CONFERENCE PROGRAM
22nd **Annual Pikes Peak Regional**
Undergraduate Mathematics Conference
Saturday, March 1, 2025

9:15 – 9:55	**Registration & Refreshments:** Atrium

Opening: Atrium

9:55 – 10:05	**Welcome and Opening Remarks**: Brandan Lowden, Associate Dean of Math & Engineering
10:05 – 10:55	**Keynote Address**: Dr. Stefan Erickson *Code Wars: The Joys and Perils of Mathematical Cryptography*

Parallel Sessions

Parallel Sessions	Room Number E 102 Moderator: Susan Rollins (PPSC)	Room Number E 109 Moderator: Molly Moran (CC)	Room Number E 112 Moderator: Beth Schaubroeck (USAFA)
11:05-11:20	Renata Russell (USAFA) *Playing with Games: A Variation on Nim*	Mustafa Sameen (CC) *Autoformalization with AI: Translating Natural Language Mathematics into Lean 4*	Giorgio Simoncioni (USAFA) *3N+1: It's Hailing...Exponents?*
11:25 – 11:40	Jo Spain (PPSC) *Sandwich Science: Exploring the Ham Sandwich Theorem*	Licia Lamb (MSU) *Factorial Frenzy*	Carter Baskin, Jack Roe, (Western) *Abelian Sandpiles*
11:45 – 12:00	Zain Nathan (USAFA) *Pushup Problem Generalization*	Delaney Finley, Alex Le (USAFA*) Hypertemporal Analysis of Light Fixtures*	Taylor McManus (USAFA) *Introduction to Fully Homomorphic Encryption and its Acceleration*
12:05 – 12:20	Conor Wellman (CC) *Generalized Rosette Harmonic Mappings*	Julia Ahrendt (USAFA) *Predicting Recidivism*	Daniela Young (PPSC) *Don't Take 'Nothing' For Granted: A History of Zero*

Lunch and Panel Presentation: Atrium

12:30 – 1:30	Lunch (with vegetarian options available)

1:35 – 2:30	*What's Next? Beyond an Undergraduate Mathematics Degree*
	 Panelists: Ron Carroll (B.S. in Mathematics, PPSC, UCCS)
	       Troy Johnson (M.S. in Applied Mathematics, PPSC, UCCS)
	       Annika Mote (B.S. in Mathematics, PPSC, UCCS)
	       Benjamin Randall (B.S. in Mathematics with Statistics, PPSC, UCCS)
	       Caitlin Randall (B.S. in Mathematics, PPSC, UCCS)

Parallel Sessions

Parallel Sessions	Room Number E 102 Moderator: Ian Pierce (USAFA)	Room Number E 109 Moderator: Kurt Haag (PPSC)	Room Number E 112 Moderator: Kurt Herzinger (USAFA)
2:35 – 2:50	Clara V. Bailey (PPSC) *Harmonic Series: The Calculus of Music and All That Jazz*	Joey Fischer (DU) *Efficacy of Artificial Intelligence Models in Advanced Mathematics*	Lucas Briggs (USAFA) *Proving Without Words that Root Three is Irrational*
2:55 – 3:10	Cale Curtis *(USAFA)* *An Introduction to Time Scales*	Reese Combs (PPSC) *The Mathematics of the Cardiovascular System*	Chris Galatos (STEM School) *Symmetries of Platonic Solids*
3:15– 3:30	Aaron Anderson (UCCS) *Quantifying the Magnitude of Chaos in a Driven Pendulum via Lyapunov Exponents*	Blake Farmer, Maxyn Hallare (USAFA) *Stabilizing the Unstable: A mathematical analysis of military-insurgent-civilian interactions*	Kenna Norder, Leah Dorn (PPSC) *The Power of the Power Series*
3:35 – 3:50	Luck Henderson Enrique Mercado (CSU) *Generating examples of surjective arboreal Galois representations for quadratic polynomials*	Liam Markus (USAFA) *A Multicompartmental Circulatory System Model*	Lara M. Bailey (PPSC) *Where Infinity Meets the Finite: Proving Repeating Decimals are Exact Values Using Adics*

Closing: Atrium

3:55 – 4:10	Closing Remarks and Door Prizes