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CMC3–South: Fall Conference Program Saturday, October 13, 2018

“Managing the Numbers”

Into the AB705 Rabbit Hole

Coastline College, 1515 Monrovia Ave Newport Beach, CA 92663



Register Online at
www.cmc3s.org

8:00 am – 9:20 am

Registration and Buffet Breakfast by CAFE 538

Catering partly sponsored by Pearson Publishing

Welcome Remarks: Fred Feldon, Coastline College

Location: First Floor Alcove



Keynote – Alice's Adventures in Numberland

Dr. Alice Silverberg – University of California, Irvine



Professor Silverberg’s research areas are number theory and cryptography. Much of her recent work involves applying mathematics to cryptography. She co-invented the first fully hierarchical identity based crypto-system and co-introduced Multilinear Cryptography and Torus-Based Cryptography. She has worked on primality proofs, and her team found the largest proven primes N for which no significant partial factorizations of $N - 1$ or $N + 1$ were known.

She has consulted and done research at a number of industrial labs and research centers including IBM, Microsoft, Xerox PARC, Bell Labs, Sandia National Labs, DoCoMo USA Labs, the Mathematical Sciences Research Institute, the Bunting Institute at Harvard University, the Institut des Hautes Études Scientifiques in France, and the Max Planck Institute für Mathematik in Germany.

In this talk Dr. Silverberg will discuss some of her adventures as a mathematician. This includes consulting for the TV show NUMB3RS, the documentary "Julia Robinson and Hilbert's Tenth Problem", and the Fermat Fest. She will also mention some useful things she learned along the way, that she wished she had learned sooner.

Location: Room 117

12:30 pm to 1:30 pm

9:30 am to 10:20 am

Title	AIME Problems for College Kids	Matrices and Convergence of Continued Fractions	The Many Faces of Corequisite Remediation	How to Write a Question on MyOpenMath
Presenter	Steven Davis California State University Los Angeles	Heydar Zahedani California State University San Marcos	Michael Sullivan Joliet Junior College	Chau Tran Coastline Community College
Description	Help prepare your students for the AMATYC Student Math League Exam by studying AIME problems from the text 'A Gentle Introduction to the American Invitational Mathematics Exam' by author Scott Annin. We will look at problem-solving techniques and work on some problems from the text. Prizes will be awarded.	<p>Marafino and McDevitt (1995) applied ideas of algebra, number theory, and complex analysis to determine those complex numbers c for which the following continued fraction converges.</p> $1 + \frac{1}{c + \frac{1}{1 + \frac{1}{c + \frac{1}{1 + \dots}}}}$ <p>Sormani (2000) used some elementary theory from linear algebra to prove the same result. The linear algebra approach that originated from the first paper on matrix theory by Arthur Cayley will be presented.</p>	<p>With approximately 50% of students who enroll in a developmental mathematics course not completing the course with a passing grade nationwide, there has been a push to adjust the pathway to college level mathematics (such as AB 705). Colleges and universities are being asked to create new paths to completion of college mathematics. One solution that is rapidly becoming the most popular approach is corequisite remediation. What is corequisite remediation? Are schools that have implemented it experiencing success? What are some examples of successful corequisite models? How are the objectives in a corequisite course determined? In this session, Michael Sullivan will discuss these and other questions surrounding co-requisite remediation and provide some suggestions for adopting this approach.</p>	<p>MyOpenMath (MOM) becomes more interesting if users have some skills in writing a question on this platform. This presentation will walk you through the process of creating meaningful assignments on this open source learning platform.</p>
Location	Room 229	Room 230	Room 235	Room 236

Break: Meet and Greet with an Ocean View

Location: Second Floor Green Area

10:20 am to 11:00 am

11:00 am to 11:50 pm

Title	Geometric Langlands Conjecture: an Exploration	Advancing Modernized Statistics Pathways for Student Success	A Game Changer for Completion & Equity	Pinpoint the Whizzing Fly
Presenter	Coleman Dobson California State University Los Angeles	Lisa Lee Coastline Community College	Hal Huntsman City College of San Francisco and California Acceleration Project	Albert Natian Los Angeles Valley College
Description	We explore the magical contributions of Peter Scholze and Edward Frenkle to the Geometric Langlands Conjecture, by way of p-adic number theory, perfectoid spaces, curves over finite fields, Riemann surfaces (curves over the field of complex numbers) and Galois representations.	To the call of "Advancing Mathematics Pathways for Student Success" and in compliance of AB 705, modernized statistics pathways have been developed. Since its initial offering, Coastline College experience is to be presented, the success and retention rates, student learning outcome assessment, and implications.	We will discuss AB 705, what it means, and how to comply, maximizing equitable student outcomes. We will explore models of concurrent support that have produced big gains for low-income students and students of color and dramatic improvements in one-year transfer math completion, while maintaining transfer-level math success rates.	John von Neumann was once asked how far a fly, whizzing back-and-forth between two onward trains, travels before it gets squashed in the eventual collision. 'Quicker than the whizzing fly' von Neumann came up with the correct answer. Suspecting that he had solved the problem via a simple calculation, he was asked how he did it. "Simple", he said, I summed the series!" Here we go further and ask and answer: Where is the fly at any point in time?.
Location	Room 229	Room 230	Room 235	Room 236

12:00 pm to 1:30 pm

Catered Lunch Provided by CAFE 538

Sandwiches and Wraps

Location: First Floor Alcove

12:30 pm to 1:30 pm

Keynote Presentation

Alice's Adventures in Numberland

Dr. Alice Silverberg – University of California, Irvine

In this talk Dr. Silverberg will discuss some of her adventures as a mathematician. This includes consulting for the TV show NUMB3RS, the documentary "Julia Robinson and Hilbert's Tenth Problem", and the Fermat Fest. She will also mention some useful things she learned along the way, that she wished she had learned sooner.

Location: Room 117

1:40 pm to 2:30 pm

Title	Several Problems that we should ask our Calculus Students	Some Fun Interactive Applets for Statistics Courses	Dollar-Fifty-a-Pair Socks Come In a 3-Pack	Squarable Polynomials
Presenter	Son Nguyen Coastline Community College	Tuyetdong Phan-Yamada California State University Los Angeles	Fred Feldon Coastline Community College	Albert Natian Los Angeles Valley College
Description	In this session attendees will collaborate on progressively more difficult calculus questions. This will build a conceptual bridge between introductory calculus curriculum and graduate level mathematics – laying the groundwork for your students' future success.	This talk will present some interactive applets to collect data for your Statistics course. Attendees will get a hands-on experience working with the applets and leave with ready-to-use projects for your Statistics course. Please bring your laptop to the workshop.	With the implementation of multiple measures, self-placement, and AB 705 a situation has arrived we never anticipated: Larger than ever numbers of under-prepared students. Come find out how to incorporate self-efficacy, metacognition, growth mindset, critical thinking, autonomous learning, collaboration, and other affective domain strategies into your college-level and corequisite support courses.	Every even-degreed polynomial can have its square completed 'just as' a quadratic can. A complete proof of this claim with examples will be provided .
Location	Room 229	Room 230	Room 235	Room 236

2:40 pm to 2:50 pm

Wrap Up

Location: First Floor Alcove

Special thanks to Coastline College's faculty and staff for the setup and logistic of this Mini-Conference.