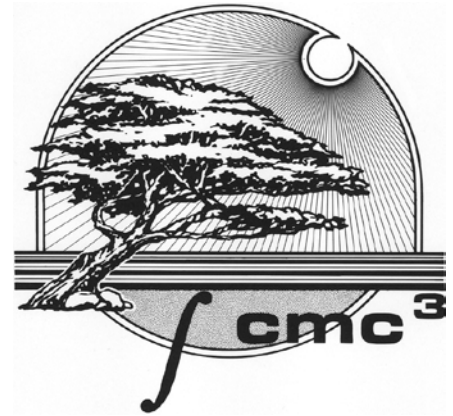


The California Mathematics Council,
Community Colleges



18th Annual Recreational Mathematics Conference

April 25 – April 26, 2014
MontBleu Hotel and Casino
Stateline, Nevada



OFFICIAL CONFERENCE PROGRAM

FRIDAY CONFERENCE PROGRAM

REGISTRATION

5:30-7:00 p.m.

HOTEL LOBBY

WELCOME AND FRIDAY KEYNOTE

7:30-9:00 p.m. COSMO B

Thomas Mattman

California State University, Chico

How to Tie a Knot (and Become Ruler of the World)

TMattman@csuchico.edu

The legend of the Gordian knot held that whoever untied the knot would become the ruler of the world. Alexander the Great fulfilled the prophecy by going on to conquer Persia (in other words, most of the known world) after dealing with the famous knot. We will discuss Alexander's method for untying knots and how research connecting mathematics and physics has given new insight into Gordian numbers. The talk will also feature some square knot dancing.

SATURDAY CONFERENCE AT-A-GLANCE

	Session 1 9:00 – 10:00	Session 2 10:30 – 11:30	Session 3 2:30 – 3:30	Session 4 4:00 – 5:00
Metro A	Hop David <i>Tiling in Art and Harmonic Perspective</i>	Jeff L Clark <i>Math and the Movies</i>	Burzynski, Greenwich, Gorman & Gorman <i>Art and Mathematics: Counting the Cubic Constructions of Artist Moshe Elimelech</i>	Keating & Tsuchida <i>Asia in Color: a Photographer's View of Education & the Next Generation</i>
Metro B	Eric Hutchinson <i>Math and the Cajon Drum</i>	Patrick Villa <i>Sports Book Betting and the Probabilities Associated with Them</i>	No Session	No Session
Metro C	John Thoo <i>How Cubic Equations and Not Quadratic Led to Complex Numbers</i>	Dean Gooch <i>History of Codes and Cryptography</i>	Gregory Daubenmire <i>Ptolemy to Copernicus: Why Did it Take 1400 Years to Get it Right?</i>	Steve Blasberg <i>Have I Got Problems (and Solutions)!</i>



Join Us for the CMC³ Foundation Gala
Immediately After the Friday Keynote Talk
\$15 Suggested Donation
Room 1707



SATURDAY CONFERENCE PROGRAM

REGISTRATION

8:30 - 10:30 a.m.

CONFERENCE AREA

SESSION ONE: 9:00 a.m. to 10:00 a.m.

Hop David, Arizona Author

hopd@cunews.info

Metro A

"Tiling in Art and Harmonic Perspective"

Motivated by artists like M.C. Escher, Albrecht Dürer and Leonardo Da Vinci, this talk will look at imagery based on the harmonic sequence 1, 1/2, 1/3, 1/4, etc. The sequence crops up in unexpected places: tiling the plane, perspective drawings, music, Kirkwood gaps in the asteroid belt, and more.

Eric Hutchinson, College of Southern Nevada

eric.hutchinson@csn.edu

Metro B

"Math and the Cajon Drum"

The Cajon Drum is a box shaped percussion instrument that can mimic a drum set. This presentation will look at the Helmholtz Resonator formula applied to a Cajon Drum to calculate the exact frequency being produced when played. The formula will be manipulated and carried out through different experiments (mathematically and physically).

John Thoo, Yuba College

jthoo@yccd.edu

Metro C

"How Cubic Equations and Not Quadratic Led to Complex Numbers"

The solution of the cubic equation marks a watershed in the history of algebra. It is the solution of the cubic that prompted mathematicians to study complex numbers seriously, and it is the solution of the cubic that encouraged mathematicians to forge ahead in algebra to arrive eventually at the modern theory of groups, rings, and so on. We show how the solution of the cubic using Cardano's formula, and not the quadratic, led to a serious study of complex numbers for the first time.



SESSION TWO: 10:30 a.m. to 11:30 a.m.

Jeff L. Clark, Santa Rosa Junior College jclark@santarosa.edu

Metro A

“Math and the Movies”

Have you ever been sitting in a movie theater or at home on your comfy couch watching one of your favorite movies and hear something spoken that sounds mathematical? If so, have you ever wondered if it was spoken correctly? During a recent sabbatical Jeff Clark, SRJC mathematics instructor, found dozens of “Hollywood Movies” that have spoken or written “math concepts”. Some are done correctly yet there are others that got it wrong. Plan on being taken on a movie journey that will entertain you and possibly peak your curiosity of Math in the Movies.

Patrick Villa, College of Southern Nevada Patrick.villa@csn.edu

Metro B

“Sports Book Betting and the Probabilities Associated with Them”

This presentation will examine some of the ways in which sporting events can be wagered upon, as well as the associated odds, probabilities, and expected values. It will explain why and how the lines are set and what changes the odds.

Dean Gooch, Santa Rosa Junior College dgooch@santarosa.edu

Metro C

“History of Codes and Cryptography”

Codes and ciphers are not just fun toys. Codes and ciphers have changed history. The escalation of the difficulty of encryption schemes and how these schemes have put entire empires at an advantage or even a disadvantage will be addressed in this talk. This will be a mostly not too technical talk about a few of the encryption schemes and their effect on history.



Lunch Break: 11:30 a.m. to 1:00 p.m.

*Your voucher is good at any time, Friday through Sunday, April 25 - April 27, 2014
at any of the MontBleu eating establishments*

Keynote Presentation

1:00 p.m. - 2:15 p.m.

COSMO A

William Dunham

Princeton University Visiting Professor

wdunham@muhlenberg.edu

“Your Humble Servant, Is. Newton”

Drawing from Newton's published letters, Bill Dunham will share his favorite examples of Isaac Newton as correspondent. From his earliest known letter in 1661 (where he scolded a friend for being drunk), through exchanges with Leibniz, Locke, and others, to documents from his days at the Mint in London, these writings give glimpses of Newton at his best ... and worst.



SESSION THREE: 2:30 p.m. to 3:30 p.m.

Denny Burzynski, Michael Greenwich, Jen Gorman and Patrick Gorman

Metro A

College of Southern Nevada Denny.Burzynski@csn.edu

“Art and Mathematics: Counting the Cubic Constructions of Artist Moshe Elimelech”

The artist Moshe Elimelech creates engaging and elegant cubic construction art, a collection of cubes rendered on each side with a variety of solid colors or bold geometric figures. A natural question to most viewers is "How many different arrangements of the cubes are possible?" The presenters will show a cubic construction and demonstrate their counts.

Gregory Daubenmire, Las Positas College gtdaubenmire@gmail.com

Metro C

“Ptolemy to Copernicus: Why Did it Take 1400 Years to Get it Right?”

Copernicus was not the first astronomer (mathematician) to suggest the heliocentric model for the solar system. What were the assumptions made by the early astronomers that suggested a geocentric model for the solar system? The talk will focus on the development of the Ptolemaic model and explore why the geocentric model lasted for more than 1400 years until the Copernican revolution.

SESSION FOUR: 4:00 p.m. to 5:00 p.m.

Katrina Keating and Tadashi Tsuchida katrina@nolunch.org

Metro A

Diablo Valley College and Skyline College

“Asia in Color: a Photographer’s View of Education & the Next Generation”

Take a journey to South and Southeast Asia through photographs. Katrina Keating & Tadashi Tsuchida will transport you to the breathtaking regions of Khumbu, Nepal; Ladakh, India; the highlands of Vietnam; and Siem Reap, Cambodia. You will be given an opportunity to look at these cultures in their pursuit of the most relevant social institution in any society: education. This is done not through statistics, but through photography and personal stories that are compelling, touching and inspiring.

Steve Blasberg, West Valley College steve_blasberg@westvalley.edu

Metro C

“Have I Got Problems (and Solutions)!”

The Student Math League competition, sponsored by AMATYC, is the only national math competition for community college students, with over 10,000 participants each year. The Test Developer for the competition will be presenting some of the more interesting, creative, and challenging questions (and solutions) from the 2013-2014 competition.

**Join us for a special chocolate break at 5:00 P.M.,
sponsored by McGraw-Hill in Cosmo A in honor of our
special past student speaker Kris Anaya.**



SPECIAL PAST STUDENT SPEAKER

COSMO A 5:15 P.M.

Kris Anaya

Sacramento City College and UC Davis

The Integration of Math and Music: A Transition from Sac City to UCD

Kris Anaya, a transfer student and math major from the University of California Davis, will present a brief description into the composer and mathematician Iannis Xenakis. Mr. Anaya will explain why Xenakis' music played a role in pursuing a degree in mathematics. Mr. Anaya will also examine the vibrating membrane of a circular drum. This equation will give a detailed example within math and music. He will conclude with a brief discussion about his own personal transition from Sacramento City College to the University of California, Davis.



Join us for the CMC³ 42nd Annual Fall Conference!

Hyatt Regency Monterey Hotel and Spa
 Friday December 5 – Saturday December 6, 2014
Visit cmc3.org for information

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 Gregory Daubenmire
 Jenny Freidenreich
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Special Thanks to Pearson for Supplying the Conference Tote Bags and to McGraw-Hill for Sponsoring the Saturday Afternoon Snacks.

CMC³ wishes to express a Special "Thank You" to Anna Vopalensky and the entire staff of the MontBleu Hotel and Casino!