

WEDNESDAY AUGUST 4

Contributed Paper Session

Games in Math Circles, Part A

11:00 a.m. - 11:55 a.m.

We will focus on games in math circles. Such games are fun to play but they also offer opportunities for participants to think deeply about optimal strategies and do meaningful computations. Computer simulations of games or the coding of a master player that the circle can compete against are possibilities. Some games are not what they seem as they can be nearly determined by the opening setup but seeing this involves some deep funstration.

Organizer:

Edward C. Keppelmann, *University of Nevada Reno*

Sponsor: SIGMAA on Math Circles for Students and Teachers (SIGMAA MCST)

A Hodgepodge of non-Traditional Games

11:00 a.m. - 11:15 a.m.

Rodi Steinig, *Talking Stick Math Circle*

Giotto- A Joyus Word Puzzle

11:20 a.m. - 11:35 a.m.

Rosa Aristy, *Bridges to Science*

Games Galore

11:40 a.m. - 11:55 a.m.

Skona Brittain, *Santa Barbara Math Ellipse*

American Mathematics Competitions Session

MAA AMC Curriculum Inspirations Session I

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

Experience dynamic problem-solving with AMC problems and through exercises. James Tanton introduces Curriculum Inspiration strategies and applies them to AMC problems.

Organizer:

James Tanton, *MAA Mathematician at Large*

THURSDAY AUGUST 5

Recreational Mathematics: Puzzles, Card Tricks, Games, and Gambling, Part A

11:00 a.m. - 11:55 a.m.

Puzzles, card tricks, board games, game shows, and gambling provide an excellent laboratory for testing mathematical strategy, probability, and enumeration. The analysis of such diversions is fertile ground for the application of mathematical and statistical theory. Solutions to new problems as well as novel solutions to old problems are welcome. Submissions by undergraduates are encouraged.

Organizers:

Paul R. Coe, *Dominican University*
Sara B. Quinn, *Dominican University*
Kristen Schemmerhorn, *Concordia University Chicago*
Andrew Niedermaier, *Jane Street Capital*

Sponsor: SIGMAA on Recreational Mathematics (SIGMAA REC)

Multigraphs and Crossword Puzzle Grid Designs

11:00 a.m. - 11:15 a.m.

Ben Cote, *Western Oregon University*
Leanne Merrill, *Western Oregon University*

Lights Out on Graph Products over the Ring of Integers Modulo k

11:20 a.m. - 11:35 a.m.

Travis Peters, *College of Saint Benedict & Saint John's University*
Ryan Munter, *Saint John's University*

Bounds on Solvable Snake Cube Puzzle

11:40 a.m. - 11:55 a.m.

Anthony Bosman, *Andrews University*
Adrian Negrea, *Andrews University*

Recreational Mathematics: Puzzles, Card Tricks, Games, and Gambling, Part B

1:00 p.m. - 3:55 p.m.

Puzzles, card tricks, board games, game shows, and gambling provide an excellent laboratory for testing mathematical strategy, probability, and enumeration. The analysis of such diversions is fertile ground for the application of mathematical and statistical theory. Solutions to new problems as well as novel solutions to old problems are welcome. Submissions by undergraduates are encouraged.

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EvenQuads: A SET-like game

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

Lauren Rose, *Bard College*

More Adventures in the Game of SET [®] -- Transformations and Simulations

1:20 p.m. - 1:35 p.m.

Anne Quinn, *Edinboro University of PA*

A Combinatorial Magic Trick using the SET Deck

1:40 p.m. - 1:55 p.m.

Zhengyu Li, *University of Toronto Mississauga*
Parker Glynn-Adey, *University of Toronto Mississauga*

The 2l Card Trick and Its Generalization

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

Dibyajyoti Deb, *Oregon Institute of Technology*

(CANCELED) Playing Blackjack with an Infinite Deck

2:20 p.m. - 2:35 p.m.

Michael Nathanson, *Saint Mary's College of California*

(CANCELED) Counting in Texas 42

2:40 p.m. - 2:55 p.m.

Jessica Oehrlein, *Fitchburg State University*

Lewis Carroll's Barbershop Puzzle

3:00 p.m. - 3:15 p.m.

Jason Rosenhouse, *James Madison University*

Why the Monty Hall Paradox Does Not Directly Apply to Deal or No Deal

3:20 p.m. - 3:35 p.m.

Christopher Ingrassia, *Kingsborough Community College of the City University of New York*

Statistical Analysis of the International Mathematical Olympiad

3:40 p.m. - 3:55 p.m.

Arthur Berg, *Pennsylvania State University*

American Mathematics Competitions Session

MAA AMC Curriculum Inspirations Session 2

2:00 p.m. - 3:00 p.m.

Using AMC problems for dives into beautiful and deep mathematics! Every problem explored (maybe solved-- or not!) is an invitation to ponder, wonder, and explore more. See how one can take a single AMC problem and use it as a portal to even more wondrous mathematics.

Organizer:

James Tanton, *MAA Mathematician at Large*

FRIDAY AUGUST 6

Contributed Paper Session

Games in Math Circles, Part B

10:00 a.m. - 11:40 a.m.

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The Tamu Math Circle Apps Website

10:00 a.m. - 10:15 a.m.

Philip Yasskin, *Texas A&M University*

Carl Van Huyck, *Julia Robinson Mathematics Festival*

Joshua Goldstein, *Texas A&M University*

The Winner's Curse

10:20 a.m. - 10:35 a.m.

Theodore Alper, *Stanford Online High School, Stanford Math Circle*

Math Circles in Times of Physical Distancing

10:40 a.m. - 10:55 a.m.

Brandy Wieggers, *Central Washington University*

Emilie Hancock, *Central Washington University*

Dan Zaharopol, *BEAM*

INVERSE

11:00 a.m. - 11:15 a.m.

Ed Keppelmann, *University of Nevada Reno*

A Tale of Tic-Tac-Toe: A day of Student Curiosity and Exploration

11:20 a.m. - 11:35 a.m.

Nicole Fider, *University of Arizona*

American Mathematics Competitions Session

Support Mathematical Creativity in Young Minds - Host an AMC Day

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

Support your mathematics department by hosting an MAA AMC day. Hear from professors that are using the AMC to support mathematics in their communities, creating a fun engaging experience for K-12 teachers and students, and attracting the brightest mathematical minds to their colleges and univrsties.

Organizers:

Randy Cone, *Salisbury University*

Carl Yerger, *Davidson College*

SATURDAY AUGUST 7

Contributed Paper Session

Recreational Mathematics: Puzzles, Card Tricks, Games, and Gambling, Part C

1:00 p.m. - 1:55 p.m.

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Sum Amusements with Fibonacci and Other Linear Recurrence Sequences

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

Edmund Lamagna, *University of Rhode Island*

Robert Ravenscroft, *Rhode Island College*

What Is the Collatz Conjecture and Why Is It So Interesting?

1:20 p.m. - 1:35 p.m.

Alexander Atwood, *Suffolk County Community College*

Russell Coe, *Suffolk County Community College*

A 3 X 3 Magic Square Consisting Of Consecutive Primes

1:40 p.m. - 1:55 p.m.

Jay Schiffman, *Retired, Rowan University*

American Mathematics Competitions Session

Fun Problem Session for Teachers and Students

10:00 a.m. - 11:00 a.m.

The first step in solving any problem in math (or in life) is to be your fabulous honest human self and acknowledge your human reaction to it. Let's practice being human to solve problems and see how powerful and successful a willingness to flail and falter can be!

Organizer:

James Tanton, *MAA Mathematician at Large*

Networking Session

How to Run a Math Festival

1:00 p.m. - 1:50 p.m.

The Julia Robinson Mathematics Festival will host an interactive session on how to organize a mathematics festival in your community, either virtual or in-person. Topics include logistics, activity selection, and funding. The session will feature some of our favorite activities.

Organizer:

Hector Rosario, *Julia Robinson Mathematics Festival*