
LITTLE BY LITTLE

UNIVERSITY OF FLORIDA DEPARTMENT OF MATHEMATICS NEWSLETTER

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Professor Kermit Sigmon: In Memoriam

by Paul Ehrlich

"Daisy, daisy
give me your answer true.
I'm half crazy
All for the love of you.
It won't be a stylish marriage.
I can't afford a carriage.
But you look sweet, upon the seat,
Of a bicycle built for two."

With this chorus, a large audience of University of Florida faculty, citizens from Gainesville with an interest in bicycling and urban transportation planning (including Mayor-Commissioner Ed Jennings, Sr.), and relatives and family of Dr. Kermit Sigmon (many from North Carolina) joined Linda Crider in singing the above chorus to "Cycles in the Sand" at a *Celebration of the Life of Kermit Sigmon (1936 - 1997)*, held at the United Church of Gainesville on a cold Sunday afternoon, January 19, 1997. The attendance in the chapel reflected not only Kermit's many years of sustained, dedicated service for the University of Florida during 1963 - 1997, but also his many years of civic involvement in Gainesville affairs. Kermit's work in civic affairs over the years had been at such a significant level, that the Gainesville City Commission had named August 5, 1985 as Kermit Sigmon Day. Kermit served for 20 years on the citizens advisory committee to the Metropolitan Transportation Planning Organization of Gainesville/Alachua County, and Marlie Sanderson, Director of Transportation Planning for that body has commented in an article in the Gainesville Sun on January 15, 1997, that "Sigmon brought his considerable knowledge of applied mathematics and computer modeling to the minutae of the transportation process. Sigmon's combination of politeness and good humor, even during heated discussions, combined with analytical abilities and thorough research, swayed many a skeptical official." On February 10, 1997, there was a Memorial Tree Planting at the Matheson Historical Society to honor Dr. Sigmon along with two bicyclists who were tragically killed in early January while enroute to St. Augustine from Gainesville.

Dr. Kermit Sigmon was a dedicated teacher and scholar, who served on the faculty of the Department of Mathematics since 1966. His research spanned two distinct areas of mathematics; as he described them himself, *cont. on page 2*

Notes from the chair

by Joseph Glover

We dedicate this issue of Little by Little to the memory of Kermit Sigmon, whose presence was so woven into the fabric of the department that his work continues to touch the lives of undergraduate and graduate students, staff and faculty. We honor his memory not only for his service to UF and the state, but also for his enthusiasm and his unique personality. We will miss him.

I asked a committee to consider how best to honor Kermit's memory. Bruce Edwards, Jean Larson, Neil White, Krishna Alladi, Rick Smith and Paul Ehrlich recommended two things. The Department will pursue the possibility of having a tree planted near Little Hall and dedicated to Kermit. In recognition of his dedication to undergraduate teaching and the mathematics major, the committee also recommended that a "Kermit Sigmon Award" be made to an undergraduate each year. The award will consist of a certificate and a cash prize. Little by Little readers who would like to donate to help fund this award are asked to fill out the enclosed donation form, indicating that your funds should go to the General Gift Fund-Kermit Sigmon Award.

It is again a pleasure to warmly thank all of those who contributed to the support of our educational activities in the department. Nonanonymous donations received at the U.F. Foundation during January - March, 1997 include Mr. **James Dennis Baker**, Mr. **David A. Beauchamp**, Dr. **Beverly Brechner**, Mr. **Tak K. Cheung**, Dr. **Jennifer Davidson**, and Ms. **Talia Elkin**.

Professor Kermit Sigmon: In Memoriam *cont.*

first algebraic topology and topological algebra, and later, numerical analysis, numerical linear algebra, parallel computing. Experts in these areas comment on their association with Kermit in the following article, "Dr. Kermit Sigmon Remembered." Kermit was a demanding but popular teacher at Florida. He received a College of Arts and Sciences Teaching Award in the spring of 1995 and the University-wide Teaching Incentive Program Award in December of 1966. As part of his teaching, Kermit had authored the well known *MATLAB Primer*, which was used across the whole world.

I came to the University of Florida in the fall of 1987 from the University of Missouri-Columbia, as the senior appointee in differential geometry, during the first year of a proposed 5 year expansion plan for the department. During my first year, I served on the Departmental Search and Screen Committee along with Kermit, and as a result of administrative changes, the committee found itself playing a more active role than usual in the recruitment process. I thus came to be very familiar with the members of this committee, since we spent so much time together: throughout I was impressed with the sincere integrity Kermit always displayed in seeking to do what was right for the development of the department as he believed it ought to grow. Also, I experienced first hand how that Sigmon combination of politeness and good humor mentioned above by Marlie Sanderson served to defuse many potentially acrimonious situations. Later, when I was working on the Ehrlich/Moore manuscript on the history of the department, I had many conversations with Kermit as he recalled A. D. Wallace, John Maxfield and others. I admired Kermit's willingness to step into the office of Undergraduate Coordinator during the fall semester of 1994 after Charles Nelson's retirement, and I knew that Kermit would bring the same energy level, integrity, and attention to detail to that job which he had brought to so many other service assignments during his 30 years in the professorial ranks here. (An example of his concrete concerns and attention to detail and keen desire to get things functioning well unfolded before my eyes as the entire department was in the process of moving from Walker Hall to Little Hall during 1995. One day Kermit showed me a sketch of a typical classroom and asked me about his plan to have new blackboards placed on the longer wall of the classroom in addition to the existing boards along the shorter wall, farthest away from the outer door. I replied that I found that to be an excellent idea. As I was walking through the corridors of Little this past fall, which would be Kermit's last semester at the University, I enjoyed seeing how useful this was in some of our larger class sections as I observed both faculty and graduate students teaching in these rooms. Kermit especially enjoyed the opportunity to do this, as we had been plagued in the past with many classrooms around

campus, some of which I have taught in myself, which have extremely skimpy board space, to say the least.)

Kermit entered graduate school here in 1963, the same year that A. D. Wallace joined the department from Tulane University. Dr. Sigmon was a member of the A. D. Wallace research group and wrote a thesis on *Topological Means*, receiving the Ph.D. in August, 1966. He dedicated his dissertation to his wife Ruth and daughter Kristina and included acknowledgements which read

"The author wishes to express his gratitude to Professor A. D. Wallace, Chairman of his supervisory committee, for his continued interest and efforts on behalf of the author in preparing him for a career in mathematics. The help of others who have served on the author's supervisory committee, Professors A. R. Bednarek, J. M. Day, J. Kronsbein and F. M. Sioson, is appreciated and especially that of Professor Bednarek who provided the forum which stimulated the author's interest in topology and that of Professor Day whose expressions of confidence and willing ear were invaluable."

The Biographical Sketch in Kermit's dissertation reveals that

"Kermit Neal Sigmon was born April 18, 1936 in Lincoln County, North Carolina. In May, 1954, he was graduated from Rock Springs High School in Denver, North Carolina. In May, 1958, he received the degree of Bachelor of Arts from Appalachian State Teachers College and in August, 1959, he received the degree of Master of Education from the University of North Carolina at Chapel Hill. From 1959 until 1963 he taught mathematics in the high schools of Charlotte, North Carolina. In 1963, he enrolled in the Graduate School of the University of Florida where until the present time he has served as a part time instructor in the Department of Mathematics while pursuing work toward the degree of Doctor of Philosophy.

Kermit Neil Sigmon is married to the former Ruth Lois Tucker and is the father of one child. He is a member of the Mathematical Association of America and the American Mathematical Society."

In connection with my historical writing, Kermit delighted in recalling how there were "hyphenated" Belk stores near both Ruth's girlhood home and his boyhood farm, a Belk-Schrum store in Lincolntown and a Belk-Tyler store near where Ruth grew up. Kermit recalled being taken to the much larger Belk store in Charlotte for major clothes shopping. One summer, my wife and I had visited the Biltmore Estate in North Carolina, and when we discussed this with Kermit, he recalled how in past times the Biltmore estate had had a dairy and Biltmore milk and icecream could be purchased in Lincolntown. Another time in 1994 when we were discussing Kermit's teaching of the large lecture calculus employing computer technology in preparing and showing transparencies, Kermit recalled how greatly things had changed since his college days at Appalachian State

Teachers College, where he recalled being taught how to use a slide rule.

Kermit had the following comments for me concerning his graduate student days, which I have taken from the Ehrlich/Moore history of the department:

"Professor [Alexander Doniphan] Wallace sparked more of a research climate in the department. He made sure that the department had a full program of seminars and colloquia. He instituted a Journals Seminar for the graduate students during which they had to report on research articles published in the journals. Professor Wallace also brought in several researchers in topological semigroups, like Professor David Foulis and apparently Professor F. M. Sioson. During the time I was in graduate school, I recall seminars on orthomodular lattices conducted by Professor Foulis for graduate students and some faculty. Professor Wallace conducted a seminar on topological semigroups and cohomology. The A. D. Wallace seminar met on Tuesdays and Thursdays. Professor Maxfield was a commanding figure with a handle bar mustache, standing 6' 6". He had a collection of vintage Rolls Royces and also a stretched Checker limo. I recall driving to an American Mathematical Society meeting in Houston, stopping overnight in New Orleans, in the Checker limosine with Dr. Maxfield and a group of graduate students. In 1967, Professor Maxfield left Gainesville to become Chairman at Kansas State. He took several faculty members and a group of graduate students with him. The question arose as to how all of these vintage cars were to be transported to Kansas. A graduate student was charged with driving one of these vehicles, but it overheated and broke down as near as Lake City, and may have had to finish the trip being transported on a truck."

During the course of my historical work, I circulated by e-mail to the faculty some news items from the *Daily Alligators* of the early 60's discussing in very colorful terms the dilapidated conditions which new Chairman John Maxfield had encountered on campus after his arrival in 1960. Kermit had the following e-mail response to these items:

"Paul,

I didn't arrive in Gainesville until August 1963, so I can only comment on things that I recall from that date forward. Here are a few comments:

– You mention the renovation of Walker Hall at one point. This renovation occurred during AY 1972 - 73. The department moved to Building E during the summer of 72 and back into the extensively renovated Walker Hall in the summer of 1973. Building E was the 'barracks' (actually in the shape of the letter E !) sitting just north of the current Little Hall, where there is now a parking lot. Building E burned down (accidentally ???) within a couple of years of 1973.

– During my 3 years as a doctoral graduate student (63 - 66), I was actually an 'Interim Instructor', a line-

item position, as mentioned by Maxfield (rather than a TA.)

– The graduate student 'alcove' mentioned was actually a rather large room on the west end of the 3rd floor containing desks packed in. In the prerenovated Walker Hall it sat where the current offices of Rao, Block, Cenzer, Pop-Stojanovic, Bao, and men's toilet now sit. My desk was in this room during my first year here.

– Note that then grad student Arnold Insel (not Insel), quoted in the *Alligator* article, is one of the authors of the Friedberg/Insel/Spence Linear Algebra text used by some in MAS 4105.

– The prerenovation classrooms in Walker were un-airconditioned with huge, noisy exhaust fans.

– Benton Hall was condemned sometime in the 60s because of the danger of collapsing. The department once held its regular colloquium in a Benton auditorium. Grinter Hall replaced it, of course.

– When Walker Hall was renovated, those slate classroom blackboards mentioned in the 1960 article about the Walker Hall classrooms were preserved and used for the blackboards in the current faculty offices in Walker Hall.

These are a few thoughts spurred by the article.

Kermit

Almost thirty years after the fact, both Charles Nelson and Kermit recalled vividly the *beginning of the semester meeting* of the faculty and graduate students that was held on a Sunday afternoon in a room in the Architecture Building, just before classes began the following Monday. Professor Maxfield would have had the student enrollment figures that previous Friday and Saturday, and by Sunday would have worked out the teaching schedule. At this Sunday afternoon meeting, Maxfield handed every faculty member, interim instructor, and teaching assistant a 3" × 5" index card containing their teaching assignment for the semester. In those days, Nelson recalled, one did not complain to the Chair or Associate Chair about teaching assignments, but just do informal swaps. Also, since everybody was assembled together in one place, the Seminar Schedule for the semester would also be drawn up at this same time. Kermit recalled the following phrase describing Maxfield's move to Kansas State – "it was a pull, and not a push" – which Maxfield himself confirmed to me. After Dean Maxfield sent me some copies of newspaper clippings from his time in Gainesville, I found one which confirmed that Maxfield had indeed been Director of the Computer Center. For this photograph showed President J. Wayne Reitz, Dr. Maxfield and Floyd Bowen of Lakeland, a member of the Florida State Chamber of Commerce, observing the new IBM 709 which had recently been installed. After I showed this photograph to Kermit, he recalled taking Numerical Analysis during 1963 - 1964 with Professor Ralph Selfridge, whom Maxfield had brought to Florida from the China Lake Naval Ordnance Test Station at the rank of Associate Professor during the 1961

- 1962 academic year. Kermit recalled having to bicycle from Walker Hall all the way to what is now called the Wallace Building in the agricultural complex near Fifield Hall on the other side of Lake Alice in order to have the Fortran programs which were assigned in the Numerical Analysis Course run on a main-frame computer.

It is interesting to me that in the mobile 1960's, Professors Wayman Strother and David Foulis, two of the faculty apart from A. D. Wallace which so inspired the graduate student Sigmon, were just at Florida for a relatively brief period, less than five years. Then Strother went to the University of Massachusetts at Amherst as outside chairman, and Foulis joined him shortly thereafter. But this move led to Kermit's spending the summer of 1966 as a Visiting Assistant Professor at U. Mass at Strother's invitation. During the time period up until 1980, Kermit continued his research on topological semi-groups and functional equations. He has described his research interests during this time period as algebraic topology and topological algebra. One of his papers from this period is titled *A strong homotopy axiom for Alexander cohomology*, Proc. Amer. Math. Soc. 31 (1972), pp. 271 - 275. During 1972 - 1973, Kermit, Ruth and their daughter enjoyed a sabbatical period Kermit spent in Germany, while serving as a Guest Professor in Munich and Hannover. Kermit has told me that this experience was especially meaningful to him because of his German ancestry. (I recall Kermit's telling me that the German name of his ancestors had been "Siegmund".) Kermit lectured at Liege, Hamburg, Clausthal, Technische Universitat Munchen, and at the national meeting of the German mathematical society. During this time, Kermit purchased an interesting biography of R. L. Moore, which contains a list of Moore's mathematical descendants; Kermit was proud to be on this list as a mathematical great-grandson, since A. D. Wallace had been a student of Moore's student G.T. Whyburn. Kermit was an Associate Editor of the journal *Aequationes Mathematicae* during the time period 1974- 1980. On the local scene, during the 1970's Kermit was active in working with doctoral students **Desmond Robbie**, **Hung-tsaw Hu**, **Joann Barbee** and a Masters student **Vladimir Scheffer**. In the service area during 1974 - 1979, Sigmon developed and stabilized the management system for large lecture calculus and precalculus. In the curricular developmental areas, Kermit wrote a widely used *MATLAB Primer* to introduce students to the use of the MATLAB software, and also wrote the curricular materials for our current course *MAS 3300: Numbers and Polynomials*, which is designed to help mathematics majors make the transition from techniques courses to more conceptual courses.

As the 1980's approached, Kermit faced a difficult problem in his research life; he told me that activity in his research area was gradually coming to a halt as the number of practitioners was dwindling rapidly. Kermit

confronted this difficulty with his characteristic determination and energy; he revamped his research interests into the areas of numerical analysis, numerical linear algebra, and parallel computing. This reorientation was aided by a visit to North Carolina State University and Professor Robert Plemmons during the academic year 1985 - 1986 and summer work at Oak Ridge National Laboratory during the summers of 1987, 1988, and 1989. At Oak Ridge, Sigmon worked with Dr. Charles Romine, and their work resulted in the publication of an article *Reducing inner product computation in the parallel one-sided Jacobi algorithm* in the Proceedings of the Fifth Memory Computing Conference. In his collaboration with Romine, Kermit was able to log-on to the super-computer at Oak Ridge from his desktop workstation in Walker Hall; what a far cry from learning to use a slide rule as a young man in Boone, North Carolina! Kermit's work in his new research area led to international recognition; he was invited to participate in several Householder Symposia as well as other international scientific meetings and he served as an Associate Editor of the S.I.A.M. Journal on Matrix Analysis and Applications since 1989.

As I wrote above, Kermit was a demanding but popular teacher at Florida. I had the occasion to attend a seminar presentation of Kermit's and also to attend a meeting of his graduate course in Numerical Linear Algebra. His joy and enthusiasm in teaching was evident in both presentations. As I walked in the area near Walker Hall and Little Hall, I could often see Kermit sitting down with several graduate or undergraduate students after his classes were over, genially and enthusiastically giving them further instruction and nourishment. In curricular matters, Sigmon was one of the leaders in an NSF sponsored ATLAST Project, headed by Steven Leon, with the purpose of training university and college instructors in the use of computers and MATLAB in the teaching of linear algebra.

During 1992 - 1995, Kermit served as "presenter" of three of these workshops. One of these sessions saw life come back in a circle, as Professor Jane Maxwell Day was also one of the ATLAST workshop "presenters." Jane and Kermit had been fellow students and part of the A. D. Wallace topological algebra research group at the University of Florida during the 60's, and found themselves working together again in the 90's, exploring how to teach linear algebra more effectively.

Dr. Kermit Sigmon Remembered

by Paul Ehrlich

Professor Joseph Glover, the Chair of the Mathematics Department under whom Kermit served as Associate Chair for Undergraduate Studies, had the following comments about Kermit in a memorial article published in the College of Arts and Sciences Newsletter in February, 1997:

"Joe Glover, chair of the mathematics department, remembers how Sigmon also enjoyed his role as advisor/counselor to undergraduates.

'Kermit was fond of saying that even though he often had to say 'no' to students, he had developed a knack for saying it so they didn't leave his office disgruntled,' he said. 'He spent considerable time with each student discussing goals and aspirations, and each felt the full glow of his attention during visits.'

Glover believes it wasn't just the students that benefited from his work, but the entire Gainesville community.

'Florida benefited from his organizational expertise in developing nationally acclaimed bicycling and transportation policy,' he said. 'He applied the same expertise to refine and systematize the undergraduate programs in mathematics. All members of the department will miss his talents, his sense of humor and his presence.'

A long time faculty member of the Mathematics Department, Professor Neil White, has written me:

"Dear Paul, Here's a recollection about Kermit which might be appropriate to share.

Kermit and Ruth had Mary and me over to their house one evening and were showing us pictures of their daughter's wedding, which had taken place in North Carolina the previous summer. Suddenly I recognized one of the attendees. "What was one of my calculus students doing at this wedding?" "Well," said Kermit, "I guess the jig is up." It turns out this student, Jennifer Lutz, was his niece, who was attending UF for a year. Kermit, as undergraduate coordinator, had placed her in my calculus section, but, typical of Kermit, he didn't want his niece to gain an unfair advantage from his friendship with me, so he and his niece had agreed to keep their kinship a secret from me.

-Neil

A second long time faculty member, Professor Beverly Brechner, had the following thoughts about her associations with Kermit over the years:

"I first met Kermit Sigmon when I came to UF in 1968. Kermit was always an important and influential member of the department, having been involved in administrative work, advising, course designing and the writing of course notes, as well as doing scholarly research, all of the time I knew him. His good common sense, interest in the students' welfare, and excellent mathematical training, as well as his fine research contributions, made him a wonderful faculty member, teacher, and colleague.

But more importantly, he was a wonderful human being. The things that were most important to him were honesty and honor, as a way of life. I remember thinking on a number of occasions, "Kermit is indeed 'a man for all seasons!'" My life is richer for having been able to count Kermit Sigmon among my friends.

Dr. Charles Romine, a Staff Scientist at Oak Ridge

National Laboratories, with whom Kermit collaborated over several summers while visiting Oak Ridge, had the following recollections of Kermit:

"Dr. Ehrlich,

I'd be happy to send you a few remembrances about our all too brief collaboration. During the visits that Kermit made to Oak Ridge, he introduced me to the problem of parallelizing the one-sided Jacobi algorithm for computing the singular values of a matrix. He had recently become aware of some of the work of some eminent researchers on the computation of the SVD (Pat Eberlein, Haesun Park, Ahmed Sameh, Frank Luk, Jim Demmel, K. Veselić and V. Hari). Kermit and I devised an effective way of eliminating some of the superfluous inner products from the one-sided Jacobi algorithm. While this reduced the total amount of work, the distributed-memory parallel version obtained only a limited benefit from this reduction, since it also had the effect of creating a load imbalance across the processors. Kermit devised a statistical analysis of the behavior of the algorithm that agreed quite well with the empirical results we obtained from the Intel PSC/860 at ORNL. While our one-sided Jacobi variant was still more expensive (even in parallel) than the traditional Golub-Reinsch SVD algorithm, our algorithm closed the gap between them somewhat. I have recently become aware of the development of "out-of-core" versions of standard linear algebra computations, and I suspect that a variant of the one-sided Jacobi algorithm will maximize data reuse, and perhaps prove competitive with more traditional methods.

On a personal note, it will come as no surprise to anyone who knew Kermit that he was a popular visitor to Oak Ridge. His enthusiasm for his work (and, of course, his bicycling) made him an engaging colleague. I believe he was in the middle of his most celebrated work, the indispensable "Matlab Primer", when I first met him. His motivation for writing the Matlab Primer was solely to promote education in the field he had chosen for the latter part of his career, numerical linear algebra. Early in our collaboration, I had the honor of being invited by Kermit to give a talk at the University of Florida. He and Ruth were charming and gracious hosts during my visit there, and I will always remember their warm hospitality.

Kermit never spoke disparagingly about administrative and committee responsibilities at the University. He took great delight in helping to undertake the responsibility of revamping the computing environment at the university he loved, frequently describing its future with great enthusiasm.

I lost touch with Kermit some time ago, but I will always remember him with great fondness.

Chuck Romine

Professor Karl H. Hofmann, a German expert on topological semigroups, now at the Technische Universität Darmstadt, wrote the following to me about his recollections of Kermit:

"Dear Paul,

This is a shock for me, [ed., my informing him by e-mail of Kermit's passing away] because I did not know that. Another topological algebraist, Tom Bowman, who was Paul Mostert's and my joint student, died of cancer years ago at a young age; and now Kermit, still young by contemporary standards, fell victim to this disease.

The records which you probably have show that I followed with interest his research in algebraic topology and topological algebra. Kermit Sigmon was, in this regard a true follower of Alexander Doniphan Wallace who is the pioneer of this blend of mathematics in the South. In the thirties, the then novel homology and cohomology theory had been applied to, say, compact Lie groups by Heinz Hopf, after Emmy Noether popularized the concept that the topological invariants of spaces should not be numbers (à la Betti) but groups, from which the numbers derive naturally. Wallace, however, discovered compact semigroups as the territory on which cohomology has basic applications; he made Tulane and Louisiana State University nuclei for this research in the fifties through the sixties. He also realized that possibly nonassociative compact algebraic structures provided important domains of application for the type of cohomology that partly bears his name, and that is what made the University of Florida an important center of topological algebra in the sixties. Alexander–Spanier–Wallace cohomology (agreeing on compact spaces with Čech cohomology) was taught, Texas style, at Tulane (and probably later in Gainesville) through a polished set of lecture notes in a course known there as AT I (Algebraic Topology One); generations of algebraic topologists benefitted from these pedagogical efforts, and I think that Kermit Sigmon belongs to the large group of mathematicians who were strongly influenced by this line of mathematical thought. He is in a chain of tradition leading on to Desmond Robbie, one of Kermit's students who is now active in Australia in topological algebra.

My records on earlier evaluation letters or on reviews I wrote on Kermit's work for *Mathematical Reviews* and *Zentralblatt für Mathematik* are stashed away at Tulane or in boxes. So I do not recall Kermit's early biography in detail. What is prominent in my memory (getting increasingly shaky on short term information) are the mathematical features and highlights of Kermit's work in topological algebra and in topological semigroups, and on other topological algebras. In this regard, A.D. Wallace could not have had a better successor. His work on the homotopy axiom for ASW-cohomology is the best and most general which is, to my knowledge, in the literature; and he contributed other pieces of work to the general theory of ASW-cohomology. In the true spirit of Gainesville algebraic topology, he contributed much to a certain field of nonassociative topological algebra which was initiated in the fifties by the prominent Swiss algebraic topologist and category theoretician Benno Eckmann (retired now

but alive and active), namely, to the theory of spaces with a binary continuous operation emulating say, the finding of the midpoint of two points of a (compact) convex set in a topological vector space. This operation is not associative, but commutative and idempotent; one refers to the binary operations arising in the axiomatic study of these circumstances as a "mean". His paper in *Mathematische Zeitschrift* in the early seventies (of which Benno Eckmann was an Editor for many years) on certain idempotent multiplications on compact connected spaces is a gem on algebraic topology as applied to (nonassociative) compact connected topological algebras and it is in some sense the culmination of his work in this area. Kermit Sigmon's name is forever attached to the study of compact topological means.

It is a bit ironic that Kermit's and my paths never crossed in Germany although he once held a visiting professorship funded by Deutsche Forschungsgemeinschaft (DFG—the analog of NSF in Germany) for a whole year in Germany; but that was long before I came to the Darmstadt Institute of Technology. He spoke German fluently; he wrote a paper on geometry with Jürgen Misfeld in Hannover who was taken from the midst of an active mathematical life two years ago by a heart attack (catching a bus, I am told). I understand that Sigmon travelled to Germany frequently through many years.

Even though his work on topological algebra continued, Sigmon later on changed fields and turned to scientific computing. I cannot say much about this line of his research except express my admiration for his scholarly breadth and his courage to go into a new mathematical direction at a later stage in his life. For me Kermit Sigmon remains remembered as a mathematical researcher holding up the tradition of algebraic topology in topological algebra and as one of the most prominent successors of Alexander Doniphan Wallace.

The University of Florida has certainly lost a great colleague and fine mathematician.

With kind regards

Karl

Karl H. Hofmann Professor of Mathematics, Darmstadt Institute of Technology Adjunct Professor of Mathematics, Tulane University, New Orleans

Here is what a second expert in semigroups, Professor Jimmie Lawson, wrote me by e-mail on February 21, 1997:

"A. D. Wallace is regarded by most as the chief architect of that branch of mathematics dealing with topological semigroups and related structures. His primary impact on the area was through his writings, his students, and the faculty that he attracted to Tulane while he was chairman of the Mathematics Department there during the 50's. As a result of Wallace and his students the field of topological algebra was a flourishing discipline, particularly in the southern U.S., during the Fifties, Sixties and Seventies.

In the 60's Wallace moved to the University of Florida as the chairman of the Mathematics Department [ed., actually Wallace did not become chairman until 1967; he was attracted to Florida under the Chairmanship of Dr. John Maxfield] and initiated an active program in topological algebra there also. He was a commanding personality and attracted several graduate students during his stay at Florida, among them Kermit Sigmon. During the period Wallace was looking to expand the successes achieved in the study of topological semigroups to other topological-algebraic structures and assigned Kermit the project of studying topological means, topological spaces endowed with a continuous and idempotent, but non-associative, structure. Kermit pursued typical questions in the theory of means that had intrigued Wallace and others in the area of topological semigroups: Can one characterize such structures on the unit interval? What one-dimensional continua support such structures (a favorite test example was the closure of the $\sin(1/x)$ curve)? Kermit continued his investigation of such objects for several years. His maturest efforts involved a masterful employment of techniques from algebraic topology to derive and exploit (via the multiplication map) the cohomological properties that higher-dimensional means must of necessity exhibit.

The first and second Florida Symposia on Automata and Semigroups (FSAS I and II) were held in Gainesville in 1969 and 1971 and attracted topological algebraists from all over. In pulling down the Proceedings of FSAS II from my shelf, I observe that Kermit's organizational skills were already in evidence, as he served as chairman of the Editorial Committee.

My personal memories of Kermit are of his consistently pleasant and upbeat personality and his constant graciousness and gentleness. His was the type of personality that makes for a most congenial colleague and fellow mathematician whom one enjoys being around.

Jimmie Lawson
Louisiana State University

Professor Jane Maxwell Day, who went to graduate school at about the same time as Kermit, and was thanked by Kermit in his thesis for her "expressions of confidence and lending a willing ear" had the following thoughts for me about graduate student days with Kermit:

"Feb 21, 1997

Hi Paul,

In 61-62, Strother taught the course Algebraic Topology I out of Wallace's notes, which had been in use at Tulane for a number of years. It was a 'prove it yourself' course as I'm sure you know. I took most of the course but had a baby in mid October and dropped out for three months. This meant I actually missed all the stuff on cohomology. Later, I think the first year Wallace was there, Al Bednarek taught the course again and I went back for the part I had missed. Kermit was in that class, and I

competed like crazy with him (I'm not sure he knew I was competing with him though)! What I remember best is that his proofs were always so elegant. The ones I found were often pages longer than his, and I thought he was dreadfully bright and creative. My other memory about Kermit is that he knew more mathematics than I did – several times I had question about analysis and he could help at once.

Strother and Wallace both pushed me to finish my degree as quickly as made sense, so I did that by spring 64 and then spent two postdoc years at UF. I think Kermit finished most of his course work around that time and I remember talking with him about who would direct his thesis work. Strother was gone by then and he was not confident that Wallace would be interested in working with him, but I encouraged him to ask and Wallace said yes at once. That is probably what prompted him to mention me in the acknowledgements in his thesis.

All the best, Jane Day

Our Ph.D. alumni Professor John Kenelly of Clemson University had the following comments for me. He had graduated in 1960, so had not met Kermit as a graduate student, but came to know him as a fellow professor of mathematics.

"Date: 24 Feb 1997 03:19:35 -0500

From: "John Kenelly"

Subject: Re: Dr. Kermit Sigmon

To: "Paul E. Ehrlich"

Cc: ehrlich@quickmail.clemson.edu

I had the great pleasure of knowing Kermit Sigmon as a fellow mathematics faculty member for over two decades. Of all the mathematicians that I have known, Kermit was the most friendly and easiest to talk with. No matter what the topic, deep mathematics or common trivia, Kermit always contributed to the conversation in his own remarkable way. Your interest and concerns were his interest and concern –so it no wonder that he is known amongst all of us as the one best able to reach students and alight their imagination and interest in mathematics. A true master teacher. He will be always remembered and missed.

Professor Janos Aczel of the University of Waterloo had the following to write about Kermit:

"Even though we knew him well also from later visits (1979-80) and from functional equations meetings, I do not remember particular stories offhand. He was, however, always very kind. One thing just came to our mind: Since we drove to Gainesville in 79 but then flew to Europe, he readily agreed that we leave our car on his driveway for several months. As it happened, somebody stole some or all tires of the car. Kermit had the damage paid by his insurance, had the tires replaced and notified us only after everything was settled.

Of course, he was also a good mathematician and a good humoured, cheerful man. His passing away is a great loss.

Kind regards,
Janos Aczel

Professor Steven Leon of the Department of Mathematics at the University of Massachusetts, the head of the ATLAST Project in Linear Algebra in which Kermit and Jane Day participated had the following thoughts in an e-mail message to me:

"I do remember some very pleasant dinners with Kermit and I remember his enthusiasm in planning the ATLAST workshops. In the phone conversations I had with Kermit on the Friday before he passed away when I telephoned him from the national A.M.S. meeting in San Diego, I remember him expressing regret that he would not be able to do the next addition of the MATLAB Primer. I couldn't help but think how remarkably dedicated he was to be even thinking of his professional obligations at such a time. I am glad I was able to work with Kermit on the ATLAST project and will always consider it a privilege and honor to have been associated with him.

Professor David Foulis, also of the University of Massachusetts, replied to me in an e-mail message:

"Of course I have fond memories of Kermit, from the old days in Gainesville, and from seeing him at meetings and so on after that. Although we had many conversations about mathematics, I believe that he was never in any of my classes. I recall Kermit as a friendly, kind, and gentle person – always a pleasure to be with. "

Professor Jed Keesling, in the Department of Mathematics since 1967, had the following memories of Kermit:

"For several years my office was across the hall from Kermit Sigmon. Students would visit him often and he always made time for them. He had a philosophy of teaching which would encourage the students to discover as much of the subject as possible with a minimum of guidance. However, if they needed guidance, he was there to help and gave of his time without stint. For many of the students in these courses there was a bond formed with Kermit which lasted many years after graduation. Students would come back to visit and through those visits would find a renewed vitality.

Kermit Sigmon developed class notes for a number of courses that he taught. These notes reflected his philosophy of teaching. They are designed to lead the student through a series of discoveries which in the end would give him or her a firm grasp of this area of mathematics.

One of the best students that went through our program was Vladimir Scheffer. He wrote a Masters thesis under Kermit which showed that a particular form of the homotopy axiom for Čech cohomology which held for compact spaces, did not hold in a more general setting.

He also did some work on topological groups in the thesis which I played a role in. Scheffer went to Princeton and obtained his Ph.D. under the guidance of Almgren in geometric measure theory. During those years of study at Princeton and later as a new faculty member at Rutgers, Vladimir would visit Kermit each time he was in Gainesville. It was clear that these were times of deep renewal for him. The area of research Vladimir was now in was now outside Kermit's expertise, but Kermit was still a mentor in deepest and most significant sense of the word.

The students certainly found Kermit Sigmon to be a friend and mentor. Many of the students I have talked to are very conscious of the contribution he made to their education. He left behind a great example for us all to follow as an educator. I appreciate the bike paths in Gainesville. I appreciate the many administrative tasks he performed in the department. But, above all I appreciate the lasting and significant impression he made in the lives of his students.

The masters student, Vladimir Scheffer, recalled by Keesling above, is now Professor of Mathematics at Rutgers University. The title of his masters thesis written under Kermit's direction around 1970 is *Generalizations of the homotopy lemma for Alexander cohomology and homotopy classes of maps between topological groups*. Professor Scheffer had the following recollections of Kermit in an e-mail message of April 10, 1997:

"I remember vividly the many times I came to Kermit's office to have a chat. We would start on one subject, take a detour to another avenue of conversation, and wind up talking about something that I had not thought of in ages. The time would just fly by. He was always beaming with his great smile as we talked.

It was 27 years ago when he agreed to be my master's thesis adviser. He spent so much time guiding me on this project. He was concerned with every detail, including the punctuation of my sentences. I recall being late for dinner once because we became so involved in the mathematics.

I will always remember his wonderful lectures, with careful attention to every fine point. They served as a model for my own lectures years later. He was a wonderful mentor.

Professor Theral Moore, who came to our institution as a young faculty member in 1955, and is thus the only currently active faculty member to serve in both the Kokomoor and Maxfield Chairmanships, had the following tribute to Kermit:

"Subject: tribute to Kermit

Dear Paul,

Here is my contribution:

I remember Professor Kermit Sigmon as an excellent mathematician who seemed to love all of his work and to love sharing with, and being helpful to, his friends as

well as being helpful to students in general whether or not he ever met them.

As Kermit advised and worked with undergraduate mathematics majors, he sensed that their introduction to abstract mathematics needed to be softened a bit. So he wrote a set of notes for our course in Numbers and Polynomials and popularized this course.

Kermit seemed to delight in solving problems, whether they were in topological semigroups or computational linear algebra or whether they were physical or organizational. He was completely dedicated in his work to improve the computer system for the department.

To me personally, Kermit was very kind and on several occasions, he seemed to be delighted to be helpful to me. I especially remember that in the summer of 1996, he was aware that a major rearrangement of a class room would help me. So he had chalk boards brought from storage off campus and had them installed in the room. Late one day as my wife, Nancy, and I happened to pass that room on our way home, we found Kermit putting the finishing touches on the rearrangement himself. He seemed to be as pleased as I was that the problem was solved. Although he had never told me of this project and I had never told him of my need, he explained that arrangements were already made so that I could move my class to that room promptly if I wished. Nancy and I will greatly miss Kermit.

Thank you,
Theral

Randy Dishman served on the departmental staff and had among his responsibilities, serving as secretary to Kermit when he was Associate Chairman for Undergraduate Studies. Randy had the following recollections about Kermit:

"Subject: Dr. Sigmon
Forwarding: Mail from 'Randy Dishman
dated: Wed, 26 Feb 1997 08:53:55 -0500
Status: R

I remember the first time I met Professor Sigmon. It was part of my interview for the job here at the Mathematics Department. Within 5 minutes of our conversation I knew I would enjoy working with him. He made me feel totally at ease (for those who have not sat through a job interview lately, it can be a very trying experience). Actually, we talked very little about my job skills or what I thought I could do for him, he was more interested in telling ME about HIM. Our first meeting was a precedent for every conversation we would have after that, him making me very comfortable with his receptive and 'warm' tone, and me thinking to myself that I had to do my best for this man, because he would do his best for me.

Dr. Sigmon had many, many qualities that made him a very unique individual. The three things I admired the most about him though were his knowledge, his absolute

willingness to share the knowledge he had attained, and his compassion.

Dr. Sigmon had the ability to make you feel good, even when you didn't get what you wanted. One time in particular, I remember making a very serious mistake concerning the ordering of textbooks. As I walked past his office, he very politely called for me and asked me to close the door. I think he dreaded even bringing it up, because he asked me 'beat-around-the-bush' questions before getting to the point, which was the improper ordering of a textbook. Well, after what turned out to be a very pleasant conversation on the correct way to place book orders, I left the office. I remember thinking on the way back to my desk 'I think he just chewed me out', but I felt as if he had complimented me and thanked me in a very sincere manner for not screwing up every thing I did. It makes me smile just thinking about it.

His ability to deal with distraught students was another thing I admired about him. On several different occasions, students would be waiting to see him that seemed near the point of a nervous-breakdown. I screened the majority of them and became familiar with the most common problems and their solutions. Dr. Sigmon could take a very emotional student, whose whole world was falling apart (according to the student), and completely calm them down. Even when he told them 'no' or didn't give in to them, his compassion and genuine concern for their academic careers gave them cause for hope. I likened him to an understanding father, who, for his child's own good, must tell them no or decline their most impassioned request.

Dr. Sigmon appreciated every thing I did. He called me his 'gatekeeper'. He thanked me for even the most menial of jobs. At times it was almost embarrassing. But mostly he made me feel important when he went on about how much he appreciated what I did for him. I think there must be a couple of credits of psychology in Dr. Sigmon's background somewhere, because he sure made me determined to do a good job for him.

It was certainly a pleasure and an honor to work for Dr. Sigmon. I consider myself extremely lucky for even meeting a man of his character.

My daughters still walk by his office door and tell me 'That's where Kermit the Frog lives'.

Marvel Townsend, one of our faculty members with a responsibility for course coordinating as well as handling the large lecture precalculus instruction had the following recollections of Kermit:

"Kermit Sigmon was a professor at UF when I started teaching at UF in 1981. He never failed to give a friendly hello and to help whenever needed. Apparently, he had done some coordinating of large courses before I arrived, so he was very knowledgeable about the coordinating difficulties. He always thanked me for coordinating the large precalculus course, which meant a lot to me especially when things were rough.

Kermit was a strong advocate of technology. For example, he insisted that I be given a SUN computer to help with coordinating. I had no idea how to use it, but he encouraged me to get started by just learning how to do ONE thing on it. Several times during the first three months of using it, I would have liked to smash it, but Kermit kept encouraging me. Now thanks to him, I would be lost without my SUN. Also, he set up a template for my lectures which I still use. He helped to get the computer consoles in the large lecture halls which the lecturers will use, as he was determined that the technology should be available. He and I were still trying to figure out the most efficient ways to use the technology in the large lectures.

In the Spring of 1995 I was nominated for a teaching award. I had to have some letters of support so I asked Kermit to write one for me. Unknown to me at that time, Kermit had also been nominated. He wanted me to win so he wrote a letter for me. Along with my other letters, it must have been great as I won the teaching award!!

Kermit always tried to get everyone to bike to and around campus. He was faithful to his own bike riding. However, on occasion, I would pick him up on 16th Avenue if the weather was bad or he had a special event. I picked him up on Wednesday December 18 as he was sick and the weather was bad. I was giving my final exam that day so I remember it well. Little did I know that it would be the last time I would see Kermit! He was determined to get to his office to help his students before their final exam even though he was quite sick. He was always putting others before himself! He was a dedicated teacher with many plans for the future of the mathematics department. We all can only hope to achieve some of his aspirations!

I have only mentioned a few of the thoughtful things that Kermit did to help me. He was a wonderful asset to the department of mathematics and will be greatly missed!

Professor Rick Smith came to the University of Florida in 1982 and took over the duties of the office of Associate Chair for Undergraduate Studies in January after Kermit's illness prevented his coming in to the department. In Smith's comments, the legacy of R. L. Moore as reflected in Kermit's educational philosophy is manifested:

"Remembering Kermit Sigmon

Rick L. Smith
March 11, 1997

As I was picking up the duties of the Undergraduate Coordinator, it was necessary to have access to Kermit's voice mail. There were several messages from former students requesting letters of reference. These letters presented a particular problem since Kermit was not able to write them, and I did not know the students well enough myself to say much. I decided to call the students back with the offer to write whatever I could based on a perusal of their grade transcripts. As it happened one

young lady had left her Social Security number on the voice mail message, so to set the plan in motion I looked up her transcript.

Kermit was notorious for spotting mathematical talent among the undergraduates. His favorite vehicle for mathematical scouting was his pet course, 'Numbers and Polynomials.' He had a special set of notes written for the course so that it could be taught 'Moore style.' A Moore style course is as close to the Socratic method as we have in mathematical pedagogy. The Sigmon notes and the instructor are a skeleton for a course in which the students provide the meat. Kermit taught the course frequently and he enjoyed helping other faculty learn how to use the notes when they taught the course.

When I brought up her transcript, I began reading it in reverse chronological order, seeing the most recent courses she had taken first. Going backwards I came to the 'A' in Numbers and Polynomials. It had done its job once again in selecting a student for upper division success. After taking this class, both student and instructor have a very clear idea of the student's aptitude for upper division mathematics, and that was certainly the case with this student. The pivotal role of this course only makes sense when you realize that the lower division math courses like Calculus and Differential Equations are not good predictors for later success in upper division math classes. So I dug deeper into the transcript, and there was the classic Sigmon stamp, a 'C' in Calculus. Somewhere along the line this young lady had talked to Kermit, probably telling him about how she had liked Geometry in high school and she thought she liked math, but she really did not like the Calculus that much. Kermit would have suggested that she take Numbers and Polynomials, and after that the rest is history.

It's really hard to say how many young mathematical careers got their start with Kermit's encouragement. He would bait them along, always getting them to figure things out for themselves, while he would set up the next challenge. The Sigmon style did not involve giving education; it was showing people how to seize it for themselves. Many young people got a first glimpse of their potential through Kermit. When I called the young lady with my offer to write a letter for her, she declined, but she did express her great gratitude for Kermit.

Professor Krishnaswami Alladi often played tennis with Kermit and had the following recollections of his friend:

"I was very close to Kermit Sigmon. He was to me a colleague, a tennis mate, and a family friend. I will comment on each of these aspects briefly.

Kermit Sigmon was one of the principal pillars supporting the undergraduate mathematics program at the University of Florida. Besides being an excellent teacher, he contributed to the program by coordinating large lectures, by creating new courses, by advising, and by serving as Undergraduate Chair. Kermit was a perfect gen-

tleman and would never offend any one. This does not mean that he did not have high standards; he expressed disapproval in the most polite terms. He was willing to give his time generously to help faculty, staff and students. Over the years I have benefitted immensely from his advice on various undergraduate matters.

The undergraduate course MAS 3300, Number and Polynomials is his creation. I have taught this course many times over the past few years and am much impressed with the excellent set of notes due to Kermit on which this course is based. I used to say jokingly that Kermit has chosen me as the messiah to spread his ideas! Now the creator of the course is gone, only the messengers are around!

Kermit was also instrumental in the computerization of the department. I consider myself a dinosaur in this modern world of the computer and I would have become extinct had not Kermit helped me in this regard. Even today, I have the instructions given by Kermit in pencil on 'post it' stickers everywhere in my office.

Kermit was a great tennis player. It is often said that professional tennis players are only as good as their second serves. Kermit had perhaps the best second serve among all my tennis friends. We played several memorable matches at the 300 club. Until recently, I played at the club only as a guest. Over all these years, Kermit never once collected the guest fee from me.

Kermit and his wife Ruth became close to us over the years. Everytime Kermit met my children, he would play with them, and often introduced himself as Kermit the Frog from Sesame Street. Quite frequently, the Sigmon's would join the Alladi family (on short notice) for dinner at a restaurant either in Gainesville or in Ocala.

A few years ago, Kermit and Ruth went to India. It turned out that the year they toured India, I was at Penn State University with my family on a sabbatical leave from Florida. So I did not get the pleasure of hosting them in Madras. But then it gave my parents a nice opportunity to host the Sigmon's and to get to know them better.

In summary, Kermit was an important part of our life in Gainesville in many ways and we miss him terribly. What we have are wonderful memories and these will be with us for ever.

KRISHNASWAMI ALLADI.

At the Celebration of the Life of Kermit Sigmon mentioned in the preceeding article, bass soloist Professor Stephen Saxon with his wife Brenda as accompanist performed two musical selections at the request of the Sigmon family: Deep River and Amazing Grace. Here is how Steve recalled his friendship of almost 30 years with Kermit.

"Dear Paul,

Kermit Sigmon was my friend. Of course he was your friend, too; his faculty and community efforts still benefit us all. But he was my best friend. We had a

common rural South background, each had one wife, one child, one university where we worked together for 28 years to the month. We both attended college on athletic scholarships, both obtained the Ph.D. in the state of Florida, both liked tennis, both were denied promotion to full professor at the same time, both suffered earlier unjust career setbacks, both sang in operatic productions. There were other things in common.

On the Sunday afternoon before he died (on Tuesday), I got to say goodbye to this dear friend. We reminded each other of the good and bad times that had cemented our friendship. We hugged each other and said we loved each other. We laughed. We cried. I asked him if he was at peace spiritually. He was. I told him I wanted us to be together someday in heaven, the last and best thing I hope we will share in common.

Steve Saxon

Professor Tony Shershin of the Department of Mathematics, Florida International University, one of our Ph.D. alumni from 1967, had the following recollections for me in a letter of March 27, 1997:

"I had not heard of Kermit's death until you wrote, and so I thank you for doing so. It indeed saddened me, and caused me to reflect on my own mortality. Since the MAA meeting was far away in Tallahassee, I did not get to the meeting this year, where I would have heard the news.

Kermit was like a big brother to me during my graduate years at Gainesville. His expertise in algebraic topology and topological algebra were an inspiration to me, and he would kindly answer my questions with a patient understanding and always with subtle humor. Because we both had A. D. Wallace as a mentor, we shared a special bond.

One of the things that has always stuck with me, and which serves to indicate his truly superior research skills, was the fact that Kermit was invited to stay at the University of Florida once he received his Ph.D. degree. This was a highly unusual situation and came during a period when UF graduates were expected to go elsewhere and 'spread the Wallace gospel' as it were. No doubt that invitation to remain at UF was a tribute to his outstanding research abilities.

On a personal note, Kermit and I also shared a love for tennis. As in mathematics, he excelled at the game and I fondly remember many fiercely contested 'battles' on the courts in front of the Jennings dormitory. He was always a gentlemen, befitting the game's protocol. You may wish to share with his daughter that I remember several times when he put his family ahead of our tennis matches when he would leave early to meet his wife or pick up his daughter. He served as a mentor to me in the way he always tried to have his family as his first priority, and I have tried to emulate him in that regard.

Please tell his daughter that Kermit will be in my prayers now, and that I I remember him from time to

time on the tennis court.

Respectfully yours,
Anthony Connors Shershin

Faculty Notes

by Paul Ehrlich

Professor **Krishna Alladi** will be participating in a Special Session in memory of **Paul Erdos** to be held at the MAA Mathfest in Atlanta this summer. Alladi spoke in December at the M. S. Swaminathan Research Foundation in Madras, India on the establishment of the Ramanujan Journal by Kluwer Publishers. Also an Indian national newspaper, *The Hindu*, printed an article by Alladi on this journal. Coordinating Editor Professor **Frank Garvan** has placed this journal on the world wide web – if you would like to look at it, just visit the mathematics department homepage at <http://www.math.ufl.edu> and click on Garvan under **FACULTY**.

Elisabeth Majthay, who has taught in our department since 1978, retired this past February. The Lecturers took Elisabeth to dinner at Mr. Han's Restaurant on Monday January 13th and presented her with an engraved clock. Over the years, I have heard many undergraduate friends of my children speak highly of her as a teacher for Calculus III.

Professor **Rick Smith's** book, *The MATLAB Project Book for Linear Algebra*, has been published by Prentice Hall. The cover features the fate of the Arnold cat as it is subjected to successive iterations of a linear transformation.

Professor **Alexander Turull** participated in the Zassenhaus Group Theory Conference held at New College, USF, during January, 1997. He spoke on "Tensor induction."

Professor **Neill White** participated in a Special Session on Computational Algebraic Geometry at the Annual Winter Meeting of the A.M.S./M.A.A., lecturing on "Symmetry and Antisymmetry in Bracket Polynomials."

Professor **Jonathan King** will be awarded the Merton M. Hasse Prize for his Math Monthly article "Three Problems in Search of a Measure" during the M.A.A. Mathfest to be held this August in Atlanta. King also lectured on "A zero-one law for dynamical properties" at a Special Session on Topological Dynamics at an A.M.S. Meeting in College Park, Maryland. Graduate student **Scott Chastain** also spoke at this meeting on "Cohomological quantization modules for symplectic tori."

The faculty was well represented at the A.M.S. Regional Meeting held Memphis during March. In particular, Professor **Jed Keesling** was represented at four separate presentations with three different co-authors. Keesling, Professor **Louis Block** and graduate student **Chitra Krishnamurthi** spoke in a Special Session on Dynamical Systems and Fractal Geometry. Keesling lectured on "The boundaries of self-similar tilings of

n -space", Krishnamurthi lectured on "Boundary of self-similar sets", and Block lectured on "Maps of the interval, inverse limit spaces, and the pseudoarc." Professor **Chris Stark** also spoke in a Special Session on Topology of Manifolds and Singular Spaces on "Geometry and homotopy functors."

We had a busy spring semester of conferences organized with the cooperation of different research groups in the department. First, under the auspices of the Institute for Fundamental Theory, Professors **Chris Stark**, **David Groisser**, and **Gerard Emch** were on the organizing committee of an international IFT Workshop on *Moduli Spaces in Geometry and Physics*, held during February 14 - 16, 1997. Faculty member Professor **Mark Kelum** spoke on "Teichmuller Theory for Transverse Holomorphic Structures." Second, during February 27 - March 1, a Conference on *Optimal Control: Theory, Algorithms and Applications* was held on campus, with Professors **William Hager**, **Gang Bao**, and **Bernard Mair** involved in the organization along with Professor **P. M. Pardalos** of the Department of Industrial and Systems Engineering. This Conference was held under the auspices of the Center for Applied Optimization, of which Professor Hager is a co-director. Faculty member Gang Bao spoke "On Surface-enhanced and Controlled Diffractive Optical Applications." Finally, the 13th Annual SouthEastern Analysis Meeting (SEAM 13) was held during March 14 - 16th with local organizer Professor **Scott McCullough** and a goodly list of over 40 speakers. Professor **Paul Robinson** of our department spoke at this meeting on "A Shale theorem for the Fock representation of a certain complex Krein space."

At the invitation of Professor **Joseph Mott** of Florida State, Vice-President for Programs, Professor **Paul Ehrlich** organized a Special Session on the History of Mathematics for the 30th Annual Meeting of the Florida Section of the Mathematical Association of America held at Florida State during February 28 - March 1, as well as lecturing on "Florida Departments of Mathematics at the Turn of the Century." To obtain geographic balance, speakers were secured from Florida Atlantic University, University of North Florida, the new Florida Gulf Coast University, University of South Florida, and Florida State University as well as the University of Florida. Professor **Jean Larson** of our department opened the Session with a spirited discussion of "Erdos and joint work in mathematics," in part a tribute to Paul Erdos's continuing contact with our department over the years as manifested by a chart showing the Erdos number of many of our faculty. [Erdos was deceased this past September while attending a conference at the Banach Center in Warsaw, Poland.] The next week, Jean was off to Boca Raton to speak a second time about Erdos at a session in his memory.

Moduli Spaces Invade the Swamp

by David Groisser

Gerard Emch, John Klauder, Chris Stark and I, along with 4 colleagues from the UF Physics Department, organized the Institute for Fundamental Theory **Workshop on Moduli Spaces in Geometry and Physics**, held on campus from February 14–16, 1997. This interdisciplinary meeting was sponsored jointly by UF's Institute for Fundamental Theory and by the Departments of Mathematics and Physics, with financial aid from CLAS, ORTGE, and an NSF grant.

The subject of the meeting is one of great current interest, and we were fortunate to hear hour talks from physicists **Paul Aspinwall** and **Brian Greene**, two of the leading workers in "string duality", as well as from mathematicians **Daniel Freed** and **Lisa Jeffrey**, two of the participants in the Institute for Advanced Study's 1996-97 special program on physical field theories and related mathematics. Conference talks touched on differential and algebraic geometry, field theories in physics, global analysis, and astrophysics. Among the speakers was UF's **Mark Kellum**, who discussed his work on Teichmuller theory for transverse holomorphic structures on foliations.

Outside participants came from six countries in addition to the United States. About five graduate students from other institutions attended and we had around five participants who are postdocs or recent PhD's. Numerous faculty and graduate students from the UF math and physics departments participated, including math grad students **Scott** and **Stacey Chastain**.

Copies of speakers' talks were made available to conference participants, and we have had requests for these materials from researchers who were unable to attend the workshop.

Alumni News

by Paul Ehrlich

Our Ph.D. alumni were well represented at the Annual Winter Meeting of the American Mathematical Society/ Mathematical Association of America. Professor **John Kenelly** of Clemson, Ph.D. 1961, gave a Short Course on "Mathematical modeling and forecasting with calculators: The difference, interplay, and new role in beginning courses" and also led a panel discussion on the topic of "Careers for mathematics majors in financial risk management." Professor **Jean Bevis** of Georgia State University, Ph.D. 1965, lectured in a Session on Group Theory on the topic of "Parametric characterizations of toroidal maps and modular quotient groups." Professor **Antonio R. Quesada** of the University of Akron, Ph.D. 1978, lectured in a Session on the Use of Hand-Held Technology in the Teaching and Learning of Mathematics on the topic of "Should Recursion be Taught in Basic Mathematics Courses?". Also, Professor **John Mayer** of the

University of Alabama, Ph.D. 1982, lectured at the Memphis A.M.S. Meeting on "Building higher degree Julia sets" in a Special Session on Chaotic Dynamics.

Our alumni were also represented at the 30th Annual MAA Florida Sectional Meeting held at FSU during February 28th and March 1. Dr. **Charles Lindsey**, Ph.D. 1987, founding member of the Mathematics Department at the University of South Florida at Fort Myers/ Florida Gulf Coast, spoke on "Cantor and the Origins of Transfinite Numbers" in a Special Session in the History of Mathematics. Lindsey also received the Florida M.A.A. Distinguished Service Award at the Saturday Annual Luncheon. The citation with the award reveals that since his graduation in 1987, "Chuck has served the Florida Section on many committees, and he is at present the Vice President-Elect for Programs. He has worked tirelessly to bring the MAA Web page to completion. An outstanding teacher, generous with his time and energy, Chuck is a valued leader in the Section."

Dr. **Emmet Low**, Ph.D. in 1953, profiled in the *Alumni of the 50's* column in the Spring, 1996 issue of this newsletter wrote to us before Christmas "For me, the circle seems to have made a full turn and brought back memories of Peabody Hall. I am back at the College [ed., Clinch Valley College in Virginia] teaching physics part-time. Some things in physics have changed, but most are still the same. It is a field I really enjoy teaching and one in which the mathematics can come alive for the students. My students have been responsive and we have a great time."

Dr. **Harry S. "Bud" Simrin**, M.S. 1970, now a manager of seventy people at Lockheed Martin Tactical Aircraft Systems, in Forth Worth, Texas, was profiled on the AMS-MAA-SIAM Career Information Web Site during the month of February, see <http://www.ams.org/careers> and click under "Archived Profiles." More in a future newsletter ...

Susan Daicoff. B.A. 1980, writes from Columbus, Ohio, where she is an Assistant Professor of Law at Capital University. She writes that her first baby, a boy named Arizona Gray Baskin, was born on November 11, 1996, weighing 5 lbs., 3 ozs. and height 18 1/2 inches. She also writes that she is having an article published in the May, 1997 American University Law Review on "Lawyer, Know Thyself: A Review of Empirical Research on Attorney Attributes Bearing on Professionalism." In a follow-up e-mail correspondence, Susan had the following further comments:

"Sorry I went so far afield from mathematics in my later endeavors, but it just goes to show what a good foundation a math major is. Actually, I teach taxation which involves the most dreadful of all math ... Word Problems ! So I've come full circle. My best to the math department there – I remember it fondly.

Karen Fagin, M.S. in Mathematics in 1990, and M.D. in 1991 from the University of New Mexico, is now

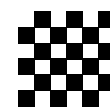
an Infectious Disease Fellow at the Medical College of Georgia in Augusta. She writes

"After completing medical school in Albuquerque, N.M., and 3 years of internal medicine residency in Salt Lake City, I started a fellowship in infectious diseases at the Medical College of Georgia this July 1. It is great to be back in the South, and I plan to drive to Gainesville at least twice this year to see old friends.

Laurence C. Klein, B.S. in Mathematics in 1980, reports from Pont Vendra Beach that he is now in Document Management Systems for Wellspring Resources, LLC. Klein received the B.B.A. majoring in Accounting at the University of North Florida in 1994. He worked as an internal auditor for two years, and now is in a new position as a Document Management Systems Fulfillment Team Member. He is aiming at becoming an EDP Auditor.

Dr. **Jennifer Davidson** writes to us from Ames, Iowa, that "my husband Eric and I had a baby girl, Ella Kathleen Bartlett, on October 8, 1996. She is wonderful. Taking advantage of my adjunct appointment in the mathematics department (I am in electrical and computer engineering), I have my second M.S. student who is working on his thesis in image processing. Hope all is well in Little Hall !

Little By Little is published twice a year to inform students and alumni of activities of the Department of Mathematics, University of Florida. It is typeset using AMS-TeX.



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