

## Preliminary Program

of the 82<sup>nd</sup> Annual Meeting of the Southeastern Section of the Mathematical Association of America,

*held jointly with*

the 27<sup>th</sup> 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 21<sup>st</sup>

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  $c(\mathbb{Z}_{pq})$ -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 Metacyclic 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*, Xiezhong 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 Xiezhong 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 22<sup>nd</sup>

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 Orłowski, 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 Cherveney, 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 Slougher, Furman University