PRIME BITS

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

Fall 2006 Volume 8, Number 1

Robert Clifford Gunning honored as distinguished alumnus

Robert Clifford Gunning was awarded an Honorary Doctorate at the May 2006 commencement on the Boulder campus in recognition of his distinguished career as a professor of mathematics, department chair and dean of the faculty at Princeton University over a span of 50 years, 1956 to 2006.

"He is one of the most important and influential mathematicians of his generation," said Professor David Grant.

In 2003 Princeton honored him with a President's Award for Distinguished Teaching. Gunning received a B.A. degree in mathematics at CU Boulder in 1952. At the request of the Prime Bits editor, Professor Gunning provided the following reminiscences about his life at CU in Boulder and subsequent years at Princeton:

"I was an undergraduate mathematics major at the University of Colorado in Boulder from 1949 until 1952. It was rather expected that I would go to Boulder for college when I graduated from high school in Longmont, where I had been born, as had my parents. Colorado in the prewar and immediate postwar days was rather isolated, if not provincial, and Boulder was the major local university.

"The Mathematics Department in those years occupied the first floor of the east wing of Hellems. The faculty and graduate student offices were on the west side, and class rooms on the east side. The Mathematics Department was a perhaps surprisingly small department, two full professors (Burton Jones and Claribel Kendall) and two assistant professors (Frances Stribic and Albert Farnell) for the first two years I was in residence; they were joined by Albert Edrei as full professor in 1951.

"Aubrey Kempner had just retired as professor and chairman, but was still a presence in the department. He led me through a reading course in number theory my second year; we met regularly at his house on the Hill near the campus, to go over the reading and often to have tea with Mrs. Kempner, a very civilized and pleasant arrangement.

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Meyer bequest to benefit Math students, faculty

Professor Emeritus Burnett C. Meyer, a member of the mathematics faculty from 1957 to 1990, died on his birthday March 24, 2006 at his home in Denver at the age of 85.

Professor Meyer's devotion to the University of Colorado was expressed not only by 33 years dedicated to teaching, scholarly work and service, while he was an active member of the faculty, but also by his last will in which he stipulated that 15 percent of his estate be given to the Mathematics Department to be used for the benefit of the students and faculty. Initially the department has received $50,000 from the bequest.

Please see IN MEMORIAM, page 8, for more about the life of the late Professor Meyer.

Department mourns graduate student

Alicia Lana Marie Golembeski, a doctoral candidate and teaching assistant in the Mathematics Department, died in a tragic, hiking accident near the Great Sand Dunes National Park on Saturday July 22, 2006. Hiking with an aunt and two cousins in a narrow gorge at Zapata Falls, she was struck on the head by loose rocks that tumbled down a steep ledge.

Alicia was born in Minneapolis on August 1, 1979. She graduated with high honors from Gustavus Adolphus College in Saint Peter, Minnesota with a bachelor's degree in mathematics. Attracted by the nearby mountains, Alicia moved to Boulder in fall, 2002. She was an avid skier and hiker and an outstanding golfer, placing fourth in the 2002 NCAA tournament. She worked at Indian Peaks Golf Course for the past three years. Alicia's sudden death was a devastating loss for her friends and colleagues in the department as well as for her family.

Student News

Burton W. Jones Teaching Excellence Award
2005: Hugh Denoncourt and Veronika Furst (co-winners);
Honorable mention: Abdulaziz Deajim
2006: Christopher Catone; honorable mention: Dana Ernst

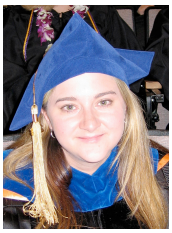
GPTI Teaching Excellence Award
2005: Abdulaziz Deajim

W. J. Thron Fellowship
2005: Hugh Denoncourt
2006: Vinod Radhakrishnan

Frances C. Stribic Scholarship
2005: Amy Chambers
2006: Soonan Kang

Putnam Competition
2004-05: Our team consisting of Reuben Brasher, Bryan Gardner and Nicholas Hall finished #67. The top three CU scorers were Thomas Mark Bailey, Brian Camley and Ryan Gardner.
2005-06: Four-way tie for first place: Thomas Mark Bailey, Brian Camley, Michael Ruston and Charles Shannon.


Catone


Chambers


Deajim


Denoncourt


Furst


Kang


Radhakrishnan

Graduate Degrees: The following students received graduate degrees in mathematics between December 2004 and December 2006. Graduates are listed by NAME, degree and (faculty advisor).

December 2004
CHRISTOPHER BROWN, Ph.D. (Arlan Ramsay)
ROBERT COHEN, Ph.D. (Martin Walter)

May 2005
DENISE BELK, M.A.
ANDREW COTTER, M.A. (Kent Goodrich)
CHRISTEN DAVIS, M.S. (Kent Goodrich)
ERICH McALISTER, Ph.D. (Carla Farsi)
ILIA DIMITROV MISHEV, M.A. (Lawrence Baggett)
LARA RAVEN-WHEELER, M.A. (Eric Stade)

August 2005
ELISA BLAIR, M.A. (Kent Goodrich)
DANIEL CHAMPION, M.A. (Jan Mycielski)
JENNIFER HORNE, Ph.D. (Donald Monk)
JOHN MASSMAN, Ph.D. (David Grant)
JOHN THIEL, M.A. (Richard Clelland)
KATHERINE WALTON, M.A. (Robert Tubbs)

December 2005
AARON PENCE, M.A. (Carla Farsi)
SIDNEY SMITH, Ph.D. (Jan Mycielski)

May 2006
AMY CHAMBERS, Ph.D. (Judith Packer)
SHARON MARIE LUTZ, M.A.
JOEL NIBERT, M.A. (Martin Walter)
JOHNTHON O'BRIAN, M.A. (Luttig)
STEVEN TRAMER, M.A. (Robert Tubbs)

August 2006
JAMES ALLEN, M.A.
IVYL BOYCE, M.A.
PATRICK BROWN, M.A. (Kent Goodrich)
CHRISTOPHER CATONE, Ph.D. (Jeanne Clelland)
EMILY CILLI-TURNER, M.A. (Donald Monk)
ABDULZAIZ DEAJIM, Ph.D. (David Grant)
VERONIKA FURST, Ph.D. (Lawrence Baggett)
JAMES JOHANSON, M.A. (Carla Farsi)
KEVIN MANLEY, M.A.
MICHAEL SCHEFFERSTEIN, M.A.

December 2006
JASON BOISVERT, M.A. (Jeanne Clelland)
SCOTT SNODGRASS, M.A. (Jeffrey Fox)


Left to right: Robert Cohen, Erich McAlister, Jennifer Horne, John Massman

Spotlight on Faculty

Workshop in honor of Larry Baggett held May 18-20, 2006

A three-day workshop entitled "Current Trends in Harmonic Analysis and Its Applications: Wavelets and Frames" was held on campus May 18-20, 2006, to honor the occasion of Larry Baggett's retirement from full time teaching at the end of the Spring 2006 semester, and to celebrate his contributions to the mathematical profession.

There were 66 participants in all, including at least 15 graduate students and recent Ph.D.'s, and several visitors from overseas, one person coming all the way from Thailand for the occasion! The workshop was organized by Kathy Merrill and Judith Packer, and was funded by the University of Colorado's Council for Research and Creative Work, the Dean's Fund for Excellence, and the National Science Foundation.

The photo, from the camera of participant Ying Wang, shows participants in front of the Mathematics Building having a wonderful time.

The gathering explored interactions between the theory of wavelets and frames, operator algebras, Gabor systems in harmonic analysis, martingales and probability theory and time-frequency analysis and its relationships to the Heisenberg group.

Invited speakers included Gerald Folland, Christopher Heil, Palle Jorgensen, Eberhard Kaniuth, David Larson, Herbert Medina, Kathy Merrill, Daniel Stroock, Dennis Sullivan, Keith Taylor, and Yang Wang. The workshop featured a fantastic cocktail party thrown by Christy and Larry Baggett in their lovely garden on Thursday, May 18, open to all participants, and there was a banquet in honor of Larry Baggett held at Laudisio's on Friday, May 19, with a great part of the planning done by Marysia Mycielski.

On April 13, 2006, the Mathematics Department gathered at the Koenig Alumni Center to honor Professor Lawrence Baggett on the occasion of his retirement. Larry was a member of the faculty from 1966 to 2006 and served as the department chair from 1984 to 1987. Pictured are those attending the celebration with an insert photo of Larry and his wife Christy.

Welcome our new faculty members

Stephen Preston joined the faculty as an Assistant Professor in the fall semester 2006. He grew up in eastern Pennsylvania, went to Penn State as an undergraduate and claims to be the only alumnus to never attend a football game there. Dr. Preston received a Ph.D. degree from the State University of New York at Stony Brook where he was a graduate student for six years. His mathematical interests include Riemannian geometry and partial differential equations, especially the geometric approach to fluid mechanics pioneered by Vladimir Arnold (1995 DeLong Lecturer).

When not doing mathematics, Stephen spends a lot of time working on politics. Recently he has campaigned for Angie Paccione and after the election he will work on antiwar activities. Stephen says that he enjoys pub quizzes and hikes some of the local trails, though not as often as he should.

His girlfriend is an instructor in the Applied Mathematics Department and both are very happy to be living in Boulder.

Dr. Ih Su-Ion received a Ph.D. from Brown University in 2000. He joined the faculty as an assistant professor in fall, 2005 after having taught at the University of Illinois at Chicago and the University of Georgia.

His current research interests are in Number Theory and Arithmetic Geometry. Favorite courses are Number Theory and Algebra. Dr. Su-Ion is a member of the Graduate Committee of the department. He enjoys hiking along the Boulder mountain trails.

Faculty research areas and activities

Lynne Walling, Ph.D. (Dartmouth), Chair of the Mathematics Department.
Number theory, especially automorphic forms. She co-hosted an international number theory conference, the 20th Annual Workshop on Automorphic Forms and Related Topics, funded in part by the National Science Foundation and the Center for Number Theory of the Mathematics Department. Walling plans to be a visiting professor at the University of Bristol, U.K. next year, where there is an extremely dynamic number theory group. Included in her research plans are computations with formulas she has produced for eigenvalues for certain operators and modular forms.

Gordon Rrown, Ph.D. (Cornell University)
Non-associative algebras. Longtime leader of the Putnam competition and active in Undergraduate Program affairs, Gordon will retire at the end of the spring semester in 2007.

Jeanne N. Clelland, Ph.D. (Duke University)
Geometry of differential equations

Richard Clelland, Ph.D. (Duke University)
Numerical partial differential equations. Faculty sponsor for the Math Club.

Peter D. T. A. Elliott, Ph.D. (Cambridge University)
Number theory

Homer G. Ellis, Ph.D. (University of Texas, Austin)
Relativity, differential geometry, mathematical physics

Carla Farsi, Ph.D. (University of Maryland)
Functional analysis, non-commutative geometry, art & mathematics

Jeffrey S. Fox, Ph.D. (University of California, Berkeley)
Representation of Lie groups, non-commutative geometry, operator K-theory and mathematical neuroscience

Robert Kent Goodrich, Ph.D. (University of Utah)
Functional analysis, optimization and weather hazard algorithms

Alexander Gorokhovsky, Ph.D. (Ohio State University)
Non-commutative geometry, geometric analysis and operator algebras

David R. Grant, Ph.D. (MIT)
Number theory, algebraic geometry, probability, coding and cryptography

Richard Green, Ph.D. (University of Warwick)
Combinatorial problems. Promoted to Associate Professor in 2005, Green has served as colloquium chair (Kempner and DeLong) for several years. He gave invited lectures at Oxford University (April 2005) and will give another in London (December 2006).

Faculty, continued

Karl Gustafson, Ph.D. (University of Maryland)
Mathematical physics and applied mathematics. Gustafson presented invited lectures at international conferences at: Auckland, New Zealand (March, 2005), the Hanoi Vietnamese Academy of Science (June, 2005), and Mons, Belgium, and at the Physics Institute of the Universite Libre de Bruxelles (August 2006).

Keith A. Kearnes, Ph.D. (University of California, Berkeley)
Algebra and logic

Sergei Kuznetsov, Ph.D. (Kiev University, USSR)
Probability, statistics, differential equations

Richard J. Laver, Ph.D. (University of California, Berkeley)
Set theory, especially large cardinals

J. Donald Monk, Ph.D. (University of California, Berkeley)
Logic, set theory and infinite Boolean algebras

Carrie Muir, M.A. (University of Colorado)
Foundations, Game Theory and Mathematics Education. Muir is the department's primary Undergraduate Advisor.

Judith A. Packer, Ph.D. (Harvard University)
Operator algebras and analysis. She and Kathy Merrill organized a conference to honor Larry Baggett in May 2006.

Stephen Preston. Please see new faculty.

Brian Rider, Ph.D. (Courant Institute, New York University)
Probability and mathematical physics. He received the prestigious 5-year Career Award from the National Science Foundation given to a junior mathematician. The award includes a postdoctoral position for two years which is being partly funded by the Electrical Engineering Department.

Delphy Shaulis, Ph.D. (University of Colorado)
See article on Math Module transition, on page 9.

Wolfgang Schmidt, Ph.D. (University of Vienna)
Number theory. Schmidt received an honorary doctorate from the University of Waterloo, Canada in June 2005. Also in 2005 he attended a symposium in Pisa and was a visitor at the Tata Institute, India for two months.

Eric Stade, Ph.D. (Columbia University)
Number theory, automorphic forms, Fourier analysis

Ih Su-Ion. Please see new faculty.

Agnes Szendrei, Ph.D. (Budapest University, Hungary)
Algebra, combinatorics and logic

Walter E. Taylor, Ph.D. (Harvard University)
General algebra and topological algebra

Robert Tubbs, Ph.D. (Penn. State University)
Number theory

Martin E. Walter, Ph.D. (University of California, Irvine)
Noncommutative harmonic analysis, groups, groupoids, C*algebras and environmental modeling

Bin Wang, Ph.D. (Brown University)
Algebraic geometry

Siye Wu, Ph.D. (MIT)
Differential geometry, topology mathematical physics. On leave during 2006-07, Wu is at a Mathematical Institute in Hong Kong.

Math Major Demand Grows

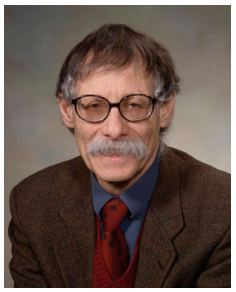
The department now has approximately 325 students majoring in mathematics, about three times the number in AY 2000-01. There are now 27 tenured or tenure-track faculty and 2.67 rostered instructors. The number of graduate students is 60. The number of student credit hours taught by the department are: 30,000 undergraduate and 1,000 graduate.

DeLong Lectures

Paul Baum from Pennsylvania State University gave the 41st DeLong Lectures, March 28-April 1, 2005 on "An Introduction to K-Theory.

Isadore M. Singer from the Massachusetts Institute of Technology presented the 42nd DeLong Lectures, October 17-20, 2005, on the topic "A Review of Index Theory.

The 43rd DeLong Lectures will be given by Sir Roger Penrose between January 27 and February 1, 2006.


Paul Baum


Isadore M. Singer

Retired Faculty

Henry Hermes -- An international conference on Geometric Control and Nonsmooth Analysis to honor Professor Emeritus Henry Hermes, on the occasion of his 73rd birthday, was held June 5-9, 2006, at the Instituto Nazionale di Alta Mathematica of the Citta Universitaria - Roma, Italy. The conference also honored R. T. Rockafellar, Department of Applied Mathematics, University of Washington, on the occasion of his 71st birthday. The conference had 32 invited speakers from Canada, France, Germany, Israel, Italy, U.K. and U.S.A. Hermes was a member of the Mathematics Department faculty from 1966 to 1998 and served as department chair from 1974 to 1976. He is well known for his fundamental work on geometric control theory and its applications to spatial navigation and robotics. His later interests include analysis and control of cardiac arrhythmias.

On another note Hank and his wife, Carol, have been on bicycle trips in northern Italy with the Bicycle Adventure Club and southwestern Colorado with Colorado Heartcycle and they have climbed seven of Colorado's fourteeners in summer 2006 - Lindsey, Ellingwood, Blanca, Crestone Needle, Crestone Peak, Humbolt and Antero. According to Hank "Life after 70 is great."

John H (Jack) Hodges -- In August 2006 Jack and his wife, Jean, drove their RV on a 1,410-mile journey to visit three PFLAG chapters (Parents, Families and Friends of Lesbians and Gays) in Casper, Cheyenne and Jackson, Wyoming and to start a new chapter in Sheridan. For her active involvement on behalf of safety and equality for sexual minorities locally and state-wide, Jean was awarded the "Quality of Life" Boulder Daily Camera 2006 Pacesetter award in February.

William B. (Bill) Jones -- Bill and his wife, Martha, celebrated their 50th wedding anniversary on August 27, 2006, with all of their children and other family members and friends. Bill gave invited mathematical talks at the San Antonio AMS meeting (January 2006) and at a workshop in Loen, Norway (June 2006). He continues to publish the department newsletter, Prime Bits, and is gathering material to update the History of the Mathematics Department that appeared in 1979.

Richard Roth – is currently serving as the secretary of the Retired Faculty Association and continues to be active in the Mathematical Association of America.

Ruth Rebekka Struik -- is involved in the movement for a single-payer health system (i.e., tax-paid universal coverage), Boulder Bicycle Commuters, Colorado Social Legislation Committee, League of Women Voters and the Colorado AFL-CIO. After attending several conventions for these organizations, she wrote "That was far more driving than I liked, but I did get to see parts of the state I have not visited before. We have a beautiful state!"

Jerrold Bebernes -- Jerry Bebernes was on the mathematics faculty from 1962 to 1988, when he transferred to Applied Mathematics. He retired in 2002. Jerry and his wife Charleen celebrated 50 years of marriage on September 2, 2006.

News of our staff

Donna Maes assumed the position of office manager of the Mathematics Department effective Oct. 18, having served as executive assistant for the executive committee of the department since October 2004. On Nov. 6 Donna received the Buff Energy Star Award from Chancellor Peterson and Vice Chancellor Talbot. The three staff members who won this award reduced energy use in their buildings by 5 percent compared to the previous year, lowering costs by more than $90,000. Donna received a $1,000 cash bonus for her energy conservation effort and also grateful thanks from the Mathematics Department. Mathematics was the only academic department on campus that made the energy conservation change.

Denise Rodriguez has joined the staff as an accountant technician III, replacing two part-time employees, Erika Herreria and Jane Wang. Denise is responsible for accounting related to employee payrolls, TA contracts, travel for visitors, budgeting and purchasing. Prior to joining the department staff, Denise was employed by the Colorado Student Loan Program, Red Rocks Community College, and the Colorado School of Mines. Denise is the mother of two children, Cameron, 9, and Aunnie, 7.

Carol Deckert retired on Sept. 29, 2006, after serving the department for 11 plus years as the graduate program assistant. Carol fully enjoyed working with our students all of those years but now she looks forward to spending more time with her husband, Ray, at their home in Nederland and on their 29-foot boat on Glendo Lake in Wyoming. At her

Staff news, continued

retirement party Carol's parting remarks were: "Thank you for making me feel so very special. I will miss you all. Being in Math was a real adventure, and my send-off will bring a smile to my face for the rest of my life. Thank you all for being a part of my Math Memories."

Marysia Mycielski accepted a new job on Oct. 27 as assistant to the associate dean of the University of Colorado Law School. Her new duties include maintaining the associate dean's daily tasks, projects, dictation and assisting with duties for adjunct , tenure and tenure-track faculty. Upon her transfer to the Law School, Marysia left these words for her Mathematics Department family: "I would like to take a moment to share that my life here in Math will never end for the Math Department is my family. It is important for me to share that my six years here, first as the undergraduate assistant and briefly as graduate assistant, have been filled with wonderful experience. The faculty, staff, students, visitors and, at times, parents have made this job filled with daily excitement. I honor very much the job tasks of an administrative assistant and will end this job with a smile. Thank you so much to all."

Alumnae/Alumni News

Kelly Craiger (B.A. 2005) now lives in Broomfield, Colorado. Her e-mail address is kkcraiger713@hotmail.com.

Ryan William Gardner (B.A. Math. & B.S. Computer Science, May 2005) won the Most Outstanding Graduate Award from the College of Engineering in 2005 and is currently a Ph.D. candidate in Computer Science at Johns Hopkins University. In successive years Ryan placed second and third place in the Putnam Competition administered by the CU Boulder Mathematics Department. One memory retained from CU was: "Dr. Laver's Set Theory class was a beast." Ryan's other interests include sailing, camping, biking, hiking and video games. ryan.gardner@colorado.edu.

Arnold Grudin (Ph.D. 1960) died on March 11, 2005, at the age of 89. Dr. Grudin was a professor emeritus of mathematics at Dennison College in Granville, Ohio after 34 years on the faculty. During World War II Arnold served for five years in the Army Signal Corps, Army Weather Service and Army Air Corps.

James T. (Jim) Loats (Ph.D. 1977), has been a Professor of Mathematics at Metropolitan State College in Denver since 1983. Jim's son, Jeff Loats, received a Ph.D. in physics from Oregon State University and is now on the faculty at Fort Lewis College in Durango, Colorado. loatsj@mscd.edu.

Joseph (Joe) Oliger (B.A. 1966, M.A. 1971) died on August 28, 2005, at the age of 64 in Truckee, Calif. Joe was a Professor of Computer Science at Stanford University from 1974 to 2001 and director of the Research Institute for Advanced Computer Science, NASA Aimes Research Center from 1991 to 1998.

Bonnie Shulman (B.A. 1985, M.A. 1988, Ph.D. Mathematical Physics 1991) is an Associate Professor of Mathematics at Bates College. She and her husband, Don McCarthy, live in a geodesic dome in Poland, Maine. Bonnie recently received the Kroepsch Teaching Award from Bates. Memories of CU Boulder include lifelong friends with my fellow students and faculty. bshulman@bates.edu.

Nancy J. Wyshinski (M.A. 1980, M.S. 1988, Ph.D. 1991) has been on the faculty of Trinity College, Hartford, CT since 1991 and has served for three years as department chair. For the January 2005 annual meeting of the American Mathematical Society in San Antonio, Texas, Nancy and Jim McLaughlin organized a two-day special session on Continued Fractions: Number Theory and Analytic Theory. Nancy.Wyshinski@trincoll.edu.

Robert C. Gunning (B.A. 1952) Continued from p. 1:

Professor Kempner was delighted by number theory and conveyed his delight in the subject with a keen sense of humor, a charming smile, and a readiness to discuss related and even unrelated topics as they came up; he was firm and demanding, although happy to clarify difficult points and always responsive to my questions.

"Miss Stribic taught my first calculus course, a fairly small course, some dozen or so of us if I remember correctly. She was an excellent teacher, very clear and thorough, and always with a cheerful smile and a quick response. On a few occasions she had to miss the class, and asked me to take over the teaching. I was too naïve to be embarrassed, and the other students were quite willing to put up with such antics; it was

Continued on page 12

In Memoriam

Burnett C. (Burnie) Meyer

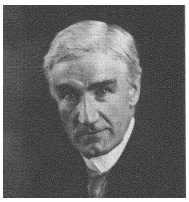
Professor Meyer was born in Denver on March 24, 1921, the son of Chandler Meyer and Adda Burnett Meyer. He attended South High School in Denver before earning a bachelor's degree from Pomona College in 1943, a master's degree from Brown University in 1945 and a Ph.D. degree from Stanford University in 1949. His doctoral thesis advisor was George Polya. Dr. Meyer's first academic appointment was as assistant professor at the University of Arizona, Tucson in 1949. He was promoted to associate professor in 1955. In 1957 he accepted a position as assistant professor of mathematics at the University of Colorado, Boulder. He was promoted to associate professor in 1960 and to full professor in 1968. Upon his retirement in 1990 he received the title of Professor Emeritus.

Professor Meyer had strong interests in the history of mathematics and in classical analysis (real and complex) and he frequently taught courses in those areas. He was an active member of a research seminar for faculty and graduate students on the analytic theory of continued fractions and related topics for nearly 40 years with Professors W. J. Thron, Arne Magnus and William B. Jones and frequent visitors from the University of Trondheim, Norway, Professors Haakon Waadeland, Olav Njastad and Lisa Lorentzen.. He published research articles on continued fractions, capacity, asymptotic series and approximation theory. His textbook, *An Introduction to Axiomatic Systems*, appeared in 1974. He was fluent in French and wrote scholarly articles for French publications.

In the Mathematics Department Professor Meyer served as an undergraduate advisor and for many years was a member of the Undergraduate Program Committee which he chaired for two years. For the College of Arts and Sciences he directed the department's honors program, was a member of the Honors Council and served on the committee for transfer evaluation from junior colleges in Colorado. He was active in Sigma Xi, serving as secretary and treasurer for the CU Chapter. He was the president of the Alpha Chapter of Phi Beta Kappa of Colorado for the years 1970-73. Burnie enjoyed traveling, especially in France; he held season tickets for the Colorado Rockies baseball games; and he had a deep appreciation for classical music and reading, in French as well as in English. He spent a great deal of time after retirement tutoring immigrants in English as a second language. Professor Meyer asked that memorial contributions be made in Dr. Meyer's name to the Stanford Fund, c/o gift Processing, 326 Galvez St., Stanford, CA 94305.

Endowments

Ira M. DeLong Lectures, Undergraduate Putnam Prizes

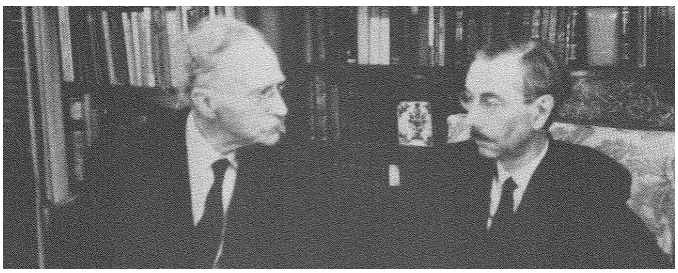


The DeLong Lecture Series and undergraduate prizes are funded by an endowment given to the department by Professor Ira M. DeLong, who came to the university in 1888 and essentially became the Mathematics Department by teaching not only the college subjects but also the preparatory courses as well. When he retired in 1925 the department consisted of the newly hired Aubrey Kempner and three other members. After DeLong's death in 1942, his bequest of $25,000 to the department accumulated interest until 1963 when income from the endowment began funding the DeLong Lectures and undergraduate prizes for the Putnam competition.

Kempner Mathematics Colloquium

The Kempner Colloquium was initiated in 1963 in honor of Professor Aubrey J. Kempner who served as head of the Mathematics Department from 1925 until his retirement in 1949. Professor Kempner gave the inaugural lecture, speaking on "Reminiscences of the University of Goettingen" where he received a Ph.D. degree under Edmund Landau in 1911. Kempner continued to take an active interest in the department until his death in 1973.

The Kempner Colloquium Endowment (currently $50,000) was established in 1995 by gifts from faculty and alumni, including a major gift of $25,000 from Dr. William J. LeVeque (B.A. 1944) which was intended to perpetuate the memory of the CU professor who greatly influenced LeVeque's life and career. The endowment pays for travel and honoraria for colloquium speakers. The weekly Kempner Colloquium on topics of broad mathematical interest is essential to maintain a vibrant learning environment for faculty, students and visitors.

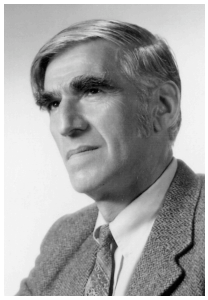


Aubrey Kempner and Burton W. Jones in Kempner's home, 1952.

Burton W. Jones Teaching Excellence Award

Burton W. Jones was on the mathematics faculty from 1948 until his retirement in 1971. Under his leadership as chairman (1949 to 1963) the department grew to a position of national leadership. To preserve the memory of their distinguished colleague, the faculty contributed money for an endowment to fund the Burton W. Jones Teaching Excellence Award, which is given each year to the Mathematics graduate student chosen by the faculty as the outstanding teaching assistant.

W.J. Thron Mathematics Fellowship



In 1999 Professor Emeritus Wolfgang Joseph Thron made a gift ($216,000) to the University of Colorado to establish an endowment of the W. J. Thron Mathematics Fellowship awarded each year to an outstanding graduate student in the Mathematics Department. With this gift Thron expressed his faith and devotion to the University of Colorado - its faculty and its students. Professor Thron was a member of the mathematics faculty from 1954 until he retired in 1985, when he was awarded the University of Colorado Medal for outstanding contributions to the university and for his distinguished career as a scholar, teacher and research mathematician. He served as the department chair from 1972 to 1974 and was the thesis advisor for 21 Ph.D. students.

William N. Reinhardt Lectures

An endowment for the annual William N. Reinhardt Memorial Lecture was established at the University of Colorado Foundation in 2001 by family, colleagues and friends. Professor Reinhardt was a member of the Mathematics Department from 1967 until his untimely death on June 22, 1998 at the age of 59. Bill Reinhardt, as he was known to family and friends, was interested in the foundations and philosophy of mathematics. He sometimes taught courses in the Philosophy Department.

Adele Leonhardy Scholarship

The Adele V. Leonhardy Memorial Scholarship endowment was established by a gift from the estate of Adele Leonhardy (B.A. 1924). Scholarships are awarded to outstanding graduate students or upper-division A&S undergraduate students majoring in mathematics. Recipients must demonstrate excellence in their studies and must be preparing to teach mathematics.

Adele Leonhardy was born in Carbondale, Colorado in 1900 and grew up at Fruita near Grand Junction. While attending the University of Colorado from 1917 until 1924, she taught elementary school in Boulder in order to pay for her college education. After graduate work at the Universities of Chicago and Missouri, she taught mathematics at Stephens College until her retirement in 1967. Professor Leonhardy knew the difficulty of working one's way through college. She dedicated her life to the teaching profession. Her gift to the University of Colorado will enable students from future generations to prepare for teaching mathematics.

Frances C. Stribic Scholarships

Frances Stribic was a member of the mathematics faculty from 1926 until she retired in 1965. Finding a need for someone in the department to teach statistics, she prepared herself in that subject and not only taught it for a number of years but also did research applications jointly with psychology Professor Dorothy (Happy) Martin. Professor Stribic was an outstanding teacher, well respected by her students and colleagues. The Stribic Scholarship, established in 1990 by her friend and colleague, Dorothy Martin, is awarded each year to female graduate students chosen by the faculty for excellence in mathematical scholarship.

Frances Stribic and Happy Martin

The Mathematics Module Program (MMP) was initiated by the department in fall 1989 as a self-paced program for teaching college algebra, trigonometry and mathematics primarily for business and social science students. Between fall 2004 and fall 2006 the MMP has been replaced by a large lecture and recitation format with lectures capped at 140 students and recitations at 35. Current planning is for 11 large lecture classes per semester. Dr. Delphy (Dee Dee) Shaulis was the former director of the MMP and she now oversees the new lecture sections. She not only teaches some of the sections each term but also coordinates the instructors, creates the syllabi, chooses texts and homework problems, writes exams and oversees the online homework system we use.

Mathematics Department Donors 2004-2006

The Mathematics Department faculty and students would like to thank all of the generous donors for their gifts to the department. Your support enables us to bring colloquium speakers (DeLong, Kempner and Reinhardt) to the campus, to offer scholarships to our students (Leonhardy, Stribic and Thron) and to grant awards to outstanding teaching assistants. You also make possible the publication of the newsletter, Prime Bits, since your gifts are its only source of funding. You can continue your support by completing the forms, STAYING IN TOUCH and the MATHEMATICS DEPARTMENT 2006 ANNUAL FUND and returning them to the given addresses. Contributions to the Mathematics Department through the CU Foundation are tax deductible.

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Mathematics Department Historical Note

William Wallace Campbell was the Department of Mathematics at CU Boulder for two years, 1886 to 1888. Professor Campbell also taught astronomy for the Physics Department. Campbell's replacement was Ira M. DeLong in 1888. After leaving Colorado, Professor Campbell decided to pursue his main interest, astronomy, with the Lick Observatory in California and subsequently lead an experiment that gave conclusive validation of Einstein's theory of special relativity. For starlight passing near the sun, Einstein's theory predicted a displacement of 1.75 arc-seconds due the sun's powerful gravitational field. In 1919 Arthur Eddington's British team obtained measurements during a solar eclipse in Brazil and on the tiny island of Principe of about 1.64 arc-seconds. But there were problems with the photographs due to heavy clouds. Campbell's team, photographing an eclipse in Australia in 1922, determined a stellar displacement of 1.72 arcseconds, a conclusive confirmation of relativity. Initially Campbell had believed that Einstein's theory was wrong. But when his experiment proved the opposite, he followed the course of a good scientist and never opposed relativity again. The above information was taken from Scientific American (September-October 2005) sent to the Prime Bits editor by Professor Emeritus Albert Bartlett, Department of Physics.

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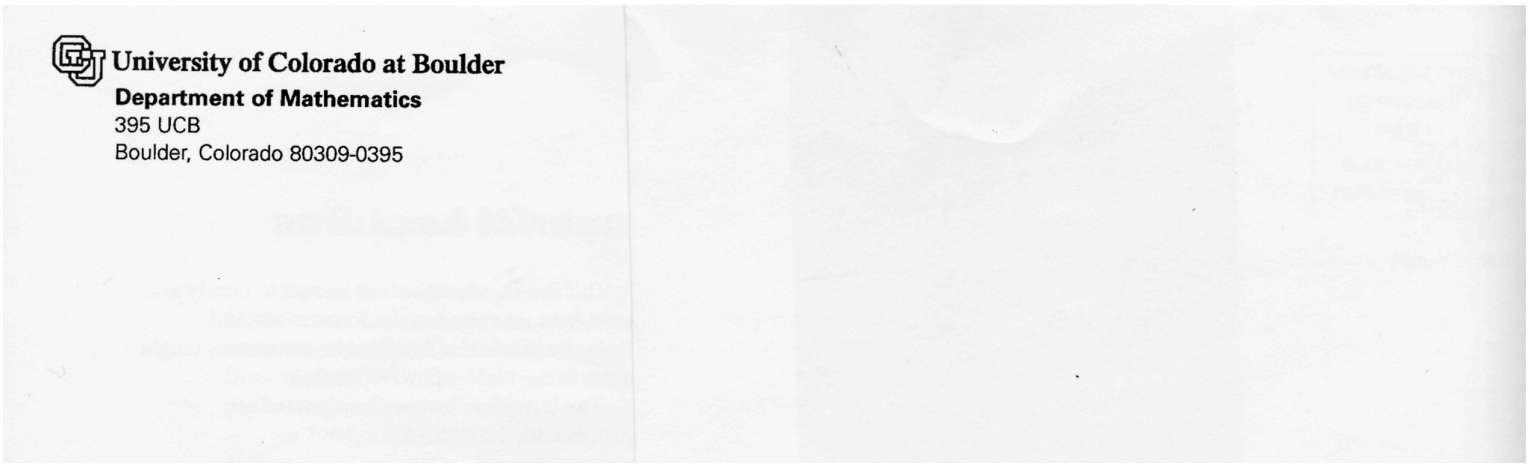

Gunning (continued from page 7)

my first experience at teaching and I enjoyed it if no one else did. Miss Stribic had more of a sense of humor than I had expected at first.

"In my last year I took a graduate course that Professor Jones taught on quadratic forms, using his Carus monograph; it mostly consisted of going through the proofs of the results in his book, with examples to see what was going on. When Mr. Edrei joined the department I took his course in real and complex analysis, and probably learned more from his courses than from any others that I took. That introduction to complex analysis and its algebraic connections more or less set me on the path I have followed one way or another ever since. Mr. Edrei had and taught a healthy respect for clear proofs and careful and illuminating calculations; he came up with really challenging problems that broadened one's understanding of the material.

"The graduate students provided a lot of the life and most of the routine teaching in the department. Most were veterans of the second world war, who had returned to complete undergraduate work at various places and then came to Boulder for graduate work. I believe that I associated more with the graduate students than I did with the other undergraduate students in mathematics; the graduate students although mostly quite a bit older were willing to put up with a fairly junior colleague and were full of general good advice. Bill Briggs was one of the successful students, who stayed in Boulder and eventually became Dean of Arts and Sciences; Harvey MacKenzie and Arnold Grudin were others I remember talking to from time to time.

"Altogether I had a good time in Boulder, learned a good deal in the courses and met an interesting and varied group of students, both graduate and undergraduate, and faculty members, all of whom were helpful and quite willing to talk to an inexperienced undergraduate. I asked Professor Jones whether he would recommend my staying in Boulder for a masters degree before heading off to graduate school, and he very strongly advised me to do no such thing. He suggested that I apply to Princeton, since he had spent a year or so at the Institute earlier on and had a good experience there; and Miss Kendall knew Professor Lefschetz, and said that studying in a department that included him would be an opportunity not to be missed."

After graduating from the University of Colorado in 1952, Gunning enrolled as a graduate student at Princeton, worked with Salomon Bochner on a thesis on factors of automorphy, earning a Ph.D. in 1955. Following a postdoctoral year at the University of Chicago, Gunning returned to Princeton as a Higgins Lecturer in 1956 and has remained there ever since. In 1966 he was promoted to full professor and ("more memorably" according to him) married Wanda Holtzinger, a research assistant at the Institute for Advanced Study. At Princeton Professor Gunning has had a full career of experiences including department Chairman (1976-79), Dean of the Faculty (1989-1995), the editorial board of the Princeton University Press, Chief Marshal for University Convocations, a Presidential Search Committee, and the committee on undergraduate discipline. He supervised 28 graduate students through to their Ph.D. degrees and feels tremendously proud of their achievements. He has been a visiting professor at St. Catherines College of Cambridge University, the University of Sao Paulo in Brazil, the University of California at Los Angeles, and a 1970 program in mathematical physics at Boulder run by Wesley Britain. His work in mathematics has been primarily in complex analysis and related areas.

Thinking back on the nineteen fifties and early sixties when he was starting out as a young mathematician, Professor Gunning modestly wrote that "Those were much easier and less competitive days, both for admission to undergraduate and graduate programs and for getting academic jobs, in many senses the good old days. Boulder has certainly changed a good deal since then, and has strengthened its program and faculty immensely, while the academic world altogether has become considerably harder and more challenging. It has all been great fun!"