

Monday 14:00-15:30

50 years of Communications in Algebra room: 303-G15

- 14:00-14:25 Scott Chapman, *Fifty years of Communications in Algebra*
- 14:30-14:55 Alberto Elduque, *A few exceptional algebras*
- 15:00-15:25 Siu-Hung Ng, *On Hopf algebras of dimension p^2*

Algebraic Combinatorics and Matroids room: 303-B09

- 14:00-14:25 Gregory G. Smith, *Hodge theory for modular matroids*
- 14:30-14:55 Soohyun Park, *Euler characteristic-like invariants, positivity questions, and matroids*
- 15:00-15:25 Alexandru Suciu, *On some algebraic and geometric invariants associated to matroids*

Arithmetic Geometry and Number Theory room: 405-430

- 14:00-14:10 Bailey Whitbread, *Counting points on character varieties*
- 14:15-14:25 Stefano Giannini, *Arithmetic geometry of additive character varieties*
- 14:30-14:40 Tuan Ngo Dac, *On multiple zeta values in positive characteristic*
- 14:45-14:55 Benjamin Ward, *Difference sets in Diophantine approximation*
- 15:00-15:10 Chandler (Chip) Corrigan, *A large sieve inequality for moduli generated by a quadratic*
- 15:15-15:25 Michael Harm, *The Goldbach-Vinogradov theorem with restricted primes*

Computability Theory and Applications room: 303-B07

- 14:00-14:25 Rodney Downey, *On Presenting Linear Orderings and Boolean Algebras*
- 14:30-15:20 Matthew Harrison-trainor, *Scott complexity of linear orders*

Computational Mathematics room: 402-231

- 14:00-14:25 Mahadevan Ganesh, *All-Frequency-Stable Continuous and Discrete Models for RCS Computations of Penetrable 3D Scatterers*
- 14:30-14:55 Huateng Zhu, *Convergence of numerical methods for total variation flow*
- 15:00-15:25 Andres E Rubiano, *A posteriori error analysis of robust virtual element methods for stress-assisted diffusion problems*

Computational Methods and Applications of Dynamical Systems room: 303-G20

- 14:00-14:25 Pablo Aguirre, *Unfoldingisola and mushroom bifurcations of limit cycles*
- 14:30-14:55 Behnaz Rahmani, *Understanding complex oscillations in a model of intracellular calcium dynamics*
- 15:00-15:30 John Bailie, *Transitions of resonance tongues in periodically forced systems*

Computational Number Theory and Applications room: 405-422

- 14:00-14:10 Tim Trudgian, *M&M's*
- 14:15-14:25 Nicol Leong, *New unconditional bounds on the reciprocal of the Riemann zeta function*
- 14:30-14:40 Riddhi Manna, *Sun's conjecture on the summatory function of $(-2)^{\Omega(n)}$*
- 14:45-14:55 Neea Palojärvi, *On explicit bounds for the Selberg class functions*
- 15:00-15:25 Brendan Creutz, *Quartic del Pezzo surfaces without quadratic points*

Contributed Session A room: 303-B11

- 14:00-14:25 Mine Dogucu, *Bayesian Statistics for Undergraduate Students and Their Instructors*
- 14:30-14:55 Alison Marzocchi, *TEAM Reflection Cycles: Supporting Instructors to Teach Equity-minded Active Mathematics*
- 15:00-15:25 Tim McDevitt, *A Mathematician Teaches Statistics*

Contributed Session B room: 303-B05

- 14:00-14:25 Lauren Thornton, *On class operators for the lower radical class and semisimple closure constructions.*
- 14:30-14:55 Robin Havea, *Development in constructive Banach algebra theory*
- 15:00-15:25 Dejian Zhou, *Noncommutative Logarithmic Sobolev Inequalities*

Differential geometry and geometric analysis room: 260-005

- 14:00-14:50 Ramiro Lafuente, *Ricci flows with symmetry*
- 15:00-15:25 Xianzhe Dai, *Singular Weyl's law with Ricci curvature bounded below*

Discrete and continuous integrable systems: geometry analysis and applications room: 260-036

- 14:00-14:50 Jan de Gier, *Vertex model constructions of symmetric functions and exclusion processes*
- 15:00-15:25 Vladimir Dragovic, *Ellipsoidal Billiards, Combinatorics, and Polynomial Pell's Equations*

Early Career Showcase in Low-Dimensional Topology room: 260-073

- 14:00-14:25 Orion Zymaris, *Lipschitz Spinors and Higher Horospheres*
- 14:30-14:55 John Stewart, *Mapping class groups of manifolds with boundary and the image of the variation operator*
- 15:00-15:25 Lavender Marshall, *Upsilon invariants for lens spaces*

Engagement with mathematics through communication and outreach room: 260-040

- 14:00-14:25 Susan James, *Developing a Successful Outreach Program*
- 14:30-14:55 Cait Pryse, *Taking Research from Academia to Broader Audiences*
- 15:00-15:25 Yudhistira Bunjamin, *Seven years of Peter's Party Planning Problems*

Ergodic Theory and Dynamical Systems room: 303-G23

- 14:00-14:25 Sakshi Jain, *Optimal linear response for SDE via kernel perturbations*
- 14:30-14:55 Claire Postlethwaite, *Exotic behaviour near heteroclinic networks*
- 15:00-15:25 Agnieszka Zelerowicz, *Lorentz gases on quasicrystals*

Functional Analysis and Operator Algebras room: 260-055

- 14:00-14:25 Lisa Orloff Clark, *Semi-Cartan Subalgebras and Twisted Groupoid C^* -Algebras*
- 14:30-14:55 Michael Kelly, *Generalised Twisted Groupoids and their C^* -Algebras*
- 15:00-15:25 Becky Armstrong, *Twisted groupoids that are not induced by 2-cocycles*

Functional analysis and partial differential operators room: 260-020

- 14:00-14:25 Boris Baeumer, *Maximal Regularity for Stochastic Parabolic Volterra Integral Equations*
- 14:30-14:55 Jonathan Mui, *Regularity preserving perturbations for operator semigroups*
- 15:00-15:25 Iveta Semorádová, *PT -symmetric oscillators with one-center point interactions*

Groups and Geometry room: 260-092

- 14:00-14:25 Marcus Chijoff, *The Scale Function Values of (P) -closed Groups Acting On Trees*
- 14:30-14:55 Max Carter, *Recent progress in the representation theory of totally disconnected locally compact groups*
- 15:00-15:25 Ryan Seelig, *Finitely presented simple groups that act on the circle, but not in a piecewise linear way*

Groups, actions and computations room: 260-051

- 14:00-14:50 James Wilson, *Verifiable categorification of Characteristic subgroups*
- 15:00-15:25 Geertrui Van de Voorde, *The probability of two subspaces spanning a classical space*

Harmonic analysis and Hamiltonian PDE room: 260-028

- 14:00-14:50 Kenji Nakanishi, *Classification of global dynamics around multi-solitons for the nonlinear Klein-Gordon equation*
- 15:00-15:25 Gong Chen, *Asymptotic stability of the sine-Gordon kink outside symmetry*

Index Theory in Geometry and Mathematical Physics room: 260-022

- 14:00-14:25 Rod Gover, *Conformal Yang-Mills renormalisation and higher Yang-Mills energies*
- 14:30-14:55 Thorsten Hertl, *Concordances in Positive Scalar Curvature and Index Theory*
- 15:00-15:25 Changliang Wang, *Positive mass theorem and positive scalar curvature for singular metrics*

Industrial Mathematics room: 402-211

- 14:00-14:25 Shaun Hendy, *The effect of incorporating infectious disease dynamics into a social cost-benefit framework for COVID-19 policy decisions*
- 14:30-14:55 Suncica Canic, *Mathematical design of a bioartificial pancreas*
- 15:00-15:25 Graeme Wake, *Unusual nonlocal calculus assists cancer cell growth treatments*

Mathematical Physics room: 260-221

- 14:00-14:50 Sergei Gukov, *Fully-connected lattice models and 3-manifolds*
- 15:00-15:25 Yvan Saint-aubin, *Bound quiver algebras that are Morita-equivalent to the one-boundary Temperley-Lieb algebras*

Mathematics Education room: 260-115

- 14:00-14:25 Tanya Evans, *Traditional lectures versus active learning – a false dichotomy?*
- 14:30-14:55 Carolyn Kennett, *Comparing the effectiveness of different modes of attendance in a maths preparation course for medical science students*
- 15:00-15:25 Paul Fijn, *Evaluating Next-Generation Technology-enabled Tutorial Spaces for Small-group classes*

Mathematics of nonlinear diffusion processes room: 260-018

- 14:00-14:50 Amy Novick-Cohen, *Surface Diffusion: Some new results and approaches*
- 15:00-15:25 Phil Broadbridge, *Exact solutions to multidimensional nonlinear reaction-diffusion. Part 1: Conditionally integrable nonlinear reaction-diffusion-convection applied to irrigation*

Microlocal analysis and inverse problems room: 260-009

- 14:00-14:50 Maarten De Hoop, *Geometry, spectral analysis and inverse problems on gas giants*
- 15:00-15:25 Qiuye Jia, *Geometric inverse problems on asymptotically conic manifolds: a microlocal approach*

Optimisation room: 402-221

- 14:00-14:50 Christiane Tammer, *Optimality conditions in optimization under uncertainty*
- 15:00-15:25 Li Chen, *Robust Optimization with Moment-Dispersion Ambiguity*

Probability and Mathematical Statistics room: 260-098

- 14:00-14:25 Mark Holmes, *All in!*
- 14:30-14:55 Susan Holmes, *Generative probabilistic models for experimental design, teaching statistics and goodness of fit testing.*
- 15:00-15:25 Alexis Kagan, *The trace of a random walk in random environments on trees*

Recent advances in geometric PDE room: 260-057

- 14:00-14:50 Ben Andrews, *Tumbling stones and curvature flows*
- 15:00-15:25 Susan Scott, *The Abstract Boundary (a-boundary) for Space-Time and its Applications*

Recent developments in data science and machine learning room: 402-220

- 14:00-14:25 Ting Wang, *Finding the number of latent states in hidden Markov models using information criteria*
- 14:30-14:55 Hien Nguyen, *L_p Approximation Rates for Location-Scale Mixture Densities and Implications to Adaptive Least-Squares Estimation*
- 15:00-15:25 Tian-Yi Zhou, *Optimal Classification-based Anomaly Detection with Neural Networks: Theory and Practice in Cybersecurity*

Representation Theory and Tensor Categories room: 303-G14

- 14:00-14:25 Daniel Nakano, *Category O for Lie superalgebras*
- 14:30-14:55 Eric Jankowski, *The Super Combinatorics of Normal Toric Supervarieties*
- 15:00-15:25 Vera Serganova, *Supergroups and finite groups in positive characteristic*

Special Functions, q -Series and Beyond room: 401-312

- 14:00-14:50 Ae Ja Yee, *Partition ranks and cranks from a combinatorial point of view*
- 15:00-15:25 Michael Schlosser, *Rook equivalence and a multisum extension of the Sears ${}_4\phi_3$ transformation*

Stochastic and Deterministic Inverse Problems room: 260-223

- 14:00-14:25 Xin Guo, *Learning Green's functions from data*
- 14:30-14:55 Madhu Gupta, *Nonlinear Reconstruction of Optical Parameters in Photoacoustic Tomography*
- 15:00-15:25 Oliver Maclaren, *Identifiability and reparameterisation methods for inverse problems*

Stochastic Differential Equations room: 260-016

- 14:00-14:25 Erika Hausenblas, *Stochastic Landau-Lifshitz-Gilbert equations (SLLGEs) driven by a rough path*
- 14:30-14:55 Xi Geng, *Long-time Behaviour of Stochastic Heat Equations in the Hyperbolic Space*
- 15:00-15:25 Wawan Hafid Syaifudin, *The Laplace transform of first exit time of geometric Brownian motion with affine drift*

Monday 16:00-17:00

50 years of Communications in Algebra room: 303-G15

16:00-16:25 Luis David Garcia Puente, *Counting lines in a symmetric quintic threefold surface under the action of the group of permutations S_5*

16:30-16:55 Tim Stokes, *An ESN Theorem for Ordered Ehresmann Semigroups*

Algebraic Combinatorics and Matroids room: 303-B09

16:00-16:25 Dominic Searles, *Lifting the dual immaculate functions to the polynomial ring*

16:30-16:55 Matthew Slattery-Holmes, *Peak functions, pattern avoidance, and positivity.*

Computability Theory and Applications room: 303-B07

16:00-16:50 Alexander Melnikov, *Computable duality theory*

Computational Methods and Applications of Dynamical Systems room: 303-G20

16:00-16:30 Courtney Quinn, *Resonance in Partial Tipping Due to Timescale Variation of Chaotic Forcing*

16:30-16:55 Andrus Giraldo, *Master stability curves for traveling waves*

Computational Number Theory and Applications room: 405-422

16:00-16:50 Edgar Costa, *$17T7$ as a Galois group over Q through Hilbert modular forms*

Contributed Session A room: 405-430

16:00-16:25 Rowena Ball, *Mathing a better world: Expanding cultural capital in mathematics*

16:30-16:55 Kerri Spooner, *What contributions can interpretive description make as a research methodology in the field of mathematics education?*

Contributed Session B room: 303-B11

16:00-16:25 Bekalu Tarekegn Bitew, *Exploring Fuzzy Ideals and Filters in Almost Distributive Fuzzy Lattices*

Deterministic and Probabilistic Aspects of Dispersive Partial Differential Equations room: 260-022

16:00-16:50 Soonsik Kwon, *Soliton resolution for Calogero–Moser derivative nonlinear Schrödinger*

Differential delay equations and their applications room: 303-B05

16:00-16:25 Tomas Gedeon, *Dynamics of a state-dependent delay-differential equation*

16:30-16:55 Jan Haskovec, *Non-Markovian models of collective dynamics*

Differential geometry and geometric analysis room: 260-005

16:00-16:25 Adam Thompson, *Ricci solitons that fibre over hyperbolic surfaces*

16:30-16:55 Stepan Hudecek, *Poisson's equation for G_2 -Laplacian on homogeneous spheres*

Discrete and continuous integrable systems: geometry analysis and applications room: 260-036

16:00-16:25 Deniz Bilman, (*Cancelled*) *General rogue waves of infinite order: exact properties, asymptotic behavior, and effective numerical computation*

16:30-16:55 Andrew Kels, *The decomposability property for lattice equations*

Early Career Showcase in Low-Dimensional Topology room: 260-073

16:00-16:25 Rhuaidi Burke, *Observations on the Structure of Small 4-Manifold Triangulations*

16:30-16:55 Lucy Tobin, *Small Triangulations of Simply Connected 4-Manifolds*

Engagement with mathematics through communication and outreach room: 260-040

16:00-16:25 Sean Gardiner, *Optimising workshop and problem design to maximise engagement and independent discovery*

16:30-16:55 Louis Yudowitz, *A "Soft" Framework for Designing Outreach About Mathematical Thinking*

Ergodic Theory and Dynamical Systems room: 303-G23

16:00-16:25 Maxence Phalempin, *Rare events for a collision model over a lattice*

16:30-16:55 Nalini Joshi, *Bi-elliptic integrable maps*

Functional Analysis and Operator Algebras room: 260-055

16:00-16:25 Ryan Thompson, *Actions of Inverse Semigroups and their Étale Groupoids*

16:30-16:55 Sarah Reznikoff, *Some Combinatorial Cartan subalgebras*

Functional analysis and partial differential operators room: 260-020

16:00-16:50 Irina Mitrea, *Distinguished Coefficient Tensors for Second Order Elliptic Differential Operators and Applications to Boundary Value Problems*

Groups and Geometry room: 260-092

16:00-16:50 Jessica Purcell, *Geometry and combinatorics of 3-manifold triangulations*

Groups, actions and computations room: 260-051

16:00-16:25 Anton Baykalov, *Imprimitive permutation groups of rank 3*

16:30-16:55 Luke Morgan, *Finite simple groups have many classes of p -elements*

Harmonic analysis and Hamiltonian PDE room: 260-028

16:00-16:50 Thierry Laurens, *A priori estimates for generalized KdV equations in H^{-1}*

Industrial Mathematics room: 402-211

16:00-16:25 Tim Wilson, *How to Predict and Quantify the Impacts of Radical Tobacco Policies in New Zealand*

16:30-16:55 Dragan Mirkovic, *Radiation Transport Problem in Proton Therapy of Cancer*

Mathematical Physics room: 260-221

16:00-16:25 Joshua Celeste, *The cohomology of knotted semimetals*

16:30-16:55 Ethan Fursman, *Partial Reduction for W-Algebras*

Mathematics Education room: 260-115

16:00-16:10 Huayu Gao, *Exploring Gender Differences in Tertiary Mathematics-Intensive Fields: A Critical Review of Social Cognitive Career Theory*

16:15-16:25 Adriana Zanca, *Automated mathematics assessment: should I use it and how?*

16:30-16:40 Huixin Gao, *Student Explanation Strategies in Tertiary Mathematics and Statistics Education: A Scoping Review*

16:45-16:55 Dush Bandarawickrama, *A Comparative Study of Probability and Statistics High School Curricula between Australia and South Asia*

Mathematics of nonlinear diffusion processes room: 260-018

16:00-16:50 Fernando Pereira Duda, *Extending Beyond Fickian Diffusion with Continuum Thermodynamics as a Guide*

Microlocal analysis and inverse problems room: 260-009

16:00-16:25 Colin Fox, *The finite-rank property of inverse problems and computation*

16:30-16:55 Madelyne Brown, *The growth of Fourier coefficients of restricted eigenfunctions*

Optimisation room: 402-221

16:00-16:25 Queenie Yingkun Huang, *Piecewise sum-of-squares-convex moment optimisation via semi-definite programs*

16:30-16:55 Tan Nhat Pham, *A proximal splitting algorithm for generalized DC programming with applications in signal recovery*

Probability and Mathematical Statistics room: 260-098

16:00-16:10 Hugh Entwistle, *A double-choice secretary problem with a random horizon*

16:15-16:25 Binghao Wu, *On the exponential integrability of the derivative of intersection and self-intersection local time for Brownian motion and related processes*

16:30-16:40 Vincent Liang, *On time-dependent boundary crossing probabilities of diffusion processes as differentiable functionals of the boundary*

16:45-16:55 Illia Donhauzer, *Superpositions of continuous autoregressive random fields*

Recent advances in geometric PDE room: 260-057

- 16:00-16:10 Alexander Bednarek, *Global Ricci Curvature Behaviour for the Kahler-Ricci Flow with Finite Time Singularities*
- 16:15-16:25 Chris Stevens, *Wellposedness of the initial boundary value problem for the conformal Einstein field equations*
- 16:30-16:40 Areeba Merriam, *Numerical Implementation of the Friedrich-Nagy Initial Boundary Value Problem*
- 16:45-16:55 Lachlan Campion, *Numerically extending the Generalised Conformal Field Equations to include energy and momentum.*

Recent developments in data science and machine learning room: 402-220

- 16:00-16:25 Caroline Wormell, *EDMD errors in chaotic and random dynamics: qualitatively similar but quantitatively different*
- 16:30-16:55 Junhong Lin, *On Convergence of Adam for Stochastic Optimization*

Representation Theory and Tensor Categories room: 303-G14

- 16:00-16:25 Tom Goertzen, *Representation theory of crystallographic groups and combinatorics of interlocking assemblies*
- 16:30-16:55 Eloise Little, *Balanced systems of cell representations for affine Hecke algebras*

Singularities room: 260-024

- 16:00-16:50 Yang Zhang, *Noncrossing algebras and (co)homology complexes for Milnor fibres*

Special Functions, q -Series and Beyond room: 401-312

- 16:00-16:25 Heng Huat Chan, *Ramanujan's theory of elliptic functions to the cubic base*
- 16:30-16:55 Jang Soo Kim, *Lecture hall graphs and the Askey scheme*

Stochastic and Deterministic Inverse Problems room: 260-223

- 16:00-16:25 Alex De Beer, *Ensemble Kalman Methods for Large-Scale Geophysical Inverse and Optimal Experimental Design Problems*
- 16:30-16:55 Marie Graff, *Recent advances on the Adaptive Eigenspace Inversion method: Bayesian formalism*

Stochastic Differential Equations room: 260-016

- 16:00-16:25 Clayton McDonald, *The harmonic measure distribution function and stopping times of complex Brownian motion*

Tuesday 11:30-12:30

50 years of Communications in Algebra room: 303-G15

11:30-11:55 Jim Coykendall, *Factorization in Monoids and Domains: History and Recent Results*

12:00-12:25 Felix Gotti, *Divisibility and ascending chains of principal ideals*

Applied and Computational Topology room: 260-223

11:30-11:55 Sarah Percival, *Bounding the Interleaving Distance of Geometric Graphs with a Loss Function*

12:00-12:25 Eve Cheng, *Investigating Party Structure Shifts in Parliamentary Networks*

Arithmetic Geometry and Number Theory room: 405-430

11:30-11:55 Anthony Várilly Alvarado, *Probabilistic approaches to rational points on algebraic surfaces*

12:00-12:25 Bianca Viray, *Number fields generated by points in linear systems on curves*

Computability Theory and Applications room: 303-B07

11:30-12:50 Elvira Mayordomo, *On information theory in geometric measure theory*

Computational Mathematics room: 402-231

11:30-11:55 Aamir Yousuf, *Numerical analysis of a Biot–Kirchhoff–Love poro–thermoelastic plate model*

12:00-12:25 Agus Soenjaya, *Finite element method for a micromagnetic model at elevated temperatures*

Computational Methods and Applications of Dynamical Systems room: 303-G20

11:30-11:55 Maciej Capinski, *Arnold Diffusion in the Three Body Problem*

12:00-12:25 Harry Dankowicz, *Parameter Continuation and Uncertainty Quantification Near Stochastically Perturbed Limit Cycles and Tori*

Contributed Session A room: 260-036

11:30-11:55 Emmanuel Ekitela, *Factor Analysis of Infrastructure Output on Economic Growth of Kenya*

12:00-12:25 Maryam Mirzaei, *The integrated model of the production planning and the assignment of warehouse locations to products in an uncertain environment*

Contributed Session B room: 303-G14

11:30-11:55 Geetha Venkataraman, *Exponent-Critical Groups*

12:00-12:25 David Bryant, *A Geometric Introduction to Diversity Theory*

Deterministic and Probabilistic Aspects of Dispersive Partial Differential Equations room: 260-022

11:30-12:20 Zongyuan Li, *Optimal Liouville theorems for conformally invariant PDEs*

Differential delay equations and their applications room: 303-B05

11:30-11:55 Jacques Belair, *Coupled Delayed Feedback Loops in Biological Systems: Stability and Oscillations*

12:00-12:25 Sergiy Shelyag, *Delay-differential equations for glucose-insulin regulation system modelling*

Differential geometry and geometric analysis room: 260-005

11:30-12:20 Emma Carberry, *Isothermic Surfaces*

Early Career Showcase in Low-Dimensional Topology room: 260-073

11:30-11:55 Damian Lin, *Mutation Invariants of Virtual Alternating Knots*

12:00-12:25 Lecheng Su, *Klein bottle alternating links*

Engagement with mathematics through communication and outreach room: 260-040

11:30-12:25 Jeanette McLeod, *Maths Craft: An Unexpected Journey*

Ergodic Theory and Dynamical Systems room: 303-G23

11:30-11:55 Aaron Brown, *Absolute continuity of stationary measures*

12:00-12:25 David Groothuizen Dijkema, *Analysing dynamics near heteroclinic networks with a projected map*

Functional Analysis and Operator Algebras room: 260-055

11:30-11:55 Hongyin Zhao, *Diagonal operators, Hausdorff measure and non-commutative symmetric spaces*

12:00-12:25 Nathan Brownlowe, *Self-similar quantum groups*

Functional analysis and partial differential operators room: 260-020

11:30-12:20 Patrick Guidotti, *Connecting the Dots*

Groups and Geometry room: 260-092

11:30-12:20 Marston Conder, *Recent discoveries about finite quotients of triangle groups*

Groups, actions and computations room: 260-051

11:30-12:20 Alexander Hulpke, *Arithmetic and Algorithms for formal extensions*

Harmonic analysis and Hamiltonian PDE room: 260-028

11:30-12:20 Satoshi Masaki, *Asymptotic behavior of solutions to systems of cubic NLS equations in 1D*

Industrial Mathematics room: 402-211

- 11:30-11:40 Parul Tiwari, *Data-Driven Water Quality Modelling and Prediction for New Zealand Rivers: A Predictive Approach to Environmental Sustainability*
- 11:45-11:55 Melanie Roberts, *Advancing the MERGE Gully Erosion Model to inform gully remediation in protection of the Great Barrier Reef*
- 12:00-12:10 James Winchester, *Online Estimation for Dairy Processing*
- 12:15-12:25 Melissa Louise Smith, *When Bike Lanes Are Not Enough: An Application of Network Analysis to Low Stress Cycling Infrastructure in Aotearoa New Zealand Cities*

Mathematical Physics room: 260-221

- 11:30-11:55 Joseph McGovern, *Non-realistic black holes, non-hypergeometric equations, and non-accessible invariants*
- 12:00-12:25 Justine Fasquel, *Connecting W-algebras and their representations*

Mathematics Education room: 260-115

- 11:30-11:55 Doug Corey, *Grouping Calculus Students by Video Watching Behavior and the Effect of Group Membership on Learning*
- 12:00-12:25 Chris Gordon, *Does self-paced online learning prepare a student for first-year mathematics?*

Mathematics of nonlinear diffusion processes room: 260-018

- 11:30-12:20 Bronwyn Hajek, *Nonlinear backward diffusion, an exact solution, and regularisation options*

Microlocal analysis and inverse problems room: 260-009

- 11:30-11:55 Hiroyuki Chihara, *Geodesic X-ray transform and streaking artifacts on*
- 12:00-12:25 Rohit Kumar Mishra, *2D V-line Tensor Tomography with Some Numerical Simulation*

New directions in pattern formation room: 303-B11

- 11:30-11:55 Carlo Laing, *Moving bumps in theta neuron networks*
- 12:00-12:25 Edgar Knobloch, *Snaking of time-dependent localized structures*

Optimisation room: 402-221

- 11:30-11:55 Lien Nguyen, *Second-order dynamical systems with fixed-time convergence*
- 12:00-12:25 Dominic Keehan, *Epi-Consistent Approximation of Stochastic Dynamic Programs*

Probability and Mathematical Statistics room: 260-098

- 11:30-11:55 Peter Taylor, *Lattice and Non-Lattice Markov Additive Models*
- 12:00-12:25 Ruth Williams, *Biochemical reaction networks and reflected diffusions*

Recent advances in geometric PDE room: 260-057

- 11:30-12:20 Guofang Wei, *The volume entropy rigidities for RCD spaces*

Recent developments in data science and machine learning room: 402-220

11:30-11:55 Susan Wei, *Leveraging free energy in pretraining model selection for improved fine-tuning*

12:00-12:25 Niya Chen, *Hybrid Model Using Realized Conditional Autoregressive Expectile Models and*

Singularities room: 260-024

11:30-12:20 Alexandru Suciu, *On the topology of the Milnor fibration of a complex hyperplane arrangement*

Special Functions, q -Series and Beyond room: 401-312

11:30-12:20 Ken Ono, *q -analogues of multiple zeta functions: Partitions detect prime numbers*

Stochastic Differential Equations room: 260-016

11:30-12:20 Andrzej Swiech, *Finite dimensional projections of Hamilton-Jacobi-Bellman equations in spaces of probability measures*

Structural aspects of matroids and graphs room: 303-B09

11:30-11:55 Nick Brettell, *Detachable pairs in 3-connected matroids and simple 3-connected graphs*

12:00-12:25 Sam Bastida, *Contracting a Single Element in a Transversal Matroid*

Tuesday 14:00-15:30

50 years of Communications in Algebra room: 303-G15

- 14:00-14:25 Sarah Witherspoon, *Taft algebras and Nichols algebras*
- 14:30-14:55 Lars Christensen, *Limits of perfect complexes*
- 15:00-15:25 Sylvia Wiegand, *Prime ideals in polynomial-power series rings*

Applied and Computational Topology room: 260-223

- 14:00-14:25 Robin Belton, *Discrete Level Set Persistence for Finite Discrete Functions*
- 14:30-14:55 Henry Adams, *Persistent equivariant cohomology*
- 15:00-15:25 Vanessa Robins, *The Extended Persistent Homology Transform for Manifolds with Boundary*

Arithmetic Geometry and Number Theory room: 405-430

- 14:00-14:25 Jeremy Booher, *Iwasawa theory of Frobenius-torsion class group schemes*
- 14:30-14:55 Daniel Delbourgo, *Replenishing Euler systems at their bad primes*
- 15:00-15:10 Timotheus Keanu, *Iwasawa Theory for Supersingular Elliptic Curves over Deformation Local Rings*
- 15:15-15:25 Jordan Pertile, *On the Euclideanity of Number Fields*

Computability Theory and Applications room: 303-B07

- 14:00-14:25 Noam Greenberg, *Embedding uncountable partial orderings into the Turing degrees*
- 14:30-15:20 Bakh Khossainov, *Defining algorithmically presented structures in first order logic*

Computational Mathematics room: 402-231

- 14:00-14:25 Kevin Burrage, *Equation learning of ODE systems from Stochastic agent based models using a library of chemical reactions*
- 14:30-14:55 Elizabeth Harris, *Calculating Minimum Volume Covering Ellipsoids Using Leverage Score Sampling*
- 15:00-15:25 Jia Jia Qian, *A discrete de Rham scheme for the exterior calculus Einstein's equations*

Computational Methods and Applications of Dynamical Systems room: 303-G20

- 14:00-14:25 Kyoung Hyun Lee, *Phase resetting in two phase-locked coupled Van der Pol oscillators*
- 14:30-14:55 Jacob Ngaha, *Phase Resetting in the Yamada Model of a Q-Switched Laser*
- 15:00-15:25 Md. Azmir Ibne Islam, *Dynamics induced by a heteroclinic network comprising five nodes*

Computational Number Theory and Applications room: 405-422

- 14:00-14:10 Simon Thomas, *The sum of a prime cubed and a cube-free number*
- 14:15-14:25 Liang Wang, *Partial sum of the Möbius function under the Riemann hypothesis*
- 14:30-14:40 Gustav Kjaerbye Bagger, *Hybrid bounds for x in terms of $\omega(x^n - 1)$*
- 14:45-14:55 Chiara Bellotti, *An explicit log-free zero-density estimate for the Riemann zeta-function*
- 15:00-15:10 Daniel Johnston, *Recent progress in bounding the error term in the prime number theorem*
- 15:15-15:25 Shashi Chourasiya, *On the explicit version of Ingham's zero density estimate*

Contributed Session A room: 260-016

- 14:00-14:25 Meghna Mistri, *"Sharing is caring": A mathematical study on bacterial conjugation*
- 14:30-14:55 Nathan Hartmann, *History of the Tangent: al-Biruni and his Shadows*
- 15:00-15:25 Stephen Marsland, *Money, Reputations, and Evolutionary Game Theory*

Contributed Session B room: 260-036

- 14:00-14:25 Roy Jansen, *How field characteristic impacts ideal structure in the Steinberg algebras of the two- and three-headed snakes*
- 14:30-14:55 Barry Gardner, *(Cancelled) q -central idempotents and radical classes of rings*
- 15:00-15:25 Zekarias Gashu Terefe, *Principal Ideals and Filters of an Almost Distributive Fuzzy Lattice.*

Differential delay equations and their applications room: 303-B05

- 14:00-14:25 Anatoli Ivanov, *Global Attractivity and Periodicity in a Delay Differential Model*
- 14:30-14:55 Tibor Krisztin, *Homoclinic orbit for a Mackey-Glass type equation*
- 15:00-15:25 Ábel Garab, *Discrete Lyapunov functional for a system of differential equations with time-variable and state-dependent delay*

Differential geometry and geometric analysis room: 260-005

- 14:00-14:25 Jane McDougall, *Rosette harmonic mappings, their generalizations, and deformation to the classical Enneper surface*
- 14:30-14:55 Thomas Leistner, *Lorentzian homogeneous spaces with indecomposable isotropy*
- 15:00-15:25 Gerd Schmalz, *On Bochner Kähler manifolds*

Early Career Showcase in Low-Dimensional Topology room: 260-073

- 14:00-14:25 Joshua Drouin, *Exotic families of higher intersection embedded spheres*
- 14:30-14:55 Jin Miyazawa, *A gauge theoretic invariant of embedded surfaces in 4-manifolds and exotic P^2 -knots*
- 15:00-15:25 Gordana Matic, *Some four-genus bounds and unknotting by full twists*

Engagement with mathematics through communication and outreach room: 260-040

- 14:00-14:25 Phil Wilson, *Maths Craft in a Box*
- 14:30-14:55 Kate Barnard, *Just don't say "maths" - the Puzzle Café and other innovative mathematics engagement*
- 15:00-15:25 Cindy Huang, *Enhancing Mathematics Engagement through Learner-Centred Experiences*

Ergodic Theory and Dynamical Systems room: 303-G23

- 14:30-14:55 Yuri Kifer, *Strong Iterated Limit Theorems for Dynamical Systems*
- 15:00-15:25 Riddhi Shah, *Dynamics of actions of automorphisms of a Lie group on certain compact spaces and applications to lattices*

Functional Analysis and Operator Algebras room: 260-055

- 14:00-14:25 Anne Thomas, *Trees and related species*
- 14:30-14:55 Victor Wu, *From directed graphs of groups to Kirchberg algebras*
- 15:00-15:25 Christian De Nicola Larsen, *Analytic properties of groups via Vaughan Jones' technology*

Functional analysis and partial differential operators room: 260-020

- 14:00-14:25 Daniel Daners, *The logistic equation on rough domains*
- 14:30-14:55 Simon Goodwin, *Dirichlet-to-Neumann Operators via Layer Potentials*
- 15:00-15:25 Tom ter Elst, *Commutator estimates and Poisson bounds for Dirichlet-to-Neumann operators with variable coefficients*

Groups and Geometry room: 260-092

- 14:00-14:50 Piotr Przytycki, *Trees, fixed points, and the Cremona group*
- 15:00-15:25 Pratyush Mishra, *Girth Alternative for groups acting on $CAT(0)$ cube complex*

Groups, actions and computations room: 260-051

- 14:00-14:25 Jianbei An, *Weight subgroups of quasi-isolated blocks of finite exceptional groups*
- 14:30-14:55 Jie Du, *The q -Schur algebra of type D*
- 15:00-15:25 Mikko Korhonen, *Maximal solvable subgroups*

Harmonic analysis and Hamiltonian PDE room: 260-028

- 14:00-14:50 Timothy Candy, *The non-relativistic limit for the cubic Dirac equation*
- 15:00-15:25 Barbara Prinari, *Local and global well-posedness for the Maxwell-Bloch equations with inhomogeneous broadening*

Index Theory in Geometry and Mathematical Physics room: 260-022

- 14:00-14:25 Diarmuid Crowley, *The topology of G_2 -moduli spaces*
- 14:30-14:55 Chris Pirie, *The Equivariant Fried Conjecture for Suspension Flow*
- 15:00-15:25 Simone Cecchini, *Rigidity of spin fill-ins with non-negative scalar curvature*

Industrial Mathematics room: 402-211

- 14:00-14:25 Alona Ben-Tal, *Mathematical modelling of pressure dynamics within the skull and its influence on arterial blood pressure control*
- 14:30-14:55 Alys Clark, *Mathematical modelling to understand the effect of mask design on non-invasive ventilation*
- 15:00-15:25 Hammed Olawale Fatoyinbo, *Modelling the Dynamics of Infectious Bursal Disease in Poultry: A Sero-Epidemiological Approach*

Mathematical methods in continuum mechanics and wave theory room: 401-307

- 14:00-14:50 Kenneth Golden, *From micro to macro in modeling sea ice*
- 15:00-15:25 Yvonne Stokes, *Stability in the drawing of fibres with internal structure*

Mathematical Physics room: 260-221

- 14:00-14:25 Jessica Hutomo, *Correlation functions of conserved higher-spin supercurrents in 4D N=1 SCFT*
- 14:30-14:55 Remy Adderton, *The coupled Temperley-Lieb algebra and planar parafermions in \mathbb{Z}_N clock models.*
- 15:00-15:25 Cengiz Gazi, *Duality for ASEP on the half line*

Mathematics Education room: 260-115

- 14:00-14:25 Sang Hyun Kim, *Exploring Student Preferences for Collaboration in Mathematics: A Scale Validation Study*
- 14:30-14:40 Matthew Voigt, *"I'm Better at This Than You" - Does AI's Thematic Analysis Outshine Human Expertise in STEM Education Research?*
- 14:45-14:55 Bibhya Sharma, *The Status of Mathematics in the South Pacific*
- 15:00-15:25 Minglin Zhou, *Effect of 'student-lecturing' teaching model on eighth grade students' attitude towards mathematics*

Mathematics of nonlinear diffusion processes room: 260-018

- 14:00-14:50 Yoshihiro Tonegawa, *Some recent results on existence and regularity of Brakke flow*
- 15:00-15:25 Phil Broadbridge, *Exact solutions to multidimensional nonlinear reaction diffusion. Part 2: Nonlinear reaction-diffusion applied to fisheries and Cahn-Hilliard phase fields*

Microlocal analysis and inverse problems room: 260-009

- 14:00-14:50 Plamen Stefanov, *Recent results on Lorentzian scattering rigidity*
- 15:00-15:25 Richard Huber, *The Range of Projection Pair Operators*

New directions in pattern formation room: 303-B11

- 14:00-14:25 Rodrigues Bitha, *Spontaneous symmetry breaking in a coupled photonic crystal dimer with two interacting light fields*
- 14:30-14:55 Behrooz Yousefzadeh, *Pattern formation in coiling of falling viscous threads*
- 15:00-15:25 Christopher Lustrì, *Stokes' phenomenon, discretization, and discrete integrability*

Optimisation room: 402-221

- 14:00-14:25 James Foster, *Galois connections, adjoints and duality in optimisation*
- 14:30-14:55 Sione Paea, *Information Architecture (IA): Multidimensional scaling and K-means analysis for small and large card sorting datasets*
- 15:00-15:25 Vinesha Peiris, *Kolmogorov-Arnold theorem and its applications*

Probability and Mathematical Statistics room: 260-098

- 14:00-14:25 Sandra Palau, *Coalescent point process of branching trees in a varying environment*
- 14:30-14:55 Juan Carlos Pardo, *On the speed of coming down from infinity for branching processes with pairwise interactions*
- 15:00-15:25 Conrad Burden, *Coalescence for Feller diffusions*

Recent advances in geometric PDE room: 260-057

- 14:00-14:25 Lee Kennard, *From sectional to Ricci curvature via symmetry*
- 14:30-14:55 Xavier Ramos Olive, *Ricci Curvature on Graphs*
- 15:00-15:25 Pablo Suárez-Serrato, *Zero entropy on entire Grauert tubes*

Recent developments in data science and machine learning room: 402-220

- 14:00-14:25 Gerlind Plonka, *The Multichannel Blind Deconvolution Problem in Parallel MRI*
- 14:30-14:55 Simon Foucart, *Optimal Recovery of Multivalued Functions*
- 15:00-15:25 HRUSHIKESH MHASKAR, *A super-resolution approach to classification*

Representation Theory and Tensor Categories room: 303-G14

- 14:00-14:25 David Ridout, *Irreducible weight \mathfrak{sl}_3 -modules with infinite multiplicities*
- 14:30-14:55 Gavriilo Šipka, *Orthogonal Yangians and Evaluation Homomorphisms*
- 15:00-15:25 Paul Zinn-Justin, *The exceptional series and the Yang-Baxter equation*

Singularities room: 260-024

- 14:00-14:50 Graham Denham, *Cohomology jump loci for Schubert arrangements*
- 15:00-15:25 Christin Bibby, *Supersolvable posets and fiber-type arrangements*

Special Functions, q -Series and Beyond room: 401-312

- 14:00-14:50 Eleanor McSpirit, *Modularity and Resurgence*
- 15:00-15:25 Shashank Kanade, *Remarks on the conjectures of Capparelli, Meurman, Primc and Primc*

Structural aspects of matroids and graphs room: 303-B09

- 14:00-14:25 Ryo Nikkuni, *Conway-Gordon type theorems and its applications*
- 14:30-14:55 Hyoungjun Kim, *Obstructions to knotless embedding*
- 15:00-15:25 Hwa Jeong Lee, *Signed mosaic graphs and mosaic number of knots*

Tuesday 16:00-17:00

50 years of Communications in Algebra room: 303-G15

16:00-16:25 James East, *Transformation representations of diagram monoids*

16:30-16:55 Roger Wiegand, *Semigroups of modules*

Applied and Computational Topology room: 260-223

16:00-16:25 Bei Wang, *Harmonic Chain Barcode and Stability*

16:30-16:55 MUSASHI Koyama, *Computing degree-1 Vietoris-Rips persistent homology more efficiently*

Arithmetic Geometry and Number Theory room: 405-430

16:00-16:10 Muhammad Afifurrahman, *A uniform formula on the number of integer matrices with given determinant and height*

16:15-16:25 Ali Ebadi, *Expanding on Banks' Results: New Approaches to the Spacing of Zeros of the Riemann Zeta Function*

16:30-16:40 Sebastian Tudzi, *The Generalized Divisor Problem*

16:45-16:55 Chenyan Wu, *Explicit relation between invariants from Eisenstein series and theta lifts, with an application to Arthur packets*

Computability Theory and Applications room: 303-B07

16:00-16:25 Johanna Franklin, *Fourier series and algorithmic randomness*

16:30-16:55 Guohua Wu, *Reverse Mathematics of Theorems in Lattice Theory*

Computational Mathematics room: 402-231

16:00-16:25 Segundo Villa-fuentes, *A priori and a posteriori error bounds for the fully mixed FEM formulation of poroelasticity with stress-dependent permeability*

16:30-16:55 Tiangang Cui, *Tensor-Train Methods for Sequential State and Parameter Estimation in State-Space Models*

Computational Methods and Applications of Dynamical Systems room: 303-G20

16:00-16:25 Sam Doak, *Invariant Manifolds and the Emergence of Wild Chaos*

16:30-16:55 Juan Patiño-Echeverría, *Classification and structure of homoclinic explosions in a four-dimensional Lorenz-like system*

Computational Number Theory and Applications room: 405-422

16:00-16:25 Eamonn O'Brien, *Challenging problems from group theory*

16:30-16:55 John Voight, *A computational investigation into modular forms attached to rigid surfaces of geometric genus 2*

Contributed Session A room: 260-016

16:00-16:25 Boris Huang, *On compounded random walks and the space-fractional Fokker-Planck equation*

16:30-16:55 Alyah Alshammari, *Time Domain Vibration Analysis of a Cracked Ice Shelf*

Contributed Session B room: 303-B11

16:00-16:25 Darius Young, *Quotient order density of triangle groups*

16:30-16:55 Melusi Khumalo, *Generalized iterated function system for common attractors in partial metric spaces*

Deterministic and Probabilistic Aspects of Dispersive Partial Differential Equations room: 260-022

16:00-16:50 Kiyeon Lee, *The global dynamics of the Maxwell-Dirac system*

Differential delay equations and their applications room: 303-B05

16:00-16:25 Samuel Bolduc-st-aubin, *Feedback with implicit state-dependent delay:*

16:30-16:55 Renzo Mancini, *Bifurcation analysis of a two-delay model for the Atlantic Meridional Overturning Circulation*

Differential geometry and geometric analysis room: 260-005

16:00-16:25 Stuart Teisseire, *A Monge-Ampere equation on hypersurfaces in projective geometry*

16:30-16:55 Jihun Kim, *Classification of weakly Einstein hypersurfaces in spaces of constant curvature*

Discrete and continuous integrable systems: geometry analysis and applications room: 260-036

16:00-16:25 Robert Buckingham, *Asymptotic Behavior of Rational Painlevé-V Functions*

16:30-16:55 Andrei Martinez-Finkelshtein, *Flow of the zeros of polynomials under iterated differentiation*

Early Career Showcase in Low-Dimensional Topology room: 260-073

16:00-16:25 Em Thompson, *On the complexity of hyperbolic knots obtained by Dehn filling the ‘magic manifold’*

16:30-16:55 Finn Thompson, *Computing the Heegaard Genus of 3-Manifold Triangulations*

Engagement with mathematics through communication and outreach room: 260-040

16:00-16:55 Dominic Maderazo, *Workshop: A Combinatorial Game*

Ergodic Theory and Dynamical Systems room: 303-G23

16:00-16:25 Dong Chen, *Equilibrium states for non-uniformly hyperbolic geodesic flows*

16:30-16:55 Hinke M Osinga, *Blenders, attractors, and their carpet property*

Functional Analysis and Operator Algebras room: 260-055

16:00-16:25 Daniel Czapski, *Kruglov’s operator in semifinite von Neumann algebras equipped with free independence*

Functional analysis and partial differential operators room: 260-020

16:00-16:50 Florica Cîrstea, *Existence and classification of solutions for nonlinear elliptic equations with singular potentials*

Groups and Geometry room: 260-092

16:00-16:25 Ari Markowitz, *Deciding discreteness of groups of 2×2 matrices over local fields*

16:30-16:55 Roman Gorazd, *Which trees are almost isomorphic to cocompact trees?*

Groups, actions and computations room: 260-051

16:00-16:50 Melissa Lee, *Computing the anatomy of the Monster*

Harmonic analysis and Hamiltonian PDE room: 260-028

16:00-16:25 Po-Lam Yung, *Discrete Strichartz estimates in low dimensions*

16:30-16:55 Yunfeng Zhang, *On the modified KdV equation in modulation spaces*

Industrial Mathematics room: 402-211

16:00-16:25 Hiroyuki Ochiai, *A mathematician meets computer graphics*

16:30-16:55 Jody McKerral, *Modelling of three-component complex conflict with decision-making, host population support and resource redistribution*

Mathematical Physics room: 260-221

16:00-16:25 Willem Jacobus Petrus Van Tonder, *Eigenstates of an Integrable XY Model*

16:30-16:55 Eve Cheng, *Topological analysis of the complex SSH model*

Mathematics Education room: 260-115

16:00-16:50 Widodo Samyono, *Unlocking Curiosity and Building Resilience: Engaging Students in Biocalculus with Inquiry-Based AI Tools for Effective Hybrid Learning*

Mathematics of nonlinear diffusion processes room: 260-018

16:00-16:50 Shinya Okabe, *A gradient flow for the ideal energy under a length constraint*

Optimisation room: 402-221

16:00-16:25 Yingying Yang, *An Exact Method for the Bi-objective p -median Max-sum Diversity Problem*

16:30-16:55 Liam MacDonald, *A Generic Scheme for Quadratic Minimisation*

Probability and Mathematical Statistics room: 260-098

16:00-16:25 Conor Kresin, *A New Computationally Efficient and Consistent Estimator for Spatiotemporal Point Process Data*

16:30-16:55 Tilman Davies, *Gettn' Freqky with Spatial Point Patterns*

Recent advances in geometric PDE room: 260-057

16:00-16:25 Louis Yudowitz, *Semi-Continuity of the Morse Index for Ricci Shrinkers*

16:30-16:40 Malik Tuerkoen, *Fundamental Gap Estimates in Various Geometries*

16:45-16:55 Sophie Chen, *Counterexample to the second eigenfunction having one zero for a non-local Schrödinger operator*

Recent advances in mathematical fluid dynamics room: 401-311

16:00-16:25 Tsuyoshi Yoneda, *Effectiveness of Littlewood-Paley theory in the study of turbulence and machine learning*

16:30-16:55 Noah Vinod, *Well-posedness for a Magnetohydrodynamical Model with Intrinsic Magnetisation*

Recent developments in data science and machine learning room: 402-220

16:00-16:25 Martin Hazelton, *Efficient Fibre Sampling for Statistical Linear Inverse Problems*

16:30-16:55 Benoit Lique, *Best Subset Selection via Continuous Optimization*

Singularities room: 260-024

16:00-16:50 Luca Fabrizio Di Cerbo, *On the Geometry of Symmetric Products of Curves*

Special Functions, q -Series and Beyond room: 401-312

16:00-16:25 Gaurav Bhatnagar, *Expansion formulas for elliptic hypergeometric series*

16:30-16:55 Pieter Roffelsen, *On q -Painlevé VI transcendents, connection problems and Segre surfaces*

Structural aspects of matroids and graphs room: 303-B09

16:00-16:25 Zach Walsh, *The foundation of a generalized parallel connection*

16:30-16:55 Anastasia Chavez, *The valuation polytope on height two posets*

Wednesday 10:30-12:00

50 years of Communications in Algebra room: 303-G15

- 10:30-10:55 Marcel Jackson, *Algebraic models of exponential and combinatorial laws*
- 11:00-11:25 Dolores Herbera, *A monoid of infinitely generated projective modules and its applications to direct sum decompositions of modules*
- 11:30-11:55 Hwankoo Kim, *An introduction of w -factor rings and their applications*

Algebraic Combinatorics and Matroids room: 303-B09

- 10:30-10:55 Takuro Abe, *Solomon-Terao polynomial and Castelnuovo-Mumford regularity of hyperplane arrangements*
- 11:00-11:25 Leo Jiang, *Topology of real matroid Schubert varieties*
- 11:30-11:55 Alec Elhindi, *Constructive Torelli Theorem for Regular Matroids*

Arithmetic Geometry and Number Theory room: 405-430

- 10:30-10:55 Ling Long, *The Explicit Hypergeometric-Modularity Method*
- 11:00-11:25 Adriana Salerno, *Hypergeometric motives and invertible K3 surface pencils*
- 11:30-11:55 Alex Ghitza, *Arithmetic of automorphic forms on quaternion algebras*

Computability Theory and Applications room: 303-B07

- 10:30-10:55 Paul Shafer, *Complexity of presenting cohesive powers*
- 11:00-11:50 Andre Nies, *Profinite groups, effective dimension, and randomness*

Computational Mathematics room: 402-231

- 10:30-10:55 John Butcher, *Trees and B-series*
- 11:00-11:25 Li Zhu, *A New Finite Element Method Wave Propagation on Graphene Sheets*
- 11:30-11:55 Paul Leopard, *The applicability of equal area partitions of the unit sphere*

Computational Number Theory and Applications room: 405-422

- 10:30-10:55 Madeleine Kyng, *Computing zeta functions of algebraic curves using Harvey's trace formula*
- 11:00-11:10 Victor (Sheng) Lu, *16-Descent on Elliptic Curves*
- 11:15-11:25 Derek Perrin, *Ordinary Isogeny Graphs with Level Structure*
- 11:30-11:40 Chao Qin, *Characteristic elements modulo p in noncommutative Iwasawa theory*
- 11:45-11:55 Stefan Catoiu, *A Number Theoretic Algorithm Leading to the Proof of the GGR Conjecture on Generalized Differentiation*

Computations and applications of algebraic geometry and commutative algebra room: 303-B05

- 10:30-10:55 Scott Mullane, *The Kodaira classification of the moduli space of pointed hyperelliptic curves*
- 11:00-11:25 Diane Maclagan, *Toric Bertini theorems in arbitrary characteristic*
- 11:30-11:55 Gregory Smith, *Cohomology of toric vector bundles*

Contributed Session A room: 260-040

- 10:30-10:55 Angelyn Lao, *Graph Theoretical Analysis of Biological and Ecological Systems*
- 11:00-11:25 Paco Castaneda Ruan, *Exploring Calcium oscillation patterns in T-lymphocytes using ordinary differential equations*
- 11:30-11:55 Anet Jorim Norbert Anelone, *Modelling and simulation to advance antiviral therapy for measles*

Contributed Session B room: 260-215

- 10:30-10:55 Rajko Nenadov, *Near-optimal universality for bounded-degree hypergraphs*
- 11:00-11:25 Abdul Basit, *Extremal problems for semilinear graphs*
- 11:30-11:55 Lynnel Naingue, *On Graded Twisted Steinberg Algebras*

Differential geometry and geometric analysis room: 260-005

- 10:30-10:55 Artem Pulemotov, *Einstein metrics on homogeneous superspaces*
- 11:00-11:50 Claude LeBrun, *Einstein Metrics, 4-Manifolds, and Gravitational Instantons*

Discrete and continuous integrable systems: geometry analysis and applications room: 260-036

- 10:30-11:20 Nicholas Witte, *The distribution of zeros of the derivative of the Riemann Zeta function via random unitary matrices*
- 11:30-11:55 Renjie Feng, *U-statistics for determinantal point processes*

Early Career Showcase in Low-Dimensional Topology room: 260-073

- 10:30-10:55 Alexander Elzenaar, *Deformations of 3-orbifold holonomy groups and applications*
- 11:00-11:25 Joshua Howie, *Essential checkerboard surfaces for some m -almost alternating links*
- 11:30-11:55 Dionne Ibarra, *From ideal to one-vertex triangulations*

Ergodic Theory and Dynamical Systems room: 303-G23

- 10:30-10:55 Marisa Cantarino, *Blenders and robust transitivity for a family of derived from Anosov maps on T^3*
- 11:00-11:25 David Simpson, *Explicit constructions for chaotic attractors of piecewise-linear maps*
- 11:30-11:55 Warwick Tucker, *Relative equilibria for the n -body problem*

Functional Analysis and Operator Algebras room: 260-055

- 10:30-10:55 Mahya Ghandehari, *On Fourier-Stieltjes Algebras of Locally Compact Groupoids*
- 11:00-11:25 Jimeng Lu, *Pisier's Question: Steinberg Theorem Revisited*

Groups and Geometry room: 260-092

- 10:30-11:20 Bertrand Remy, *L^p -cohomology of Lie groups*
- 11:30-11:55 Kai-Uwe Bux, *The Boone-Higman conjecture for groups acting on locally finite trees*

Groups, actions and computations room: 260-051

- 10:30-10:55 Meizheng Fu, *Elementary abelian p -subgroups and their local structure in classical groups*
- 11:00-11:25 Dorde Mitrović, *Exponential graph growth via eigenspaces of graphs over finite fields*
- 11:30-11:55 Jerry Shen, *The complexity of the epimorphism problem with virtually abelian targets*

Harmonic analysis and Hamiltonian PDE room: 260-028

- 10:30-11:20 Gino Biondini, *Spectral theory, semiclassical limits and soliton gases for the focusing nonlinear Schrödinger equation with periodic boundary conditions*
- 11:30-11:55 Maria Ntekoume, *Homogenization for the nonlinear Schrödinger equation with sprinkled nonlinearity*

Index Theory in Geometry and Mathematical Physics room: 260-022

- 10:30-10:55 Tsuyoshi Kato, *Homotopy type of finitely propagated unitary operators and its applications*
- 11:00-11:25 Guo Chuan Thiang, *Fractional index and exact quantization*
- 11:30-11:55 Graeme Wilkin, *From Kleinian singularities to rational elliptic surfaces*

Industrial Mathematics room: 402-211

- 10:30-10:55 Kenji Kajiwara, *Towards Geometry of Aesthetic Shape: Klein Geometry, Integrability and Self-Affinity*
- 11:00-11:25 Alex Tam, *Predicting patterns in ionic liquid films*
- 11:30-11:55 Anthony Kearsley, *Increasing sensitivity of analytical chemistry measurements using (very) applied mathematics.*

Mathematical methods in continuum mechanics and wave theory room: 401-307

- 10:30-10:40 Rehab Aljabri, *Time-Dependent Modeling of a Circular Ice Shelf*
- 10:45-10:55 Carl Vu, *The fluid dynamics of intrusions*
- 11:00-11:10 Afnan Aldosri, *Time Dependent Wave Propagation in Waveguides with Rectangular Scattering Regions*
- 11:15-11:25 Chaudry Masood Khaliq, *Solutions and conservation laws of a nonlinear $(3+1)$ -dimensional fifth-order partial differential equation*
- 11:30-11:55 Mike Meylan, *Efficient Numerical Solution of the Wave Equation as Matrix Multiplication.*

Mathematics Education room: 260-115

- 10:30-10:55 Poh Hillock, *Redesigning First-Year Mathematics for Student Success*
- 11:00-11:25 Marcel Derkum, *Pedagogical Practices: PISA 2022 data analysis of inquiry-based and teacher-directed approaches*
- 11:30-11:55 Tanya Saxena, *Analysing the impact of streaming in New Zealand primary schools through multilevel models using TIMSS data*

Mathematics of nonlinear diffusion processes room: 260-018

- 10:30-11:20 Juncheol Pyo, *Solitons of the mean curvature flow*

Microlocal analysis and inverse problems room: 260-009

- 10:30-10:55 Amal Alghamdi, *Computational Uncertainty Quantification for Inverse problems in Python (CUQIPy)*
- 11:00-11:25 Daniela Calvetti, *Computational techniques for recovering singularities, with application to X-ray tomography*
- 11:30-11:55 Stephen McDowall, *Luminescent Solar Concentrators*

Optimisation room: 402-221

- 10:30-10:55 Nam Ho-Nguyen, *A projection-free method for solving convex bilevel optimization problems*
- 11:00-11:25 Bethany Caldwell, *The Douglas–Rachford algorithm for inconsistent problems*
- 11:30-11:55 Vivek Shiuram, *Comparative Analysis of Local Minima Prevention Algorithms: LbCS-RRT, Ant Colony Optimization in Continuous Domain (ACOR), and StepAhead Firefly Algorithm (SAFA)*

Probability and Mathematical Statistics room: 260-098

- 10:30-10:55 Frederi Viens, *Pearson’s correlation statistic for a pair of Brownian motions: a Wiener chaos approach to its discrete-time asymptotics.*
- 11:00-11:25 Tim Garoni, *Critical speeding-up in high-dimensional dynamical percolation*

Recent advances in geometric PDE room: 260-057

- 10:30-10:40 Louie Bernhardt, *Linear waves on the expanding region of Schwarzschild de Sitter spacetimes: forward asymptotics and scattering from infinity*
- 10:45-10:55 Mia Boothroyd, *The Einstein-Maxwell-Scalar Field Problem in T^2 and Gowdy symmetry.*
- 11:00-11:10 Elliot Marshall, *Past Instability of FLRW Solutions to the Einstein-Euler-Scalar Field Equations*
- 11:15-11:25 Joseph Galinski, *Angular Momentum in General Relativity*
- 11:30-11:40 Sebenele Thwala, *Towards non-linear scattering of gravitational waves*
- 11:45-11:55 Breanna Camden, *The Physical interpretation of the Newman-Penrose constants and Newman’s H-space*

Recent advances in mathematical fluid dynamics room: 401-311

- 10:30-10:55 Agnieszka Swierczewska-Gwiazda, *Compressible magnetohydrodynamics driven by non-conservative boundary conditions*
- 11:00-11:25 Angel Castro, *Unstable vortices and non-uniqueness for 2D Euler and gSQG*
- 11:30-11:55 Piotr Gwiazda, *Some remark about relative entropy method for long time asymptotic in fluid dynamics*

Recent developments in data science and machine learning room: 402-220

- 10:30-10:55 Minh Ha Quang, *Infinite-dimensional statistical distances for functional data analysis*
- 11:00-11:25 Sakshi Arya, *Single-Index Batched Contextual Bandits*
- 11:30-11:55 Markus Holzleitner, *On Polynomial Functional Regression*

Representation Theory and Tensor Categories room: 303-G14

- 10:30-10:55 Sophie Kriz, *Interpolated Group Theory*
- 11:00-11:25 Joseph Newton, *Finite symmetric and exterior algebras in tensor categories*
- 11:30-11:55 Nate Harman, *Interpolation Categories for Classical Groups*

Singularities room: 260-024

10:30-11:20 Yongqiang Liu, *BNSR invariants and the tropical variety of jump loci*

11:30-11:55 Michael Eastwood, *A very special sextic*

Special Functions, q -Series and Beyond room: 401-312

10:30-11:20 Nalini Joshi, *On q -difference Painlevé equations and their Riemann–Hilbert problems*

11:30-11:55 Owen Goff, *The q -Onsager algebra and the quantum torus*

Stochastic Differential Equations room: 260-016

10:30-10:55 Quoc Thong Le Gia, *Evolution of time-fractional stochastic hyperbolic diffusion*

11:00-11:25 John Nolan, *Riesz capacity via hitting distribution for stable processes*

Structural aspects of matroids and graphs room: 303-B11

10:30-10:55 Mark Ellingham, *Orientable and bipartite twisted duals of graph embeddings*

11:00-11:25 Sang-il Oum, *Bounding the chromatic number of t -perfect graphs*

Topology, geometry and combinatorics of biopolymers room: 260-221

10:30-10:55 Tetsuo Deguchi, *Phantom network theory with no fixed crosslinks and exact results derived by the lattice Green's functions*

11:00-11:25 Kai Ishihara, *On characterizations of unlinking pathways*

11:30-11:55 Chris Bradley, *Lattice polymers near a permeable interface*

Thursday 11:30-12:30

50 years of Communications in Algebra room: 303-G15

11:30-11:55 Azeef Muhammed Parayil Ajmal, *Free idempotent-generated regular *-semigroups*

12:00-12:25 Matthias Fresacher, *Congruence Lattices of Finite Twisted Brauer and Temperley-Lieb Monoids*

Algebraic Combinatorics and Matroids room: 303-B09

11:30-11:55 Diane Maclagan, *Tropical Vector Bundles*

12:00-12:25 Huanchen Bao, *Acyclic matchings on Bruhat intervals and totally nonnegative Springer fibres*

Applied and Computational Topology room: 260-223

11:30-11:55 Peter Bubenik, *Relative Optimal Transport for Topological Data Analysis*

12:00-12:25 Agnese Barbensi, *Topological Optimal Transport for Geometric Cycle Matching*

Computability Theory and Applications room: 303-B07

11:30-12:20 Jun Le Goh, *The complexity of unfriendly partitions in countable graphs*

Computational Mathematics room: 402-231

11:30-11:55 Carsten Carstensen, *Adaptive Computation of Fourth-Order Problems*

12:00-12:25 Anne Boschman, *A Divergence-Preserving Unfitted Finite Element Method for the Darcy Problem*

Computational Methods and Applications of Dynamical Systems room: 303-G20

11:30-11:55 Irina Mitrea, *On the Neumann Problem for the bi-Laplacian in Infinite Sectors*

12:00-12:25 Caitlin Lienkaemper, *CTLNs as a mean field theory for clustered spiking networks*

Computational Number Theory and Applications room: 405-422

11:30-12:20 Kiran S. Kedlaya, *Towards a database of hypergeometric L-functions*

Computations and applications of algebraic geometry and commutative algebra room: 303-B05

11:30-11:55 Jörg Frauendiener, *A computational approach to Riemann surfaces with applications in Physics*

12:00-12:25 Elizabeth Gross, *Computational algebraic geometry for evolutionary biology*

Contributed Session A room: 303-B11

11:30-11:55 Joshua Stevenson, *Modelling genome rearrangement events*

12:00-12:25 Davide Papapicco, *Slowly, then all at once: Uncovering the dynamics of a catastrophe*

Differential geometry and geometric analysis room: 260-005

11:30-11:55 Mat Langford, *Curve shortening flow with boundary*

12:00-12:25 Qiyu Zhou, *High Codimension Mean Curvature Flow Of Spacelike Convex Submanifolds With Pseudo Euclidean Background*

Discrete and continuous integrable systems: geometry analysis and applications room: 260-036

11:30-11:55 Tomas Latimer, *A discussion on discrete multiple orthogonal polynomial systems*

12:00-12:25 Baofeng Feng, *Pfaffian solutions to a coupled complex modified KdV equation and its discrete analogues under nonzero boundary condition*

Early Career Showcase in Low-Dimensional Topology room: 260-073

11:30-11:55 Connie On Yu Hui, *Volume bounds for hyperbolic rod complements in the 3-torus*

12:00-12:25 Corbin Reid, *Non-existence of upper volume bounds for classes of links on incompressible surfaces*

Ergodic Theory and Dynamical Systems room: 303-G23

11:30-11:55 Solly Coles, *Ricci flow and the Anosov property*

12:00-12:25 Marty Golubitsky, *Infinitesimal Homeostasis*

Functional Analysis and Operator Algebras room: 260-055

11:30-11:55 Ivan Todorov, *Isomorphisms of quantum graphs*

12:00-12:25 Bill Helton, *Perfect quantum strategies for XOR games*

Groups and Geometry room: 260-092

11:30-12:20 Alan Reid, *Profinite rigidity*

Groups, actions and computations room: 260-051

11:30-12:25 Youming Qiao, *Isomorphism problems for some algebraic structures: algorithms, complexity, and cryptography*

Harmonic analysis and Hamiltonian PDE room: 260-028

11:30-12:20 Shiwu Yang, *Asymptotic decay for defocusing semilinear wave equations*

Industrial Mathematics room: 402-211

11:30-11:55 Alex Tam, *The UniSA Mathematics Clinic: How to build an industrial mathematics ecosystem*

12:00-12:25 Winston Sweatman, *Mathematics-in-Industry Study Groups in New Zealand and Furth of the Motu*

Mathematical methods in continuum mechanics and wave theory room: 401-307

11:30-11:55 Eliot Fried, *Complete orthonormal sequences for representing general three-dimensional states of residual stress*

12:00-12:25 Tet Chuan Lee, *Modelling the shear stress experienced by the placental surface*

Mathematical Physics room: 260-009

11:30-11:55 Andrew Kels, *Two-component boundary Yang-Baxter maps*

12:00-12:25 Qiuye Jia, *The second microlocalization and the non-relativistic limit of Klein-Gordon equations*

Mathematics Education room: 260-115

11:30-11:55 Raymond Vozzo, *An assessment of active learning in large first year maths courses*

12:00-12:10 Neea Palojärvi, *On misconceptions in the Math Kangaroo Finland*

12:15-12:25 M.G.M Khan, *A Study on Mathematics Anxiety and its Effect on Mathematics Performance of School Students in Fiji*

Mathematics of nonlinear diffusion processes room: 260-018

11:30-12:20 Simon Blatt, *Analyticity of Solutions to Fractional Partial Differential Equations*

Optimisation room: 402-221

11:30-12:20 Russell Luke, *Convergence Theory for Expansive Markov Chains*

Probability and Mathematical Statistics room: 260-098

11:30-11:55 Steven Evans, *B cell phylodynamics*

12:00-12:25 Krzysztof Burdzy, *Optimal shape domain for the torsion problem*

Recent advances in geometric PDE room: 260-057

11:30-12:20 Peter Petersen, *New vanishing results for Kaehler manifolds*

Recent advances in mathematical fluid dynamics room: 401-311

11:30-11:55 Javier Gomez-Serrano, *Existence of non convex V-states*

12:00-12:25 Marco Sammartino, *Dissipative 2D MHD equations with L^1 vorticity and current*

Recent developments in data science and machine learning room: 402-220

11:30-11:55 Daohong Xiang, *Coefficient-based l_q -regularized direct learning for estimating individual treatment rule*

12:00-12:25 Jun Fan, *Learnability of neural networks under heavy-tailed noise*

Representation Theory and Tensor Categories room: 303-G14

11:30-11:55 Ian Le, *Demazure weaves for reduced plabic graphs*

12:00-12:25 Sinead Wilson, *Parabolic subgroups of Artin groups via categorification. Preliminary report.*

Singularities room: 260-024

11:30-12:20 Mark Perrin, *Semialgebraic Geometry - Modifying Thom's Lemma*

Special Functions, q -Series and Beyond room: 401-312

11:30-12:20 Ling Long, *Hypergeometric Functions and Modular Forms*

Stochastic and Deterministic Inverse Problems room: 260-040

11:30-11:55 Kate Lee, *Variational Bayes inference for gravitational wave detector*

12:00-12:25 Nathan Waniorek, *Hierarchical Bayesian inverse problems: a high-dimensional statistics viewpoint*

Stochastic Differential Equations room: 260-016

11:30-11:55 Benjamin Goldys, *Differentiability of transition semigroup of generalized Ornstein-Uhlenbeck process: a probabilistic approach*

12:00-12:25 Philipp Wacker, *(Biological) Evolution is similar to misspecified (stochastic) filtering*

Topology, geometry and combinatorics of biopolymers room: 260-221

11:30-11:55 Jin Yu, *Construction of plectonemic and stretched two-phase dynamics of DNA supercoiling*

12:00-12:25 Natasha Jonoska, *Engineering tertiary chirality in helical biopolymers*

Thursday 14:00-15:30

50 years of Communications in Algebra room: 303-G15

14:00-14:25 Chimere Anabanti, *Two characterizations of the smallest non-solvable group*

14:30-14:55 Gyu Whan Chang, *The integral closure of an affine ring*

15:00-15:25 Hyun Seung Choi, *Computing elasticity of certain integral domains*

Algebraic Combinatorics and Matroids room: 303-B09

14:30-14:55 Nancy Abdallah, *Nets in the Projective Plane and Alexander Duality*

15:00-15:25 Laurentiu Maxim, *A geometric perspective on generalized weighted Ehrhart theory*

Applied and Computational Topology room: 260-223

14:00-14:25 Brittany Terese Fasy, *How Strong Are Topological Descriptors?*

14:30-14:55 Arturo Espinosa, *Sequential topological complexity of aspherical spaces and sectional categories of subgroup inclusions*

15:00-15:25 Kang-Ju Lee, *G-Mapper: Learning a Cover in the Mapper Construction*

Computability Theory and Applications room: 303-B07

14:00-14:25 Ellen Hammatt, *Arriving on Time: Punctuality in Structures, Isomorphisms and 1-Decidability*

14:30-15:20 Manlio Valenti, *On the density of the Weihrauch degrees*

Computational Methods and Applications of Dynamical Systems room: 303-G20

14:00-14:25 Prannath Moolchand, *Applications of geometric singular perturbations techniques to investigate multiple timescale dynamics: a case study of the active metabolic oscillatory subsystem in pancreatic beta cells.*

14:30-14:55 Natalia Mcalister, *Computer-assisted proofs for blenders*

15:00-15:25 Zbigniew Galias, *On the density of periodic windows for the Rössler system*

Computational Number Theory and Applications room: 405-422

14:00-14:50 Katherine E. Stange, *Respecting CM on elliptic curves: sesquilinear pairings, elliptic nets, biextensions*

15:00-15:25 Jeremy Booher, *Doubly isogenous curves of genus two with a rational action of D_6*

Computations and applications of algebraic geometry and commutative algebra room: 303-B05

14:00-14:25 Christin Bibby, *A Serre spectral sequence for the moduli space of tropical curves*

14:30-14:55 Martin Helmer, *Effective Whitney Stratification and Applications*

15:00-15:25 Arvind Kumar, *Generalized Hamming weights and symbolic powers of Stanley-Reisner ideals of matroids*

Contributed Session A room: 303-B11

- 14:00-14:25 Andrew Axelsen, *Covariations between persistent synoptic features and Antarctic sea ice via unsupervised regression learning*
- 14:30-14:55 Junming Cao, *Noncommutative law of large numbers*
- 15:00-15:25 Leighton Watson, *Jointly estimating epidemiological dynamics of Covid-19 from case and wastewater data in Aotearoa New Zealand*

Contributed Session B room: 405-430

- 14:00-14:25 Sebastian Petit, *Codes associated with generalised polygons*
- 14:30-14:55 Hung-Wen Kuo, *Green's Function and Surface Wave*
- 15:00-15:25 Haru Negami, *Construction of unitary representations of braid groups*

Differential geometry and geometric analysis room: 260-005

- 14:00-14:25 Florian Beyer, *Nonlinear stability of Einstein-matter models near the big bang singularity*
- 14:30-14:55 Yuri Nikolayevsky, *Indecomposable killing tensors on symmetric spaces*
- 15:00-15:25 Owen Dearnicott, *Integrable systems, Painlevé VI and explicit solutions to the anti-self dual Einstein equation via radicals*

Discrete and continuous integrable systems: geometry analysis and applications room: 260-036

- 14:00-14:25 Anton Dzhamay, *Discrete Painlevé equations from geometric deautonomization of QRT maps.*
- 14:30-14:55 Yang Shi, *New symmetries of the discrete Painlevé equations from geometric deautonomization of QRT maps*
- 15:00-15:25 Wen-Xiu Ma, *Nonlocality, integrability and solitons*

Early Career Showcase in Low-Dimensional Topology room: 260-073

- 14:00-14:25 Jonathan Spreer, *Sampling triangulations of manifolds using Monte Carlo methods*
- 14:30-14:55 Shintaro Fushida-Hardy, *Pseudo-Trisections of Four-Manifolds with Boundary*
- 15:00-15:25 Christopher Tuffley, *Weakly linked embeddings of pairs of complete graphs in \mathbb{R}^3*

Engagement with mathematics through communication and outreach room: 260-009

- 14:00-14:25 Geetha Venkataraman, *Popularising and Strengthening Mathematics Learning: Some Experiments and Experiences*
- 14:30-14:55 Denis Collins, *The sound of symmetry: collaboration between mathematics and musicology for new creative works and community outreach*
- 15:00-15:25 Artem Pulemotov, *Sounding Lie groups*

Ergodic Theory and Dynamical Systems room: 303-G23

- 14:00-14:25 Gerardo Gonzalez Robert, *Diophantine approximation in integer bases*
- 14:30-14:55 Cecilia González Tokman, *Characterisation and perturbations of the Lyapunov-Oseledec spectrum for a class of random dynamical systems*
- 15:00-15:25 Anima Nagar, *Relations in Topological Dynamics*

Functional Analysis and Operator Algebras room: 260-055

- 14:00-14:25 Galina Levitina, *Helton-Howe formula for singular traces*
- 14:30-14:55 Paul Muhly, *Applications of W^* -categories to noncommutative function theory*
- 15:00-15:25 Thomas Scheckter, *Noncommutative Martingales in Continuous Time*

Groups and Geometry room: 260-092

- 14:00-14:50 Barbara Baumeister, *Extended Weyl groups*
- 15:00-15:25 Marco Amelio, *(Cancelled) Non-split sharply 2-transitive groups in positive odd characteristic and geometric small cancellation methods*

Groups, actions and computations room: 260-051

- 14:00-14:50 Anne Thomas, *Hypergraph index and divergence in Coxeter groups*
- 15:00-15:25 Andre Nies, *The trivial units property and the unique product property for torsion free groups*

Harmonic analysis and Hamiltonian PDE room: 260-028

- 14:00-14:25 John Holmes, *Viscous Burgers' equation on the half-line*
- 14:30-15:20 Benjamin Dodson, *Scattering for the conformal wave equation*

Industrial Mathematics room: 402-211

- 14:00-14:25 Pooja Dhiman, *An Innovative Approach to Cost Optimization: Prioritizing Key Systems and Subunit Ranking to Enhance Overall Performance of coffee machine*
- 14:30-14:55 John Holmes, *Partial differential equations from quantitative finance and their analysis*
- 15:00-15:25 Mark McGuinness, *Microwaving Ore to Detect Moisture Content*

Mathematical methods in continuum mechanics and wave theory room: 401-307

- 14:00-14:50 Dimitrios Mitsotakis, *Nonlinear and dispersive waves in a basin: Theory and numerical analysis*
- 15:00-15:25 Luke Bennetts, *Dynamic strains on ice shelves resulting from flexural and extensional motions forced by ocean wave packets*

Mathematics Education room: 260-115

- 14:00-14:50 Edgar Fuller, *Measuring the Effects of Active Learning on Student Learning Outcomes in Calculus Using a Randomized Trial*
- 15:00-15:25 Fu Ken Ly, *Bridging Assumed Knowledge Gaps with Technology: Implementing a University-Wide Mathematics Diagnostic Tool*

Mathematics of nonlinear diffusion processes room: 260-018

14:00-14:50 Chun-chi Lin, *Higher-order Riemannian spline interpolation problems: a unified approach by gradient flows*

Optimisation room: 402-221

14:00-14:25 Sona Taheri, *Solving constrained difference of convex (DC) optimisation problems*

14:30-14:55 Scott Lindstrom, *On tight error bounds for conic optimisation*

15:00-15:25 Simon Marshall, *GNLS: an R Program for Errors-in-Variables Fitting*

Probability and Mathematical Statistics room: 260-098

14:00-14:25 Leah South, *Assessing moment convergence using polynomial Stein kernels*

14:30-14:55 Chris Drovandi, *Simulation-based Inference and Model Misspecification*

15:00-15:25 Sarat Moka, *Efficient Rare-Event Simulation for Random Geometric Graphs via Importance Sampling*

Recent advances in geometric PDE room: 260-057

14:00-14:25 Casey Blacker, *Geometric and algebraic reduction of multisymplectic manifolds*

14:30-15:20 Todd Oliynyk, *Stable and unstable behaviour in relativistic fluids on cosmological spacetimes*

Recent advances in mathematical fluid dynamics room: 401-311

14:00-14:25 Joonhyun La, *Wave turbulence and some well-posedness results*

14:30-14:55 Kengo Deguchi, *Analysis of Coherent Structures in Shear Flows*

15:00-15:25 Vincent Martinez, *Upper bound estimates on the dimension of the global attractor for the 2D NSE on the beta-plane*

Recent developments in data science and machine learning room: 402-220

14:00-14:25 Ding-Xuan Zhou, *The role of structures in neural networks*

14:30-14:55 Zhengchu Guo, *Online Learning in Reproducing Kernel Hilbert Space*

15:00-15:25 Yiming Ying, *Optimal Rates for Gradient Descent Methods with Two-layer ReLU Networks*

Representation Theory and Tensor Categories room: 303-G14

14:00-14:25 Pinhas Grossman, *Quadratic fusion categories*

14:30-14:55 Bregje Pauwels, *Approximation in triangulated categories*

15:00-15:25 John Huerta, *Poincaré duality for families of supermanifolds*

Singularities room: 260-024

14:00-14:50 Xiping Zhang, *The Characteristic Cycle of Restricted Constructible Functions*

Special Functions, q -Series and Beyond room: 401-312

- 14:00-14:25 Andrei Martínez-Finkelshtein, *Hypergeometric Polynomials with Free Probability Tools*
- 14:30-14:55 Theo Assiotis, *Moments of characteristic polynomials of random matrices*
- 15:00-15:25 Brandt Kronholm, *Formulas for integer partition functions and the usefulness of a forgotten technique.*

Stochastic and Deterministic Inverse Problems room: 260-040

- 14:00-14:25 Yunan Yang, *Stochastic Inverse Problem: stability, regularization, and Wasserstein gradient flow*
- 14:30-14:55 Tiangang Cui, *Intrinsic Subspaces of High-Dimensional Inverse Problems and Where to Find Them*
- 15:00-15:25 Colin Fox, *Posterior exploration for high-contrast EIT with Cleveland prior*

Stochastic Differential Equations room: 260-016

- 14:00-14:25 Debopriya Mukherjee, *Optimal relaxed control of stochastic hereditary evolution equations with Levy noise*
- 14:30-14:55 Chi-Jen Wang, *Discontinuous non-equilibrium phase transition in Schloegl's second model for autocatalysis*
- 15:00-15:25 Akash Ashirbad Panda, *Large Deviation Principle for Stochastic Nematic Liquid Crystals Driven By Multiplicative Gaussian Noise*

Topology, geometry and combinatorics of biopolymers room: 260-221

- 14:00-14:25 Agnese Barbensi, *Topologically steered simulations and the role of geometric constraints in protein knotting*
- 14:30-14:55 Pengyu Liu, *Tree-polynomial representations of RNA secondary structures and their application in understanding R-loop formation*

Friday 11:30-12:30

Algebraic Combinatorics and Matroids room: 303-B09

11:30-11:55 Yang Zhang, *Homology of noncrossing partition lattices*

12:00-12:25 Ryo Uchiumi, *A linear finite group action on a lattice and mod q permutation representation*

Applied and Computational Topology room: 260-223

11:30-11:55 Adam Onus, *Local systems for periodic data*

12:00-12:25 Nina Otter, *Generalised persistent homology transforms over affine Grassmannians*

Arithmetic Geometry and Number Theory room: 405-430

11:30-11:55 Madhavan Venkatesh, *Counting points on surfaces in polynomial time.*

12:00-12:25 Felipe Voloch, *Irreducibility of curves over finite fields*

Computability Theory and Applications room: 303-B07

11:30-11:55 Isabella Scott, *Existential Closure of Subshifts*

12:00-12:25 Keita Yokoyama, *On the hierarchy above ATR_0*

Computational Mathematics room: 402-231

11:30-11:55 Sergio Rojas, *Adaptive regularization of rough linear functionals for nonconforming FEM*

12:00-12:25 Emmanuel Adeyefa, *Development of a block method for solving multiple order ODEs*

Computational Methods and Applications of Dynamical Systems room: 303-G20

11:30-11:55 Lauren Smith, *Data assimilation for networks of coupled oscillators: Inferring unknown model parameters from partial observations*

12:00-12:25 Behrooz Yousefzadeh, *Analysis of non-reciprocity in vibration transmission problems using continuation methods*

Computations and applications of algebraic geometry and commutative algebra room: 303-B05

11:30-11:55 Michael Brown, *Computing sheaf cohomology over noncommutative projective schemes*

12:00-12:25 Prashanth Sridhar, *Noncommutative geometry over dg-algebras*

Contributed Session A room: 303-G15

11:30-11:55 Faris Alsubaie, *Modelling the effects of mechanical properties on mutant cells in an epithelial tissue*

12:00-12:25 Shawn Means, *Electrical Wave Generation and Spatial Organisation in Uterine*

Contributed Session B room: 260-028

11:30-11:55 Mashniah Gazwani, *Length-constrained elastic flow of planar curves inside cones*

12:00-12:25 Eliot Fried, *Shape-preserving everting motions of orientable or nonorientable, unkotted or knotted, bands*

Deterministic and Probabilistic Aspects of Dispersive Partial Differential Equations room: 260-022

11:30-12:20 Monica Visan, *The Continuum Calogero-Moser Models*

Differential geometry and geometric analysis room: 260-005

11:30-11:55 Peter Petersen, *Hodge Numbers for Kaehler-Einstein Manifolds*

12:00-12:25 Michael Albanese, *An aspherical almost complex four-manifold with negative signature*

Discrete and continuous integrable systems: geometry analysis and applications room: 260-036

11:30-12:20 Barbara Prinari, *Discrete solitons for the defocusing Ablowitz-Ladik equation with an arbitrarily large background*

Early Career Showcase in Low-Dimensional Topology room: 260-073

11:30-11:55 Jeroen Schillewaert, *Braid groups, elliptic curves, and resolving the quartic*

12:00-12:25 Neil Hoffman, *Growth in the complexity of arithmetic invariants of 3-manifolds*

Ergodic Theory and Dynamical Systems room: 303-G23

11:30-11:55 Bernd Krauskopf, *An abundance of heterodimensional cycles via period doubling*

12:00-12:25 Bryna Kra, *Infinite configurations in large sets of integers*

Functional Analysis and Operator Algebras room: 260-055

11:30-11:55 Ilija Tolich, *Stably finite and purely infinite crossed products*

12:00-12:25 John Quigg, *The ladder method*

Groups and Geometry room: 260-092

11:30-11:55 Jordan Bounds, *Garside shadows in some rank 3 affine Coxeter groups*

12:00-12:25 Yeeka Yau, *A pair of Garside shadows*

Groups, actions and computations room: 260-051

11:30-11:55 Murray Elder, *On the complexity of the epimorphism problem for finitely presented groups*

12:00-12:25 Alan Reid, *Strongly dense representations of surface groups*

Industrial Mathematics room: 402-211

11:30-11:55 Tammy Lynch, *Modelling growth and metabolism of methanogens and other anaerobic microbial communities*

12:00-12:25 Simon Watt, *Performance analysis of the activated sludge model number 1 in a two reactor cascade*

Mathematical methods in continuum mechanics and wave theory room: 401-307

11:30-11:55 Sarah Wakes, *A dynamic vegetation roughness model for coastal dune systems*

12:00-12:25 Miguel Moyers, *Elasticity mediated yielding of an elasto-viscoplastic fluid in a plane channel flow*

Mathematics Education room: 260-115

11:30-11:55 Bartek Ewertowski, *The mathematical ekklesia: active learning inspired by the ancients*

12:00-12:25 Jan Denniel Escaño, *Assessing the Impact of Blended Learning Mathematics Intervention on Civil Engineering Students' Performance: A Post-Pandemic Evaluation Using Hierarchical Linear Modeling and Sensitivity Analysis*

Mathematics of nonlinear diffusion processes room: 260-018

11:30-12:20 Michal Benes, *Motion and Transport in Curve Dynamics*

Microlocal analysis and inverse problems room: 260-009

11:30-12:20 Gunther Uhlmann, *The Calderon Problem for Nonlocal Operators*

New directions in pattern formation room: 303-B11

11:30-11:55 Vanessa Robins, *Topological data analysis of self-assembled point patterns formed in molecular dynamics simulation*

12:00-12:25 Daniele Avitabile, *Uncertainty Quantification for Neurobiological Networks*

Optimisation room: 402-221

11:30-11:55 Adil Bagirov, *A hybrid method for solving constrained DC optimization problems*

12:00-12:25 Minh N. Dao, *Doubly relaxed forward-Douglas-Rachford splitting for the sum of two nonconvex and a DC function*

Probability and Mathematical Statistics room: 260-098

11:30-11:55 Georgy Sofronov, *Multiple Stopping Problems*

12:00-12:25 Jie Yen Fan, *Mimicking*

Recent advances in geometric PDE room: 260-057

11:30-11:55 Bogdan Suceava, *There Are Five Classes of Fundamental Inequalities in the Geometry of Submanifolds*

12:00-12:25 Adrian Vajiac, *Hypertwined Regularity and Applications*

Recent advances in mathematical fluid dynamics room: 401-311

11:30-11:55 Alexey Cheskidov, *Non-uniqueness for fluid equations*

12:00-12:25 In-jeong Jeong, *On the rate of vortex stretching for axisymmetric flows without swirl*

Recent developments in data science and machine learning room: 402-220

11:30-11:55 Fabian Dunker, *Regularized maximum likelihood for density estimation in structural models*

12:00-12:25 Lei Shi, *Learning Operators with Stochastic Gradient Descent in General Hilbert Spaces*

Representation Theory and Tensor Categories room: 303-G14

11:30-11:55 Oded Yacobi, *Periodic braids and slicings*

12:00-12:25 Leonardo Maltoni, *Morse Theoretic Gaussian Elimination for Rouquier Complexes*

Singularities room: 260-024

11:30-12:20 Eva Elduque, *On plane curve complements with certain fundamental groups*

Special Functions, q -Series and Beyond room: 401-312

11:30-12:20 Greta Panova, *Hook-length formulas for skew shapes via complex integrals and vertex models*

Stochastic and Deterministic Inverse Problems room: 260-040

11:30-11:55 Stuart Hawkins, *A neural-network surrogate Bayesian algorithm for the Helmholtz inverse-shape problem*

12:00-12:25 Ruanui (Ru) Nicholson, *On joint inversion in the Bayesian framework: is ignorance always bliss?*

Stochastic Differential Equations room: 260-016

11:30-11:55 Ruyi Liu, *Optimal Information Disclosure of the Principal-Agent Problem in Infinite Horizon*

12:00-12:25 Joern Wichmann, *Reaching the equilibrium: Long-term stable numerical schemes for SPDEs*

Topology, geometry and combinatorics of biopolymers room: 260-221

11:30-11:55 Koya Shimokawa, *Spatial graphs confined to tube regions in the simple cubic lattice*

12:00-12:25 Nathan Clisby, *Endless self-avoiding walks*

Friday 14:00-15:30

Algebraic Combinatorics and Matroids room: 303-B09

- 14:00-14:25 Jacob Matherne, *Chow functions for partially ordered sets*
- 14:30-14:55 Ian Seong, *Some orbits of a two-vertex stabilizer in a Grassmann graph and a generalization of the Askey-Wilson relations*
- 15:00-15:25 Nir Gadish, *Surprising representations in cohomology of compactified configurations in graphs*

Applied and Computational Topology room: 260-223

- 14:00-14:25 Vinay Sipani, *Structural Characterization of Planar-Rips Complexes and Their Graph Equivalents*
- 14:30-14:55 Kevin Knudson, *Discrete Morse theory on ΩS^2*
- 15:00-15:25 Nicholas Scoville, *A McCord theorem for Čech closure spaces*

Arithmetic Geometry and Number Theory room: 405-430

- 14:00-14:25 Sam Frengley, *On the geometry of the Humbert surface of square discriminant*
- 14:30-14:55 Claudia Schoemann, *The kernel of the Gysin homomorphism for positive characteristic*
- 15:00-15:25 Isabel Vogt, *Conic bundle threefolds differing by a constant Brauer class and connections to rationality*

Computational Mathematics room: 402-231

- 14:00-14:25 Ritesh Singla, *A Posteriori Error Analysis of Hybrid High-Order Methods for the Elliptic Obstacle Problem*
- 14:30-14:55 Ricardo Ruiz Baier, *Mixed finite element methods for the coupling of Biot and Poisson-Nernst-Planck equations*
- 15:00-15:25 Quoc Thong Le Gia, *Bayesian inference calibration of the modulus of elasticity*

Computational Methods and Applications of Dynamical Systems room: 303-G20

- 14:00-14:25 Indranil Ghosh, *Robust chaos in piecewise-linear maps*
- 14:30-14:55 Dana C'Julio, *Tool for identifying the geometric properties of the emergence of blenders in a three-dimensional Hénon-like map*
- 15:00-15:25 Yovani Adolfo Villanueva Herrera, *Generic Upper Bounds of Cyclicity Problem*

Computational Number Theory and Applications room: 405-422

- 14:00-14:25 Jung Hee Cheon, *Homomorphic Encryption and Private AI*
- 14:30-14:55 Mingjie Chen, *Computing the endomorphism ring of supersingular elliptic curve from a full rank suborder*
- 15:00-15:10 Emily Mcmillon, *Filtering Weak Keys in Quasi-Cyclic Code-Based Cryptosystems*
- 15:15-15:25 Amin Sakzad, *How to pack a bunch of Kyber ciphertexts?*

Computations and applications of algebraic geometry and commutative algebra room: 303-B05

14:00-14:25 Frank Sottile, *The Critical Point Degree of a Bloch Variety*

14:30-14:55 Changho Han, *Extending the Torelli map to alternative compactifications of the moduli space of curves*

15:00-15:25 Anand Deopurkar, *How twisty is that orbit?*

Deterministic and Probabilistic Aspects of Dispersive Partial Differential Equations room: 260-022

14:00-14:50 Zihua Guo, *Global solutions to 3D quadratic nonlinear Schrödinger-type equation*

Differential geometry and geometric analysis room: 260-005

14:00-14:25 Jian Wang, *Mass lower bounds for asymptotically locally flat manifolds*

14:30-14:55 Artemis Aikaterini Vogiatzi, *Singularities of High Codimension Mean Curvature Flow in Riemannian Manifolds*

15:00-15:25 Louis Yudowitz, *Dynamical Stability and Instability of Poincare-Einstein Manifolds*

Discrete and continuous integrable systems: geometry analysis and applications room: 260-036

14:00-14:25 Tom Trogdon, *Applications of Riemann–Hilbert problems with theta-function asymptotics*

14:30-14:55 Alexander Stokes, *Geometry of a four-dimensional multiplicative integrable mapping and associated fourth-order discrete Painlevé equations*

15:00-15:25 Eric Zaslow, *Skeins, Clusters and Wavefunctions*

Early Career Showcase in Low-Dimensional Topology room: 260-073

14:00-14:25 Daniele Celoria, *Fun with simplicial homology*

14:30-14:55 Liam Kahmeyer, *A Homotopy Invariant of Image Simple Fold Maps to Oriented Surfaces*

15:00-15:25 Michelle Strumila, *An operad of decorated cobordisms*

Ergodic Theory and Dynamical Systems room: 303-G23

14:00-14:25 Gary Froyland, *Quenched statistics for piecewise-continuous random dynamical systems: thermodynamic formalism, open dynamics, extreme value theory, and hitting time distributions.*

14:30-14:55 Rodney Nilsen, *Sums involving reciprocals of orbit points In the binary dynamical system*

Functional Analysis and Operator Algebras room: 260-055

14:00-14:25 Rufus Willett, *Representation stability and K-theory*

Groups and Geometry room: 260-092

14:00-14:25 Sira Busch, *Lines in geometries associated with finite buildings*

14:30-15:20 Hendrik Van Maldeghem, *Weyl substructures, polar kangaroos and uniclass automorphisms of spherical buildings*

Groups, actions and computations room: 260-051

14:00-14:25 Gabriel Verret, *Density of quotient orders in groups and applications to locally-transitive graphs*

14:30-15:20 Persi Diaconis, *Computational Polya Theory revisited*

Industrial Mathematics room: 402-211

14:00-14:25 Catherine Hassell Sweatman, *Modelling hot water cylinder usage in order to manage peak load for a residential energy distributor in New Zealand*

14:30-14:55 John D. Mahony, *On the evaluation of a class of integrals involving the product of a Bessel function, a trigonometric function and a polynomial term.*

Mathematical methods in continuum mechanics and wave theory room: 401-307

14:00-14:25 Christopher Lustrì, *Complex Singularities in Analytically-Continued Nonlinear PDE Solutions*

14:30-14:55 Yury Stepanyants, *Highly localized horseshoe ripples and solitons in positive dispersion media*

15:00-15:25 Brendan Harding, *Challenges in modelling particle laden flow as a continuum in an inertial microfluidics setting*

Mathematics Education room: 260-115

14:00-14:50 Ernesto Calleros, *Developing and Refining a Framework to Identify the Language Demands and Resources for Multilingual Students in Inquiry-Based Undergraduate Mathematics Courses*

15:00-15:25 Sushita Sharma, *Measuring Student Readiness for Remote Learning in Times of Emergencies and Crisis.*

Mathematics of nonlinear diffusion processes room: 260-018

14:00-14:50 Yong Wei, *Tensor maximum principle and its applications*

Microlocal analysis and inverse problems room: 260-009

14:00-14:25 Anuj Abhishek, *Operator Networks in Inverse Problems : Direct and Bayesian Inversion*

14:30-14:55 Erkki Somersalo, *Bridging the gap between continuous and discrete inverse problems*

New directions in pattern formation room: 303-B11

14:00-14:25 Eliot Fried, *Chemical pattern formation on the surface of an elastic solid*

14:30-14:55 Andreas Kempa - Liehr, *Complex bound states of dissipative solitons in three-component reaction-diffusion systems*

Optimisation room: 402-221

14:00-14:25 Neil Dizon, *Wasserstein Distributionally Robust Optimization with Piecewise SOS-Convexity*

14:30-14:55 Matthew Tam, *A decentralised algorithm for min-max problems*

Probability and Mathematical Statistics room: 260-098

- 14:00-14:25 Budhi Arta Surya, *Fitting phase-type distribution with covariates*
- 14:30-14:40 Matthew Sutton, *Enhanced MCMC: Fully Adaptive Sampling with PDMP Samplers*
- 14:45-14:55 Qingwei Liu, *Normal approximation of subgraphs counts in the random-connection model*
- 15:00-15:10 Renjie Feng, *Extreme gap problems for classical random matrices*
- 15:15-15:25 Simon Marshall, *The Wrapped Hyperbolic Secant Distribution and its Binary Mixtures*

Recent advances in geometric PDE room: 260-057

- 14:00-14:25 Cale Rankin, *A geometric approach to the Ma-Trudinger-Wang estimates*
- 14:30-14:55 Peter Olanipekun, *Recent Progress on the Willmore Energy of Four Dimensional Submanifolds*
- 15:00-15:25 Timothy Buttsworth, *Rigorous machine-learning-assisted existence of $O(3) \times O(10)$ -invariant Einstein metrics on S^{12}*

Recent advances in mathematical fluid dynamics room: 401-311

- 14:00-14:25 Khonatbek Khompysh, *An inverse source problem for Navier-Stokes-Voigt system*
- 14:30-14:55 Shixiao Wang, *The dynamics of the quasi-Keplerian flow*
- 15:00-15:25 Wojciech Ozanski, *Instantaneous continuous loss of regularity for the SQG equation*

Recent developments in data science and machine learning room: 402-220

- 14:00-14:25 Ata Kaban, *Efficient learning with projected histograms*
- 14:30-14:55 Xin Guo, *Capacity dependent analysis for functional online learning algorithms*

Representation Theory and Tensor Categories room: 303-G14

- 14:00-14:25 Dominic Searles, *0 -Hecke-Clifford supermodules from diagrams*
- 14:30-14:55 Mengfan Lyu, *Generalized Temperley-Lieb algebras and their diagram presentation*
- 15:00-15:25 Jonathan Kujawa, *Affine and Cyclotomic A -webs*

Singularities room: 260-024

- 14:00-14:50 Moisés Herradón Cueto, *Hodge theory of abelian covers of algebraic varieties*

Special Functions, q -Series and Beyond room: 401-312

- 14:00-14:25 Tuan Ngo Dac, *On special functions and twisted L -series*
- 14:30-14:55 Andrew Kels, *Lens elliptic gamma function and extensions of elliptic hypergeometric integrals*
- 15:00-15:25 Howard S. Cohl, *Transformations and summations for basic bilateral hypergeometric series*

Stochastic and Deterministic Inverse Problems room: 260-040

14:00-14:25 Philipp Wacker, *Nested Sampling for Rare Event Estimation*

14:30-14:55 Bamdad Hosseini, *Solving inverse problems using transport maps*

15:00-15:25 Ali Mohammad-Djafari, *Physics Informed Deep Neural Networks for Dynamical system identification and Inverse problems*

Topology, geometry and combinatorics of biopolymers room: 260-221

14:00-14:25 Nicholas Beaton, *Lattice models of theta-shaped polymers and other branching structures*

14:30-14:55 Puttipong Pongtanapaisan, *Computing the Trunk of Links: Methods and Applications in Linking Probability*