide the main avenue by which mathematics reaches into all corners of every day life. Our efforts in designing our curriculum reflect this. We are striving to incorporate computing into much of our curriculum; we already have an undergraduate program leading to a degree with emphasis in scientific computing which hopefully will soon extend to the graduate program also. Our computing facilities (supported by an excellent staff of four: D. Irish (Manager), N. Beebe (Software Expert), P. Bowman (Senior Systems Analyst), J. Watts (Secretary)) have undergone the most dramatic changes during the last year. Our dinosaur DEC 20 was shut down and our VAX 8600 will soon follow. Also, most our MAC pc's will soon find their way into graduate student offices and will be replaced by 30 monochrome DEC 3100 workstations in the instructional computing laboratory and by 6 color DEC 3100 stations in the research laboratory. Two DEC 5000 file and compute servers round out this extremely powerful network, which together with our extensive SUN station network and our Ardent Titan color graphics station give us one of the most outstanding computer operations of any mathematics department in the Country. Our computing power has increased over the DEC 20 days by a factor exceeding 150, while our hardware maintenance costs have dropped by a factor of 9. We have come a long way since blackboard, chalk, pencil, and paper were our most important laboratory tools! Though, I have been told that these tools are still very much in use.

So much about computing. Not to neglect our other enterprises, suffice it to quote from our recent departmental review by our Graduate Council, which, in its recommendations to the University Administration, said among other things:

The Mathematics Department should be commended for continuing its outstanding performance, especially in view of the crises of the recent past; the Department should be commented for developing into a "national treasure" and should be recognized as such. It is a truly outstanding department.

We are pleased by this recognition and strive to continue on this path in our further development.

We are grateful to the family of Professor James Case who established a library fund in his honor for our departmental library. We all miss Jim and very much share his family's and friends' sorrow caused by his sudden death. Professor Case joined our faculty in 1954 and had just started partial retirement to devote more time to writing and research when he was taken from our midst.

I wish to take this opportunity to congratulate all of our graduates and all of those who are being honored during our awards ceremony; we are very proud of all of you.

The end of my three year term as Chairman of the Department is coming up soon and I shall return to my major enterprises of teaching and research. It has been a pleasure for me to be of service to my Department. Our new chairman will be T. B. Rushing who already served a term as chairman during 1985 - 1988. Congratulations and best wishes to Benny from all of us.

Klaus Schmitt

JAMES CASE (1928-1990)

We are all saddened by the death of James Case who passed away at the age of 62 on October 23, 1990 while on leave at North Texas State University in Denton, Texas. Jim joined the faculty as an Assistant Professor immediately after receiving his Ph.D. from Tulane University in 1954. He was promoted to Associate Professor in 1961 and to Professor in 1968. His early research was concerned with Topology (his Ph.D. dissertation written under the direction of S. T. Hu was on homotopy and homology groups) but he later became interested in artificial intelligence and computer graphics. He was spending the autumn quarter in partial retirement and was visiting the Department of Computer Science at the University of North Texas in Denton, Texas, where his death occurred. His many friends in and out of the department will miss him and our condolences go to his family.

DALE GRABINER (1964-1990)

Another sadness is the death of Dale Grabiner in July, 1990. Dale was born in Sterling, Kansas, in January, 1964, and came to Utah as a graduate student in the fall of 1986 after receiving a baccalaureate degree from Metropolitan State College in Denver, Colorado. He earned the M.S. degree and transferred to the Ph.D. program in 1988. Death is always sad but particularly so with in view of his age. Our condolences go to his family.

CHANGES IN STAFF

We have had a number of changes in the support staff of the department. Jeanne Scofield retired in November, Toni Bunker resigned to move to California, and Tauna Falk resigned to have the time to care for an elderly friend. We thank them for all that they did for the department. In their places, we have hired Rona Hoffman, Sherry Mitchell, and Julia Watts.

DEGREES AWARDED IN 1991

Including teaching majors, there are 230 undergraduates majoring in Mathematics. In June, 38 students will receive a baccalaureate degree in Mathematics. A total of 13 M.S. degrees and 1 M.Ph. degree will be awarded. Students receiving the Ph.D. degree in Mathematics in 1990-1991 are: Mario Candia, Jorge Devoto, Ken Ferguson, Chris Grant, Elham Izadi, Mike Kinyon, Yonghao Ma, Mike O'Reilly, Denise White, Cameron Wickham, and Guangyan Yin.

GRADUATE STUDENT AWARDS

The University Research Committee has awarded Graduate Research Fellowships for 1991-1992 to Robert H. Dillon and Endre Szabo.

The recipients of the awards for outstanding teaching by a graduate student are Elizabeth Brown and Robert Stokes.

ALUMNI AWARDS

Alan Ashton, who received a B.A. in Mathematics in 1966 and a Ph.D. in Electrical Engineering in 1970, was one of four alumni designated a "Distinguished Alumnus" on Founders Day on February 28th of this year. Dr. Ashton is president and co-founder of Word Perfect Corporation.

Steven S. Giddings was the recipient of the "Par Excellence Award" given by the Young Alumni Association to recognize individuals who attended the University within the past 15 years and have given superior service to the institution, community, or their profession. After graduating with a B.S. in both Mathematics and Physics in 1983, Steve went on to Princeton where he earned both an M.S. and Ph.D. in Physics. He presently is an Assistant Professor in Theoretical Physics and

has been awarded an "Outstanding Junior Investigator" grant from the Department of Energy in support of his research into string theory.

REGIONAL GEOMETRY INSTITUTE

The University of Utah, the University of Washington, the University of Illinois, the University of Texas, the Univeristy of Illinois at Chicago, and Rice University have jointly established the Regional Geometry Institute funded in part by the National Science Foundation. The RGI will comprise an Academic Year Program and a Summer Institute. The first RGI Summer Institute will be held in Park City, Utah, in June of this year. The 150 participants in the the program will include a mix of high school teachers, undergraduate students, graduate students, and mathematics researchers from across the country. The director of the Institute is Professor Herb Clemens of the University of Utah.

MODELING CONTEST

Two teams of 3 undergraduates each participated in a national contest in mathematical modeling sponsored jointly by The Consortium for Mathematics and Its Application and the Mathematics Association of America. Working against time (they were allowed no more than 72 hours to devise a mathematical model of a complex water tank storage problem) and competing against 128 other teams from Asia, Europe, and the United States, one of the teams received a meritorious award while the other received honorable mention. The team receiving meritorious recognition consisted of Jeffrey F. Gold, Laura M. Lochhead, and David E. Norman while the members of the team earning honorable mention were Rachel Ann Carter, Michael D. Lee, and Katherine J. Ziemke. Professor Don Tucker served as faculty sponsor for both teams.

ICM IN TOKYO

Last Autumn, the International Congress of Mathematics was held in Tokyo. The ICM is held every 4 years, to recognize the most important recent developments in Mathematics. Shigefumi Mori, a regular visitor to the department and who will be a Visiting Professor during the entire 1991-1992 academic year, was one of four recipients of the Fields Medal, the equivalent in Mathematics to the Nobel Prize in other subjects. In addition to the Fields Medal winners, a total of 40 mathematicians from around the world were invited to give talks at the meeting. Of these 40, two, Janos Kollar and Paul Roberts, were from the University of Utah.

ADDITIONS TO THE FACULTY

Associate Professor Ken Golden, who is coming from Princeton University, works in Applied Mathematics. New Assistant Professor Jingyi Zhu, whose interest in Scientific Computing, comes to us from a postdoctoral position at Berkeley.

New Instructors for 1991-1992 are Lung-Ying Fong from Brandeis University who works in Algebraic Geometry, Antonella Marini from the University of Chicago who works in Differential Geometry and Mathematical Physics, and Anne Morlet from Caltech (presently at UCLA) who works in Numerical Analysis.

The Department is host to several visitors during the next year: Shigefumi Mori, Visiting Professor, Nagoya University; Andrej Cherkaev, Visiting Professor, Leningrad Marine University; James Keesling, Visiting Professor, University of Florida; Alexander Rosenberg, Visiting Associate Professor, Scientific Research Institute, Moscow; Stein Stromme, Visiting Associate Professor, University of Bergen; Songmu Zheng, Visiting Associate Professor, Fudan University; Sergei Ivanov, Visiting Assistant Professor, Moscow State University; Alexander Panfilov, Visiting Assistant Professor, Institute of Biological Physics, Moscow; and James McKernan, Visiting Instructor, Harvard University.

OUTSTANDING SERVICE AWARD

From time to time, we wish to recognize individual staff members who have made

outstanding contributions to the department. The receipient of the first such award is Pieter Bowman.

FACULTY AWARDS AND ACTIVITIES

Klaus Schmitt, Chairman of the Mathematics Department for 1988-1991, will be spending the 1991-1992 academic year on sabbatical. Klaus will be travelling and working on a book.

T. Benny Rushing is the new chairman. Benny, who served an earlier term as chair during 1985-1988, came to the University of Utah in 1969 after receiving his Ph.D. at the University of Georgia.

James Keener will be on sabbatical leave during 1991-1992. He will be travelling and working on two books.

Peter Braam will be on leave next year at Oxford University in England. Also on leave at Oxford will be Philip Maini.

Ken Goodearl and Birge Zimmerman-Huisgen will be on leave for the academic year 19901-1992 at the University of California at Santa Barbara and other universities.

The Instructorship Award is presented to two Instructors for excellence in research and teaching. The recipients this year are Paul Burchard and Stephen Krone.

UNDERGRADUATE AWARDS

Departmental Scholarships: Steven E. Parrish and Toby M. Enniss.

Utah Power & Light Scholarship: Brooks Brady and Tom Draper.

Continuing Departmental Scholarships: Brian R. Jackson and Joseph Simons.

Susan Catherine Christiansen Memorial Award: Kristi Merrell and Amy Porter.

Hurd Award: Lisa Barnes.

Biesele Award: Michael Schmitt.

Outstanding Performance on the High School Mathematics Test: Rian Jensen.

Gibson Award: Richard Olsen.

D. Keith Reed Memorial Award: Steve Thackeray.

Putnam Contest Award: David Norman

Phi Kappa Phi Membership: Spencer S. Glende, Michael D. Lee, Amy Porter, Michael Schmitt, Robert S. Wade

Phi Beta Kappa Membership: Steven Wayne Cash, Robert T. Gardiner, Richard Olsen, Michael Schmitt, Eric W. Bair

Cum Laude: Lisa Barnes, Rachel Carter, Richard Olsen, Michael Schmitt

Magna Cum Laude: Constance Brough, Robert T. Gardiner

Summa Cum Laude: Laura Lochhead

FUND DRIVES

An undergraduate scholarship fund in memory of D. Keith Reed, a truly outstanding teacher, has been established. As mentioned earlier in this newsletter, there also is a fund named after James Case established to help the Mathematics Department Library. Anyone wishing to contribute to either of these funds may do so with a check payable to "Keith Reed Scholarship Fund" or to "James Case Mathematics Library Fund" and addressed either to the Mathematics Department or to the Development Office, University of Utah, Salt Lake City, Utah, 84112. Contributions to the Mathematics Department's development or general scholarship fund may be sent to the same address.

INFORMATION FROM ALUMNI

The Department welcomes news and information from alumni. If you have any special news, please send it to us and we will try to include it in a similar newsletter next year. Address correspondence to Newsletter, Department of Mathematics, University of Utah, Salt Lake City, UT 84112.