



2012 Joint Mathematics Meetings, Boston, MA
MAA Undergraduate Student Poster Session, January 6
Outstanding Presentations

1. Completions of Hypersurface Domains

Ji Won Ahn, Williams College, (Williams College REU)

Feiqi Jiang, University of Michigan

Giang Tran, Bard College

2. The Noncommutative Geometry of Conway's Game of Life

Nadine Amersi, University College London

4. Finding Factors of Factor Rings over the Eisenstein Integers

Valmir Bucaj, Texas Lutheran University

14. On Li-Yorke Measurable Sensitivity

Jared Hallett, Williams College, (Williams College REU)

Lucas Manuelli, Princeton University

22. Calculating Call Blocking, Preemption Probabilities and Bandwidth Utilization for Satellite Communication Systems

Yacoub Kureh, Harvard College

Leah Rosenbaum, Scripps College

44. How does the effort a mother bird expends on her offspring depend on the attractiveness of her mate?

Dana-Adriana Botesteanu, Mount Holyoke College, (NIMBios, University of Tennessee, Knoxville REU)

47. Modeling the Effect of Diversity in Host Plant-Herbivore-Predator Interactions

Karissa Smith, Ursinus College

Allison Bugenis, Ursinus College

57. Centers of Magnitude

Thunwa Theerakarn, Brown University

62. Discrete Models with Proportional Harvesting

James Cameron, University of Texas at Austin, (Central Michigan University REU)

Luis Granera Vega, Yale University

Peter Jaworski, Central Michigan University

Loren Santana, Skidmore College

64. Independence polynomials of regular caterpillars

Michaela Stone, Alfred University, (UNC-Asheville REU)

Gregory Ferrin, Western Carolina University

68. Optimizing Algorithm for Reliability Assessment of Radial Lifeline Systems

Lynette Guzman, University of Arizona, (Rice University REU)

79. The cubic formula in characteristic 3

Dubravka Bodiřoga, Hood College, (Hood College REU)

102. Trees Fixed by Permutations and their Applications to Tree Isomorphism Classes and Other Combinatorial Objects

George Arzeno, MIT

107. Characteristics of Non-Symmetric Edge Flames in Micro-Channels

Casey McGrath, University of Redlands

114. Achievable Radio Numbers and The Radio Number Formula

Ben Sokolowsky, Bucknell University, (California State University-Channel Islands REU)

116. Propagation Time for Zero Forcing of a Graph

Shanise Walker, University of Georgia, (Iowa State University REU)

143. Cloaking Against Thermal Imaging

Maple So, Arizona State University, (Rose-Hulman Institute of Technology REU)

144. Smartphone Sensors and Detecting Road Anomalies

SaraJane Parsons, Indiana University of Pennsylvania, (Grand Valley State University REU)

Nathan Marculis, Grand Valley State University

149. An Analytical Approach to Solving Green Oxidation Processes

Diego Torrejon, George Mason University

150. Modeling the Effects of the Fukushima Daiichi Nuclear Meltdown on the Marine Environment

Bernard Lipat, New Jersey City University

Rusty Laracuenti, New Jersey City University

154. Refining the Contour Advection with Surgery Method for 3 Dimensional Flow Analysis

Peter Bradshaw, Arizona State University, (Arizona State University, Mathematical and Theoretical Biology Institute)

161. Geographic Profiling through Six-Dimensional Nonparametric Density Estimation

Austin Alleman, Santa Clara University, (Santa Clara University REU)

179. Spatial Spread of *Wolbachia*: A Strategy to Control Dengue Fever

Alyson Fox, Loyola University Maryland, (North Carolina State University REU)

Jared Catenacci, University of Wisconsin-Milwaukee

181. Application of a Hill Climbing Algorithm to Parallelize Graph-based Genome Assembly

Alexandra Gendreau, Wellesley College, (RIPS-Hong Kong REU)

August Guang, Harvey Mudd College

185. Chaparral Population Models in Response to Wildfires

Garrett Johns, Pepperdine University, (UCLA Applied Mathematics REU)

Wancen Jiang, Pepperdine University

Yuezhao Yang, Cal Poly Pomona

188. Heuristic Optimal Control on Polynomial Dynamical Systems Expedited by Use of Algebraic Geometry

Atsuya Kumano, Reed College, (Virginia Bioinformatics Institute REU)

Hussein Al-Asadi, University of Michigan

190. A Symmetric Intraguild Predation Model for the Invasive Lionfish and Native Grouper

Margaret-Rose Leung, Oregon State University, (Arizona State University, Mathematical and Theoretical Biology Institute)

192. Short and Long Range Population Dynamics of the Monarch Butterfly (*Danaus plexippus*)

Komi Messan, North Carolina A&T State University, (Arizona State University, Mathematical and Theoretical Biology Institute)

Shawn Tsosie, MIT

201. Social Dynamics of Gang Involvement: A Mathematical Approach

Sowmya Srinivasan, Bryn Mawr College, (Arizona State University, Mathematical and Theoretical Biology Institute)

Joshua Austin, University of Maryland, Baltimore County

Emma Smith, Linfield College

208. A Combinatorial Approach to r-Fibonacci Numbers

Curtis Heberle, Harvey Mudd College

217. Binomial Type Polynomial Sequences Related to Tiling Problems

Jonathan Schneider, MIT

222. The Weak Bruhat Order and Separable Permutations

Fan Wei, MIT

230. Nevanlinna-Pick problem with Boundary Conditions: minimal norm rational solutions of low degree

Stephen Cameron, The College of William and Mary, (The College of William and Mary REU)

232. On Legendre Multiplier Sequences

Katherine Urabe, California State University-Fresno, (Brigham Young University REU)

233. Operations on Solid Angles

Michelle Bodnar, University of Michigan, (University of Wyoming REU)

Aaron Mayerson

235. Maximizing Volume Ratios for Shadow Covering by Tetrahedra

Christina Chen, MIT PRIMES (Program for Research in Mathematics, Engineering and Science for High School Students)

236. Geometry of Surfaces with Density

Miguel Fernandez, Truman State University, (Williams College REU)

252. Upper Bounds on the Volume of Hyperbolic, Closed 3-Braids

Alyson Bittner, SUNY Geneseo, (California State University-San Bernardino REU)

253. On Constructible Sets

Tyler Bongers, Colorado State University-Pueblo, (California State University-Channel Islands REU)

Walter Morales, California State University-Bakersfield

254. Γ -Euler-Satake Characteristics of Non-Orientable 3-Orbifolds

Ryan Carroll, Rhodes College

255. Orbifolds and Buildings

Samir Chowdhury, Tufts University

258. Characterizing Moves in Hexagonal Regions of Hextile Knot Mosaics

Andreana Holowatyj, Victoria University (Wellington, New Zealand)

259. Virtual Birack Shadow Modules and their Link Invariants

Nicole Sanderson, University of California, Davis, (Claremont Colleges REU)

275. The Best Mixing Time on Trees

Jeanmarie Youngblood, Macalester College

278. Domination and Independence on the Triangular Honeycomb Chessboard

Hong Lien Tran, Kennesaw State University

305. Which Rotor-Routers are Universal?

Xiaoyu He, Acton-Boxborough Regional High School

312. Yelling in Circles: A Generalization of the Game "Look Up and Scream"

Sarah Warkentin, Harvey Mudd College, (East Tennessee State University REU)

Lucia Petito, University of Rochester