

# FIRST CSU MATHEMATICAL CONFERENCE

CSUN, NOVEMBER 11 - 12, 2022

Thursday, 11/10/2022

5:00 - 7:00 Evening Registration

Friday, 11/11/2022

7:30 - 8:30 Morning Registration

8:30 - 9:00 Opening Remarks

**Dr. Mary Beth Walker**, Provost, CSUN  
**Dr. Jerry Stinner**, Dean, College of Science and Mathematics, CSUN

## Plenary Session

**Location:** Warren Willig Room  
**Chair:** Silvia Fernández-Merchant

9:00 - 9:50 **Terence Tao**  
“Translational tilings of Euclidean space”

10:00 - 10:25 Coffee Break

## Contributed Talks

**Location:** Pierluigi Falco Room  
**Session Chair:** Francois Domagni

10:25 - 10:50 **Christopher Curtis**  
“Learning dynamics through the dynamic mode decomposition”

10:50 - 11:15 **Mikaela Meitz**  
“Hamiltonian neural network exploration for electron particle tracking”

11:15 - 11:40 **Amber L. Puha**  
“Diffusion limits for multiclass processor sharing queues”

11:40 - 12:05 **Aubree Krager**  
“How smart phones negatively affect infant language development”

**Location:** Warren Willig Room  
**Session Chair:** W. Riley Casper

10:25 - 10:50 **Lekha Priya Patil**  
“Hausdorff dimension of totally disconnected fractals with very thick shadows”

10:50 - 11:15 **Xiaolong Han**  
“Fractal uncertainty principle for discrete Cantor sets with random alphabets”

11:15 - 11:40 **Caixing Gu**  
“Cyclic multiplicity of a direct sum of forward and backward shifts”

11:40 - 12:05 **Leandro L. Recôva**  
“An asymmetric problem at resonance with a one-sided Ahmad–Lazer–Paul condition”

**Location:** Ali Zakeri Room  
**Session Chair:** Emmanuel Yomba

10:25 - 10:50 **Tahir Bachar Issa**  
“Uniqueness and nonlinear stability of entire solutions in full chemotaxis models with logistic source on bounded heterogeneous environments”

10:50 - 11:15 **Yannan Shen**  
“Regularity of a family of quasilinear waves with application on water waves”

11:15 - 11:40 **Ornella Mattei**  
“On the response of lossy two-phase materials subject to time-varying fields”

11:40 - 12:05 **Manuchehr Aminian**  
“Controlling transport properties of passive tracers in channels via cross section”

Friday, 11/11/2022

12:05 - 1:30 Lunch

**Plenary Session**

**Location:** Warren Willig Room

**Chair:** Kimberly Ayers

1:30 - 2:20 **Jane Heffernan**  
“Modelling Immunity: Multi-scale Considerations”

**Contributed Talks**

**Location:** Pierluigi Falco Room  
**Session Chair:** Cynthia H. Sanchez-Tapia

- 2:30 - 2:55 **Anuradha Agarwal**  
“Investigating the structural and practical identifiability of adult-child compartment epidemic models”
- 2:55 - 3:20 **Maya Bocanegra**  
“Mathematical modeling of waning and boosting of COVID-19 immunity through infection and vaccination to predict seroprevalence in Hungary”
- 3:20 - 3:45 **Anthony Cortez**  
“Self-organized sacrifice: ecological resilience in worsening conditions”

**Location:** Warren Willig Room  
**Session Chair:** Shahed Sharif

- 2:30 - 2:55 **Sungjin Kim**  
“On the reciprocal sum of lcm of  $k$ -tuples”
- 2:55 - 3:20 **Meher Lippmann**  
“The counting function for Elkies primes”
- 3:20 - 3:45 **Kevin McGown**  
“Euclidean rings of  $S$ -integers in complex quadratic fields”
- 3:45 - 4:10 **Hanson Smith**  
“Power bases and moduli spaces: A scheme of monogenerators”

**Location:** Ali Zakeri Room  
**Session Chair:** Dong Zhou

- 2:30 - 2:55 **Warren Roche**  
“Numerical simulations for preferential finger flow using a two-dimensional non-equilibrium Richards’ equation with Preisach hysteresis”
- 2:55 - 3:20 **Alexander Montenegro**  
“Bathymetric data sampler and simulating one-dimensional shallow-water flows”
- 3:20 - 3:45 **Mario J. Bencomo**  
“Discrete adjoint computations for relaxation Runge–Kutta methods”
- 3:45 - 4:10 **Kristen Dawson**  
“Faster sketching algorithms for linear algebra applications”

4:10 - 4:35 Coffee Break

**Location:** Pierluigi Falco Room  
**Session Chair:** Robin Donatello

- 4:35 - 5:00 **Brian P Katz (BK)**  
“Why should that convince me?”
- 5:00 - 5:25 **Jennifer Clinkenbeard**  
“Directed self-placement in first-year mathematics and statistics courses”
- 5:25 - 5:50 **Ryan Aniceto**  
“‘Well, it’s obvious’: Students’ experiences with mathematical microaggressions”
- 5:50 - 6:15 **Andre Shakhbandaryan**  
“On nonparametric regression for nonignorable missing data and applications”

**Location:** Warren Willig Room  
**Session Chair:** Kevin McGown

- 4:35 - 5:00 **Madeleine E. Goertz**  
“Poncelet families and the triangle of triangles”
- 5:00 - 5:25 **John Sarli**  
“The elliptic curve decomposition of central conics in the hyperbolic plane”
- 5:25 - 5:50 **Shahed Sharif**  
“Algebraic maps constant on isomorphism classes of unpolarized abelian varieties are constant”
- 5:50 - 6:15 **Petros Mavromichalis**  
“A category theoretic approach to creating compositional proofs of properties of groups using ologs”

**Location:** Ali Zakeri Room  
**Session Chair:** Jorge Garcia

- 4:35 - 5:00 **Pi Danger James**  
“Modeling the motion of poi”
- 5:00 - 5:25 **Laura Smith Chowdhury**  
“Footbinding and its cessation: An agent-based model adjudication of the labor market and evolutionary sciences hypotheses”
- 5:25 - 5:50 **Darcy Brunk**  
“Comparison of the billiard problem and wave propagation in space-time microstructures”
- 5:50 - 6:15 **Hubertus von Bremen**  
“Some results on the stability of time delayed control of structural system using single and multiple actuators”

6:30 Dinner

**Saturday, 11/12/2022**

**Plenary Session**

**Location:** Warren Willig Room

**Chair:** José Mijares-Palacios

**8:30 - 9:20 David Klein**  
“The Climate Crisis and Polar Jet Stream Oscillations”

**Contributed Talks**

**Location:** Pierluigi Falco Room

**Session Chair:** Samuel J. Frame

**Location:** Warren Willig Room

**Session Chair:** Wai Yan Pong

**Location:** Ali Zakeri Room

**Session Chair:** Caixing Gu

**9:30 - 9:55 Adriano Zambom**  
“Context tree classification with application to linguistic rhythm from written texts”

**9:55 - 10:20 Ran Li**  
“On the memory scalability of spectral clustering algorithms”

**9:30 - 9:55 Christopher O’Neill**  
“Numerical semigroups: a sales pitch”

**9:55 - 10:20 Jay Cummings**  
“A new lower bound on van der Waerden numbers”

**10:20 - 10:45 Jason O’Neill**  
“Counting variants of classical extremal problems”

**9:30 - 9:55 Eric Montoya**  
“On hypercyclicity and linear chaos in a nonclassical sequence space and beyond”

**9:55 - 10:20 Brian Ryals**  
“Bifurcations in discrete mappings with almost periodic coefficients”

**10:20 - 10:45 W. Riley Casper**  
“Commuting differential and integral operators and the adelic Grassmannian”

**10:45 - 11:10 Coffee Break**

**Location:** Pierluigi Falco Room

**Session Chair:** John Lind

**Location:** Warren Willig Room

**Session Chair:** Silvia Heubach

**Location:** Ali Zakeri Room

**Session Chair:** Majid Mojirshuibani

**11:10 - 11:35 José Mijares-Palacios**  
“Abstract simplicial complexes as Ramsey structures and the neural code”

**11:35 - 12:00 Jorge Garcia**  
“Constructible sets”

**12:00 - 12:25 Terry Fuller**  
“Lefschetz pencils and the topology of symplectic Calabi–Yau 4-manifolds”

**11:10 - 11:35 Wasin So**  
“On non-isospectral integral circulant graphs”

**11:35 - 12:00 Guillermo Alesandroni**  
“The Erdős-Faber-Lovász conjecture for weakly dense hypergraphs”

**12:00 - 12:25 Silvia Fernández-Merchant**  
“The outerplanar and cylindrical crossing numbers of the complete bipartite graph are equal”

**11:10 - 11:35 Jiyoun Myung**  
“Measurement error in linear regression models with fat tails and skewed errors”

**11:35 - 12:00 Earvin Balderama**  
“Modeling zero-inflated and extremely over-dispersed count data using the hurdlr R package”

**12:00 - 12:25 Adam King**  
“Semiparametric Bayesian survival modeling of CSU graduation rates”

**12:25 - 1:30 Lunch**

**Saturday, 11/12/2022**

**Plenary Session**

**Location:** Warren Willig Room

**Chair:** Amber L. Puha

**1:30 - 2:20** **Tim Tangherlini**  
“Culture Analytics, Folklore and Everyday Life: Epidemics, Bill Gates, Witches, Hobbits and K-Pop”

**Contributed Talks**

**Location:** Pierluigi Falco Room

**Session Chair:** Maureen Rush

**2:30 - 2:55** **Joyce Lin**  
“Conduction reserve theory in cardiac tissue with reduced gap junction coupling”

**2:55 - 3:20** **Daniel Ramirez**  
“Pharmacokinetic modeling through feed-forward networks”

**3:20 - 3:45** **Alireza Pakravan**  
“An algorithm based on physics informed neural networks for solving inverse wave equations in heterogeneous media”

**Location:** Warren Willig Room

**Session Chair:** André Kündgen

**2:30 - 2:55** **Sara Anderson**  
“Disjoint maximal cliques derangement graphs and orthogonal Latin squares”

**2:55 - 3:20** **Giovani Thai**  
“Characterizing non-singular graphs through games”

**3:20 - 3:45** **Briana Foster-Greenwood**  
“Metric dimension and a puzzle on a chessboard”

**3:45 - 4:10** **Silvia Heubach**  
“A family of slow exact  $k$ -Nim games”

**Location:** Ali Zakeri Room

**Session Chair:** Brian P Katz (BK)

**2:30 - 2:55** **Alicia Hernandez**  
“Navigating AB705 during a pandemic: An investigation of students’ experiences with placement and advising”

**2:55 - 3:20** **Robin Donatello**  
“Resiliency of a project-based statistics curriculum in the face of COVID-19 and online learning”

**3:20 - 3:45** **Ciera Millard**  
“Extraction, manipulation, and visualization: A different take on introducing exploratory data analysis ”

**3:45 - 4:10** **Yan X Zhang**  
“Giving CSU students research experience through blockchain”

**4:10 - 4:35** Coffee Break