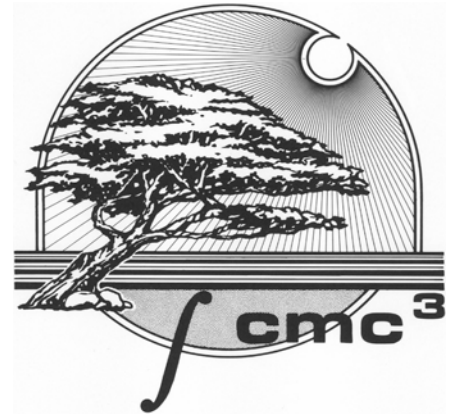**The California Mathematics Council, Community Colleges**

15th Annual Recreational Mathematics Conference

April 29 – April 30, 2011
MontBleu Hotel and Casino
Stateline, Nevada

OFFICIAL CONFERENCE PROGRAM

FRIDAY CONFERENCE PROGRAM

REGISTRATION   4:30-6:30 p.m.   **HOTEL LOBBY**
GAMING DEMONSTRATION   5:00-6:00 p.m.   **CASINO FLOOR**

HAPPY HOUR AND FRIDAY KEYNOTE
6:30-9:00 p.m.
COSMO B
Jean Bee Chan
Department of Mathematics and Statistics
Sonoma State University
"A View of an Art Gallery"

At a Stanford mathematics conference in 1973, a young mathematician Vasek Chvatal asked the late Victor Klee of the University of Washington for an interesting geometry problem. Klee suggested the problem of finding the minimum number of guards sufficient to watch a polygonal art gallery. This problem inspired a new field of research in computational geometry. We will take an informal tour of the art gallery theorems.

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	**Cliff Nelson** **"Applicant Selection and the Rule of Total Probability"**	**John Coburn** *"My Favorite Quips, Clips, Gems, and Mathematical Cartoons"*	**Steve Blasberg** *"If There's no Solution, It's not a Problem"*	**Bernie Scanlon** **"Dancing with Fractions"**
Metro B	**Birant Ramazan** *"Problems to Open the Math Appetite of Non-Mathematicians"*	**Dean Gooch** *"Discovering and Processing Numbers Found in the Wild"*	**Lalu Simcik** *"Bubble or Nothing"*	
Metro C	**Diane Mathios** **"Knitting in Waves"**	**Vladimir Logvinenko** **"Adventures in the World of Series"**	**Nicholas Gunther** *"Subways and Dinner Parties: Mathematics, Mass Transit and Menage"*	**Craig Nelson** **"Art and Mathematics"**

SATURDAY CONFERENCE PROGRAM

REGISTRATION   **8:30-10:30 a.m.**   **HOTEL LOBBY**

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

Cliff Nelson , College of Marin/ Santa Rosa Junior College   **METRO A**
"Applicant Selection and the Rule of Total Probability"

If selection for a program is made at random and only a certain proportion of the applicants meet the minimum qualifications, do the unqualified applicants need to be screened out at the beginning? Contemplating this issue led me to an interesting examination of the issues and a delightful proof that I want to share in this talk.

Birant Ramazan, University of Nevada Reno   **METRO B**
"Problems to Open the Math Appetite of Non-Mathematicians"

In this talk I will present a collection of some of my favorite problems and puzzles. Almost no mathematical knowledge is required to understand them, but some clever use of mathematical techniques will be helpful to solve them. Most of these problems can be used to entertain non-mathematicians and also to raise the interest of students.

Diane Mathios De Anza College   **METRO C**
"Knitting in Waves"

Can trigonometric curves become the inspiration for knit or crochet scarves and shawls? This workshop will introduce some patterns inspired by sinusoids. In addition, other mathematical patterns that can be knit or crocheted will be discussed.

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

John Coburn, St. Louis Community College   **METRO A**
"My Favorite Quips, Clips, Gems, and Mathematical Cartoons"

Over the years, many of us have acquired a collection of student bloopers, quips and quotes, humorous cartoons related to the teaching mathematics, and those uproariously funny gems that need to be treasured and shared. While I expect the session will be fun and enjoyed by all, it will also be informative and highly practical, addressing issues like, "I can't use humor – it's just not my style." Come share the fun as we look at the lighter side of mathematics

Dean Gooch , Santa Rosa Junior College   **METRO B**
"Discovering and Processing Numbers Found in the Wild"

One cannot help but notice that numbers are everywhere. This talk will focus on the numbers that we encounter every day. I will show what is brought to mind by some numbers including the prime factorizations of these numbers. Factoring "tricks" and their justifications will be demonstrated. I will also present an example of the Sieve of Eratosthenes.

Vladimir Logvinenko, De Anza College   **METRO C**
"Adventures in the World of Series"

The following three topics will be covered:
1. Around Riemann's Theorem about conditionally convergent series of numbers and vectors
2. Convergence of powers of a given series.
3. Mathematical problems related to CORDIC method

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

Keynote Presentation
1:00 p.m. - 2:15 p.m.
COSMO A
Stuart Moskowitz, Humboldt State University
Making Puzzles Less Puzzling with Math While Making Math Less Puzzling with Puzzles, or…
Why the Serial Number Appears Twice on Each Piece of U.S. Currency

If a mechanical puzzle is difficult to solve, the problem solver needs to try multiple strategies until a solution is found. This is exactly the skill we want for our students. Vanishing area puzzles, popularized by Sam Lloyd in the late 1800's, and more recently by Martin Gardner and Jerry Slocum, make an excellent addition to almost any mathematics course. The puzzles are easy to make, but difficult to figure out, yet they can be explained with concepts from beginning algebra. The variety of designs appeals to everyone from third graders and elementary teachers, to college students and faculty. Even counterfeiters have made use of this type of puzzle. We will use a hands-on approach to explore and explain how it works, as well as take a historical tour of how they have been used and collected for more than 200 years.

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

Steve Blasberg, West Valley College   **METRO A**
If There's no Solution, It's not a Problem

The Student Mathematics League is a national math competition for two-year college students featuring challenging and interesting problems from algebra, geometry, trigonometry, combinatorics, and number theory. As the Test Developer for the SML, I'll be presenting some of my favorite problems (AND solutions!) from the last two years of the competition.

Lalu Simcik, Cabrillo College   **METRO B**
"Bubble or Nothing"

The conclusions and connections between a corral, a rectangular box, and spherically optimized enclosures are simple and full of wonder. A bubble demonstration video is included. Participants will have the opportunity to practice their own bubble blowing techniques.

Nicholas Gunther, *Related Market LLC*
"Subways and Dinner Parties: Mathematics, Mass Transit and Menage"   **METRO C**

Math students often wonder about the practical value of mathematics to them in their future lives, and sometimes doubt its relevance. In fact, mathematics is everywhere. Take a simple evening out to dine with friends. How best to manage the subway fare and which seating arrangements are proper represent surprisingly interesting mathematical questions, the former venturing into number theory and the latter into combinatorics.

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

Bernie Scanlon, Bakersfield College   **METRO A&B**
"Dancing with Fractions"

Contra Dancing has nothing to do with country-western dance for with a certain Central American nation. It is a dance form unknown to most people yet it is practiced with great devotion and abandon all over the United States. Contra dancing predates the American revolution and has its roots in English country dance. It has been described as the traditional barn dancing of New England. The quickest definition for it (although not accurate) is " square dancing in a line".

Contra dancing is unique in that a high percentage of its practitioners are highly involved in mathematics, computers, or engineering. The appeal seems to lie in its being a kind of "set dancing" where one's position relative to others while tracing patterns on the dance floor is paramount. Timing is also crucial as is the ability to rapidly carry out called instructions and do fractions math on the fly.

We will explore the rudiments of this dance and investigate the math that is intimately a part of it. Attendees will be strongly encouraged to try an actual dance and give their first impressions. If time permits we will discuss the pros and cons of using contra dancing to teach basic arithmetic concepts.

Craig Nelson, Academy of Art, San Francisco   **METRO C**
"Art and Mathematics"

A study in drawing, value, color, and composition and how mathematics can be found in art

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SPECIAL STUDENT SCHOLARSHIP RECIPIENT SPEAKER
COSMO 5:00 P.M.

Andrew Gabriel

Buzz Lightyear says it and Eli Maor wrote a book about it, but is there really anything beyond infinity? Georg Cantor believed so! We'll explore Cantor's transfinite set theory, his fierce opposition, and his spiral into mathematical insanity.

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RECEPTION AND DOOR PRIZES !
Immediately After the Student Presentation
COSMO

Join us for the CMC³ 39th Annual Fall Conference!

Portola Hotel and Spa
Friday December 9 – Saturday December 10, 2011
visit cmc3.org for information

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