



Quaternion

Department of Mathematics Newsletter

Vol. 3, Number 2

Spring, 1987

CHAIRMAN'S COMMENTS

The Department of Mathematics is proud to announce University approval of a Mathematics Accelerated BA/MA Program. The program is a result of the combined efforts at both the undergraduate and graduate level of departmental faculty members who put in much time and effort in discussing, drafting, revising and seeing the program through to its completion and approval.

The program is designed to attract and retain the superior student (for example, a National Merit Scholar) who has a solid background in high school mathematics and the ability to handle a fast paced, challenging program that will lead to a bachelors and masters degree in mathematics in four to five years. The program is innovative in that up to 20 hours of dual credit are allowed for both the BA and the MA degree. The program meets all the requirements for the BA and MA degree but requires the students to take those 5000 and 6000 level courses required for the MA degree during the last two years in the program.

To be admitted to the program, a student must have completed at least 30 hours of college credit including eight hours of 3000 level or above mathematics courses; have an overall grade point average of 3.0 or above; and have a grade point average of 3.5 or above in all mathematics courses taken at the 3000 level or above. To be retained in the program, the student must maintain these averages and after 90 hours but before 110 hours, pass the Graduate Record Examination with at least a 1000 combined score on the verbal and quantitative portion of the test. Upon receipt of a satisfactory GRE

score a student who is in good standing in the program will be admitted to the Graduate School and be eligible for a teaching assistantship in mathematics.

The program is of obvious benefit to talented, highly motivated students. It is designed to challenge these students and help them achieve their potential in mathematics. Students who successfully complete the program will not only save time and money but will have a head start in pursuing their research in a doctoral program or in using their training in a professional capacity. We trust enrollees in this program will go on to excel and be pace setters in their professions. In doing so, they will serve USF well.

ADDRESS AND INFORMATION REQUEST

If you have had a change of address, please let us know. If you are an alumni, we would be happy to hear from you regarding your professional activities and/or personal achievements. Please submit to Newsletter, Department of Mathematics, University of South Florida, Tampa, FL 33620.

ALUMNI CORNER

Associate Professor of Mathematics at the University of Michigan at Dearborn and computer graphics consultant for major automotive companies in the United States and abroad - these are the professional tasks of Dr. Michael Lachance. Dr. Lachance graduated from the University of South Florida in 1979 with a Ph.D. in Approximation Theory under the direction of Dr. E. B. Saff. He has since put his training in approximation theory to some very practical uses for the automotive industry and the State of Michigan.

Stemming from his computer graphics consulting work for the automotive industry, Dr. Lachance is the mathematical architect of a product called "The Integrator", which accepts surface and curve representation from one system and produces approximations in a representation acceptable for a target system. As a result of this consulting work, Dr. Lachance received a grant from the State of Michigan to quantify the potential dangers of a method of exchanging surface data in the U.S. automotive industry which involves the boundaries of the surface alone ("wire-frame" data) with no interior information.

IN MEMORY OF

PROFESSOR
FRANK L. CLEAVER

February 3, 1925 - January 29, 1987

SCHOLARSHIP FUND ESTABLISHED

An endowed scholarship has been established in memory of Professor Frank L. Cleaver who passed away in January. The scholarship funds will benefit undergraduate mathematics majors in the university. Contributions to the fund should be sent to the USF Foundation, University of South Florida, Tampa, FL 33620. Please note on the check that the money is to go to the "Frank L. Cleaver Endowed Scholarship."

Currently Dr. Lachance is visiting the Cranfield Institute of Technology in England under the sponsorship of Science and Engineering Research Council of the UK. The Institute is involved in determining European and international standards for data exchange and Dr. Lachance is studying the problem of translating surfaces from one graphics system to another.

Dr. Lachance's work as an educator, mathematician, and automotive consultant has lead to interesting publications. He has highly theoretical publications involving problems of approximation theory in prestigious journals as "Mathematische Zeitschrift" and "Journal of Approximation Theory" and more applied publications involving sculptured systems and surface data transfer in journals like the "Journal of Manufacturing Engineering".

He and his wife Laurie are expecting their first child in mid 1987 while in England. In the spirit of the English he writes "the little bloke or bird will be a true subject of the Queen!" We wish him and his growing family continued success in their future endeavors.

MATHEMATICS HONORS PROGRAM

An Honors Program in Mathematics was launched this year, with Charles Osborne as the first enrollee. The Program is designed for students who wish a bachelors degree indicating unusual strength in mathematics. The requirements for the Program can be found in the 1986/87 Undergraduate Catalogue.

THE NEW TEACHING ASSISTANTS FOR SPRING 1987

Jinyong Chen (BS: Nanjing U, China; MA: Purple Mountain Observatory, China)
Paul DesRoche (BA: U of Connecticut; MS: U of North Carolina; MA: Columbia U)
Christopher Floyd (BS: USF)
Kon Liu (BS: Xiamen U, China; MS: Beijing U, China)
Kurt Long (BS: U of Florida)
Hongzhu Qiao (BS,MS: Nanjing U, China)

Zacharia Sinkala (BS: U of Zambia, Zambia; MS: U of Michigan)

A NEW JOURNAL

A JOURNAL OF THEORETICAL PROBABILITY will be launched early 1988, with Professor Mukherjea as editor. The Journal is designed to be a natural home for papers about probability on algebraic structures, a growing field that is not now represented by any research periodicals. The editorial board includes some of the most celebrated experts in this area from many different countries. The Journal should prove an asset as well as adding visibility and distinction to the department. The Journal, which is sponsored by Plenum Press, will publish four issues annually.

PI MU EPSILON

The Florida Epsilon Chapter of Pi Mu Epsilon Fraternity continued its program of presenting interesting applications of mathematical ideas in Semester II. On February 2nd, Dr. Robert W. Flynn of the Physics Department discussed "Strategies for Sail-Plane Racing" in which he investigated the application of mathematical principles in this new sport. On February 11th, the Student Correspondent of the Chapter, Richard A Moscatello, spoke about "Probability by Geometric Methods", in which he told how some probabilities can be found as areas of certain two dimensional regions. On March 2nd Peter Borwein, who was visiting us from Dalhousie University in Halifax, Nova Scotia, spoke about his algorithm for "Computing a Billion Digits of Pi". This accomplishment of Dr. Borwein and his brother, Jonathan, had just been announced in "Science News".

On April 13th, this year's series of meetings concluded with an invited address by this year's Outstanding Scholar. The student designated to receive this coveted honor this year was John A. Wilhelm, a senior mathematics major who graduates in May. John already has a Bachelor's degree in Psychology which he received from USF. After his first graduation, he entered the military and decided to return to USF to work in mathematics. He will begin graduate study in Mathematics at USF in the Fall

Semester. His talk to the Chapter discussed an aspect of the development of the theory of limits and was titled, "How Dedekind Developed the Irrational Numbers from the Rational Numbers".

The annual Induction Banquet was held on April 24. The new members selected in Semester I are: Lisa Marie Casner, Kathryn Demas, Laurice Anderson Garrett, Paula J. Jones, Richard Michael Librizzi, Cliff C. Morris, Jr., Jacqueline Sandra Whitlam, Kimberly M. Whitten, John A. Wilhelm, Doug Woolley, and James A. Wubben. These and the new members selected last summer were formally inducted at this banquet. Dr. Carol Williams of the Department of Mathematics spoke on "A Ramble Through the Milky Way".

DEPARTMENT NEWS

PROFESSOR CLARK ran the first Mathematics Major Seminar, a new requirement for mathematics majors in which students read and present journal articles.

PROFESSOR DARLING was an invited speaker at the Special Session on Stochastic Processes and Analysis at the American Mathematical Society's annual meeting in San Antonio, January 21 through 25, where he presented a joint paper with PROFESSOR MUKHERJEA on Stochastic Flows on a Countable Set, and also where he won the Addison-Wesley 2 mile marathon. He is visiting the Laboratoire de Probabilities at the University of Paris VI.

PROFESSOR RENE' GROTHMANN visited USF this spring while on sabbatical from Eichstatt University. He holds a Master of Mathematics from the University of Mannheim(1983) and a Ph.D. from Eichstatt University(1986), where he studied "The Rate of Decrease of the Strong Uniqueness Constants of Holomorphic Functions". Here, he was working on the distribution of zeros of polynomial best approximations with PROFESSOR SAFF.

The JOURNAL OF CONSTRUCTIVE APPROXIMATION under the editorship of Professor Saff published a special issue on multivariate splines this semester.

PROFESSOR LIANG went to the California Institute of Technology in March where he spoke on coding theory. Later, he went to China on the exchange program with Zhejiang University. He also visited Xian University, Beijing Institute of Technology, and Naikai University, speaking on coding theory, pattern recognition, and algebraic number theory.

PROFESSOR MUKHERJEA gave an invited talk on Products of Random Matrices at Wayne State University on April 15.

PROFESSOR SAFF served as a member of the Program Committee for the January Conference on Approximation and Optimization held at the University of Habana, Cuba, where he gave an invited lecture. He also gave lectures on approximation theory at the Mathematics Institute in Tel-Aviv in March and at the April Conference on Applications of Approximation Theory. He has received a 3 year NSF grant, and he will be taking two of his students with him to Cambridge University during the summer.

PROFESSOR HANS WALLIN is visiting the department this spring on sabbatical from the University of Ulmia, Sweden. Professor Wallin was educated at Uppsala University in Sweden. His research interests include function spaces, approximation theory, harmonic analysis, and complex analysis.

PROFESSOR CAROL WILLIAMS gave a talk on stellar evolution at the University of Tampa on February 12. She is currently working with Dr. Gordon Hammond, an astronomer who is here on an courtesy appointment.

MAA NEWS

The twentieth annual meeting of the Florida Section of the Mathematical Association of America was held at Florida Atlantic University in Boca Raton on March 6 and 7. The program was highlighted by talks from three eminent mathematicians. Fred Roberts of Rutgers University spoke on "Meaningful Statements", Deborah Haimo of the University of Missouri-St. Louis discussed "Parallels between Analytic and Temperature Functions",

and Murray Klamkin of the University of Alberta spoke on "Mathematical Creativity". Participating from the University of South Florida were Dr. Kenneth Pothoven, Chairman of the Department of Mathematics, who attended the annual meeting of departmental chairmen. Dr. Fredric Zerla, as President-Elect of the Florida Section, chaired the panel on the "Reports and Discussions of Regional Meetings". Dr. Zerla also chaired the Session on Student Papers. Dr. Don Lichtenberg of Mathematics Education was a member of the panel on "Mathematics Competitions" and, at the Business Meeting of the Florida Association of Mathematics Educators, was on the panel on the "State of Florida Pride Contest". Dr. E. Ray Phillips of Mathematics Education contributed a paper on "Mathematics for Liberal Arts Students; Philosophy and Pedagogical Concerns".

The Florida Section voted to recommend to the Mathematical Association of America that the Certificate of Meritorious Service be presented, posthumously, to Professor Frank L. Cleaver. Professor Cleaver was one of the founders of the Florida Section and was for many years its Secretary Treasurer. The Certificate is the highest award that the Association gives to recognize the contributions of its members.

STUDENT NEWS AND ACTIVITIES

We congratulate the following students who graduated with degrees in Mathematics in Semester I, 1986.

B.A. Degree

Michael G. Goodwin

Hiromi Nanamori

Peter Varisco (Magna Cum Laude)

M.A. Degree

Bettina Capuano

Margaret Martinek

Denise Schrimsher

Ki-Yeon Shin

Catherine Underwood

Congratulations are in order to Deborah Levinson, a Ph.D. candidate in mathematics. Ms. Levinson was one of three students to receive an Outstanding Graduate Research Award for Doctoral Research from Sigma Xi. The award was

presented on April 16 at the annual Sigma Xi awards banquet.

CENTER FOR MATHEMATICAL SERVICES

The Center for Mathematical Services offered three prizes to students competing in the Florida State Science and Engineering Fair this year. The prize categories were Best Overall Project in Mathematics at the Senior and at the Junior levels and Best Use of Mathematics not in the Mathematics Category. The prize winners were:

Matthew Christopher Cobb, Melbourne High School, Brevard County, "Creation of a New Twin-Prime Sieve"-Best Mathematics Project, Senior Level.

Ron Anafi, Crestwood Middle School, Palm Beach County, "Soap Bubbles" Best Mathematics Project, Junior Level.

Joseph Wang, Forest High School, Marion County, "Polarization of Jovian Decametric Radiations" - Best use of Mathematics in a non-Math Category.

The Florida State Science and Engineering Fair was held this year in Manatee Civic Center, Bradenton, Florida, April 8-10. The judges for the CMS prizes were Dr. Mary Parrott and Dr. Y.F. Lin.

CMS will again run five summer programs for gifted high and junior high students this summer. There will be three in Hillsborough County and two in Pinellas County each held at the respective USF campuses. The subjects which the students study include Mathematics, Computer Science, Engineering, Biology, Physics, Astronomy, Chemistry and Medicine. Some of the programs include a second year level in which returning students may become involved in faculty research. These programs are sponsored jointly by the county public school systems, USF's Center for Mathematical Services, College of Natural Sciences, Medicine, Engineering and the Florida Department of Education. This summer an attempt is being made to include students from any of the surrounding counties such as Pasco, Hernando, Polk and Manatee. Since this is not a residential program it may not serve a large number of these students, but several participants from

these counties are expected. Last year the total enrollment from Hillsborough and Pinellas Counties in all five programs was 174 students.

The Center for Mathematical Services conducts a lecture series on Mathematics in Today's World. This series is sponsored by the Center for Excellence in Mathematics, Science, Computers and Technology and the greater Tampa Chamber of Commerce. USF faculty members from Mathematics, Engineering and Chemistry are teamed with representatives from business and industry to talk with groups of secondary school students on topics in mathematics and on applications to problems in business and industry. These lectures teach students the importance of mathematics in many careers and encourage them to continue to study mathematics, science and engineering even if these are not their specific career choices. As this year's Lecture Program winds down, it is seen that the program has been a huge success. Schools in seven of the thirteen nearby counties have been visited, reaching a total of about 8300 students. CMS received requests for about 70 lectures from almost as many schools. All requests were filled keeping the thirty one lecturers very busy, giving 239 lectures.

The new program designed to help foreign graduate students develop the English language skills that they will need to become Teaching Assistants for

the Department has been successful. One English speaking graduate student is working with six foreign students every week both in informal conversation and in a more formal lecture environment. This experience will help students pass the English language examination required by the State of Florida for all foreign students for whom English is a second language. So far, two students have improved their English and are now Teaching Assistants for the Department. It is hoped that as the second semester ends, the remaining students will also meet with the same success.

Anyone interested in obtaining additional information about the Center for Mathematical Services or about any of its programs may contact Dr. Kent Nagle, Director, Center for Mathematical Services, University of South Florida, Tampa, Florida 33620.

RECENT COLLOQUIUM SPEAKERS

PROFESSOR PETER BORWEIN visited USF for a few weeks in February while on sabbatical from the University of Toronto, where he is on sabbatical from the University of Dalhousie in Halifax, Nova Scotia. He has a Ph.D. from the

University of British Columbia (1979) on rational approximation theory. He then did postdoctoral work at Oxford. His current interest is in applications of approximation theory to "computational" number theory. On February 25, he gave a talk on the first billion digits of Pi.

PROFESSOR BRUCE CHALMERS, of University of California at Riverside gave a talk on Minimal Extensions of Finite Rank on March 27.

PROFESSOR L. H. ERBEE, of the University of Alberta gave a talk in January on Tube-like Boundary Conditions for Differential Equations.

PROFESSOR V. POPOV, of the Bulgarian Academy of Sciences, gave a talk on rational approximation theory in April.

PROFESSOR TED RIVLIN, from IBM, gave a talk on An Optimal Recovery View of Walsh Equiconvergence.

PROFESSOR PAUL RABINOWITZ, of the University of Wisconsin gave a talk in January on Periodic Solutions of Hamiltonian Systems.

Other colloquium speakers included Janos Aczel of the University of Waterloo, Jerome Goldstein of Tulane University and Daerrel Schmidt of Oakland University.

UNIVERSITY OF SOUTH FLORIDA
DEPARTMENT OF MATHEMATICS
TAMPA, FLORIDA 33620

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