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Education

- Ph.D. Department of Mathematical Sciences, Clemson University
(August 2007) GPA: 3.9/4.0
Dissertation: "Automorphic Decompositions of Graphs"
Advisor: Prof. Robert E. Jamison
- M.S. University of Tennessee, Knoxville (August 2002)
Major: Mathematics, Minor: Statistics GPA: 3.82/4.0
Project: "The History of e," Advisor: Prof. William R. Wade
- B.S. University of Tennessee, Knoxville (May 2001)
Major: Mathematics, Statistics GPA: 3.94/4.0
- A.A.S. Pellissippi State Technical Community College (May 1999)
Major: Mathematics GPA: 3.56/4.0

Professional Experience

- Assistant Professor, Department of Mathematics, East Tennessee State University
(August 2007 to present). (423) 439-4349
Courses Taught: Calculus I, Calculus II, Intro to Probability and Statistics, Combinatorics, Graph Theory, Undergraduate Research, Elementary Number Theory, Linear Algebra, Supervised Teaching, Honors Thesis
Other: Supervised Multiple Independent Study Courses, Supervised Multiple Honors-in-Discipline Sections, Supervised two Masters Theses and one Honors Thesis
- Graduate Teacher of Record, Department of Mathematical Sciences,
Clemson University (Fall 2002 to May 2007). (864) 656-3434
Courses Taught: Business Calculus, Calculus I, Calculus II
Other Duties: Graded for Calculus III and substituted in Abstract Algebra
- Adjunct Instructor, Tri-County Technical College (2005) (864) 646-1368
Courses Taught: Intermediate Algebra, College Algebra.
- Graduate Teaching Assistant, Department of Mathematics, (865) 974-2461,
University of Tennessee, Knoxville (August 2001 to August 2002).
Recitation Classes: College Algebra and Business Calculus
Duties: Grading for Calculus II

- Tutor of Mathematics, Math Tutorial Center, (865) 974-0469
University of Tennessee, Knoxville (August 2000 to August 2001)
Duties: Tutored undergraduate math students in subjects ranging from College Algebra to Differential Equations, Proctoring Duties for Intermediate Algebra.
- Peer Tutor - Mathematics, Department of Services for Students with Disabilities,
Mississippi State Technical Community College (January 1999 to August 2000).
(865) 539-7153, Duties: Tutored students in algebra, calculus, and statistics.

Research Interests

- Enumerative Combinatorics and Graph Theory. In particular, edge decompositions of graphs, graceful labelings on graphs, intersection/representation theory, and combinatorial designs.
- Other interests include: Number theory, Applied algebra, Pedagogy, History and Philosophy of Mathematics

Publications *“*” denotes undergraduate co-author, “t” denotes graduate co-author*

- “Peg Solitaire: Graphs with Pendants.” In Preparation (with D. P. Hoilman*).
- “Constructing Solvable Graphs in Peg Solitaire.” In Preparation (with D. P. Hoilman*).
- *How to Count: An Introduction to Combinatorics and its Applications.* In Preparation.
- “Fully Automorphic Decompositions of Graphs.” Submitted June 2011 to *The Journal of Combinatorial Mathematics and Combinatorial Computing.*
- “Decomposition, Packings, and Coverings of the Complete Digraph with Orientations of $K_3 \cup \{e\}$ ” Submitted July 2010 to *Graphs and Combinatorics* (with R. Gardner, C. Gwelled, and J. Lewenczuk).
- “Peg Solitaire on Graphs.” To appear in *Discrete Mathematics* (with D. P. Hoilman*).
- “A Note on the Number of Ways to Compute a Determinant Using Cofactor Expansion.” To Appear in *The Bulletin of the Institute of Combinatorics and its Applications.*
- “Units of Length.” To appear in *The Encyclopedia of Mathematics and Society.*
- “SMARTBoard.” To appear in *The Encyclopedia of Mathematics and Society.*
- “Mathematics in Movies.” To appear in *The Encyclopedia of Mathematics and Society.*
- “The Simple Astrid and its Variations.” *The International Journal of Pure and Applied Mathematics*, **66**, No.2: 137-144, 2011 (with E. Harris* and S. Milam^t).
- “Automorphic Decompositions of Graphs.” *Graphs and Combinatorics*, **27**: 149-160, 2011 (with R.E. Jamison).

- “Decompositions of the Directed Complete Graph with Orientations of P_4 with a Pendant Edge” *Congressus Numerantium*, **202**: 211-218, 2010(with A. Rockney^t).
- “The 2-Star Spectrum of Caterpillars.” *Congressus Numerantium*, **202**:7-16, 2010.
- “The Infinigon and its Properties.” *Congressus Numerantium*, **198**:39-49, 2009 (with A. Rockney* and C. Yearwood*).
- “Decompositions of Mixed Graphs using Partial Orientations of $P_3 \cup K_2$ and $K_2 \cup K_2 \cup K_2$.” *Congressus Numerantium*, **197**:153-160, 2009 (with A. M. Meadows^t).
- “Valuations on Graphs and Their Direct Products.” *Congressus Numerantium*, **197**:107-119, 2009.
- “Distinguishing Chromatic Numbers on the Products of Graphs.” *Congressus Numerantium*, **197**:21-33, 2009 (with J. Everhardt*).
- “Decompositions of Mixed Graphs using Partial Orientations of P_4 and S_3 .” *The International Journal of Pure and Applied Mathematics*, **56**, No. 1:63-67, 2009 (with A. M. Meadows^t).
- “The 2-Star Spectrum of Stars.” *Australasian Journal of Combinatorics*, **45**:303-308, 2009 (With R.E. Jamison and E. Mendelsohn).
- “Finding Vertex Induced Cycles Within Circulant Graphs.” *Congressus Numerantium*, **191**:33-49, 2008 (with T. M. Wooten^t).
- “Rulers, Valuations, and Cyclic Decompositions of Graphs.” *Congressus Numerantium*, **183**:109-127, 2006 (with R. E. Jamison).

Presentations

- “Enigma: The Unbreakable Nazi Code and How it Was Broken”
Departmental Seminar, ETSU, April 2011
- “Generating Functions in Sage”
Hands-on Exploration of Algebra and Combinatorics Using Sage
MathFest Short Course, Pittsburgh, August 2010 (invited presentation)
- “The 2-Star Spectrum of Caterpillars”
Forty-First Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2010
- “Invisible Purple Unicorns and Other Imaginary Beasts”
Upper East Tennessee Council of Teachers of Mathematics, May 2009

- “Transcendental Numbers”
Seminar on the history and Exploration of Mathematical Problems, East Tennessee State University, April 2009
- “Valuations on Graphs and Their Direct Products”
Fortieth Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2009
- “Regression”
Upper East Tennessee Council of Teachers of Mathematics, October 2008
- “Number Theoretical Applications to Graph Theory”
Clemson REU, Invited Speaker, June 2008
- “Open Labellings on Graphs”
Thirty-Ninth Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2008
- “Linear Diophantine Equations in Graph Decompositions”
AMS-MAA Joint Meeting, San Diego, January 2008
- “Introduction to Latex”
Departmental Seminar, ETSU, September 2007
- “Intersection Graphs Generated By An Edge Decomposition”
AMS-MAA Joint Meeting, New Orleans, January 2007
- “The $\{K_{1,s}, K_{1,t}\}$ -Spectrum of Stars and Caterpillars”
ACES Workshop, Emory University, December 2006
- “Simple Automorphic Decompositions of Graphs”
Algebra and Discrete Math Seminar, Clemson University, September 2006
- “Mathematical Resources on the Web”
Graduate Student Seminar, Clemson University, September 2006
- “Decompositions of Graphs”
Thirty-Seventh Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2006
- “Fully Automorphic Decompositions of Graphs”
Graduate Student Seminar, Clemson University, February 2006
- “Automorphic Decompositions of Graphs”
Algebra and Discrete Math Seminar, Clemson University, October 2005
Graduate Student Seminar, Clemson University, April 2005

- “Problems Relating to the Chromatic Decomposition of Graphs”
Algebra and Discrete Math Seminar, Clemson University, November 2004
- “The History of e ”
Graduate Student Seminar, Clemson University, September 2004, October 2002
- ”Pascal’s Wager - The Search for God in a Mathematical World”
Graduate Student Seminar, Clemson University, October 2003
- “Transcendental Numbers”
Informal Number Theory Seminar, Clemson University, April 2003
- “Mental Illness and the Mathematician”
Graduate Student Seminar, Clemson University, March 2003

Grants

- “Threshold Results for Peg Solitaire on Graphs,” ETSU Research Development Committee Grant. Awarded \$9970.
- “NSF Robert Noyce Scholarship Grant,” submitted (with J. Knisley, A. Govett, and D. Stephens). Awarded \$894066.
- “Distinguishing Chromatic Numbers of Graphs,” ETSU Research Development Committee Grant. Awarded \$8333.33)
- GEAR-UP (with Jack Rhoton)
- Clemson University Graduate School Government Travel Award (\$200)

Student Advisement

- Mathematical Sciences Advisor (August 2009 to present)
- Mr, Kelechukwu Alu, Master’s Committee, “Solving the Differential Equation for the Probit Function Using a Variation of the Carlemann Embedding.” Graduated May 2011.
- Mr. Michael Deren, Master’s Committee, “Universal Hypergraphs.” Graduated May 2011.
- Mr. D. Paul Hoilman, Honors Thesis Advisor, “Graph Theorizing Peg Solitaire.” Graduated May 2011.
- Ms. Denise Koesler, Master’s Committee, “A Predictive Model for Secondary RNA Structure Using Graph Theory and a Neural Network.” Graduated May 2010.
- Mr. Ernest Jum, Master’s Committee, “The Last of the Mixed Triple Systems.” Graduated August 2009.

- Mr. Adam Meadows, Master's Committee Chair, "Decompositions of Various Mixed Graphs with Partial Orientations of P_4 ." Graduated May 2009.
- Mrs. Kristin Holmes, Master's Committee, "Locating-Domination in Complementary Prisms." Graduated May 2009.
- Mr. Daniel Cantrell, Master's Committee, " f -cyclic and Bicyclic Decompositions of the Complete Graph into 4-Cycles with a Pendant Edge" Graduated December 2008.
- Ms. Trina Wooten, Master's Committee Chair, "Finding Edge Induced and Vertex Induced Cycles Within Circulant Graphs," Graduated August 2008.
- Mr. Tracy Holt, Master's Committee, "On the Attainability of Upper Bounds for Circular Chromatic numbers of K_4 -Minor-Free Graphs," Graduated May 2008.
- Ms. Melody Cooper, Master's Committee, "Packings and Coverings of Various Complete Digraphs with Orientations of a 4-Cycle," Graduated December 2007.

Professional Service

- Department Chair Selection Committee, November 2010.
- Outside observer for Master's defense - Mr. Daniel L. Lawson, "Automation and Its Effect on the Workforce," November 2010.
- Noyce Recruitment and selection (August 2009 to present)
- Referee for *Ars Combinatoria* (one paper)
- Referee for *Journal of Combinatorial Mathematics and Combinatorial Computing* (one paper)
- Chaired Session at Forty-First Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2010
- Responsible for several pages in the departmental self-study (January 2010)
- Mathematical Sciences Adviser, East Tennessee State University (August 2009 to present)
- Member of College of Arts and Sciences "Educational Affairs Committee" (May 2009 to present)
- Outside observer for Master's Defense - Ms. Jennifer M. Cooke, "Molecular Mechanism of Ferrisiderophore Transport via the Outer Membrane Receptor FhuA in *Escherichia coli*," March 2009
- Member of "Teaching Excellence Award for Graduate Teaching Associates Committee," March 2009

- Chaired Session at Fortieth Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2009
- Referee for *Graphs and Combinatorics* (one paper).
- Organizer and Co-Chair of “Special Session on Graph Decompositions” at the AMS meeting in Huntsville, October 2008
- Instructor Selection Committee, East Tennessee State University (August 2008)
- Referee for Special Issue of *The Journal of Statistical Planning and Inference*, February 2008 (two papers)
- Member of “Honors Selection Committee,” East Tennessee State University (2008 to present)
- Chaired “AMS Session on Combinatorics, IV” at the AMS-MAA Meeting in San Diego
- Judge for Undergraduate Poster Session at the AMS-MAA Joint Meeting in San Diego
- Advisor for Student Chapter of the Mathematical Association of America (2007-2008)
- Writer/Grader for “Franklin Math Bowl,” East Tennessee State University, November 2007 to present
- STEP/Symbiosis Recruitment at Central High School, Halls High School, Karns High School, and Powell High School in Knoxville, TN, October 2007
- Writer/Grader for Calculus Comprehensive exam (August 2007 to present)
- Runner/Grader for “Clemson Calculus Challenge,” Clemson University, April 2007
- Co-Organizer for Graduate Student Seminar, Clemson University, 2007-2008
- Participant in “Pro2serve Tennessee Math Contest,” University of Tennessee, Knoxville, 2002

Professional Development

- Noyce Southeastern Conference, Greenville, SC (March 2011)
- NSF Robert Noyce Teacher Scholarship Program Conference, Washington D.C. (July 2010)
- Collaborative Institutional Training Initiative (July 2009)
- Departmental Representative to Faculty Diversity Seminar (November 2009)
- Robert Noyce Preparation Workshop, Atlanta (October 2009)

- Teacher Preparation Grant Workshop, Pellissippi State Technical Community College, August 2008
- Participant in several Project NExT Workshop at Mathfest in Madison, August 2008
- Participant in “Teaching Introductory Statistics” presented by the Consortium for the Advancement of Undergraduate Statistics Education at East Tennessee State University, July 14-17, 2008
- Enrolled in “GRAD 7850 - Mentoring Student Research” at East Tennessee State University, Spring 2008
- Teacher Preparation Grant Workshop, Pellissippi State Technical Community College, February 2008
- Participant in several Project NExT Workshop at AMS-MAA Joint Meeting in San Diego, January 2008
- Attended TIMBER Conference, Appalachian State University, November 2007
- Participant in several Project NExT Workshop at Mathfest in San Jose, August 2007

Honors and Awards

- College of Arts and Sciences award for Outstanding New Faculty (2011)
- Departmental Award for Outstanding Faculty Award in Research (2009)
- Project NExT Fellow (2007-2008)
- Faculty Award for Excellence in Teaching, Clemson University (April 2004)
- Eagle Scout Award (1993)

Professional Memberships

- Mathematical Association of America
- American Mathematical Society
- Upper East Tennessee Council for Teachers of Mathematics
- Institute of Combinatorics and its Applications

Technical Skills

- Software: Matlab, C, NCSS, Sage
- Computing Platforms: Windows, Unix/Linux
- Text Formatting and Office Computing: Latex, Word, Excel, PowerPoint