

2016 MAA/CURM Spring Research Conference Schedule

FRIDAY April 1

Location: Conference Center / University Hall

7:50am-8:10 **Hotel Lobby** **Van-pool to Conference Center (drivers are M. Dorff, J. Debnath, N. Jacob, D. Klyve, K. Leonard (car) -- they will make 2 trips.) Please be watching for them.**

8:30am - 9:00 **1775** **Registration/ Welcome; pick up materials**

Time:	Room:	Description:	Presenters:	Advisor:	Judges:	TITLE:
Session 1:						
Chair: Gryc						
9:10am-9:30	1775	Presentation 1.1	Emily Nguyen, Brandon Tauber	Cha, Gryc	Taylor, Debnath	Quadratic Forms and Their Berggren Trees
9:30am-9:50	1775	1.2	Jamie Oliva	Gryc	Taylor, Debnath	A Model of eBay's Best Offer Mechanism \\ The Affect of the Buy-It-Now Price
9:50am-10:10	1775	1.3	Charli White	Gryc	Taylor, Debnath	Introduction to Best Offer Auctions on eBay
10:10am-10:45		BREAK				
10:50am-11:10	1775	1.4	Brittney Tuff	Gryc	Taylor, Debnath	eBay Auctions with a Seller Reserve
11:10am-11:30	1775	1.5	Torie Chomko, Alex McCleary	Taylor	Cha, Gryc	Factoring bipartite circulants over the direct product
Session 2:						
Chair: Martinez/Eager						
9:10am-9:30	1857	Presentation 2.1	Taylor Spino, Lisette Herrera	Martinez	Rios-Soto, Eager	Modeling Multi-Host Infectious Diseases (Talk 1)
9:30am-9:50	1857	2.2	Dana Lacey, Rebecca Rachan	Martinez	Rios-Soto, Eager	Analyzing a Multi-Host Infectious Disease Model (Talk 2)
9:50am-10:10	1857	2.3	Emmie Malendez, Luis Ramos	Rios-Soto	Martinez, Eager	A Mathematical Epidemiological Model to Study the Impact of the Prodromal Stage for the Herpes Simplex Virus Epidemic (Talk 1)
10:10am-10:45		BREAK				
10:50am-11:10	1857	2.4	Michelle Perez, Luis Vega	Rios-Soto	Martinez, Eager	Results on Modeling the Herpes Simplex Virus Epidemic under Prodromal Stages (Talk 2)
11:10am-11:30	1857	(open)				
Session 3:						
Chair: De Witt						
9:10am-9:30	3999	Presentation 3.1	Daniel Viaud	De Witt	Neudauer, Leonard	Visualizing Cubes, Tesseract, and Pentaracts
9:30am-9:50am	3999	3.2	Lindsey Heiberger	De Witt	Neudauer, Leonard	Counting the Elements in a Hypercube
9:50am-10:10	3999	3.3	Heather Palmer	De Witt	Neudauer, Leonard	Cubes within Cubes: Embedding the Subgroups and Mirror Flips
10:10am-10:45		BREAK				
10:50am-11:10	3999	3.4	Victor Rielly, Emy Gaub	Neudauer	DeWitt, Leonard	One Rook, Two Rook, Red Rook, Blue Rook: An Examination of Distinctly Colored Rook Polynomials
11:10am-11:30	3999	3.5	Ian Kit Nicolas	Neudauer	DeWitt, Leonard	Graph colouring with a number of colours less than the chromatic number
11:45am-1:00pm	1857	Buffet Lunch	(no ticket required; green special dietary tickets should go first)			
1:00pm-2:20	3999	Panel Discussion	"What's Next?"	<i>Academic and Industry experts discuss grad school, skipping grad school, start-ups, and working in government research</i>		
Session 4:						
Chair: Klyve						
2:30pm-2:50	1775	Presentation 4.1	Kevin McCall, Jamie Shive	Taylor	Klyve, Jacob	A generalization of total perfect codes in graphs
2:50pm-3:10	1775	4.2	Juliana Joy, Joy Westland	Klyve	Taylor, Jacob	An Introduction to Number-Theoretic Discrete Morse Theory on Graphs (Talk 1)
3:10pm-3:30	1775	4.3	Jeremy Klarich	Klyve	Taylor, Jacob	Number-Theoretic Discrete Morse Theory and (potentially) Randomness (Talk 2)
3:30pm-3:50	1775	4.4	Maranda Clymer, Erin Bonner	Jacob	Klyve, Taylor	Grad Inspired 13th Moment Expansion Using Edgeworth Series
Session 5:						
Chair: Eager/Martinez						
2:30pm-2:50	1857	Presentation 5.1	Alex Garza, Megan Eberle	Eager	Naheed, Martinez	Modeling and Analysis of Gene Regulatory Networks using Finite Dynamical Systems
2:50pm-3:10	1857	5.2	Kaitlin Healy	Eager	Naheed, Martinez	Modeling and Analysis of Disease Dynamics Subject to Unvaccinated Subpopulations
3:10pm-3:30	1857	5.3	Sudesh Baral, Arnesia Parrish	Naheed	Eager, Martinez	Comparison of Normal equations and QR Factorization methods
3:30pm-3:50	1857	5.4	Deondre Jackson	Naheed	Eager, Martinez	Current and Power in a Circuit
Session 6:						
Chair: Neudauer/Cha						
2:30pm-2:50	3999	Presentation 6.1	Esbeida Ramos	Neudauer	Oh, Cha	Colors and products, and graphs! Oh my!

2:50pm-3:10	3999	6.2	Rhoni Moffit, Qaleela Smith	Oh, Rychtar	Neudauer, Cha	The Optimal Vaccination Rate to Reduce Outbreaks for Rift Valley Fever Virus amongst Ruminant
3:10pm-3:30	3999	6.3	Aaleah Lancaster, Janay Johnson	Oh, Rychtar	Neudauer, Cha	Controlling Yellow Fever through Vaccination
3:30pm-3:50	3999	(open)				

FRIDAY (con'd) Location: Conference Center / University Hall

4:00pm-5:00	1857	Math Jeopardy!	Student Teams	Joyati		
5:00pm-5:20	Hotel	Van-pool back to the hotel. Change clothes for the beach. Bring beach towel to sit/eat on				
5:30pm-6:00	Beach	Van-pool to beach at end of Imperial Avenue (Dockweiler Beach)				
6:00pm-8:00pm	Beach	Dinner/Activity	Green Food Truck (Pre-paid by CURM--everyone should have a brown ticket)			

Saturday April 2 Location: LMU Life Sciences Building

7:50am-8:10 Hotel Lobby Van-pool to Life Sciences Building **Drivers Note: Open parking at Life Sciences Building**

8:00am-12:00	Courtyard	MAA Registration (CURM participants are pre-registered including Lunch)				
8:00am-10:30	Courtyard	Refreshments				
8:30am-2:30	Room 118	MAA Book Sale				
8:30am- 8:40	Auditorium Room 120	Welcome				
8:40am-9:40	Auditorium Room 120	Address by Aparna Higgins, University of Dayton and California Lutheran University				

Demonic Graphs and Undergraduate Research

Working with undergraduates on mathematical research has been one of the most satisfying aspects of my professional life. This talk will highlight some of the beautiful and interesting research done by my former undergraduate students on line graphs and pebbling on graphs. We will consider line graphs, some pioneering results in pebbling graphs, and pebbling numbers of line graphs. This work has inspired other students to investigate questions in these areas, and it has contributed to my research as well.

10:00am-10:15	Courtyard	Break			
10:15am-11:15	Wm Harron	Student Poster	Call for Posters,	Organized by Julie Bergner, UC Riverside	
	Courtyard	Session	apply on-line		
11:15am-12:15	Auditorium Room 120	Adress by Michael Dorff, Brigham Young University			

Movies and math – the past, present, and the future

What's your favorite recent movie? *Frozen*? *The Avengers*? *Avatar*? *Transformers*? What do these and all the highest earning Hollywood movies since 2000 have in common? Mathematics! You probably didn't think about it while watching these movies, but math was used to help make them. In this presentation, we will discuss how math is being used to create better and more realistic movies. Along the way we will discuss some specific movies and the mathematics behind them. We will include examples from Disney's 2013 movie *Frozen* (how to use math to create realistic looking snow) to Pixar's 2004 movie *The Incredibles* (how to use math to make an animated character move faster). Come and join us and get a better appreciation of mathematics and movies.

12:15-1:30	Terrace	Lunch (CURM participants are pre-paid--no ticket required; green special dietary tickets should go first)				
1:30pm-2:30	Auditorium Room 120	Address by Satyan Devadoss, Williams College				

Shape of Associativity

Associativity is ubiquitous in mathematics. Unlike commutativity, its more popular cousin, associativity has for the most part taken a backseat in importance. But over the past few decades, this concept has blossomed and matured. We start with a brief look at three fields of mathematics where this has transpired, and then explore the visualization of associativity.

2:30pm-2:45	Auditorium Room 120	Presentation of Student Posters prizes/certificates				
2:45pm-3:00	Courtyard	Break				
3:00pm-4:00	Auditorium Room 120	Address by Dominic Klyve, University of Central Washington				

Mathematical Fights: The seedy underbelly of mathematical history

Although students are often led to believe that mathematics is a purely rational, unemotional, and orderly field of study, history shows that this is often not the case. This talk will discuss some of the greatest fights in the history of mathematics. We will hear stories of friendships destroyed and national rivalries heightened because of disagreements about underlying mathematics. We will consider what these fights teach us about the nature of mathematics, and we will learn some interesting math on the way.

4:00pm-4:30	Hotel	Van-pool back to Hotel				
5:00pm-	Hotel/LA	CURM participants are on their own for Saturday dinner/activities				