Preliminary Program

of the 82nd Annual Meeting of the Southeastern Section of the Mathematical Association of America,

held jointly with

the 27th Annual Meeting of the Society for Industrial and Applied Mathematics

Southeast Atlantic Section

Clemson University, March 21-22, 2003

The Complete Program, with room numbers and specific times, will be available at registration.

Watch for Information Updates at http://www.ces.clemson.edu/~clcox/MAA-SIAM/

FRIDAY MARCH 21st

8:00 a.m. Registration begins
8:30-11:30 Short Courses and Project NExT
9:00-11:00 Math Jeopardy Contest Preliminary Rounds I&II
11:15-12:45 TA Rush/Career Fair
12:00-6:00 Exhibits
1:00-2:10 General Session I, Margaret Wright, Speaker
2:10 Refreshments
2:20-4:20 Concurrent Sessions

Number Theory

1. *Determining Mills' Constant and a note on Honaker's Problem*, Chris K. Caldwell and Yuanyou Cheng, University of Tennessee at Martin
2. *A Connection Between Ordinary Partitions, Rogers-Ramanujan Partitions, and 2-Color Frobenius Partitions*, Louis W. Kolitsch, The University of Tennessee at Martin
3. *What Is Special About The Kaprekar Routine*? Kevin Peterson, Lynchburg College and Hari Pulapaka, Stetson University,
4. *Structural Properties of $c(Z_{pq})$-Sets*, Michael Freeze, University of North Carolina at Wilmington
5. *The Bracelet Problem -- Fibonacci Numbers mod m*, David R. Stone, Georgia Southern University
6. *On 1 (mod 3) Prime Numbers*, Shan Manickam, Western Carolina University and Swarnameenakshi Manickam, Yale University

Algebra & Discrete Math

1. *Parsing Permutations*, Jeff Clark, Elon University
2. *What the heck are Rado numbers?* Carl Mueller, Georgia Southwestern State University
3. *On the Capability of a Metacylic Group*, Jim Beuerle, Elon University
4. *A Trick for Introducing Algebraic Coding Theory*, Jeffrey Ehme and Colm Mulcahy, Spelman College
5. *Grünbaum Colorings of Triangulations of the Sphere*, Eric Gottlieb and Kennan Shelton, Rhodes College
6. *Counting on Hypercubes,* Stephen Davis, Davidson College

Matrix Theory & Numerical Linear Algebra

1. *Spectra of Leslie Adjacency Matrices with Applications*, Bruce W. Atkinson, Samford University
2. *Subproper and regular splittings for a restricted rectangular system*, Xiezhang Li and Yimin Wei, Georgia Southern University
3. *The Superiority of a New Type (2,2)-Step Iterative Method over the Related Chebyshev Method*, Mei-Qin Chen and Xiezhang Li, The Citadel
4. *Inertia Sets of Symmetric Sign Pattern Matrices*, Frank J. Hall and Zhongshan Li, Georgia State University
5. *The Recursive Inverse Eigenvalue problem*, Marina Arav, Georgia State University

The Teaching of Statistics

1. *The Availability Misconception in Probability and Statistics: An Investigation of High School Students*, Rhonda C. Porter, Florida A & M University
2. *Teaching Statistics: When is the Sample Size Large Enough?* Richard Stephens, University of Alaska Southeast
3. *FreeCell, Common Sense and Statistics*, Paul Baker, Catawba College
4. *Incorporating Activities and Web-Based Materials into Post-Calculus Probability and Statistics*, *A Preliminary Report*, Dr. Tracy Goodson-Espy, University of Alabama in Huntsville, Dr. M. Leigh Lunsford, Athens State University, Dr. Ginger Holmes Rowell, Middle Tennessee State University
5. *Teaching an Introductory Statistics Course on the Internet*, Lothar A. Dohse, University of North Carolina at Asheville
6. *If technology has revolutionized the teaching of Statistics*, *Why are we still teaching essentially the same course?* Patricia Humphrey, Georgia Southern University

Undergraduate Student Papers I

1. *Generalizations and Analogues of the Pythagorean Theorem*, Jessica Munley, Elon University
2. *An Investigation of Excevians and Extriangles*, J Brian Parker, Elon University
3. *Binomial Coefficients, Trinomial Coefficients and the Pascal Triangle*, Jeanette Olli, Elon University
4. *Vertex Magic*, Katherine Cunningham, Elon University
5. *Factoring Large Permutation Groups*, Kathleen Iwancio, Elon University
6. *Random Growth of Cell Blocks*, Joseph A. Johnson, East Tennessee State University

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Friday Afternoon Concurrent Sessions (Continued)

Undergraduate Student Papers II

1. *Modeling the Laundry Problem using Circle Maps*, Stuart Bateman, University of North Carolina at Asheville
2. *Paths That Turn at a Constant Rate: Special Curves in the Hyperbolic Plane*, Rob McLean, Davidson College,
3. *Strategies for re-establishment of the American chestnut in the Appalachians*, Amelia Nutter, University of North Carolina at Asheville
4. *Assessment of Lead Levels in Dust, Soil and Paint in Durham*, *North Carolina*, Alyssa Dillow, The University of North Carolina at Asheville
5. *An Investigation of the Ordered "Look-and-Say" Sequence*, Jason Grigsby, Birmingham-Southern College.
6. *Geometry and Monte Carlo Simulation in Election Modeling*, Emily Marcato, Samford University

Graduate Student Contributed Papers I

1. *Numerical Method for Sand Pile Formation*, Christopher Kuster, NC State University
2. *Cone-Based Modeling of Preferences in Multicriteria Optimization*, Brian J. Hunt, Clemson University
3. *The Fractional Advection Dispersion Equation*, John Paul Roop, Clemson University
4. *Numerical Simulation of Diffusion of Second Messengers in Visual Transduction,* Harihar Khanal, University of Tennessee

REU Roundtable Discussion

Math Jeopardy Contest Preliminary Round III

Special Session on Discrete Mathematics I

1. *Generalizing Pancyclic and k-Ordered Graphs*, Ronald J. Gould, Emory University
2. *Cylindrical Braids*, Dave Peifer, University of North Carolina at Asheville
3. *Splitting Numbers of Grids*, Dwight Duffus, Emory University
4. *Monster in a Box: The Interplay of Integer Sequences*, Evan B. Wantland, Warren Wilson College

Special Session on the History of Mathematics I

1. *Raymond Pearl and the Logistic Curve*, Bob Fray, Furman University
2. *Queen Dido's Hide and the Minimal Arc-length problem in Calculus*, Wally Javier, Southern University-Baton Rouge
3. *The Influence of Neighboring Scientists and Faculty on the Development of Mathematical Sciences at Clemson University*, T. Gil Proctor, Clemson University
4. *Understanding Mathematical Proof: The Four Color Problem and a Math Forum MidPoW*, Craig Bach, Drexel University

Special Session on Integrating Applied Problems into the Undergraduate Curriculum I

1. *Using the Historical Development of Predator-Prey to Motivate Modeling,* Holly Hirst, Appalachian State University
2. *Mathematical Modeling of the Terror Bird*, William P. Fox, Francis Marion University
3. *Applied Mathematics for Undergraduates at UT*, Suzanne Lenhart, University of Tennessee
4. *National Computational Science Institute: Modeling in the Classroom*, Daniel Warner, Clemson University

Commercial Presentations

1. Houghton Mifflin MathSpace: Flexible, Integrated Electronic Learning Tools
2. The Virtual Math Lab by Addison Wesley Publishing
3. Features of BCA, Brooks Cole Assessment
4. Texas Instruments

4:30-5:30 General Session II, Ronald Harshbarger, Speaker
5:30-5:50 MAA Awards Presentation
5:30-5:50 SIAM Business Meeting
6:00-9:00 Dinner followed by Celebrity Jeopardy

SATURDAY MARCH 22nd

7:30 a.m. Continental Breakfast
8:00-3:00 Exhibits
8:00-8:45 MAA Business Meeting
9:00-10:00 General Session III, John Baxley, Speaker
10:20-12:20 Concurrent Sessions

Mathematics Teacher Development

1. *College Algebra Computer Lab - friend or Foe?* Cynthia Sikes and Deborah Evans, Georgia Southern University
2. *Breaking the Cycle of Mediocrity: Developing a Profound Understanding of Fundamental Mathematics among Future Teachers*, Betsy Darken, University of Tennessee at Chattanooga
3. *An Open, Flexible, Collaborative Web Homework System*, Terry Walters and Stephen Kuhn, University of Tennessee at Chattanooga
4. *Successful and Unsuccessful Proposal Writing Efforts in the East Tennessee State University Mathematics Department*, Anant P. Godbole and Jeff Randall Knisley, East Tennessee State University
5. *Using a Coteaching Module in a Mathematics Methods Class For Elementary Preservice Teachers: Reflections on Practice*, Lisa Carnell, High Point University
6. *A Mixed Approach to Teaching Linear Algebra*, Skip Allis, Elon University

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Saturday Morning Concurrent Sessions (Continued)

Differential Equations, Dynamical Systems & Numerical Methods

1. *Continuous Gauss-Newton-type Algorithm for Nonlinear Ill-posed Operator Equations with Simultaneous Updates of the Regularized Frechet Derivative*, Alexandra Smirnova, Georgia State University
2. *Interactive Generation of Orbits in the Restricted Circular Planar Three-body Problem*, Jack R. Pace, Southern Polytechnic State University
3. *A Summary of Results Pertaining to Multicomponent, Viscoelastic Fluid Flow*, Will Miles, Clemson University
4. *Regularisation and control of self-focusing in the 2D cubic Schrödinger equation by attractive potentials*, Brenton leMesurier, College of Charleston, Peter Christiansen, Technical University of Denmark, Yuri Gaididei, Bogolyubov Institute for Theoretical Physics, Ukraine, Jens Juul Rasmussen, Risø National Laboratory, Denmark
5. *Optimal Harvesting in an Integro-difference Population Model*, Hem Raj Joshi, Suzanne Lenhart and Holly Gaff , University of Tennessee
6. *Summing Formal Power Series Solutions to Advanced and Delayed Differential Equations*, David W. Pravica and Michael J. Spurr, East Carolina University

Statistics & Probability

1. *Needed: A Standard Measure for Comparing Distributions*, James Kropa, Southern Polytechnic State University
2. *The Multivariate Local Time Intensities of Regenerative Sets*, Hussain Elalaoui-Talibi, Tuskegee University.
3. *Half Way Through* e^x, Donald Francis Young, Southern Polytechnic State University
4. *Inequalities for Renewal-Type Integrals with Applications ,* Broderick O. Oluyede, Georgia Southern University
5. *The Singled Out Game*, Kennan Shelton, Rhodes College
6. *Boogie Baby Bounce: A Game of Chance*, Dennis Walsh, Middle Tennessee State University

The Teaching of Mathematics

1. *Maple Illustrations of Selected Topics from Undergraduate Analysis*, John Ziegler, Southern Polytechnic State University
2. *Visualization of an affine transformation*, Subhash Saxena, Coastal Carolina University
3. *Introductory Analysis: Synthesizing R,* R^n*, Metric Spaces and Topological Spaces*, Robert Gardner, East Tennessee State University
4. *An Online Multivariable Calculus Course*, Jeff Knisley, East Tennessee State University
5. *Title: Summing k-th powers of consecutive positive integers: an elementary and generalizable approach for the Calculus I classroom*, Gregory M. Boudreaux, University of North Carolina at Asheville
6. *Addressing the Issue of Retention of Mathematics Majors: Seminar for Freshmen and New Mathematics Majors. Preliminary Report*, Patricia Shelton, Janis Oldham, North Carolina A&T State University

Undergraduate Student Papers III

1. *Homothetic Triangles with Coincident Euler and Nagel Lines*, Robert Davis, Elon University
2. *Fibonacci Vectors*, Ena Salter, Georgia Southern University
3. *Colors, Clusters and Approximating the SVD*, Nick Orlowski, NCSU
4. *Normalized Circular Bernstein-Bezier Curves*, Mary Beth Cole, Samford University

Undergraduate Student Papers IV

1. *Random Growth Of Caterpillar Graphs*, Gabriel Zimmer, East Tennessee State University
2. *Flipping Geometry*, Shaun Lynott, Elon University
3. *Upside-Down Numbers…Upside-Down*, Chaska Mendoza, Elon University
4. *A Rate Dependent Preisach Operator for Modeling A Piezoelectric Stack Actuator,* Jeremy Poling, Ferrum College

Graduate Student Contributed Papers II

1. *Orthogonal quadruple systems and 3-frames*, Brian Muse, Auburn University
2. *Maximal Sets of Hamilton Cycles*, Sasha Logan, Auburn University
3. *Periodic Solutions in an Elastoplastic Model for Granular Flow*, Bob Wieman, NC State University
4. *Performance based decisions under uncertainty for complex systems*, S. Samson, Clemson University
5. *The Ship Captain's Problem*, Sarah Holliday, Auburn University
6. *Green's Function for an Equivalent Cable Model*, Scott La Voie, East Tennessee State University

Special Session on Discrete Mathematics II

1. *Domination in Triangulated Chessboard Graphs*, Charles Wallis, Western Carolina University
2. *Total k-Subdominating Functions on Graphs*, Johannes H. Hattingh, Georgia State University
3. *Locally Restricted Compositions*, Rodney Canfield, UGa
4. *Long Cycles in 3-connected Graphs*, Guantao Chen, Georgia State University

Special Session on the History of Mathematics II

1. *Euclid's Elements, How Should We Approach the Text*, John Poole, Furman University
2. *Transformational Geometry in Art and Architecture of Pre-Columbian Latin America*, Elizabeth C. Rogers, Piedmont College
3. *H.S.M. Coxeter: His Life and his Romance with Symmetry*, F. Arthur Sherk, University of Toronto and Clemson University.
4. *History of Topology*, Artur Gorka, Clemson University

Special Session on Integrating Applied Problems into the Undergraduate Curriculum II

1. *Internships for Undergraduates: Opportunities and Resources*, Angela B. Shiftlet, Wofford College
2. *Environmental Mathematics*, Bernard A. Fusaro, Florida State University
3. *A Second Year Course on an Introduction to Applied Mathematics*, R. E. White, North Carolina State University
4. *Solving a Social Problem with the Transportation Algorithm*, Laurie Heyer, Davidson College

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Saturday Morning Concurrent Sessions (Continued)

Undergraduate Student Posters

1. *SpaceShips: A look at video games and student motivation*, Susan Edwards, Meredith College
2. *Checking for Substructures in Graphs of Fixed Pathwidth*, Jarrett Walsh, Armstrong Atlantic State University
3. *A small cover for convex unit arcs*, Joe Johnson, East Tennessee State University
4. *An Examination of a Queuing Model*, Evelyn Thomas, Spelman College
5. *A Comparison of Centrality Estimators*, Jamie McCreary, Tennessee Tech
6. *The Parameter Space for the Iteration of Cubic Polynomials*, Jack Senechal, University of North Carolina at Asheville
7. *The Dynamics of $F_c(x) = cx(1-x)$*, Tammeca Rochester, Spelman College
8. *The Relationship Between Primes and Perfect Squares*, Charles N Glover, Morehouse College
9. *The Hamming (7,4) Code*, Aminah Perkins, and Andrea Warren, Spelman College
10. *Error-Correcting Codes*, Hatshepsitu Tull and Kamilah Mooney, Spelman College
11. *Missile Launching: A Simplified Statistical Model*, Jamie Chatman, Spelman College
12. *An Algorithm for Counting Finite Topologies*, Sean Rae, Winthrop University
13. *A Relationship Between General and Second Order Linear Recurrences*, Daniel C. Morton, Wake Forest University
14. *The Effect of Academic Achievement on Self-Esteem of an Early Adolescent*, Christy DeWees, Meredith College
15. *Mathematical Models of HIV Disease Pathogenesis*, Karen Herman, NC A&T State University
16. *On the Difference Equation: $X_{n+1} = p + X_{n-1}/X_n$,* Allison Carter, Coastal Carolina University
17. *Applications of Algebra to Knot Theory*, Nancy Lin, University of Tennessee REU
18. *A Predator-Prey Model with Disease Dynamics*, Chris Flake, North Carolina State University and University of Nebraska-Lincoln REU
19. *Computations of the Partition Function, p(n),* Elizabeth Perez, Wake Forest University and Jimena Davis, Clemson University, Clemson University REU
20. *Analyzing the Contractions of* Vorticella sp.*,* Karoline Pershell, University of Tennessee-Martin and Florida State University REU
21. *2002 Penn State Erie REU in Mathematical Biology*, Meghan O'Malley, North Carolina State University and Penn State Erie REU
22. *Infinite Dimensional Lagrangian Reduction*, Luke Cherveny, NC State University and REU at Trinity University, San Antonio

12:20-1:00 p.m. Boxed Lunch

1:00-2:00 General Session IV, Ron Graham, Speaker

2:00-2:15 SIAM awards to student presenters

2:20-3:20 Jeopardy Finals and Concurrent Sessions

Geometry

1. *Sums of Squares and Cubes: Proofs Without Many Words*, Stephen Curry , Georgia College and State University
2. *Tangent sweeps and tangent clusters on the sphere and in the hyperbolic plane*, Irl Bivens, Davidson College
3. *A Generalization of Kasner's Theorem*, John Zerger, Catawba College

Graph Theory

1. *Decompositions of the Complete Digraph into Orientations of Cycles*, Gary Coker, Francis Marion University
2. *Hamiltonicity of 2-Connected Quasi-Claw-Free Graphs*, Rao Li, University of South Carolina Aiken

Applied Mathematics

1. *The Greens Function Alternative in Industrial and Applied Mathematics*, Pascal Roubides, Georgia Tech
2. *A Maple Application of Splines and the function $x^p + y^p = 1$, $1<p<2$ in the Determination of the Quality of Coal*, Lyndell Kerley, East Tennessee State University
3. *Pricing American Options via Monte Carlo: A Variance Reduction Technique*, Tracey Tullie, North Carolina Agricultural and Technical State University

Miscellaneous I

1. *Crash Course in Context-Oriented Mathematical Logic*, Damon Scott, Francis Marion University
2. *Inverse Iteration of Elliptic Functions*, Mark McClure, University of North Carolina at Asheville
3. *Weighted Weak Type Inequalities for Hardy Operator When $p = 1$*, Tieling Chen, University of South Carolina Aiken

Miscellaneous II

1. *Paper Folding and an Angle Limit: A Surprising Result*, Scotty Fairbairn, Clemson University
2. *Hesiod's Falling Anvil*, Andrew Simoson, King College
3. *Light Beam Switching at the Interface of Two Nonlinear Optical Media,* Rajah P. Varatharajah, North Carolina A&T State University

Special Session on Discrete Mathematics III

1. *Real Number Channel Assignments with Distance Conditions*, Jerrold R. Griggs , University of South Carolina
2. *Real Number Graph Labeling for Paths and Cycles*, Teresa Xiaohua Jin, University of South Carolina

Special Session on the History of Mathematics III

1. *Comparing the van Hiele Model to the Piaget Model*, Rachel Keller, Clemson University
2. *Reflections on Zeno's Paradoxes*, Dan Sloughter, Furman University