MATHFEST 2007
MAA Student Paper Sessions
Friday, August 3, 2007
The Fairmont Hotel

Session 1		**Fairfield**	
8:30–8:45	Rory Tiedemann	Mount Union College	Win Probabilities in California Football
8:50–9:05	Arkajit Dey	Massachusetts Institute of Technology	Tree-Realizability of a Distance Matrix
9:10–9:25	Dana Wheaton	Sam Houston State University	Billiard Mathematics
9:30–9:45	Chase Smith	Duquesne University	A Nystrom/ACA Approach for Integral Equations
9:50–10:05	AJ Hergenroeder	Davidson College	Non-exponential Fluorescence Decays

Session 2		**Glen Ellen**	
8:30–8:45	Glen Wilson	The College of New Jersey	Invariant Theory and the Symbolic Method
8:50–9:05	Kristen Stewart	McNeese State University	Bicyclic Antiautomorphisms of Triple Systems
9:10–9:25	Michael Fink	Warren Wilson College	Some Algebra of Partition Regular Matrices
9:30–9:45	Roberto Palomba	University of Mary Washington	Semigroup Structure in Conjugate Categories
9:50–10:05	Bryan Bischof	Westminster College	On the Images of Integer Coefficient Polynomials

Session 3		**Piedmont**	
8:30–8:45	William Boney	Grinnell College	Frame Potential for Infinite Frames
8:50–9:05	Nick Haught	Youngstown State University	The Cauchy-Riemann Equations and $\bar{z}$
9:10–9:25	Zachary Beamer	Michigan State University	Tent-Maps and Cantor-Like Fractals
9:30–9:45	Ziying Pan	Michigan State University	The Dynamical Behavior of Quadratic Maps
9:50–10:05	Jessica Lin	New York University	Managing Infinite-Dimensions by Induced Dynamics

Session 4		**Belvedere**	
8:30–8:45	Tri Nguyen	Evergreen Valley College	Tic-Tac-Toe in Higher Dimensions
8:50–9:05	Ashley Weatherwax	University of Texas Dallas	A Game of Wymsical Mathematics
9:10–9:25	Daniel Kearns	Penn State - Capital College	Rediscovering Rithmomachia
9:30–9:45	Amanda Seitz	Sam Houston State University	Fun Fibonacci Facts
9:50–10:05	Megan Sawyer	University of Colorado Denver	Constructible Numbers

MATHFEST 2007
Invited Paper Session
Manifolds with Density and Partitioning Problems
Friday, August 3, 2007
San Jose State University

Invited Paper Session		**Gold Room**	
1:00–1:15	Frank Morgan	Williams College	Manifolds with Density
1:20–1:35	Michael Hutchings	University of California Berkeley	Proof of the Double Bubble Conjecture
1:40–1:55	Neil Hoffman	University of Texas, Austin	Double Bubbles in Spheres & Gauss Space
2:00–2:15	Anthony Marcuccio	Williams College	Optimal Partitions of the Sphere
2:20–2:35	Max Engelstein	Yale University	Isoperimetric Inequalities
2:40–2:55	Quinn Maurmann	Brown University	The Geometry of Manifolds with Density
3:00–3:15	Taryn Pritchard	Williams College	Perimeter-minimizing Regions
3:20–3:35	Joseph Corneli	PlanetMath.org	The Hyperreal Dictionary Project
3:40–3:55	Surprise Presentation		

MATHFEST 2007 PME Student Paper Sessions
San Jose State University, Friday, August 3, 2007

Session 1		**Room 224, MacQuarrie Hall**	
2:00–2:15	Brendan Kelly	The College of New Jersey	Plant Pathogen Dynamics
2:20–2:35	Kyle Diederich	St. Norbert College	Measuring the Diskivity of a Plane Region
2:40–2:55	Mimi Tsuruga	Hunter College - CUNY	Vorticity in Navier-Stokes Flow
3:00–3:15	Kerry McIver	John Carroll University	The Perfect Shuffle
3:20–3:35	Ashley Swandby	Longwood University	Image Analysis Methods in cDNA Microarrays
3:40–3:55	Tyler Drombosky	Youngstown State University	Effective Condition Number
4:00–4:15	Dylan Hower	Duquesne University	Automated Grain Boundary Detection
4:20–4:35	Brittany Mosby	Spelman College	Elliptic Curves
4:40–4:55	Shawn Case	Fitchburg State College	Cryptology
5:00–5:15	Jennifer Crounse	Fitchburg State College	The Personal Assignment Problem
5:20–5:35	Joseph Esposito	Duquesne University	Variational Methods for Image Decomposition
5:40–5:55	Meghan Moreland	Mount Union College	Geometry and Foucault Pendulum
6:00–6:15	Joseph Salisbury	Rhode Island College	Models of Synchronization: the Kuramoto Model

Session 2		**Room 233, MacQuarrie Hall**	
2:00–2:15	Michelle Jackson	Pepperdine University	Two Interesting Binomial Identities
2:20–2:35	Micah Martin	Pepperdine University	Binomial and Gaussian Coefficients
2:40–2:55	Mark Krines	St. Norbert College	Finding and Maintaining Separable Preferences
3:00–3:15	Mauricio Alexander Rivas	Sam Houston State University	A Combinatorial Morse Theory
3:20–3:35	Jeffrey Ward	Clarkson University	Lattices in Cryptography
3:40–3:55	Matthew Voigt	Saint John's University	The Complexity of the Stars
4:00–4:15	Brittany Lynn Chase	Carthage College	The Mathematics of the Game of Set
4:20–4:35	David Horn	Elmhurst College	Cutting Pie Fairly
4:40–4:55	Mark Lane	Sam Houston State University	Magic n-Circles
4:00–4:15	Amanda Moore	Denison University	Interlocked Linkages: Finding a Key
5:20–5:35	Amy Winslow	Randolph-Macon College	Modular Origami and the Trefoil Knot
5:40–5:55	Rebecca Winarski	Case Western Reserve University	Superbraid Index & Knot Invariants
6:00–6:15	William George	Case Western Reserve University	The Total Curvature of Knots

Session 3		**Room 234, MacQuarrie Hall**	
2:00–2:15	Jeffrey Hatley	The College of New Jersey	Algebraic Invariants of Binary Forms
2:20–2:35	Anne Rollick	John Carroll University	Spheres on a Cayley Graph
2:40–2:55	Jennifer Anderson	The University of Texas at Arlington	Quandle Basics
3:00–3:15	Jared Ruiz	Youngstown State University	Elements of High Order From Finite Fields
3:20–3:35	Jason Percival	University of Massachusetts - Lowell	The Area of a Spherical Triangle
3:40–3:55	Ryan Pavlik	St. Norbert College	Computational Intersection of Polygons
4:00–4:15	Jeff Cornfield	Youngstown State University	Napoleon Triangles
4:20–4:35	David Ledbetter	Mount Union College	On a Number of Primes less than x
4:40–4:55	Marie Nicole Dailey	John Carroll University	Divisibility Properties of 2007
5:00–5:15	Arielle Leitner	California State University, Chico	Arithmetic Derivatives
5:20–5:35	Michael T. Williams	University of Massachusetts - Lowell	Continued Fractions with Gosper Grids
5:40–5:55	Brent Hawker	University of Utah	Continued Fractions & Sums of Squares
6:00–6:15	Matt Ward	Youngstown State University	Are the Gaussian Integers Friends?

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Session 5		**Room 222, MacQuarrie Hall**	
2:00–2:15	Christine Barnes	Augustana College	Mathematics in Theatre
2:20–2:35	Christina Gillen	Augustana College	Equally Related Genealogy Graphs
2:40–2:55	David Breisch	Augustana College	Instability in a Numeric Algorithm
3:00–3:15	Heather Akerson	College of Saint Benedict	Modeling HIV, the Immune System, & Drug Dynamics
3:20–3:35	Jessica Brown	University of Texas Arlington	Exact Solutions to the Nonlinear Schroedinger Equation
3:40–3:55	Jorge Ibanez	University of Texas Pan American	The Schroedinger Equation using Mathematica

Session 6		**Room 223, MacQuarrie Hall**	
2:00–2:15	Alexandra Appel	California State University Chico	Intrinsic Knotting of Multipartite Graphs
2:20–2:35	Phillip Compeau	Davidson College	Hamiltonian Cycles in Reversal Graphs
2:40–2:55	Christine Lee	University of Colorado Denver	Irregular Graph Colorings of Paths and Cycles
3:00–3:15	Kenji Kozai	Harvey Mudd College	Linked Graphs in All Spatial Embeddings

Session 7		**Room 222, MacQuarrie Hall**	
4:20–4:35	Ryan Causey	Mississippi State University	Gravitational Potential in Dimension N
4:40–4:55	Matt Deyo-Svendsen	Stetson University	Genetic Algs to Improve the Finite Element Method
5:00–5:15	Mary Servatius	Worcester Polytechnic Institute	Increasing Productivity at Staples, Inc.
5:20–5:35	Emily Hendrickson	Slippery Rock University	Stabilizing the Vibrations of a Thermoelastic Beam
5:40–5:55	Katrina Honigs	Grinnell College	The Geometry of the Hausdorff Metric

Session 8		**Room 223, MacQuarrie Hall**	
4:20–4:35	Sean MacRae	Sonoma State University	An Introduction Into Partition Theory
4:40–4:55	Eleanor Birrell	Harvard University	Partition Regularity of Nonlinear Systems
5:00–5:15	Anarghya Vardhana	Stanford University	Jacobi Symbols for Mersenne Numbers
5:20–5:35	Hillary Sackett	Smith College	On Zeta Functions of Weil and Igusa Type
5:40–5:55	Ryan Hake	California State University Chico	Number Theory and the Classical Markoff Equation
6:00–6:15	Shaun Callighan	Augustana College	Probabilistic Prime Testing