

# Program for the 2008 Annual Meeting

Western Kentucky University, Bowling Green

March 28 - 29, 2008

Note: All times listed are Central Daylight Time (CDT). Undergraduate student speakers are indicated by (u), graduate student speakers are indicated by (g), and faculty speakers are indicated by (f).

## Friday, March 28

**2:30-5:30pm**      **Registration**    MMTH Second Floor Atrium

**2:30-5:00pm**      **Refreshments**    MMTH 228

**2:30-5:30pm**      **Book Exhibits**    MMTH 228

**2:30-5:30pm**      **Student Lounge**    MMTH 227

### **3:20-3:35pm Contributed Papers**

Courtney Kepple, Western Kentucky University (u)  
*Interesting Properties of Parabolas.* MMTH 232

John Spraker, Western Kentucky University (f)  
*A Talk of Acceptable Duration.* MMTH 236

### **3:40-3:55pm Contributed Papers**

Jonathan Butcher, Joe Chambers and Nathan Potratz, Asbury College (u)  
*Simply Sudoku.* MMTH 232

Bettina Richmond, Western Kentucky University (f)  
*A Total Quasiorder on Finite Topological Spaces.* MMTH 236

David K. Neal, Western Kentucky University (f)  
*Limits of Mean and Variance of a Fibonacci Distribution.* MMTH 249

**4:00-4:15pm Contributed Papers**

Philip Fackler, Christopher Hatfield, and Aaron Iddings, Asbury College (u)  
*Can Santa Swim? Modeling the Effects of the Melting North Polar Ice Cap on the Coast of Florida.* MMTH 232

Mark Robinson, Western Kentucky University (f)  
*Iterative Methods for Linear and Nonlinear Systems.* MMTH 236

David DeSario, Georgetown College (f)  
*Generalized Solid Angle Theory for Real Polytopes.* MMTH 249

**4:15-4:30pm Break**

**4:30-5:25pm Panel Discussion**

*The Gatton Academy of Mathematics and Sciences in Kentucky*

Moderator: Mark Robinson, Western Kentucky University

Panelists: Barry Brunson, Mathematics Professor

Claus Ernst, Mathematics Professor

Sam Fedorka, Student

Julia Freeman, Student

Tim Gott, Academy Director

MMTH Auditorium

**4:30-4:45pm Contributed Papers**

Taylor J. Clements, Murray State University (u)  
*Boundaries of Complex Polynomials and their Roots.* MMTH 232

Bruce Kessler, Western Kentucky University (f)  
*Mathematical Myth-busting: The “Boiling Water” Myth.* MMTH 236

Timothy M. Brauch, University of Louisville (g)  
*Counting Perfect Matchings.* MMTH 249

**4:50-5:05pm Contributed Papers**

Woody Burchett, Georgetown College (u)  
*Thinking Inside the Box: Geometric Interpretations of Quadratic Problems in BM 13901.* MMTH 232

David Benko, Western Kentucky University (f)  
*The Pros and Cons of Ebay.* MMTH 236

John M. Cochran, University of Louisville (g)  
*Data Tracking Using Mathematical Imaging.* MMTH 249

**5:10-5:25pm Contributed Papers**

Rachel Stamper, Centre College (u)

*Cantor's Contributions to the Study of Infinite Sets.* MMTH 232

Rus May, Morehead State University (f)

*An expectation in the birthday problem.* MMTH 236

Dirk Schlingmann, Eastern Kentucky University (f)

*The Mathematics of Music.* MMTH 249

**5:30-5:45pm Contributed Papers**

Sara Haque, Centre College (u)

*The completeness tale of the Incompleteness Theorem.* MMTH 232

Duk Lee, Asbury College (f)

*Why can an angle trisection be done by origami?* MMTH 236

Kenny Palmer, Western Kentucky University (f)

*Trigonometry of Music.* MMTH 249

**6:00-7:30pm Banquet** Downing University Center, Cupola Room

**7:30-8:30pm Invited Address**

David Bressoud, Macalester College

*The Truth of Proofs*

MMTH Auditorium

**8:30pm Aftermath** MMTH Auditorium Foyer

**9:00pm Presentation**

MAA movie "*Hard Problems*"

MMTH Auditorium

## **Saturday, March 29**

**7:45-11:00am**    **Registration**    MMTH Second Floor Atrium

**7:45-11:00am**    **Refreshments**    MMTH 228

**8:00-11:20am**    **Book Exhibits**    MMTH 228

**8:00-11:20am**    **Student Lounge**    MMTH118

### **8:00-8:55am Presentation**

*Statewide Mathematics Placement Testing Project*

Presenters: Paul Eakin, University of Kentucky

Steve Newman, Northern Kentucky University

MMTH Auditorium

### **8:00-8:15am Contributed Papers**

Jesse Johnson, Centre College (u)

*Cyclotomic Cosets and Finite Fields.* MMTH 232

Rob Donnelly, Murray State University (f)

*The numbers game and Dynkin diagram classification results.* MMTH 236

Lan Nguyen, Western Kentucky University (f)

*Something about the fixed point theorem.* MMTH 249

D. Jacob Wildstrom, University of Louisville (f)

*Relocation problems for limited-mobility service providers.* MMTH 250

### **8:20-8:35am Contributed Papers**

Mandy Smith, Centre College (u)

*Persistence Barcodes For Digits.* MMTH 232

Matthew R. Gilliland, Murray State University (g)

*Distributive Lattices structured by the  $F_4$  Dynkin diagram.* MMTH 236

Andrew Long, Northern Kentucky University (f)

*A Computer-Controlled Function Box for Plotting Surfaces.* MMTH 249

Wandi Ding, Middle Tennessee State University (f)

*Optimal Control on a Hybrid Tick Disease Model.* MMTH 250

**8:40-8:55am Contributed Papers**

Joshua Knox, Morehead State University (u)  
*Random Graphs for Modeling Online Social Networks.* MMTH 232

Robert Amundson, Murray State University (u)  
*The Lie group  $GL(n, Q)$  and Lie algebra  $gl(n, Q)$ .* MMTH 236

Bill Fenton, Bellarmine University (f)  
*Radical Axes of Apollonian Circles on a Triangle.* MMTH 249

Jeffrey Heath, Centre College (f)  
*Modeling Baseball Using Markov Chains.* MMTH 250

**9:10-10:00am 2007 Distinguished Teaching Award Address**

Chris Christensen, Northern Kentucky University  
*The Evolution of the Cryptologic Bombe*  
MMTH Auditorium

**10:00-10:20am Break**

**10:20-11:15am Panel Discussion** MMTH Auditorium

*Perspectives on Transition Courses*

Panelists: David Bressoud, Macalester College

Leanne Faulkner, Kentucky Wesleyan College

Alex McAllister, Centre College

Tom Richmond, Western Kentucky University

**10:20-10:35am Contributed Papers**

Ryan Walls, Murray State University (u)  
*An  $N$ -gon Knot Invariant.* MMTH 232

Andy Martin, Kentucky State University (f)  
*OoOps! Are We Forgetting to Update the Order of Operations?* MMTH 236

Andrew Long, Northern Kentucky University (f)  
*Optimal Placement of Fixed Solar Panels.* MMTH 249

Doug Chatham, Morehead State University (f)  
*Symmetries of Solutions to the  $N+k$  Queens Problem.* MMTH 250

**10:40-10:55am Contributed Papers**

Kelly Christensen, Ted Landis, and Joe Thacker, Asbury College (u)  
*Good Health is Hard to Find.* MMTH 232

Gary Goodaker, West Kentucky Community and Technical College (f)  
*Using Kentucky Governor's Cup Mathematics Written Assessments in Elementary Teachers Courses.* MMTH 236

Lisa Holden, Northern Kentucky University (f)  
*Protostar Formation: Describing the Collapse of a Molecular Cloud Core.* MMTH 249

Omer Yayenie, Murray State University (f)  
*A New Generalization of The Fibonacci Sequence & An Extended Binet's Formula.*  
MMTH 250

**11:00-11:15am**

Benjamin Clapp, Kayla Menkedick, and Alasdair Wooffitt, Asbury College (u)  
*International Healthcare Efficiency.* MMTH 232 **WITHDRAWN**

Scott Dillery, Lindsey Wilson College (f)  
*Moving Away from Developmental Algebra Courses.* MMTH 236

Stacy Long, Georgetown College (u)  
*Cosmology and Einstein's General Relativity.* MMTH 249

Marcia Edson, Murray State University (f)  
*On the Number of Partitions of an Integer in the  $m$ -Bonacci Base.* MMTH 250

**11:30am-12:30pm Invited Address**

Louis J. Gross, University of Tennessee, Knoxville  
*Mathematics as a Mechanism for Cohesion in Biology*  
MMTH Auditorium

**12:30-1:30pm Lunch** Downing University Center, Cupola Room

**1:15-1:45pm Business Meeting** Downing University Center, Cupola Room

**2:00pm KYMAA Executive Committee Meeting**