



Quaternion

Department of Mathematics Newsletter

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CHAIRMAN'S COMMENTS

"There is a time for everything and a season for every activity under heaven." These enduring words, written many centuries ago by a very wise man known as The Teacher, still ring true today.

In the Mathematics Department the time has come for change - a change of leadership, a change of activity for some, and a change of some personnel.

Retiring from the Department this year are three faculty members, all of whom have contributed thirty years of service to the Department. They are the professors S. Y. Lin, Y. F. Lin, and J. Reed. The Lins came to the University in 1964 from the University of Florida where they received their Ph.D. degrees in the area of topology. Professor Reed began his service to the University in 1963 as an Assistant Professor. He received his Ph.D. degree in the area of topology from the University of Maryland in 1969. Professor Reed has served as Assistant

Chair for the past ten years. These retirements follow the recent retirements of two other long-time faculty members, Dr. A. W. Goodman and Dr. W. Williams. We wish all of these retirees well in their new pursuits.

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DEPARTMENT NEWS

Professor A.G. Kartsatos has been invited to give a lecture at the International Conference on Differential Equations and Mathematical Physics, University of Alabama, Birmingham, and Georgia Tech. The title of the lecture is: "Compact Evolution Operators Generated by Nonlinear Time-dependent m -Accretive Operators in Banach Spaces".

Professor Kartsatos has also been invited to give a Contributed Lecture at the Conference on Evolution Equations, Glasgow, Scotland, July 25-29, 1994. The Conference is organized by the

University of Strathclyde. The title of the lecture is: "Compact Evolution Operators and Methods of Lines for m -Accretive Operators in Banach Spaces".

Dr. G. McColm gave a lecture entitled: "P, NP, and all that" at the MAA Florida Suncoast Meeting in Venice in December.

Dr. R. Darling served as a Visiting Professor at the University of Provence, France from October 1993 to February 1994, sponsored by the French Government. During this period, he gave invited lectures on problems in stochastic differential geometry at the Universities of Bonn, Clermont-Ferrand, Provence (Marseille), Paris VI, and Strasburg.

From February 1994 to August 1994, Dr. Darling will be serving as a Senior Research Associate of the National Research Council at the Atlantic Oceanographic and Meteorological Laboratory in Miami. He will be doing applied

research on the statistical climatology of hurricanes.

Dr. M. Parrott will give an invited talk on "Dynamics of Hodgkin-Huxley Systems" at the International Conference on Differential Equations and Applications to Biology and to Industry to be held in Claremont, CA on June 1-4.

Dr. Parrott will also give an invited talk on "Convergence of Singular Perturbations of Strongly Damped Nonlinear Wave Equations" at the Conference on Evolution Equations to be held at the University of Strathclyde, Glasgow, Scotland on July 25-29.

Drs. J. Pedersen, S. Suen and W.R. Stark presented a talk "Graph Isomorphism and the Evolution of Cooperation" at the 25th Southeastern International Conference on Combinatorics, Graph Theory and Computing, Florida Atlantic University, Boca Raton, March 7-11, 1994.

Also, Dr. Pedersen's paper "Efficient Solution of the Word Problem in Slim Varieties" has now appeared in *Algebra Universalis*, Volume 31 (1994), 95-103.

Dr. E.B. Saff ran the inaugural Walt Disney Marathon on January 15, 1994. His time for the 26.2 mile course was 3:59:33, which was a substantial improvement over his New York City Marathon time. There were approximately 6000 runners at the Disney Marathon from all parts of the world. The course began in Epcot Center, proceeded through the Magic Kingdom and MGM Studios, then returned to Epcot. According to

Professor Saff, "The race wasn't Mickey Mouse, but my wife called me Goofy for participating."

STUDENT NEWS

Since the last issue, the following degrees have been awarded:

B.A. in Mathematics
David Andrew Alt
Michael Najib Jacob
Holmer Alfredo Moran

B.A./M.A. in Mathematics
Lindi Davis
Suzanne Dawson

M.A. in Mathematics
Daniel Davis
Subhankar Dhar
Mohamed Elnaggar
Chunlong Liang
Lubomir Markov
Kannan Nilikantan
Linda Pedersen

Ph.D. in Mathematics
Phillip L. Wing

CENTER FOR MATHEMATICAL SERVICES

Again this summer the Center for Mathematical Services will conduct three programs for gifted secondary school students on the Tampa campus from June 9 through July 22. This will be the fifteenth year for such programs. Dr. Manoug Manougian will be the Director of the Mathematics and Science program for students entering grades 8, 9 and 10. This year Dr. Carol Williams will teach Astronomy in the program. Dr. Joseph Liang will be the

Director of the Mathematics and Engineering program for high school students. Dr. Marvin Alvarez will be the Director of the Biomedical and Life Science program for high school students. For additional information, call the Center at (813) 974-4068.

There is still time to schedule a lecture for your students in the Center's "Lectures on Mathematics in Today's World" program. Just contact Maureen Kearse at (813) 974-4068.

INSTITUTE FOR CONSTRUCTIVE MATHEMATICS

The Institute for Constructive Mathematics received a grant for \$7,900 to update the Hurricane Wind Model and their TRAKS Hurricane Tracking Software. The new model will particularly take into account the effects of Hurricane Andrew. In past years, Professors R. Darling and E.B. Saff have received grants for the development of (long-term) hurricane wind and surge prediction. Dr. Darling is currently working with meteorologists at NOAA in Miami to further his research on hurricane modelling.

MAA NEWS

The Annual Meeting of the Florida Section of the Mathematical Association of America was hosted by Daytona Beach Community College on February 25 and 26, 1994. Participants from USF included Dr. Kenneth Pothoven, who attended the SUS Chairs' Meeting, and Dr. Fredric Zerla, who reported on the Suncoast

Regional Meeting held at the South Campus of Manatee Community College last December. Drs. Pothoven and Zerla also reported on "Calculus, Concepts, Computers, Calculators", their calculus course in which lecturing is minimized, group activities encouraged, and technology is emphasized. They also announced the Calculus Reform Conference to be held on the USF Tampa Campus on April 9 and April 23, 1994. At their Annual Business Meeting, Dr. Zerla was presented the Florida Section's 1994 Distinguished Service Award.

STUDENT CLUBS

The Spring Semester program of Pi Mu Epsilon and the Student Chapter of the MAA began with the traditional address by the President of the Student Chapter. Crystal Brandon told how some of the cornerstone ideas in all of Mathematics were initiated in Plato's Academy. The next month, Professor Joe Mott, Director of Graduate Studies in Mathematics at Florida State University, told how observations of simple number facts can lead to general theorems in a talk called "Discovery in Number Theory". He then discussed graduate education in mathematics in general and the program at FSU in particular. As is customary to introduce the new members of the Mathematics Faculty to our members, Dr. Stephen Suen, who came to USF from a Visiting Professorship at Carnegie Mellon University, was invited to speak. His topic was "Hamiltonian Cycles". Also invited to talk was Dr. Natasa Jonoska, who recently received

her Ph.D. from SUNY at Binghamton. Her topic was "The Road Coloring Problem". The semester ended with talks by Professor Vilmos Totik and Christopher Miller.

The clubs are again sponsoring the Hillsborough County Math Bowl Competitions. That of November 30, 1993, drew over 200 students and teachers from public high schools in the county to the University Center for an intense mathematics tournament.

At the final event of the year, Pi Mu Epsilon welcomed 12 new members at the Induction Banquet on April 22, 1994. The after-dinner-speaker was Dr. Lawrence Hall of the Department of Computer Science in the College of Engineering. He talked about "Fuzzy Logic With Applications". The Florida Epsilon Chapter of Pi Mu Epsilon is pleased to announce that its Outstanding Scholar Award winner is Christopher Miller. Chris, former Chapter President, graduated in May with a B.A. in Mathematics, Magna Cum Laude.

ALUMNI NEWS

Deborah Levinson (Ph.D. 1988), has recently taken a position in the Mathematics Department at Colorado College as an Assistant Professor after having spent 5 years teaching as an Assistant Professor in USF's College of Engineering. She is the first applied mathematician in the Department of 10, and she teaches mathematics and computer science.

While Deborah was at USF, she was awarded an NSF grant to

conduct research on wrist shape. Recently, she received a Hughes grant to research an environmental mathematics problem dealing with ecosystems.

Deborah says, "Colorado College is WONDERFUL and living in Colorado is terrific!"

FACULTY PROFILE

Kandethody M. Ramachandran was born in Kerala, India. He received his undergraduate degree (B.Sc.) from Kasaragod Government College in India. He majored in Mathematics and minored in Physics and Statistics. During this time, he was actively involved with the student government. Also, he served in the National Cadet Corps and became Senior Under Officer, the highest possible rank. He received the M.Sc. in Mathematics from Calicut University in India. He was the president of the Mathematical Association of Calicut University for one year. As soon as he completed his M.Sc., he was selected to work at the Tata Institute of Fundamental Research, Applied Mathematics Center, at Bangalore (TIFR is the National Center for Mathematics and Physics for the Government of India). During his stay there, he developed interest in probability-related fields, especially in the area of stochastic control. He has written a lecture note on *Stochastic Control and Nonlinear Filtering* for Professor M.H.A. Davis, which was published by Springer-Verlag. In collaboration with Professor M.A.L. Thathachar (Electrical Engineering, Indian Institute of Science), Ramachandran

published two papers on learning systems.

He came to Brown University, Applied Mathematics Division, in 1984, where he worked under the guidance of Professor H.J. Kushner and completed his Ph.D. degree in 1987. In his thesis, he introduced a way to deal with singular stochastic control problems and initiated research work on the control of queues in heavy traffic.

Dr. Ramachandran came to our Department in 1987, where he is now an Associate Professor. As an educator, he tries to learn modern techniques of teaching mathematics and tries to incorporate them into classroom teaching. In 1988, he married Usha and they have a son, Vikas.

Dr. Ramachandran's primary research interest is in applied mathematics. He has published many papers on control of heavy traffic queues, stochastic delay systems and their controls, stochastic game theory, singular control problems, information theory, and learning automata. He has delivered many invited presentations and conference presentations. He is a referee for several mathematical journals. His recent research interests include the recursive estimation and adaptive control for stochastic systems.

CALCULUS REFORM CONFERENCES

The Department of Mathematics sponsored Calculus Reform Conferences on April 9 and April 23, 1994, at the University Center on the Tampa Campus.

Adapting the undergraduate mathematics curriculum to the technology presently available has been a dominant concern in college mathematics departments throughout the country for over a decade. Central to this discussion was the change of the Calculus, the entry-level course of any collegiate mathematics program, as well as the major service course for the other sciences and engineering.

To educate ourselves as well as calculus instructors in the universities, colleges, community colleges, and high schools of Florida about Calculus Reform, representatives from four of the major reform projects and two speakers knowledgeable about the Calculus Reform Movement conducted two full days of discussion.

On each day, the morning and afternoon sessions featured a practitioner in a calculus reform project who discussed the philosophy and methods of its application in a classroom. During lunch, a keynote speaker presented an overview of the Calculus Reform Movement. To close the morning and afternoon sessions, publishers described and demonstrated the available texts and technology.

On April 9, the presenters were David A. Smith of Duke University on "Project CALC", and Thomas Dick of Oregon State University on the "Oregon State Program". The lunch speaker was James Leitzel of the University of Nebraska at Lincoln on "Calculus Reform: Where? What? and Worries?"

On April 23, Morton Brown of the University of Michigan told

of the "Harvard Consortium Program" and its use at Michigan. Jerry Uhl of the University of Illinois told of his experiences using "Calculus With Mathematica". At lunch, one of the founders of the Calculus Reform Movement, Ronald Douglas of SUNY at Stony Brook, discussed "Calculus for a Changing World".

These conferences were supported by the USF Research Council and the College of Arts and Sciences. The publishers supporting the conference were: Addison/Wesley, D.C. Heath, Harcourt Brace, Mancorp, Wadsworth, and Wiley.

CHAIRMAN'S COMMENTS

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In addition to the anticipated changes brought about by the retirements of these faculty members, the Department will also experience a change of leadership at the end of the summer. After ten years at the helm, yours truly is resigning to pursue other activities in the Department. Although, at the time of this writing, no successor has been named, I wish her or him success and hope that he or she will experience much satisfaction with the new role and the frustrations will be minimized. With anticipated new additions to the faculty in coming years and continued growth of the student body, the University is an exciting place to be. I look forward to the Department making major strides forward in the coming years.

SPRING COLLOQUIA

Global Optimization of Dynamic Systems With Constraints, presented by Dr. Serguei Savastiouk, Russian Academy of Sciences.

Open Problems in the Theory of Probability on a Hyper-Group, presented by Dr. Herbert Heyer, University of Tübingen.

R-Fractions and Biorthogonal Rational Functions, presented by Dr. David Masson, University of Toronto.

Symbolic Processors, presented by Andre Deprit, Senior Fellow, National Institute of Standards and Technology.

Smoothness, K-Functionals and Realizations, presented by Dr. Zeev Ditzian, University of Alberta.

Low-Level Monitoring and Control of Nonlinear Systems, presented by Dr. Jim Reneke, Clemson University.

Graphs and Grids, presented by Dr. Douglas Rogers, Northern Territory University.

On n-terms Approximation, presented by Dr. Boris Kashin, Steklov Math. Institute.

Rational Approximation of Semigroups, presented by Dr. Serguei Piskarev, National Central University.

