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Georgia Southern University

# Department of Mathematics and Computer Science Newsletter



*An In-House Publication for Faculty and Staff in Georgia Southern University's Department of Mathematics and Computer Science*

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Editor: Lisa Yocco  
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## Announcements

Preparations are underway for the Thirteenth Annual **Georgia Southern University Mathematics Tournament** to be held Saturday, February 9, 2002. As the "old-timers" in the department are aware, the tournament is sponsored by the Mathematics and Computer Science Department and typically brings 800+ students in grades 6 - 12 to campus for the event. Every member of the department is expected to work on tournament day, so mark your calendars now!

## Professional Activities

**Charles W. Champ** presented a paper titled "Designing ARL Unbiased R-Charts" at the Sixth International Decision Sciences Institute Conference held in Chihuahua, Mexico, July 8-12.

**Charles W. Champ** visited with Dr. Francisco Aparisi at the University of Valencia in Valencia, Spain August 2-3. The University of Valencia provided him with a hotel room and meals during his visit. Dr. Champ and Dr. Aparisi are presently working together on a research project.

**Charles W. Champ** attended the Joint Statistical Meetings in Atlanta, Georgia August 5-9.

Dr. Francisco Aparisi from the University of Valencia in Valencia, Spain visited with **Charles Champ** and Dr. Nancy Shumaker (Director of the Center for International Studies) on June 26 to discuss an international

exchange program between the University of Valencia and Georgia Southern University.

**Xiezhang Li** has two papers to be published in October 2001:

Xiezhang Li, "Is a Chebyshev Method Optimal for an Elliptical Region also Optimal for a Nearly Elliptical Region?" *Linear Algebra and Its Applications*, 338 (2001) 37-51.

Xiezhang Li and Yimin Wei, "An Improvement on the Perturbation of the Group Inverse and Oblique Projection," *Linear Algebra and Its Applications*, 338 (2001) 53-66.

**Bruce McLean** accompanied the William James mathematics team to Atlanta last spring. The team competed in the state MathCOUNTS tournament where they finished in 6th place. Hui Hui Li took 2nd place and joined the state MathCOUNTS team in Washington D. C. The team is also coached by **David Stone** and alumnus, Belinda Jones.

**Bruce McLean** spoke to the SouthEast Regional Meeting of Decision Sciences Institute in Charlotte, NC last spring. He and two other members of the GSU Information Task Force spoke on creating a new Information Technology School.

**Laurie Fausett** is currently finishing a textbook entitled *Numerical Analysis with Applications and Algorithms*, L. V. Fausett, Upper Saddle River, NJ: Prentice Hall.

**Laurie Fausett** is the author of *Numerical Methods Using MATHCAD*, L. V. Fausett, Upper Saddle River, NJ: Prentice Hall, 2002.

**Laurie Fausett** is the Georgia Southern University Chapter Vice President of Sigma Xi (National Research Honor Society) for 2001-02. She has just returned from the National Sigma Xi Meeting in Raleigh.

**Laurie Fausett** will be going to the Joint AMS/MAA Meeting in San Diego in January to give a paper on using neural networks to solve partial differential equations, and another on making models to use in helping students visualize volumes in teaching calculus.

**Ardian Greca** had the following publications:

A. Greca, K. Nakagawa, L. Barolli, "A Routing Strategy for Self-healing ATM Networks Based on Virtual Path", *Advanced Information Processing Technology*, G&B Publishers, Vol.3, pp.1-12, February 2001.

S. Ohta, A. Greca, "Comparison of Routing and Wavelength Assignment Algorithms for Optical Networks", *IEEE Workshop on HPRS*, Texas, May 2001.

**Billûr Kaymakçalan** has given an invited Colloquium talk on "*The Time Scale Calculus and Some Examples*" University of Rhode Island-Kingston, RI on June 4, 2001.

**Billûr Kaymakçalan** presented the paper titled; *On Riemann Integration on Time Scales*, which she co-authored with Gusein Sh. Guseinov, at the ICDEA-2001 meeting in Augsburg-Germany which was held during July 29-August 3, 2001. Also the paper *Coupled Solutions and Monotone Iterative Techniques for Some Nonlinear I.V.P.'s on Time Scales*, which **Billûr Kaymakçalan** co-authored with Bonita Lawrence was presented at the same meeting by B. Lawrence.

"International Society of Difference Equations and Applications" was also formed at the Augsburg meeting and **Billûr Kaymakçalan** was elected as the Member of the Advisory Board of the Society, being the youngest and only women member of the Board.

**Billûr Kaymakçalan** gave an invited talk on *Basics of Riemann Delta and Nabla Integration on Time Scales* at the AMS-SEAS meeting held in Chattanooga, TN during October 56, 2001.

**Liancheng Wang** gave an invited presentation at a Joint Meeting of the American Mathematical Society and the Mexico Mathematical Society held at Merolia, Mexico on May 23-26, 2001.

**Liancheng Wang** co-organized a special session at the International Conference on Dynamics of Continuous, Discrete and Impulsive Systems held at London, Canada on July 26-30, 2001.

**Liancheng Wang** gave an invited talk at the 2001 AMS Southeastern Section Meeting held at Chattanooga, TN on October 5-6, 2001.

**Gale Watson** attended the Sixth Annual VSU Mathematics and Technology Conference at Valdosta State last February. She presented "Mathematics and Monopoly" activities using TI-83 to explore probability and use the calculator to understand sequences, series, and limit concepts.

Together with Martin Bohner of University of Missouri-Rolla, **Billûr Kaymakçalan** has co-organized a Special Session on "*Dynamic Equations on Time Scales*" at the Southeastern Section Meeting of SIAM, held at the Coastal Carolina University; Conway, SC during March 16-17, 2001. **Billûr Kaymakçalan** is also organizing together with Martin Bohner of F.I.T. a Special Session on "*Dynamic Equations on Time Scales*" at the Joint Mathematics Meeting (Meeting #973) in San Diego, CA during January 6-9, 2002. At this session she will be giving the talk; *Survey of Dynamic Inequalities on Time Scales*. **Billûr Kaymakçalan** was awarded a Travel Grant from the Faculty Development Committee of GSU to attend this meeting.

**Billûr Kaymakçalan** had the following papers "accepted" for publication during 2001:

*Basics of Riemann Delta and Nabla Integration on Time Scales*, **J. Differ. Equations Appl.**, (with G.Sh.Guseinov).

*On Lyapunov Inequalities for Discrete Linear Hamiltonian Systems*, **Comput. Math. Appl.**, Special Issue on Advances in Difference Equations IV, ( with G.Sh.Guseinov ).

*Coupled Solutions and Monotone Iterative Techniques for Some Nonlinear I.V.P.'s on Time Scales*, **Nonlinear Anal.** ( with B. Lawrence ).

*Oscillation Results for a Dynamic Equation on a Time Scale*, **J. Differ. Equations Appl.**, ( with A.Peterson, L.Erbe and E.Akin ).

*On a Disconjugacy Criterion for Second Order Dynamic Equations on Time Scales*, **J. Computational and Appl. Math.** ( with G.Sh.Guseinov ).

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**Billür Kaymakçalan** is also in the process of writing a chapter on "Upper-Lower Solutions of Dynamic Equations on Time Scales" together with Ferhan Atici of Kentucky Bowling Green University, to appear in the monograph "Advances in Dynamic Equations on Time Scales" prepared by Allan Peterson and Martin Bohner and to be published by Birkhäuser.

**Gale Watson** joined several members of the College of Education at a conference in Washington, D.C., in June concerning the Standards-Based Teacher Education Project. Gale also assisted in collecting and examining data for the report prepared by a committee working on the project in Secondary Mathematics Education.

**Gale Watson** attended the Research Council of Mathematical Learning Conference at Las Vegas last March. Her presentation, "Cooperative Learning: Making Math Meaningful and Correcting Recurring Errors" included information from research she has conducted both at GSU and Ohio State

**Gale Watson** was awarded a grant for professional travel from the Faculty Development Committee. The funds will help support her trip to the School Science and Mathematics Association (SSMA) 100th Anniversary Conference in Chicago (Nov. 1-3) where she spoke about "Group Activities for the Algebra Classroom."

**Lisa Yocco** was awarded a grant for professional travel from the Faculty Development Committee. The funds will help support her trip to the International Conference on Technology in Collegiate Mathematics in Baltimore, Maryland, where she presented the talk "College Algebra in Context: An Applied Modeling Approach."

**Lisa Yocco** was awarded a grant from the Academic Excellence Committee to support travel to the Mathematical Association of America meeting in San Diego, California.

**Lisa Yocco** participated in the ICTCM Professional Development Short Course "Using the Web in Mathematics" July 29 - August 1, 2001, in Madison, Wisconsin.

**Jim Bowen** and **Shawne Zuber** are our new System Support Specialists. They will share an administrative office in MPP 3024 and the computer workroom in MPP 3023.

**Nicki Lariscy** has been hired as our Part-time Secretary. She has worked in our department for the past four years.

Welcome Aboard!

## New Faculty



**Dr. Robert Cook** is Yamacraw Professor of Computer Science. Originally from Nashville, Tennessee, Dr. Cook joins Georgia Southern from the University of Mississippi. His wife, Kristina, is a librarian, and they have six children, Kim age 33, Tom age 31, Amanda age 22, Nick age 21, Jana age 18, and Peter age 12. Dr. Cook received a B.E. in 1969 from Vanderbilt, an M.S. in 1971 from Vanderbilt, and a Ph.D. from Vanderbilt in 1978. Previously, he taught at University of Wisconsin in Madison, University of Virginia in Charlottesville, University of Florida in Gainesville, and he worked for Microsoft Corporation. His hobbies include tennis, basketball, gardening, camping, and sailing. His professional interests include : [High-Assurance Systems Tools and Environments](#), [the national classroom project](#), parameterized discrete-event simulation, next-generation mobile runway project, object-relational DBMS, migratory applications, software reuse, operating system architecture. Dr. Cook has implemented numerous major software packages, has published numerous chapters in books, and has published many journal articles and papers. In addition, he has received several grants and contracts and has consulted for major corporations.

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**Dr. Laurene Fausett** is Assistant Professor of Mathematics. She is originally from Sacramento, California. She and her husband, Dr. Don Fausett, have three children, Ben (36), Savannah (34), Beverly (33), Jennifer (29). Dr. Fausett was Professor of Mathematics at University of South Carolina Aiken from 1997 to 2001. She received a Ph.D. in Mathematics from the University of Wyoming in 1984, an M.S.T. in Physics from the University of Wyoming in 1975, and a B.A. in Mathematics from the University of California in 1964. Dr. Fausett has served as SCURED (South Carolina Universities Research and Education Foundation)/ DOE/SRS Joint Faculty Appointee; she was a Professor at Florida Institute of Technology; Visiting Professor of Mathematics at the Naval Postgraduate School; and she held various teaching positions at other schools. Her primary areas of expertise are in artificial neural networks and mathematical modeling. She enjoys solving problems from a variety of different fields, using traditional computational methods, neural networks, and analytical methods (or combinations of these approaches), as appropriate. She also enjoys teaching mathematics, especially

calculus, differential equations, and other courses dealing with applied and computational mathematics. Dr. Fausett is the author of four textbooks, two solutions manuals, six technical reports, and 16 refereed articles. She has given over 20 talks in the U.S., Mexico, Poland, Egypt, Turkey and Bulgaria. She is active with Sigma Xi (National Research Honor Society) and has been conference co-chair and a member of the organizing or program committee for numerous conferences. Her current activities include attending the GSU football games, and taking advantage of the opportunities for exercise at the RAC. She enjoys many types of music, and plays the piano and viola (but not often, she says). She also makes quilts and has done some weaving.

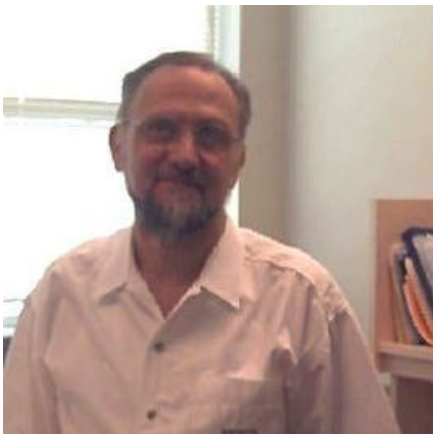
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**Dr. Ardian Greca** is temporary Yamacraw Assistant Professor. Originally from Albania, his most recent work was with NTT Network Innovation Laboratories in Japan as a Postdoctoral fellow researcher, where he was responsible for conducting research in next generation optical path network design. He received a Doctor of Engineering in Electrical and Information Engineering from Yamagata University in 2000, and a Bachelor of Engineering from the University of Tirana in 1991. His previous jobs include Ministry of Finance, General Directory of Customs, Tirana, Albania, as Inspector, where he was responsible for automatic data processing of the customs procedures dealing with studying and creation of the background for the total automatic data processing of the Customs network. He was also responsible for computing of the Classification Systems for Tariff purpose, and he assisted in the establishment of the Albanian Law for all machinery

and equipment part of the Harmonized System. Additionally, Dr. Greca was Lecturer at The Polytechnic University of Tirana, Tirana Albania, where he taught digital electronics and linear electronics. His professional interests include WDM path dimensioning, Spare resources management and Efficiency performance of self-healing algorithms. His personal hobbies are basketball, both watching and playing, and driving. Dr. Greca is a member of IEEE and IEICE.

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**Dr. Vladin Jovanovic** is Professor of Computer Science. Dr. Jovanovic received a Ph.D. from University of Belgrade in 1982, M.S. from University of Belgrade in 1979, and B.Eng. from University of Belgrade in 1975. His scholarship interests include Software Standards, Design, Architecture, Process, Measurement, Testing, Management and Software Engineering Education. His publications include D. Shoemaker, V. Jovanovic, "Engineering Better Software Organization" 2ed. Quest Publishing, 2001; V. Jovanovic, D. Shoemaker "A Baseline Software Engineering Curricula" 13<sup>th</sup> IABD Orlando FL, April 2001; and V. Jovanovic, D. Shoemaker, A. Drommi "Patterns of Organizational Design in Software Development" HCB, Honolulu HI, June 2001. His personal interests include reading and hunting.

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**Dr. Kanurt Narasimha Murty** is Visiting Professor of Mathematics. Originally from India, Dr. Murty joins us from Andhra University (A.P.), where he has been a Professor at Andhra University since 1973. He and his wife Kanurt Rajya Lakshmi have three children: Sridhar, age 26, Kalyant, age 21, and Viswanadh, age 18. Dr. Murty received a B.Sc. (1968), M.Sc. (1971), and Ph.D. (1978) from Andhra University. He organized three international conferences at Andhra University and is editor of an international journal on "Non-linear Differential Equations - Theory, Methods and Applications." He has given invited lectures at national and international workshops and has published 102 research papers in national and international journals. Dr. Murty has guided 12 Ph.D. students and is a reviewer of mathematical reviews published by A.M.S. He is an editorial board member on Indian Academy of Science, panel member of University Grants Commission in India, and program advisory committee member to the Department of Science and technology. His special interests include editing research articles and reviewing research articles. His hobbies include playing and watching cricket.

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**Dr. Mary Russell** Visiting Professor, Mathematics & Computer Science. She received a Ph.D and an M.A. from Emory University and a B.A. University of Tennessee. Her scholarship interests include, in mathematics, Point Set Topology (Decomposition Spaces and Inverse Limits and Graph Theory; and in Computer Science, Computability, Complexity and Graph Theory. Her personal interests include classical and jazz music, literature, foreign languages and the people who speak them.

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**Dr. Wen-Ran Zhang** is Professor of Computer Science. He received a Ph.D. in Electrical and Computer Engineering from the University of South Carolina in 1986. His teaching and research interests include multiagent data warehousing, multiagent data mining, multiagent cerebrum/cerebellum modeling, Ying-Yang bipolar clustering and decision analysis. His publications include "Bipolar sets and bipolar fuzzy sets Part I: Equilibrium relations and bipolar partitioning," to appear, *International Journal on Fuzzy Sets and Systems*; "Nesting, Safety, Layering, and Autonomy: A Reorganizable Multiagent Cerebellar Architecture for Intelligent Control - with Application in Legged Locomotion and Gymnastics." *IEEE Transactions on Systems, Man, and Cybernetics*, Part B, Vol. 28, No. 3, June 1998, p357-375; "NPN Fuzzy Sets and NPN Qualitative-Algebra: A Computational Framework for Bipolar Cognitive Modeling and Multiagent Decision Analysis." *IEEE Transactions on Systems, Man, and Cybernetics*. Vol. 26, No.8, 1996, p561-575. His personal interests include fishing and hiking.

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## Students Compete in Programming Contest

Two teams of students from Georgia Southern University, the Georgia Southern *Beakpoints* and the Georgia Southern *Crashing Eagles* competed in the Southeastern Region of the 2001 ACM International Collegiate Programming Contest held in Milledgeville, Georgia on October 6th. The teams finished fifth and twenty-third, respectively, out of 30 division II teams that competed. The *Beakpoints* were led by upperclassmen David Carrick, Matt Simoneau, and Chris Trickler, and the *Crashing Eagles* were led by James Huff, Mike Davis, and Adam Ham. The fifth place ranking is the highest in Georgia Southern history.

## Colloquia and Seminars

### Department Colloquia Speakers

**Dr. Robert Cook**

The National Classroom Project - An Experience Report

**Dr. Vladan Jovanovic**

Extreme Programming [XP]

**Dr. Wen-Ran Zhang**

Yin-Yang Bipolar Sets and Bipolar Fuzzy Sets For Clustering and Coordination

**Dr. Steve Damelin**

Distribution of Points On d-dimensional Spheres Using Finite Fields

**Dr. Ardian Greca**

Self healing algorithms in ATM networks.

### Guest Speakers

**Dr. Larry Lesser, *Armstrong Atlantic State University***

MATH + MUSIC = MORE MOTIVATION

**Dr. Evgenni Rakhmanov, *University of South Florida***

Bounds for Polynomials with Unit Discrete Norm

**Dr. Laurene Fausett**

A Neurocomputing Approach to Solving Partial Differential Equations

**Dr. Goran Lesaja**

Long-Step Homogeneous Interior-Point Algorithm for P\*-Nonlinear Complementarity Problems

**Dr. Charles Champ**

Performance Analysis of CUSUM Charts

**Dr. Xiezhong Li**

The representation and iterative methods for the Drazin inverse with complex spectrum

**Dr. Yan Wu**

A Novel Subband Coding Scheme for Wide Band Signals and Applications in Speech Processing

**Dr. Jo Hoffacker, *University of Georgia***

Time scales: what are they and what are they good for?

**Dr. Stefan Siegmund, *Georgia Tech***

Nonautonomous Dynamical Systems - Introduction and Application



# HAPPY BIRTHDAY



August		October		December	
Donna Saye	14	Jim Harris	3	Jim Braselton	1
Carol Nessmith	23	Xiezhong Li	20	Rick Hathaway	11
Lisa Yocco	28	Ardian Greca	25	Lori Braselton	16
David Stone	30	Patricia Humphrey	28	Lila Roberts	21
September		November		Sharon Barrs	21
Bruce McLean	7	John Davenport	1	Debbie Evans	24
Sharon Taylor	17	Stephen Damelin	1	Eric Funasaki	31
Sandra Ellwood	20	Gary Huband	3		
Don Fausett	20	Liencheng Wang	9		
Charles Champ	22				
Martha Abell	28				

