

PRIME BITS

Department of Mathematics Newsletter
University of Colorado, Boulder, Colorado 80309-0395

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News of people, activities and events in the life of the Mathematics Department.

DEPARTMENTAL HIGHLIGHTS

NEW DEPARTMENT CHAIR

Professor Peter D.T.A. Elliott began a three-year term as department chair in July 2000. Elliott received a B.Sc. with 1st Class Honours from Bristol University, England (1962) and a Ph.D. from Cambridge University, Trinity College (1966). He has been on the faculty at the University of Colorado, Boulder (UCB) since 1969, having previously been a Lecturer at Nottingham University. With a Guggenheim Fellowship he was a Visiting Professor at Imperial College, London in spring 1980 and has subsequently been a Visiting Professor at universities in Amiens and Bordeaux (France), Ulm (Germany) and Santiago (Chile). Elliott makes no distinction between pure and applied mathematics since he believes that all good mathematics will be applied sooner or later.

Born the eldest of 8 children in Otterbourne near the port city of Southampton, England on February 2, 1941, Elliott has vivid memories of air raids until the end of World War II. From age 6-11 his experience with excellent teachers in the ordinary public (not private) school and private piano lessons, profoundly affected his adult life. With exceptionally high scores on the Eleven Plus Exam (given to all students at age 11) and later national exams, he received scholarships and entrance to the King Edward VI Grammar School (junior and senior high) and to Bristol and Cambridge Universities.



Professor Peter D. T. A. Elliott, Dept. Chair

In this issue:

- Departmental Highlights, 1
 - New Chair, 1-2
 - Thron Fellowships, 2
 - Outreach Program, 3
 - Actuarial Program, 3
- Student Highlights, 4-9
- Faculty-Staff Spotlights, 10-19
- Alumnae/Alumni News, 20-21
- In Memoriam, 22-23
- Kempner Colloquium Endowment, 24
- Math Dept. Annual Fund, 25
- Donor List, 26
- Response Return Sheet, 27

Professor Elliott is the author of 5 books and more than 100 mathematical research papers; he has given invited lectures at dozens of universities and international meetings on 5 continents and has served as editor of the Ramanujan Journal since 1995. At UCB he has taught classes at all levels and has been the advisor for undergraduate research projects, masters theses and 6 Ph.D. theses.

Music has played a major role in Peter Elliott's life. After formal training from ages 6-11, he introduced himself to great piano composers by checking out and learning to play musical scores from the Central Lending Library of Southampton. Music took a back seat during university years due to the fact that pianos were not available to him except during holidays. Upon his arrival in Boulder, one of his first acquisitions was a piano and he is now the proud owner of a two-meter grand. Elliott has presented numerous piano recitals including works by Bach, Beethoven, Chopin, Liszt and Schumann. He also has interests in drawing, musical composition, art and traveling as well as his family (wife and daughter) in Boulder.

W.J. THRON MATHEMATICS FELLOWSHIP ENDOWMENT

Professor Emeritus Wolfgang J. Thron has established an endowment fund in the University of Colorado Foundation to finance Graduate Student Fellowships in the Mathematics Department at UCB. The endowment fund is expected to provide \$9000 in AY 2000/2001 and an increasing amount in subsequent years.

Professor Thron was a faculty member in the Mathematics Department at the University of Colorado Boulder (UCB) from 1954 until his retirement in 1985. He served as Department Chair from 1972 to 1974 and Chair of the Graduate Program for many years. For more

than four decades Thron has been an active participant in a research seminar (founded by him) for faculty and students on the Boulder campus. He was instrumental in establishing fruitful relationships between the UCB Mathematics Department and universities in other countries (especially India and Norway). Thron served as thesis advisor for 21 students graduating from the UCB with Ph.D. degrees.

In 1980 he was elected to the Royal Norwegian Society of Sciences and Letters for outstanding creative research in mathematics and for inspiring others in creative research. In 1985 Thron was awarded the University of Colorado Medal for outstanding contributions to the university in his distinguished career as a teacher and a research scholar. In 1988 and in 1998 mathematicians from around the world gathered at the Boulder campus for mathematical conferences honoring Thron on his 70th and 80th birthdays.

Professor W.J. Thron has given many years of service to the university. With this gift he is enabling and encouraging students of all future generations to study mathematics. He



Professor Emeritus W. J. Thron

is also expressing his faith in and commitment to the University of Colorado—its faculty and its students. Please see Student Highlights for information about the first Thron Fellow: Adriana Gomez.

MATHEMATICAL OUTREACH

Having recognized the need to improve the quality of mathematical education in our schools, Dr. Jerry Dwyer has established the Outreach Program, where department faculty and students work closely with teachers to help K-12 students discover that mathematical studies can be stimulating, fun, non-threatening, relevant to real life, and the means to a better understanding of many other subjects.

Over the past two years the Program has organized a diverse series of activities, including: direct teaching of classes, introducing mathematical games, and offering interdisciplinary seminars. Special assistance is sometimes offered to students who are mathematically weak as well as to the mathematically strong. Dwyer has worked with local schools in the Boulder Valley School District (and neighboring districts) and with Native American schools in the Ignacio school district in southwestern Colorado. The Outreach Program has prepared a mathematical games "manual" containing 50 games ranging from simple first grade activities to more advanced senior high school analyses. Funding grants for some of the projects has come from New Century Energy (1998 and 1999) and the University's Continuing Education Division.

Dwyer recently set up an Outreach Program web page which can be reached at <http://capal.colorado.edu/~LaolengXiong/main.html> or from a link on the main Mathematics Department homepage.

Dr. Dwyer used his 1999 summer "vacation" to work as a volunteer at the Holy Spirit Catholic Church in Eldoret, western Kenya, assisting in assembling computers and teaching mathematics. Dwyer said it's a wonderful

place for a volunteer to work: beautiful climate, enthusiastic students, tremendous needs in health and education. Returning to Boulder last fall, Dwyer began a drive to collect general mathematics textbooks which are sent to Kenya.

Dr. Dwyer has been an Instructor in the Mathematics Department teaching Quantitative Reasoning and Mathematical Skills (QRMS) and other things. Originally from County Cork, Ireland, Jerry came to CU Boulder in 1991, where he has worked for the Institute for Arctic Studies, several engineering departments and Applied Math before joining the Mathematics Department. Dwyer recently accepted a position outside the UCB, but will continue to administer outreach programs as a Professor Adjunct in the Mathematics Department.

INTERDISCIPLINARY PROGRAM IN ACTUARIAL SCIENCES

Professors Kent Goodrich and David Grant have recently initiated an interdisciplinary program in Actuarial Sciences in cooperation with the Departments of Applied Mathematics and Economics and the School of Business. Our students in the program have obtained summer internships with insurance and consulting firms in the Denver area and they have been successful in passing actuarial exams and finding employment as actuaries. **Professor Karl Gustafson**, an advisor for the program, has developed materials on the Black-Scholes equations used in the pricing of options. His results in this area are now included in the partial differential equations course.

CURRENT STUDENTS
UNDERGRADUATE NEWS

Growth in Math Majors. An Excellent job market and a dynamic mathematics faculty have contributed to the dramatic increase in mathematics majors from 160 to 200 in the fall of 1999. Following are some notable achievements made by our faculty and undergraduate students.

James Barron (Math major) was a recipient of the **J. Tour Scholarship** in spring 2000. This award was established by a bequest from Isabelle S. Tour of Pueblo, Colorado. It is designed to provide assistance to students in financial need at the University of Colorado at Boulder, to advance the study of the physical sciences and engineering.

Veronika Furst (Math major) has received three major awards: a **Goldwater Scholarship** for two years starting in 1999, a **J. Tour Scholarship** for 2000 (see description above) and a **Van Ek award** in 2000. Professor K.E. Gustafson was her faculty mentor for the Goldwater and Van Ek awards.

Yumiko Mitchiner (Math major) received a B.A. degree summa cum laude with distinction at the UCB May 2000 commencement.



Yumiko Mitchiner, B.A. Summa Cum Laude.

Qudsia Quraisui (Math major) received a B.A. degree magna cum laude at the May 2000 commencement.



Qudsia Quraisui, B.A. Magna Cum Laude.

Galalia Weinberg (Math major) received a **Goldwater Foundation scholarship** in spring 2000.

Math Club. Professor Eric Stade (Chair of the Undergraduate Program in Mathematics) revived the Math Club which sponsored a number of interesting events in AY 1999-2000.

- **Math Major/Minor Info Night** for students considering the study of mathematics.
- **Career Night** when UCB mathematics alums describe their careers in teaching, research, industry, business, etc.
- Coordination of a **Math Goes to the Movies** in conjunction with the International Film Series.
- Formation of an **Informal Study Center** to assist students with mathematics problems.
- Coordination of undergraduate mathematics students to provide **tutoring** in the Boulder Valley School District.

- **Formation of a Math Department T-shirt.**
- **Problem of the Month Contest** started in spring 2000. Prizes offered for "best" solutions.
- **Outstanding Talks for Undergraduates** (and others):

(a) "Sailing Off the Edge of the Mindscape: Mathematics, Truth and the Limits of Reason", by Sid Smith (UCB doctoral student) attended by more than 100.

(b) "Why I Hate Mathematics but Love Museums", by Visiting Professor Ed Burger from Williams College (attended by More than 300).

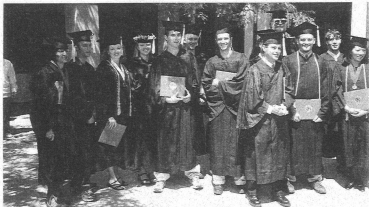
**WILLIAM LOWELL PUTNAM
MATHEMATICAL COMPETITION
(WLPMC)**

Each year about 2500 undergraduate students from more than 400 colleges and universities in the USA and Canada participate in the WLPMC. This event represents the *Intercollegiate National Championship in Mathemat-*

tics. Some universities such as U. Waterloo, Canada, recruit students for this competition the way American universities recruit athletes. (What a concept!) No limit is set on the number of students from an institution, but each institution selects a team consisting of three students. National rankings are given for teams and for individuals. The WLPMC is administered by The Mathematical Association of America (MAA) and results are reported in its publication, the *American Mathematical Monthly*. Professor Gordon Brown is the team coach and faculty coordinator for CU-Boulder. A summary of results for the CU-Boulder teams in recent years follows:

1998 team members and (national rank): Tao He (86.5, 1st in Colorado), Tom Abeln (410), Kevin Hall (504). There were 2581 contestants representing 431 colleges and universities.

1999 team members were Alekssandr Arustamyan (367.5), Dima Sinapova (497) and ties for third place: Kimberly Brown, Tye Rattenburg, Jason Warfield and Seth Wilson (729). There were 2900 contestants representing 431 colleges and universities.



Math majors receiving B.A. degrees in May 2000. They are (l. to r.): Qudsia Quraisui, Joseph Welborn, Natalie Sprigg, Kristin Hone, Marc Formichella, Vincent Rupp, Ephraim Schwartz, Corey Bruns, and Yumiko Mitchner.

GRADUATE STUDENT NEWS

Gwyn Coogan completed her Ph.D. in spring 1999 and is currently teaching at Hood College in Frederick, MD. She has won many awards as a world-class long distance runner including: the first place trophy at the 1991 Mobil Bissett games in Norway (10,000 m), the U.S. Olympic 10,000 m team in 1992, the Houston marathon (first place) in 1997 and the Parkersburg, WV half-marathon (first place) in 1999 (on her 34th birthday). Gwyn is hoping to be on the U.S. Olympic marathon team in 2000. She and her husband, Mark Coogan, (an Olympic marathoner) have two daughters, Katrina (b. 1993) and Margaret Gail (b. 1998). In a February 1999 interview for the Boulder Daily Camera, Gwyn said that her last good marathon—"not counting childbirth and finishing a dissertation"—was at Houston. She also said "I'm a teacher, wife, mother and runner." We wish Gwyn well in all of these roles as a person.

Adriana Gomez received the first Thron Fellowship for AY 2000/2001 as a result of academic excellence in the study of mathematics (see article about the W.J. Thron Math Fellowship Endowment).



Adriana Gomez, the first Thron Fellow (AY 2000/2001).

Ms. Gomez is a native of Bogota, Columbia, where she received bachelor and master of science degrees from the Universidad del Valle in Cali. To obtain the Master of Science degree Ms. Gomez wrote a thesis under the direction of Professor Duggirala K. Rao about whom there are interesting connections. In 1967 Professor W.J. Thron taught at a summer school for college teachers at Jodhpur, Rajasthan, India, where his "star" student was D.K. Rao. Shortly after that, Mr. Rao enrolled as a graduate student at UC-Boulder and received a Ph.D. degree in 1972, with thesis directed by Professor Karl E. Gustafson. Dr. Rao then joined the faculty at the Univ. del Valle in Cali. After studying with Rao in Columbia, Ms. Gomez came to UC-Boulder where Professor Gustafson is her thesis advisor. Ms. Gomez plans to continue her academic career in Columbia after obtaining a Ph.D.

Sidney Smith has made interesting contributions to the mathematical life of the department including: (a) A popular lecture for undergraduates (and others) entitled "Sailing Off the Edge of the Mindscape: Mathematics, Truth and the Limits of Reason"; (b) Organization of a lively public debate on "Platonism in Mathematics" by Professors Jan Mycielski (CU Math Dept.) and George Bealer (CU Philosophy Dept.); (c) The "discovery" of the undergraduate student, Tom Abeln, for being a member of the Math. Dept. Team in the W.L. Putnam Math. Competition.

New Graduate Students. Every year the department accepts about 25 new students in its graduate programs. The following two students responded to the editor's request for news: **John Massman** (from Seattle) is an avid bridge player looking for a good partner and a good-sized weekly game. He is active with the Lutheran Campus Ministry and has interests in hiking and bicycling. **Christopher Seaton** (a native of Michigan) graduated from Kalamazoo College and is searching with an open mind for the "best" area of mathematics in which to live.

BURTON W. JONES TEACHING EXCELLENCE AWARD

An endowment for the *Burton W. Jones Teaching Excellence Award* was established in the CU Foundation in 1984 by gifts from the Mathematics Department faculty in memory of our distinguished colleague, Burton W. Jones. Each year income from the endowment is awarded to a Department of Mathematics graduate student who is chosen by the faculty of the department as the outstanding teaching assistant.



Keri Kornelson, the Burton W. Jones Teaching Excellence Award for 2000.

Keri Kornelson (see photo above) received two awards for outstanding teaching as a TA: (a) The Burton W. Jones Teaching Excellence Award for 2000 and (b) the first place teaching assistant (TA) award selected by the United Government of Graduate Students at UCB for the year 2000.

Kimberly Wey (see photo with May 2000 M.A. degrees) received the Burton W. Jones Teaching Excellence Award for 1999.

Burton Jones was a graduate of Grinnell College and received his Ph.D. at the University

of Chicago in 1928. He taught in the Mathematics Department of Cornell University from 1930 until his appointment at the University of Colorado in 1948. He served as chairman of the Department of Mathematics from 1949 to 1963, during which time under his leadership the department grew to a position of national prominence. He served again as department chair in the spring semester of 1967. Professor Burton Jones received the Distinguished Service Award of the Mathematical Association of America in 1971 and an honorary doctorate from Grinnell College in 1973.

FRANCES C. STIBIC FELLOWSHIPS

An endowment for the Frances C. Stribic Fellowship was created in the CU Foundation by a single gift in honor of the many contributions of Professor Stribic in the UCB Mathematics Department. Fellowships are granted each semester from the endowment income to two female graduate students in the Mathematics Department who are chosen by the faculty for their excellence as graduate students of mathematics. Recent recipients of the Stribic Fellowship have been:

1999: Suzanne Caulk
Sharon Schaffer

2000: Suzanne Caulk
Keri Kornelson



Suzanne Caulk, Recipient of Stribic Fellowship 1999/2000.



Sharon Schaffer, Recipient of Stribic Fellowship 2000.

GRADUATE DEGREES AWARDED

The following students received graduate degrees in Mathematics between December 1998 and August 2000. They are listed below by NAME, degree (faculty advisor and employment position if known).

May 1999

- Diana BOYD, Ph.D. (R.A. Holley)
Gwyn COOGAN, Ph.D. (D. Grant)
James GRAY, Ph.D. (J.D. Monk)
Christopher META, Ph.D. (R.A. Holley)
Robin NEWMAN, M.S. (M.E. Walter)
Melissa RICHEY, Ph.D. (L.W. Baggett)
Rene SHIPPERUS, Ph.D. (R. Laver)
Sumathi SHANKAR, M.A. (K.E. Gustafson)
Guoxiang SHEN, Ph.D. (W.B. Jones)
Angela VANLANDINGHAM, M.A. (E. Burger)
Loren WOO, Ph.D. (R.K. Goodrich)

August 1999

- Kerri-Ann KIMBERLEY, M.A. (R. Tubbs)
Eric WEBER, Ph.D. (L.W. Baggett)

December 1999

- Carl LIENERT, Ph.D. (L. Walling)

May 2000

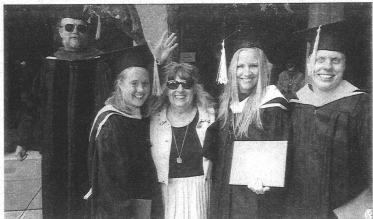
- Kirsten Kari ANDERSON, M.A., (M.E. Walter)
Robert CHIARAMONTE, Ph.D., (G. Yu)
Sharon Leigh SCHAFFER, Ph.D. (L. Baggett)
John David DAVENPORT, M.A. (K.E. Gustafson)
Lynn Marie SCHOOLEY, M.A. (R.A. Holley)
Eric Nathan UNGER, M.A. (K.E. Gustafson) employed as an actuary with Watson Wyatt Worldwide.
Kimberley WEY, M.A. (G. Yu)

August 2000

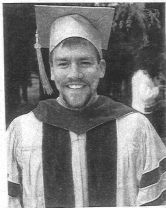
- Gregory MEYMARIS, Ph.D. (R.A. Holley)
John WILLIAMS, Ph.D. (R.K. Goodrich)
Jennifer HORNE, M.A. (J. Mycielski)
Corrections of errors in Fall 1998 Prime Bits

Graduate Degrees:

- (1) Diana Boyd received an M.S. in December 1997 with advisor K. Gustafson.



Mathematics M.A.'s in May 2000 with faculty and staff; l. to r.: Prof. Martin E. Walter (Chair), Kirsten Anderson, Carol Deckert (Graduate Secretary), Kimberly Wey and Eric Unger.



New Ph.D. Gregory Meymaris at Math Dept. reception following the commencement in May 2000.



May 1999 Ph.D.'s and faculty at Math Dept. reception following commencement. From l. to r.: Prof. Em. Wm. B. Jones, Guoxiang Shen, Loren Wu, Chris Meta, Prof. R. A. Holley, Diana Boyd and Gwyn Coogen.

FACULTY AND STAFF SPOTLIGHTS

FACULTY

Gordon Brown for many years has provided core responsibility for undergraduate advising and has served as coordinator for the William Lowell Putnam Mathematical Competition. The newly appointed advisor/instructor (see Carrie Muir) has relieved him of much of his advising duties. Results from the recent Putnam Competition are reported in Undergraduate News. During the fall 1999 Professor Brown used his sabbatical leave to investigate one of his favorite interests: simple Lie algebras over algebraically closed fields of characteristic 2.

Jeanne Clelland was invited to give a series of nine lectures on "Lie groups and the method of moving frame" at a graduate workshop at MSRI (Mathematical Sciences Research Institute) in July 1999. The lectures were videotaped and are available on MSRI's web page at www.msri.org; click on "Video", then on "Spring 1999", then on "Lie groups and the method of moving frame/Exterior Differential Systems, July 12-23, 1999." To watch the videos one needs RealPlayer (instructions for downloading it are on MSRI's web site). Professor Clelland serves on the Undergraduate Committee and on the Kemper Colloquium Committee. She (and husband Rick) bought a house in the Table Mesa area (south Boulder) last summer and are gradually discovering the joys of home ownership. On June 25, 2000 Jeanne Clelland gave birth to a healthy baby boy, Kevin.

Richard Clelland taught Honors Calculus III based largely on notes of Professor Emeritus Robert Richtmyer. He is not overly surprised to report that epsilons and deltas are still a tough sell but that the class as a whole is both challenging and very fun to teach. He also taught a graduate fluids course centering on analytical and numerical solutions to systems of hyperbolic equations.

Carla Farsi took a break from teaching and research in the abstract world of geometry and topology to explore the real world geometry of the highest mountains of our planet Earth. While on unpaid leave in spring 1999, Carla spent two months in Nepal, trekking and climbing. From her experience Carla said: "Nepal is a wonderful country inhabited by very friendly people nested in the high Himalayas. After flying to Kathmandu, I took a bus to Jiri and walked all the way to Everest/Lhotse base camp. This is a beautiful "trek" which starts at approximately the elevation of Boulder (5400 ft) and ends at over 17,000 ft. At Everest/Lhotse base camp I joined a small group of climbers attempting Lhotse, an 8,000 meter giant next to Everest. The normal route up Lhotse starts on the Khumbu glacier and goes up the infamous Khumbu ice fall, and then climbs up the Lhotse face. We did not reach the top but it was nevertheless an incredible experience." The adjoining photo shows Carla on a ladder in the Khumbu ice fall. (Editor's note: On May 31, 1998 Carla climbed to the summit of Denali/Mt. McKinley, in Alaska.)



Robert Kent Goodrich has established a valuable connection between the Mathematics Department and the National Center for Atmospheric Research (NCAR) since 1985. Working as a mathematical consultant he has enabled many CU-Boulder mathematics students to gain valuable experience and on-the-job training while working as student interns on his NCAR projects. Much of Professor Goodrich's NCAR research, sponsored by the FAA (Federal Aviation Administration), has been focused on developing systems for detecting microbursts of wind near airports in the U.S.A. Goodrich and CU student interns have also worked on systems for detecting microbursts and turbulence at the Hong Kong airport. Over the years many CU student interns have gone on to obtain permanent positions in industry and government laboratories, including NSAB in Boulder.

David Grant serves the department in many capacities in addition to his teaching and research. He is a member of the Undergraduate Committee and the Actuarial Studies Committee (see article on Interdisciplinary Studies in Actuarial Sciences). He served on the College of Arts and Sciences Core Curriculum Task Force during AY 1999-2000. In 1998-99 Prof. Grant served as chair of the Math Dept. Program Review Committee for the Math Module and QRMS programs. These are demanding tasks to which he brought a great deal of energy, knowledge and wisdom.

Karl Gustafson continued his whirlwind pursuit of mathematical research, presenting 16 international conference addresses and 21 mathematical publications during the calendar year 1998. A highlight was Gustafson's initial presentation of his theory of the geometry of quantum probabilities at the 21st Solvay conference on Physics at Nara, Japan. Solvay Conferences are famous for their debates on foundations of physics by Einstein, Bohr, Schrödinger and others. Gustafson was featured on a 6-part television miniseries "Theses and Antitheses" on Star Channel in Greece and on two one-hour radio talk-show

interviews (with translators) during his Iranian lecture tour. The Third Edition, Revised, of Gustafson's book *Introduction to Partial Differential Equations and Hilbert Space Methods* was published in 1999 by Dover in their classic paperback editions.

Sergei Kuznetsov came to CU-Boulder in fall 1998 after previously holding positions at the Central Institute for Economics and Mathematics of the Academy of Sciences in Moscow and at Cornell University. Kuznetsov currently serves on the Math. Dept. Computer Committee in addition to his teaching and scholarly work.

Richard Laver is pleased to report that a former student of his, Rene Shipperus, (Ph.D., Aug. 1999) was awarded the 1999 Sacks Prize. The Sacks Prize is awarded each year for the best doctoral dissertation in mathematical logic by the Association for Symbolic Logic.

J. Donald Monk was an invited speaker at a week-long meeting in Hattingen, Germany (June, 1999) sponsored by the European Science Foundation. The meeting was organized by R. Göbel of Essen and S. Shelah of Jerusalem. Monk is currently serving on the Math. Dept. Computer Committee and Logic Search Committee.

Jan Mycielski recently presented new results on the possible shapes of space. Einstein proposed a theory (later confirmed by experimentalists) that physical space does not conform to Euclid's axioms of geometry. For example, the volume V of a big ball of radius R near a heavy star is smaller than the Euclidean volume $EV := (4/3)\pi R^3$. If the space is globally spherical or projective, then V continues to be smaller than EV and, in fact, is bounded. In 1904 H. Poincaré posed the problem of classifying all of the possible bounded shapes of space. Attempts to solve this problem have produced a rich bestiary of shapes so complex that no enlightening classification exists. Mycielski's result (described in a paper "On the Structure of Closed 3-Manifolds")

gives information on the possible shapes of a space M (closed 3-manifold) by studying maps of closed 2-manifolds S into M and using the fact that the classification of closed 2-manifolds is known.

Arlan Ramsay chaired the organizing committee for a Joint Summer Research Conference on "Groupoids in Physics, Analysis and Geometry", June 20-24, 2000. Participants were mainly from universities in Europe and the United States. Other organizers were Jerry Kaminker (IUPUI), Jean Renault (U. of Orleans) and Alan Weinstein (UC Berkeley). Ramsay serves on three Mathematics Department Committees: Graduate Program, Diversity (Co-Chair) and Computer (Chair).

Richard Roth participated in the second annual Faculty Travelling Seminar sponsored by A&S Dean Peter Spear and the CU Alumni/Alumnae Association. For six days a group of 15 faculty members from various departments traveled across Colorado by bus, visiting places such as NORAD in Colorado Springs, the Anasazi ruins on the Ute Mountain tribal reservation, Durango High School and a center for disabilities in Grand Junction. The Seminar enabled our faculty to become more aware of the social, economic and geographical diversity of Colorado and its people.

Wolfgang Schmidt was a guest of the Mathematics Institute and Schrödinger Institute at the University of Vienna (spring 1999) and received an honorary doctorate degree from the University of Marburg, Germany (May 1999). He gave a one-hour invited lecture at the Canadian Number Theory Association meeting in Winnipeg (June 1999), a talk at a number theory session of the American Math. Soc. meeting in Austin, Texas (October 1999) and two lectures at the University of Northern Illinois at de Kalb (October 1999). As director of the Center of Number Theory at

UCB Schmidt hosted four visiting faculty members during 1999: Jeff Thunder, Leo Summerer, H. P. Schlickewei (U. of Ulm, Germany), A. Lasjaunias (U. of Bordeaux, France). Schmidt is also sponsoring a two-year post-doctoral visitor, Eric Freeman, with support from the U.S. National Science Foundation (1999/2000 and 2000/2001)

Eric Stade continues to bring creativity, energy, humor and enthusiasm as the Associate Chair for the Undergraduate Program. For some specifics please read the Undergraduate News in this issue of Prime Bits. During a recent sabbatical at Queen's University in Belfast, Ireland, Professor Stade investigated discrete Bessel transforms and their application to numerical solution of radial scattering integral equations.

Walter F. Taylor serves on the Graduate Committee of the Mathematics Department and on two committees for hiring new members of the faculty: the Logic Search Committee and the Topology Search Committee. Professor Taylor successfully underwent bypass surgery in May 2000.

Lynne Walling was a co-organizer (with Professor Rudolf Scharlau from the University of Dortmund, Germany) of the 14th Annual Workshop on Automorphic Forms and Related Topics. The workshop was held March 26-28, 2000 in the Mathematics Building at the University of Colorado, Boulder. Mathematicians from many countries presented their latest research results in 30 lectures during the 3-day workshop. Such events provide wonderful opportunities for our students to experience the sharing of ideas and the collaboration of working mathematicians. During the last session Professor Walling presented a talk on "Application of Hecke Operators on Siegel Modular Forms".

Martin E. Walter (Marty) completed a three-year term as Chair of the Mathematics Department on June 30, 2000. Professor Walter gave an extraordinary amount of energy and dedication to enable faculty, staff and students to carry out their missions within the university. Walter has also discovered a way to combine his life-long love affair with mathematics, the environment and teaching.

In 1992 he introduced a university course on "Mathematics and the Environment" and has now finished writing a textbook by the same title. The final chapter (on mathematics of economics) led him to ask about the definition and nature of money, which led to a study of central banking. Prof. Walter has lectured on his research and the material of his book on four continents: India (1995), South Africa (1996), China and Australia (1997-98) as well as the USA. In January 2000 he helped produce a mathematics play, "Unintended Consequences", at the annual meeting of the American Math. Soc. in Washington, D.C. Recently he has been working with local economists, scientists and businesses to establish a community trust currency. Why? He says the metaphorical question is: "Why have a bicycle when you have a car?" Answer: "The car can run out of gas and in that case it is good to at least have a bicycle".

Guoliang Yu spent his sabbatical at the Institut Des Hautes Études Scientifique (France) during spring 1999. He also gave invited talks at the Math. Research Institute at Oberwolfach (Germany), College de France, University of Marseilles, University of Chicago, Penn State University, University of Oregon, the AMS Summer Research Conference, and the AMS meeting in Providence, RI in October 1999. He is organizing an AMS Summer Research Institute on Non-commutative Geometry together with A. Connes, N. Higson and J. Roe. During AY 2000-2001 Professor Yu will be on a leave of absence while teaching at Vanderbilt University.

Mystery Sketch



Brussell James 1997

Can you identify this current faculty member in the Mathematics Department?



Dr. Dee Dee Shaulis (Ph.D. 1998) and Sharon Dominguez. Shaulis is the Director and Dominguez is the Assistant Director of the University Mathematics Program (UMAP), which includes both the Math Modules and QRMS (Quantitative Reasoning and Mathematical Skills).

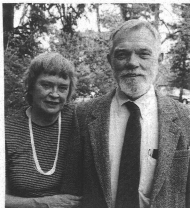


Mathematics Department (faculty, staff, friends), University of Colorado,
Boulder, Spring 1999

Three Faculty Retirements in 1999: Professors A. T. Lundell, R. E. MacRae and R. R. Struik.



Professor R. Rebekka Struik at retirement party in May 1999. Professor Struik served on the faculty from 1961 to 1963 and from 1970 to 1999.



Al and Virginia Lundell at the retirement party for Prof. Albert T. Lundell. Lundell served as Chairman of the Mathematics Dept. from 1970 to 1972 and was a member of the faculty from 1966 to 1999.



Bob and Connie MacRae at the retirement party for Professor Robert E. MacRae, who was a member of the faculty from 1967 to 1999.

NEW FACULTY

Keith Kearnes received his Ph.D. from U.C. Berkeley under the direction of Ralph McKenzie. This makes Keith a mathematical grandson of Don Monk and a mathematical sibling of Rich Laver. Keith's research interests are in algebra, logic and combinatorics. He is an editor for the journal *Algebra Universalis*. When not involved in math, he likes scuba, motorcycling, and making bread.



Keith Kearnes

Carrie Muir joined the department in July 1999 as an instructor/advisor. She is the primary advisor for all mathematics majors, assisting students in selection of courses to meet requirements in mathematics, general requirements of the College of Arts and Sciences and other academic issues. In her role as an instructor she teaches undergraduate courses.

Carrie received a B.A. in Mathematics from Graceland College and an M.A. in Mathematics from CU-Boulder in May 1998. Before joining the Mathematics Department she worked in the CU Academic Services Center as the Mathematics Academic Specialist. Please see the remarks about Carrie and Martha Shernick (p. 19) made by Eric Stade, Chair of the Undergraduate Program. Carrie has mathematical interests in logic and foundational topics. Other interests include: walking, hiking, cooking and reading. Her husband, Will Myers, is a team leader with Target.

Bin Wang Graduated from Beijing University, China in 1986 with a B.S. in Mathematics. At Brown University he studied Arakelov geometry and algebraic geometry with Bruno Harris. He has held a post-doctoral position in New England until 2000.

He is happily married and his wife, Jessie Liu, who is an interior designer in Shanghai will soon join him in Colorado.



Bin Wang



Carrie Muir

RETIRED FACULTY

Robert Ellingwood is recovering from back surgery at University Hospital in Denver and hopes to be back to normal soon.

John H. (Jack) Hodges for four and a half years (1994-1999) served as a mentor and teacher for Natalia Toro, an exceptionally gifted young Boulder girl. During the 1994-95 academic year, when Natalia was only 9 years old and a 4th grade student at Andrew Dawson School, east of Boulder, she and her father, Dr. Gabriel Toro met weekly with Jack. During this period, Jack guided her through the CU Boulder Mathematics Department's junior level number theory course. Natalia successfully worked most of the exercises that he had given to his CU Mathematics majors in this course just the previous year.

The next academic year (1995-96), when Natalia was a 6th grader at Andrew Dawson, they worked their way through a text that Jack had often used to teach the sophomore/junior level CU Mathematics Dept. course Math 3000: Introduction to Abstract Mathematics. This included surveys of elementary mathematical logic, set theory, general theory of relations and functions, abstract algebra and real analysis. By this time, working on her own via computer programs from Stanford University, Natalia had earned AP credit with scores of 5 in AB and BC calculus, high school physics and English composition. During the 1996-97 and then 1997-98 academic years, Natalia as a 9th grader and then an 11th grader in the pre-IB and the IB (International Baccalaureate) programs at Fairview High School, took and performed superbly in sophomore and junior level classes in mathematics and physics at CU, Boulder. She took classes in mathematics with such outstanding Professors as Henry Hermes, Wolfgang Schmidt and new faculty member Jeanne Clelland. After the first two years, Jack's role as mentor changed from active teacher to advisor about what CU Mathematics and physics courses to take and from which faculty. As a

14-year-old senior at Fairview High in 1998-99, Natalia's academic accomplishments and honors rapidly multiplied. She served as the unofficial "quarterback" of the five-student Fairview High Team Bowl Competition and so won a free trip to Chevy Chase, MD to compete last May 2nd in the National Science Bowl Competition. She also won top individual prizes in several local and regional Science Fair competitions and received a number of other national academic awards.

But her crowning achievement was to top 40 other high school-aged finalists in early March this year and win first prize in the 1999 Intel Science Search (formerly sponsored by Westinghouse Corp.). At age 14, she was the youngest student in the program's 58-year history and the second female in the past six years to win first prize. In September, 1999, now 15 years old, she enrolled as an advanced honor undergraduate at M.I.T., from which her father holds a Ph.D. in Civil Engineering. It's not surprising that Natalia has always had an interest in science and mathematics. In addition to her father's academic and professional accomplishments, her mother Beatrice holds degrees in both nursing and psychology.

William B. Jones began retirement on January 1, 1997, but continues involvement in teaching and research. His tenth Ph.D. student, Guoxiang Shen, received his degree in May 1999 and now works as a software specialist in the Math. Faculty Computing Facility at the University of Waterloo, Canada. His research seminar (organized jointly with Prof. Em. W.J. Thron) has met regularly through the end of 1999. Jones was co-editor of a conference proceedings volume, *Orthogonal Functions, Moment Theory and Continued Fractions* published in 1998 by Marcel Dekker, Inc. He is a co-author of 10 research papers published after retirement. Jones presented talks at three international research conferences: one-hour invited lectures at the University of Trondheim, Norway (July 1997) and at the University of Antwerp, Belgium (June

1999) and a half-hour talk at the University of Cypress (Sept. 1997). Jones serves as the editor of Prime Bits and is active in three singing groups, a church bell choir, biking, hiking and several volunteer programs.

Robert E. MacRae began his retirement at the end of the spring semester 1999. His wife, Connie, also retired in 1999 and is recovering well from a head injury. The MacRaes became grandparents for the first time to granddaughter Corinne Price, born March 29, 1999.

Burnett C. Meyer enjoys an annual winter vacation in northern California (Stanford area), Opera Colorado, the Central City Opera and the Colorado Rockies baseball team. For several years he has tutored a Russian immigrant in English. At the MathFest banquet in Toronto in 1998 he learned that he had been a member of the Mathematical Association of America for 50 years.

David F. Rearick reports that he is in good health (except for arthritis), travels from time to time and continues to enjoy life in retirement.

Irving Weiss celebrated his 80th birthday in April, 1999 at a party for family and friends (organized by his children) at the University Club on the UC-Boulder campus. Many stories and tributes were shared by his friends and family.

VISITORS

De LONG LECTURERS

This lecture series is funded by an endowment given by Professor Ira M. De Long, who came to the University in 1888 at the age of 33. Professor De Long essentially became the Mathematics Department by teaching not only the college subjects but also the preparatory mathematics courses as well. Professor De Long was a prominent citizen of the community of Boulder: president of the Mercan-

tile Bank and Trust Company, organizer of the Colorado Education Association and president of the charter convention that gave Boulder the city manager form of government in 1917. After his death in 1942, it was decided that the bequest he made to the mathematics department would accumulate interest until income became available to fund De Long prizes for undergraduates and De Long Lectureships to bring to the campus each year an outstanding mathematician from elsewhere.

Nigel Higson, Professor of Mathematics at Penn State University presented the thirty-sixth De Long Lecture series last year. His lectures gave an overview of Noncommutative Differential Geometry up to the latest developments in the field. In particular he outlined exciting new results on the Novikov Conjecture. Professor Higson has received many honors for his contributions to mathematics including the Halperin prize, awarded every 4 years to an outstanding young Canadian mathematician.

ULAM CHAIR VISITORS. When Professor Stanislaw Ulam retired in 1977, the Math Dept. decided to use his position to bring distinguished visitors (both long-term and short-term) to the department.

Professor Ron Stern is our current Ulam Visiting Professor. He was born in New York City in 1946 and received his Ph.D. from Northwestern in 1972. His home institution is Concordia University in Montreal. His main interest in mathematics is nonsmooth analysis and its applications in control theory. Stern enjoys squash, running, roller blading, road biking, cross country skiing. He has two sons (ages 14 and 18) and his claim to fame is he did KP with Dan Quayle in the Indiana National Guard.

STAFF NEWS

Following are remarks about the Math. Dept. staff members who keep the "wheels running smoothly" so that our faculty can teach and do their scholarly work and our students can receive the best possible education.

Wanda Knopinski retired on June 1, 1999 after serving for 31 years as secretary for the undergraduate program. She began her career at UC-Boulder in April 1966 in the Business School and transferred to the Math. Dept. on September 1, 1967. In 1998 Chancellor Richard Byyny presented her with a diamond pin in recognition of 30 years of service. Wanda commented that a major factor contributing to her longevity in the Math. Dept. has been working with a great group of faculty and staff. Her plans for retirement include travel, reading and other projects that have been set aside for so long. We wish for her many years of pleasant and fruitful retirement.

Martha Shernick joined the Math. Dept. as undergraduate secretary in June 1999. In September 2000 she became the Mathematics Department Office Manager. A CU alumna with a B.A. in French Literature, she has worked as a legal secretary in a variety of law offices. She has held administrative positions at CU in Humanities, Women Studies, and Mailing Services. Every member of her family is a graduate of CU, and her father, John Leahy, taught for the English Dept. for many years. Martha met her husband, Michael Shernick, when he forgot to put his account number on his package to be mailed, and they are currently landscaping their new home in Berthoud.

In February 2000 Martha played the role of sensible Celia in the sold-out production of "As You Like It" by the Shakespeare Oratorio Society. Prof. Eric Stade (Chair of the Undergraduate Program) wrote the following about Martha Shernick and Carrie Muir: "Both Carrie and Martha are extraordinarily energetic and enthusiastic and committed to making the Math. Dept. a vibrant place and



Martha Shernick, Office Manager

a happy, welcoming one to all our students.

Carrie and Martha are abundant sources of useful, fun ideas, are extremely helpful in carrying out activities and events and programs, and have been a tremendous asset and help to the present undergraduate chair."

Elizabeth (Liz) Stimmel has provided invaluable service to the department since 1983 by typing exams, letters, curriculum vitae, research papers, proposals, reports and a large number of scholarly books. She produces the Prime Bits from handwritten copy by the editor. Liz currently enjoys being a grandmother, having 3 grandchildren: Shelby, Megan, and Emily. Her second outside interest is graduate work on an MASM degree (Master of Arts in Specialized Ministries) at Duff School of Theology and she is in her 3rd year of study. When she retires from UC-Boulder, Liz plans a second career as a hospital or hospice chaplain. She is also active in Lutheran Governmental Ministry and participated in Jubilee 2000, an event where 70 persons circled the U.S. Mint in Denver to show support for debt relief by our Congress to the 45 poorest countries.

ALUMNAE/ALUMNI NEWS

The following items were received in response to the last issue of **Prime Bits**. We appreciate receiving news about yourself and your family (personal or professional) because your former classmates and faculty enjoy reading about you. We would also like to receive reminiscences of what CU-Boulder was like in earlier years from those of you who were here then. It is good to preserve for future generations the memories of the university that some of you have.

Nancy Anderson (B.A. 1952) recently retired as Professor Emerita in Psychology at the University of Maryland in College Park. (Editor's note: This is a correction of an item in *Prime Bits* Vol. 5, No. 1, Fall 1998, p. 17.)

Leo Jerome (Jerry) Lange (M.A. 1956; Ph.D. 1960) became a Professor Emeritus of Mathematics at the University of Missouri in 1998 after 38 years of teaching, research and service to the university. As chair of the Math Dept. (1988-91) and member of department committees Jerry played a major role in building the mathematics faculty at Missouri. Jerry's colleagues organized an international conference at MU (May 1998) on Continued Fractions: From Analytic Number Theory to Constructive Approximation in recognition of his contributions to mathematics education. The proceedings of this conference (dedicated to L. J. Lange) were published in *Contemporary Mathematics*, Vol. 236 (1999) by the Amer. Math. Soc.

David P. Ambrose (M.A. 1964) described turmoil in Maseru, Lesotho, following elections in May, 1998. Opposition parties began demonstrations which evolved into riots and near anarchy. Three SADC countries (Botswana, South Africa and Zimbabwe) were called upon to restore order, but only after a great deal of destruction had resulted. In spite of this David and his wife continue working on several publishing projects. A bird book written with Hloli Maphisa was finished by December 1998. David writes that Peggy

Magnus (Fort Collins, CO) and Fred Stevenson (M.A. 1963, Ph.D. 1966) are his last connections with Boulder. He also recalls a course in real analysis taught by Visiting Professor Haakon Waadeland in AY 1963/64. Fred Stevenson is currently at the University of Arizona in Tucson.

James F. Lathrop (Ph.D. 1969) is a mathematician at the Sandia National Laboratories at Livermore, CA. From his CU-Boulder experiences Jim recalls fascinating seminars from Professors John Maybee and Robert Richtmyer.

William L. Briggs (B.A. 1971) received the 1999 Burton W. Jones Distinguished Teaching Award from the Rocky Mountain Section of the Mathematical Association of America. The award is given once each year to outstanding teachers who foster excitement about mathematics in their students, and who are widely recognized both within and beyond their own institution. Bill teaches mathematics at all levels at the University of Colorado at Denver. He is an author of several successful mathematical textbooks; he is the UCD Math. Dept. liaison to area high schools; he coordinates teaching workshops for the department's graduate TA's and in his spare time he serves as the R. M. Section of MAA's webpage. In 1992 Bill was named a President's Teaching Scholar within the University of Colorado system.

Lee Badger (M.A. 1970, Ph.D. 1975) is a Professor of Mathematics at Weber State University at Ogden, UT. Lee misses the logic seminars, the colloquiums, the coffee room chats, the department picnics and, most of all, the late-night Hugh Maynard frisbee-golf games. (2322 Pierce, Ogden, UT 84401).

Robert J. Williams (B.A. 1970) has received an M.A. in Psychology from the Univ. of Northern Colorado and a Ph.D. in Psychology from the Univ. of Minn. He is currently president of Quinco Behavioral Health Systems at Columbia, IN. Dr. Williams states that after growing up in the small mountain

town, Nederland, CO, coming to CU-Boulder seemed like a move to the "big city". He expressed regret in reading about the death of Professor William N. Reinhardt (Prime Bits, Fall 1998, Vol. 5, No. 1), and happiness in the news about the Burton W. Jones Teaching Excellence Award Endowment. "Dr. Burton Jones certainly stood out as a gifted educator!"

David Field (Ph.D. 1971) reports that he has been studying the Chinese language so that he can teach a course on computer-aided design in China. In order to learn the proper Chinese words for technical expressions, David consulted with a recent CU graduate, Guoxiang Shen (Ph.D. 1999). David has been a research mathematician at the General Motors Research and Development Center in Warren, MI for more than 20 years. David can be contacted at: aes4ur@daf.ma.gmr.com.

William G. Phelps (B.A. 1980) is an International Program Manager for Microsoft Japan in Tokyo. William's wife, Keiko A. Phelps, received a B.A. in English Language and Literature from Nanzan University in 1979. She also studied at UCB in 1980. In March 2000 they had been married for 19 years. They remember CU-Boulder for its blue sky, cold air and rock climbing. (3-27-1-101 Momijigadka, Fuchu-shi, Tokyo 183-0004, JAPAN)

Bonnie Shulman (B.A. 1985; M.A. 1988; Ph.D. 1991 in Mathematical Physics) is an Associate Professor of Mathematics at Bates College, Lewiston, ME 04240. She received the Kroepsch Teaching Award in 1994 and tenure in 1998. Bonnie lives in a geodesic dome in the woods in Poland Spring (where the weather comes from) with husband Don (also a mathematician) and cat Monroe. Her daughter Hatha is studying to be a naturopathic doctor in Seattle, WA.

Jennifer L. Wesson (B.A. 1990) is a mathematics editor at Houghton Mifflin Publishing Company in Boston, MA. Jennifer recalls "Professor (Kent) Goodrich saying at the beginning of each semester 'You came here to learn how to learn'. That has been so true."

Nancy Jean Wyshinski (Ph.D. 1991) is now serving as Chair of the Mathematics Department at Trinity College in Hartford, CT.

Rachel Ames (B.S. 1988; M.S. 1992) is presently a Real Estate Broker Associate with Fowler Real Estate/Better Homes and Gardens, 2970 Wilderness Pl., Suite 200, Boulder, CO 80301. Prior to that Rachel was a software engineer at the National Center for Atmospheric Research.

Catherine M. Bonan-Hamada (Ph.D. 1994) at Mesa State College in Grand Junction, CO, is now a co-editor (with Lyle Cochran and Phil Gustafson) of the journal, *Communications in the Analytic Theory of Continued Fractions*. Cathy, her husband **Edward Bonan-Hamada** (Ph.D. 1996) and **Jane Arledge** (Ph.D. 1995) are all members of the Department of Computer Science, Mathematics and Statistics at Mesa State.

Donald Vestal, Jr. (Ph.D. 1998) recently started a tenure-track job at Missouri Western State College in St. Joseph, MO. Don and **Sharon Shaffer** (Ph.D. May 2000) were married on June 23, 2000 in Zell, South Dakota.

IN MEMORIAM

William Egbert (Bill) Briggs (March 26, 1925-January 4, 1999) died at age 73 after battling cancer for two years. He served in the U.S. Army Signal Corps during World War II (1943-46) in Japan and the Philippines. Returning to the U.S., he completed the B.A. at Morningside College in his hometown Sioux City and married Muriel Lambert (a Morningside graduate) in 1947. After completion of an M.A. and Ph.D. from the University of Colorado, Boulder (UCB), he taught mathematics at Baseline Junior High in Boulder for one year and then joined the UCB mathematics faculty as an instructor. In 1964 he was promoted to the rank of Professor and appointed Dean of the College of Arts and Sciences, a position he held until 1980 when he returned to full-time teaching in the Mathematics Department. In AY 1961-62 he was an NSF Faculty Fellow at University College, London. During his tenure as Dean, Bill helped the University weather the tumultuous years of the 1960's and 1970's and a growth period in which student enrollment doubled. A long-time friend and colleague, Herb Eldridge in English at CU-Denver, described Briggs' role (Silver and Gold, Jan. 14, 1999) as Dean: He "treated his faculty as the professionals they are. He never thought of himself as above the faculty, but rather a senior faculty member doing an administrative job." Bill's earliest mathematical interests lay in analytic number theory; later he turned to applications of mathematics in biology. With a distinguished career as an educator for nearly 40 years at UCB, he became a Professor Emeritus in 1988. Morningside College bestowed on Dean Briggs an Honorary Doctor of Science in 1968 and posthumously their Distinguished Alumni Award in 1999. In 1980 he received the Robert L. Stearns award from the UCB Alumni Association and the University Medal from the CU Board of Regents. Bill excelled in many sports: basketball (college varsity), bicycling, golf and skiing. He used his pleasant baritone voice for singing (50

years at First Congregational Church choir and in independent groups) and as a volunteer reader for The Radio Reading Service of the Rockies and for Recording for the Blind. He served on the board of directors of several professional and civic organizations including the Colorado Music Festival and the Boulder Bach Festival. Bill Briggs will be remembered for his many gifts and contributions to the world; by this writer he is remembered especially for the courage to live to the fullest of his abilities until the end.

Roy Benjamin Kreigh (November 6, 1926-June 15, 2000) died from cancer at the age of 73. He was on the mathematics faculty at UCB from 1952 until his retirement in 1991. A dedicated teacher, Ben always challenged his students to the best of their abilities. In a personal communication shortly before his death, he wrote: "I cherished my years with the Mathematics Department." He was a co-author (with J.R. Britton and L.W. Rutland) of the textbooks, **University Mathematics**, Vols. I & II, Freeman and Company (1963).

Ben grew up in Dodge City, Kansas, finished high school in Pueblo, Colorado and enlisted in the U.S. Army Specialized Training Program in 1944. After studying engineering and mathematics at Colorado A&M and at Oregon State U., he was about to be shipped to the Pacific when World War II came to an end. By 1950 he had earned bachelor's and master's degrees and was beginning a Ph.D. program in mathematics at the University of Kansas when Uncle Sam called him back for the Korean War. This time the Army sent him to work on bomb fuses at the Naval Ordnance laboratory in Boulder, CO and he decided to make this his home. Ben served as editor of monthly newsletters for two clubs in which he was active: the Colorado Wire Collectors Association and the Colorado Casino Collectors Club. He served as the coach for his sons' baseball teams in the 1970's and ran for public office on two occasions. Ben was also an active mountaineer, having climbed 34 of Colorado's "fourteeners". With his friend

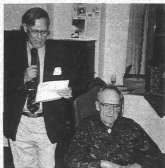
Bob Ellingwood (fellow UCB mathematics instructor), he became a member of the Adaman Club of Colorado Springs, a group who climbed Pike's Peak each year on New Year's eve. Those who wish to pay their respect to Ben are asked to climb to the summit of Long's Peak or, if that is not feasible, respects may simply be beamed in that direction anytime Long's Peak is in view.



Guoxiang Shen, Ph.D. 1999



John Williams, Ph.D. 2000



Prof. Em. Irving Weiss (r.) celebrating his 80th birthday. Ron West (l.) tells story.



Loren Woo, Ph.D. 1999



Chris Meta, Ph.D. 1999



Gwyn Coogan, Ph.D. 1999



Diana Boyd, Ph.D. 1999

KEMPNER COLLOQUIUM ENDOWMENT

In 1995, the Mathematics Department drew up an agreement with the CU Foundation to establish a \$50,000 endowment for the department's weekly, public colloquium series. The distributable income from the Endowment will pay travel expenses and small honoraria for colloquium speakers who are *not* on the faculty of the CU-Boulder Mathematics Dept. Mathematical lectures on topics of broad interest help to maintain a vibrant learning environment for both faculty and students.

The Kempner Colloquium was initiated in 1963 in honor of Aubrey J. Kempner who came to the University in 1925 as Head of the Mathematics Department, and remained in that position until retirement in 1949. Professor Kempner gave the inaugural lecture for the colloquium series and continued to take an active interest in the Department until his death in 1973. The idea of naming the colloquium for Kempner came from three members of the faculty in 1963: Professors Arne Magnus, Robert McKelvey and Burnett Meyer.

Raising \$50,000 to endow the Kempner Colloquium is a challenge that we believe can be achieved by gifts from the faculty, alumni, and friends of the CU-Boulder Mathematics Department. At this time the endowment fund exceeds \$15,000. *We hope that CU alumni will continue to help us in meeting this challenge by sending tax deductible gifts to the CU Foundation for the Kempner Mathematics Colloquium Endowment Fund.* (See enclosed form for Math Dept. 2000 Annual Fund). The Kempner Colloquium Endowment gives each of us an opportunity to make a lasting contribution toward the teaching and learning of mathematics at CU-Boulder. Your help can make a difference. Please join us in establishing this endowment for the future of the University of Colorado.



Professors Aubrey Kempner and Burton W. Jones in Kempner's house, 1952.

MATHEMATICS DEPARTMENT 2000 ANNUAL FUND

We invite you to designate your 2000 CU Annual Fund gift to the Mathematics Department, University of Colorado, **Boulder**. To ensure accurate processing of your gift, please complete this form and mail it along with your tax deductible contribution to the **University of Colorado Foundation, Arts and Sciences Development, P.O. Box 1140, Boulder, CO 80306-1140.** (Attn: Lahoma Miles.)

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___ (a) \$10 to defray cost of printing and mailing the newsletter (Prime Bits)*

___ (b) Kempner Colloquium Endowment**

___ (c) Burton W. Jones Teaching Excellence Award Endowment

___ (d) Ira M. DeLong Lecture Endowment

___ (e) William N. Reinhardt Fund

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___ (j) Other _____

***EDITOR'S NOTE: If you wish to continue receiving the Mathematics Department Newsletter (Prime Bits), please check item (a) above and send this page with a \$10.00 check for that purpose to the CU Foundation (address given above). The Department now has no other source of funds that can be used for the printing and mailing.**

****See description of the *Kempner Colloquium Endowment* preceding this page.**

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ALUMNAE/ALUMNI RESPONSE SHEET

Please return this form to the address below if you have moved or if you have news to share. We are interested in what you have been doing since graduating from the University of Colorado. We will publish this information in subsequent newsletters.

Newsletter Editor (Wm. B. Jones)
Department of Mathematics
Campus Box 395
University of Colorado
Boulder, CO 80309-0395

NAME _____

CU degree(s) and date(s) _____

Major Professor _____

Degree(s) from other schools _____

Present position, employer, location _____

Awards, honors, fellowships _____

Current mailing address _____

Other news of interest _____

Reminiscences of CU-Boulder _____

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