Young Mathematicians Conference 2022

The Ohio State University, August 12-14

FRIDAY AUGUST 12 - SESSION I-1: 1:45PM-3:15PM

Session A - Classroom Scott Lab E0004

1:45pm-2:05pm: *On the Continued Fraction Expansion of Random Real Numbers* by Zhuo Zhang and Shreyas Singh.
2:15pm-2:35pm: *Giving Group Laws for Galois Gerbs* by Nir Elber.
2:45pm-3:05pm: *Cuspidal Projections of Products of Eisenstein Series* by Amy Woodall.

Session B - Classroom Scott Lab E0024

1:45pm-2:05pm: *The Permutation Groups of Generalized Perfect Shuffles* by Qiyu Zhang.
2:15pm-2:35pm: *Maximal skew sets of lines on a Hermitian surface and a modified Bron-Kerbosch algorithm* by Haoyu Du.

Session C - Classroom Scott Lab E0040

1:45pm-2:05pm: *Linear Preservers of Lorentz Spectra in Higher Dimensions* by Rhea Kommerell and Runze Li.
2:15pm-2:35pm: *Short Intervals Containing Squarefree Polynomials Over Finite Fields* by Ariana Park and Wade McCormick.
2:45pm-3:05pm: *Revisiting the Upper Bound of the Number of Rectangulations of a Finite Planar Point Set* by Hannah Ashbach.

FRIDAY AUGUST 12 - SESSION I-2: 3:45PM-4:45PM

Session A - Classroom Scott Lab E0004

3:45pm-4:05pm: *Spectral Analysis of the Complex Sub-Laplacian* by Supriya Weiss, Ethan Hall and Elaine Danielson.
4:15pm-4:35pm: *Spectral Analysis of Perturbed Complex Laplacians on the Rossi Sphere* by Megan Kridli .

Session B - Classroom Room: Scott Lab E0024

3:45pm-4:05pm: *Finding the Minimal Splitting Surface of the Ideal Regular Octahedron in the Poincar'e Ball* by Ella Wilson and Aislinn Smith .
4:15pm-4:35pm: *Constructing Group Actions on Triads and Seventh Chords* by Meredith Williams, Noe Rodriguez and Ethan Bonnell.

Session C - Classroom Scott Lab E0040

3:45pm-4:05pm: *Cell Packing in Epithilial Tissue* by Nina De La Torre .
4:15pm-4:35pm: *Spreading speed of Fisher-KPP equation and its application in the one-prey two-predator system* by Qianzi Hou .

SATURDAY AUGUST 13 - Session II-1: 11:00am-12:00pm

Session A - Classroom Scott Lab E0004
11:00am-11:20am: *Lower Volume Bounds for Families of Knotoids* by Maya Chande and Joye Chen .
11:30am-11:50am: *Graph Theoretic Methods for Computing Quantum Invariants* by Andrew Pease and Derya Asaner.

Session B - Classroom Scott Lab E0024
11:00am-11:20am: *The Brezis-Nirenberg problem for a system of divergence-form equations* by Sean Pooley and Burton Brown.
11:30am-11:50am: *Analytical and Computational Study of Darwinian Dynamics* by Xin Hui and Quanhai Chen.

Session C - Classroom Scott Lab E0040
11:00am-11:20am: *Generalizing Minimality Properties of Far-Difference Fibonacci Decompositions* by Andrew Keisling and Jacob Lehmann.
11:30am-11:50am: *Sum and Difference Sets in Semidirect Products of Groups*by Matthew Phang and Andrew Keisling.

POSTER SESSION - Scott Lab 12:00pm-1:30pm

Exploration of the Pocket Rubik's Group by Ryan Brown.
Combinatorial Formulas for the Equivariant Cohomology of Peterson Varieties by Swan Klein.

SATURDAY AUGUST 13 - Session II-2: 1:45pm-3:15pm

Session A - Classroom Scott Lab E0004
1:45pm-2:05pm: *Regularity Conditions on Paths of the Fractional Gaussian Field on S^1 and the Torus* by Andrew Gannon, Benjamin Hanzsek-Brill and Alexander Neuschotz.
2:15pm-2:35pm: *Fast Computation of Generalized Dedekind Sums* by Preston Tranbarger and Jessica Wang.
2:45pm-3:05pm: *Explicit gaps between k-free integers* by Simon Ziehr and Russell Scherr.

Session B - Classroom Scott Lab E0024
1:45pm-2:05pm: *Bounding ranks of cuspidal newforms through excised orthogonal ensembles* by Astrid Lilly and Xuyan Liu.
2:15pm-2:35pm: *An alternative method for calculating Bessel integrals appearing in L-function zero statistics* by Astrid Lilly and Santiago Velazquez.
2:45pm-3:05pm: *Generalized harmonic estimates for the n-level density of L-functions* by Annika Mauro and Jack Miller.

Session C - Classroom Scott Lab E0040
1:45pm-2:05pm: *Multivariate Fibonacci-Like Polynomials and Their Applications* by Sejin Park, Etienne Phillips , Ilir Ziba and Jenny Zhan.
2:15pm-2:35pm: *Calculations in Tight Closure Theory* by Theodore Sandstrom and Levi Borevitz .
2:45pm-3:05pm: *Continuous tilings* by Levi Borevitz and Theodore Sandstrom .

SATURDAY AUGUST 13 - Session II-3: 3:45pm-4:45pm

Session A - Classroom Scott Lab E0004
3:45pm-4:05pm: *Defining the Fractional Gaussian Field on the torus* by Ethan Winters , Tyler Campos and Connor Marrs.
4:15pm-4:35pm: *Geodesic Dynamics on Discrete Quotients of H2 x H2* by River Newman, Reuel Williams and Alette Wells.

Session B - Classroom Scott Lab E0024
3:45pm-4:05pm: *Modeling the Effects of Media on COVID-19 Transmission* by Makayla Preston.
4:15pm-4:35pm: *A Primal Dual Method for Topological Changes in Optimal Adversarial Classification* by Henry Shugart and Bethany Fetsko.

Session C - Classroom Scott Lab E0040
3:45pm-4:05pm: *Rigidity Properties of 4-Regular Graphs* by Kaylee Weatherspoon and Henry Simmons.
4:15pm-4:35pm: *Edge Determining Sets and Determining Index* by Sean McAvoy.

SUNDAY AUGUST 14 - Session III-1: 11:00am-12:30am

Session A - Classroom Scott Lab E0004
11:00-11:20am: *Benfordness of lower-dimensional spaces resulting from hyper-box fragmentation* by Livia Betti and Zoe McDonald.
11:00-11:50pm: *Random and Maximal Lengths of Zeckendorf Games* by Guilherme Dantas and Prakod Ngamlamai.
12:00-12:20pm: *Short-Range Differences of the Number of Summands of Zeckendorf Decompositions* by Guilherme Dantas, Xuyan Liu and Jack Miller.

Session B - Classroom Scott Lab E0024
11:00-11:20am: *Geometric Investigations of Mandelbrot Orbit Combinatorics* by Gwendaline Murray.
11:00-11:50pm: *Distinct Angles and Angle Chains in Three Dimensions* by Ruben Ascoli and Jacob Lehmann Duke.
12:00-12:20pm: *Learning Spheres and Chains in F_q^d* by Wyatt Milgrim and Ryan Jeong.

Session C - Classroom Scott Lab E0040
11:00-11:20am: *Rationality of Real Conic Bundles with Quartic Discriminant Curve* by Mattie Ji.
11:00-11:50pm: *Density of Elliptic Dedekind Sums in Non-Euclidean Fields* by Stephen Bartell and Brenden Schlader.
12:00-12:20pm: *Locality in the Sum-Rank Metric: Bounds* by Timothy Cheek and Teresa Pollard.