Keynote Speaker

Dr. Marilyn E. Strutchens, Professor of Secondary Mathematics Education, Department of Curriculum and Teaching, Auburn University

Career Panelists

Ms. Laila Hasan, Database/System Analyst II, Alabama Municipal Electric Authority

Mrs. Kasey Hulsey, C.P.A. and Senior Associate, Jackson Thornton

Ms. Ashley Megelin, Biologist, TTL Engineering

Mrs. Courtney Norris, Project Engineer, Krebs Architecture & Engineering Inc.

Ms. Kimberly Obradovich, Environmental Engineering Professional, TTL Engineering

Dr. Marilyn E. Strutchens, Professor of Secondary Mathematics Education, Department of Curriculum and Teaching, Auburn University

Mrs. Christine Taylor, Programmer Analyst III, Alfa Insurance

Dr. Chelsea Ward, Assistant Professor, Biology Department, AUM

Workshop Leaders

Dr. Mosisa Aga, Assistant Professor, Mathematics Department, AUM

Mr. Joe Albree, Assistant Professor, Mathematics Department, AUM

Ms. Abby Allen, Ph.D. Candidate, Mathematics, Auburn University

Dr. Scott Brown, Assistant Professor, Mathematics Department, AUM

Dr. Luis Cueva-Parra, Assistant Professor, Mathematics Department, AUM

Dr. Cheng-Chi Huang, Associate Professor, Mathematics Department, AUM

Ms. Kimberly Obradovich, Environmental Engineering Professional, TTL Engineering

Dr. Rhodes Peele, Associate Professor, Mathematics Department, AUM

Dr. Furman Smith, Associate Professor, Mathematics Department, AUM

Dr. Joe Smith, Assistant Professor, Mathematics Department, AUM

Mr. Luke Smith, Director, Instructional Support Lab, AUM

Dr. Yi Wang, Assistant Professor, Mathematics Department, AUM

Dr. Chelsea Ward, Assistant Professor, Biology Department, AUM

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For donation of folders, pencils, and notepads

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AUM's 6th Annual Sonia Kovalevsky Mathematics Day

Program Organizers

Dr. Tuval Foguel
Dr. Joan Powell
Dr. Matthew Ragland
Dr. Luis Cueva-Parra Technology/Equipment
Dr. Yi Wang Technology/Equipment
Mrs. Freida Warren Registration & Career Panelist Moderator

Sponsored By

The Association for Women in Mathematics (AWM)
National Security Agency (NSA)
Elizabeth City State University
AUM Office of Academic Affairs
AUM School of Sciences
AUM Department of Mathematics

Dr. Mosisa Aga: *Alphametic Puzzles*, An alphametic puzzle (also sometimes known as a cryptarithm) is a type of puzzle where words are put together into an arithmetic formula such that digits can be substituted for the letters to make the formula true. In this presentation we will first introduce the definition and the Guiding Rules of the puzzle and then have fun with some (selected) easier such puzzles.

Mr. Joe Albree: *Sonia Kovalevsky's Biography*, This workshop gives a brief account of the history of Sonia Kovalevsky and significance of her life and work.

Ms. Abby Allen: *Euler and the Seven Bridges of Königsberg*, If you were to rank the top mathematicians of all time, Leonhard Euler would definitely be in the top three. His work spanned many different disciplines within math and science, laying groundwork still used today in fields ranging from physics to geometry to number theory. Today we look at his problem about the Seven Bridges of Königsberg and how it led to the development of graph theory.

Dr. Scott Brown(1): *Mathematical Connections with Islamic Art*, A hands on workshop illustrating the connections between geometry and Islamic art.

Dr. Scott Brown(2): *Polygons, Polyhedrons and Polydrons Oh My!*, A hands on workshop discussing the regular three dimensional solids; the Platonic, Archmedian, and Johnson solids.

Dr. Cheng-Chi Huang: *A New Look at Solving Inequalities*, The traditional methods for solving polynomial inequalities and their related problems have been suggested in the literature. The new method will be presented and the method may prove to be interesting and straightforward for many people.

Ms. Kimberly Obradovich: *Applying engineering to make a difference in Kenya*, Have you ever thought about using your engineering skills to make a difference in the world? In June of 2008, Kimberly Obradovich was part of a team that traveled to Njoro, Kenya to install a water purification system. This project was a challenging civil design project, taking basic components and improvising additions in order to have a system appropriate to the site layout and local contaminants. Kimberly will talk about what her team planned to accomplish with obstacles and challenges to her mission, and the ultimate success of bringing pure water to a tiny village in Africa.

Sonia Kovalevsky Day Program
Auburn Montgomery
February 28, 2009

Time	Event	Location
8:00–8:45	Registration & Refreshments	318/307 Goodwyn
8:45–9:15	Welcome	307 Goodwyn
9:25–10:15	**Keynote Address** **Dr. Marilyn E. Strutchens** **Do Math and Change the World**	307 Goodwyn
10:25–11:15	Workshop Session #1	← Descriptions →
	Dr. Yi Wang	205 Goodwyn
	Dr. Joe Smith	219 Goodwyn
	Ms. Kimberly Obradovich	316 Goodwyn
	Dr. Cheng-Chi Huang	317 Goodwyn
	Ms. Abby Allen	319 Goodwyn
	Dr. Rhodes Peele	320 Goodwyn
11:30–12:00	Lunch	318/307 Goodwyn
12:10–1:00	Workshop Session #2	← Descriptions →
	Dr. Luis Cueva-Parra	205 Goodwyn
	Dr. Scott Brown(1)	208 Goodwyn
	Mr. Luke Smith	219 Goodwyn
	Dr. Mosisa Aga	316 Goodwyn
	Ms. Abby Allen	319 Goodwyn
	Dr. Chelsea Ward	320 Goodwyn
1:10–2:00	Workshop Session #3	← Descriptions →
	Dr. Furman Smith	205 Goodwyn
	Dr. Scott Brown(2)	208 Goodwyn
	Mr. Luke Smith	219 Goodwyn
	Dr. Kimberly Obradovich	316 Goodwyn
	Mr. Joe Albree	317 Goodwyn
	Dr. Chelsea Ward	320 Goodwyn
2:10–3:00	Career Panel Discussion	307 Goodwyn
3:10–3:45	Door Prizes and Closing Remarks	307 Goodwyn

Dr. Luis Cueva-Parra: *Cellular Automata (CA): Mathematics without Numbers*, We introduce a different way of doing Mathematics. Instead of using Numbers and Operations we present Cells and Rules (Cellular Automata (CA)). CA "live" in a discrete space and its dynamical behavior is explored. Cells can be anything from geometrical shapes or figures to musical notes. Those cells will follow certain rules which we impose arbitrarily.

Dr. Rhodes Peele: *Cards, coins, and dice: How to tell a good bet from a bad one*, This workshop will focus on elementary probability and statistics and questions associated with cards, coins, and dice.

Dr. Furman Smith: *Programming a Simple Video Game*, With use of the computer lab, this talk illustrates how to program a video game with the classic programing language Logo.

Dr. Joe Smith *The Algebra of Geometric Symmetries*, We will look at the geometric symmetries of a square and discuss some of the algebraic properties these symmetries possess. Then the students will examine the symmetries of a triangle on their own.

Mr. Luke Smith: *Is it possible to NOT get sick?*, This workshop is going to be on probability and how probability plays into getting sick by catching viruses.

Dr. Yi Wang: *Mathematics and Your Pictures: Digital Image Processing Fundamentals*, This workshop deals with the mathematics behind your digital images.

Dr. Chelsea Ward: *Latitudinal gradients in stress: A physiological explanation of the Jimmy Buffet effect*, Recently, studies have shown that vertebrates in different areas of the world respond to stress differently. Birds in Artic and Temperate zones exhibit different responses to stressful stimuli than birds in the Tropics. This workshop will determine if it is possible that this trend extends to other groups of vertebrates.