		Tully 3	Tully 2	Tully 1	Ballroom
		Monday			
	7:30 am				
	8:00 am	Registration			
	8:30 am	Conference Opening			
	9:00 am	Plenary talk 1 Timothy Sauer			
	9:30 am	Prevalence and observability in dynamical (and nondynamical) systems			
	10:00 am	Morning Tea			
Dynamical Systems	10:30 am	**David Wame:** Bayesian uncertainty quantification to identify vaccine hesitancy behaviours	**Gary Froyland:** Bathymetry imposes a global pattern of cross-front transport in the Southern Ocean	**Zhihao Qiao (S):** An em framework for competing risks via multi-absorbing phase type distributions	**Adrianne Jenner:** How partial differential equations and MRIs can improve prognosis for multiple sclerosis patients
Mathematical Epidemiology		**Pratyush Kollepara (S):** Which lockdowns are the best lockdowns?	**Sean McGowan (S):** Compensating model error using Koopman operator theory	**Jesse Sharp:** Parameter estimation and uncertainty quantification using information geometry	**Adel Mehrpooya (S):** An Advection-Diffusion-Reaction Model for Propagation of Signaling Molecules in Irregular Spatial Networks
Statistics and Data Science	11:00 am	**Md Nurul Anwar (S):** Effect of radical cure treatment on P. vivax malaria transmission via mass drug administration	**Stuart-James Burney (S):** Solutions of Delay Differential Equations	**Hui Yao (S):** Estimating Tail Probabilities of Random Sums of Phase-type Scale Mixture Random Variables	**David Morselli (S):** Agent-based and continuum models for spatial dynamics of oncolytic viruses' infections
Mathematical Biology		**Punya Alahakoon (S):** Use of Bayesian stochastic hierarchical models in epidemiology	**Lachlan Burton (S):** Escape Time Statistics in Dissipative Chaotic Scattering	**Yeming Lei (S):** Multi-pass Bayesian Estimation: a robust Bayesian method	**Mark Flegg:** Turing instabilities in spatially heterogeneous reaction-diffusion equations
Climate Modelling	11:30 am	**Simon Johnstone-Robertson:** The establishment of Japanese Encephalitis Virus in Australia	**Sergey A. Suslov:** Modular modelling of hurricanes: the role of ocean spray polidispersity	**Johnathan Adams (S):** Person-to-person opinion dynamics: an empirical study using an online game	**Yvonne Stokes:** Chemical signalling and tissue response: a moving boundary problem in biology
Stochastic Processes	12:00 pm	**Lucinda Harrison (S):** Modelling the environmental niche of Japanese encephalitis virus in Australia	**Ruethaichanok Kardkasem (S):** Extreme precipitation events in the east coast of Australia	**Louise Davis (S):** A Self-Exciting Point Process Model for Earthquakes	**Keith Li Chambers (S):** LDL vs HDL: A new lipid-structured model for early atherosclerosis
Scientific Computing		**Maame Akua Korsah (S):** Mathematical modelling and approximation for optimizing intervention strategies for malaria elimination	**Milton Mondai (S):** The effect of combination of two periodically driving force due to solar radiation and sea surface temperature in the bloom dynamics	**Grace Robinson (S):** Making land use data useable	**Georgia Weatherley (S):** Math, multiple sclerosis, and the mind: using agent-based modelling to understand what causes the immune system to attack the brain
Machine Learning	12:30 pm	**Somya Mehra (S):** A strategy for constructing tractable epidemic models of malarial superinfection	**Andrew Axelsen (S):** Finite Time Analysis of Crises in a Chaotically Forced Ocean Model	**Enrico Valdinoci:** The L'evy flight foraging hypothesis	**Anthia Le (S):** The Relationship between Grandmother Care and the Origin of Menopause
Other topics	1:00 pm	Lunch			
Mathematical Ecology and Conservation	1:30 pm				
Networks, Operations Research and Logistics	2:00 pm	Plenary Talk 2 Katharine Turner			
Fluid Dynamics		Topological Transforms for use in Statisti- cal Shape Analysis			
Partial Differential Equations	2:30 pm				
Optimisation	3:00 pm	**Eva Stadler:** Efficacy of monoclonal antibody therapy for COVID-19	**Liam Blake (S):** A computable characterisation of model uncertainty	**Amin Karimi (S):** Two-echelon location routing problem with delivery options under a stochastic environment	**Robyn Araujo:** Cellular cognition and the robustness of life's networks
Financial Mathematics		**Ruaral Tobin:** Forecasting the impact of COVID-19 on Australian hospitals	**Timothy Earl Figueroa Lapuz (S):** A Geometric Analysis of Biochemical Reaction Networks	**Achini Erandi Madduma Wellalage (S):** Staff shift scheduling for a blood donor centre	**Brock Sherlock (S):** Distance Measures to Compare Stochastic Time Series Data and Stochastic Model Outputs
Material Science, Solid Mechanics	3:30 pm	Afternoon Tea			
	4:00 pm	**Dion O'Neale:** How can we choose suitable case isolation settings to reduce spread of infectious disease?	**Kyria Wawryk (S):** Towards optimal space-time discretizations of reachable sets of control systems	**Chenchen Xing (S):** Estimating customer valuation in a service system with unobserved balking	**Edward Hancock:** A dual-clock-driven model emulating the effects of experimental knock-out on lymphatic muscle cell pace-making
		Isobel Abell (S): Why'd you have to go and make things so complicated?	**Kholod Mandoora (S):** Exponential integrators for the investigation of the stability of nonlinear waves.	**Hritika Gupta (S):** Expected number of call abandonments in a call centre	**Qianqian Yang:** Using anomalous diffusion models for mapping brain tissue microstructure
	4:30 pm	**Thomas Harris (S):** Correlation of viral loads in disease transmission chains could bias early estimates of the reproduction number	**Jonathan Wilton (S):** Positive-Unlabeled Learning using Random Forests via Recursive Greedy Risk Minimization	**Patrick Grant (S):** Constructing Virtual Representations of Laminated Timber Products	**Karina Arias Calluari:** Modelling daily weight variation in honey bee hives
	5:00 pm	**Nefel Telloglu (S):** Evaluation of the effectiveness of mass drug administration strategies for reducing scabies burden in Monrovia, Liberia: An agent-based modelling approach	**Yunpei Wu (S):** An operator analysis approach to the stochastic differential equation diffusion generative model	**Anthony Vine (S):** Mathematical modelling of the drying of fruits and vegetables	**Alsubaie Faris Saad (S):** Modelling of Tissue Invasion in Epithelial Monolayers
		Kate Helmsteadt: The mathematics of protecting Antarctic biodiversity	**Jacinta Holloway-Brown:** Stochastic spatial random forest for detecting remotely sensed forest cover change despite missing data	**Edoardo Fabrini (S):** Linear Aeroelastic Stability of Helicopter Rotors in Axial Flight through BEM method for Compressible Flows in Frequency Domain	**Zhuang Xu (S):** The position of the axon initial segment assembly site can be predicted from the shape of the neuron
	5:30 pm				
	6:00 pm				
	6:30 pm	Student Social Event in: The Pier Bar, 1 Pierpoint Road			

	Tully 3	Tully 2	Tully 1	Ballroom
	Tuesday			
7:30 am	LGBTQIA+ + Allies Breakfast, Kingsford's lounge			
8:00 am				
8:30 am	Plenary talk 3 Elliot Carr Random Walks with Absorbing Bound- aries			
9:00 am				
9:30 am	**Thao Phuong Le:** Modelling the impact of hybrid immunity on future COVID-19 epidemic waves	**Thomas Taimre:** Rare-event simulation techniques for structured fisheries models	**Zachary James Wegert (S):** Constrained level set-based microstructure optimisation with a Hilbertian projection method	**Zhou Zhou:** Time inconsistency, precommitment and equilibrium strategies for a stackelberg game
10:00 am	**Cameron Zachreson:** Agent-based modelling of SARS-CoV-2 transmission in quarantine facilities	**Jun Ju (S):** Model-based Offline Reinforcement Learning for Sustainable Fishery Management	**Kirsten Louw (S):** Two-dimensional ferric ion diffusion in an analyte solution with a MOF crystal sink	**Yawen Zheng (S):** A generalized approach for pricing American options under regime-switching model
10:30 am	**Steven Kedda (S): Self-Similarity and Fractalisation in Interfacial Hydrodynamics**	**Matthew Holden:** Value of Model Complexity for Fisheries Management	**Pierluigi Cesana:** Mesoscale modeling of systems of disclinations and dislocations	**Xihao He (S):** A mean-field version of Bank-El Karoui's representation of stochastic processes
	Keith Chan (S): A Comparison of Weakly Nonlinear Theory to Forced Internal Solitary Waves Using Spectral Methods	**Manuela Mendiolar (S):** Balanced harvest in an age-structured fishery model	**Boris Baeumer:** A resolvent positive finite difference scheme of order alpha for fractional derivatives on bounded domains	**Yu Tian :** The retirement income market in Australia
11:00 am	Morning Tea			
11:30 am	Plenary talk 4 Philip Broadbridge Conditionally Integrable PDE Systems: Applications to Populations and Quantum Measurement			
12:00 pm				
12:30 pm	**Madeleine Cockerill (S): Large Amplitude Non-Spherical Bubbles**	**Tace Stewart (S):** Conservation planning in the presence of cumulative disasters	**Syarifah Nordin:** Multiple criteria Decision Making for Technology Value Index and Technology Commercial Index in Patent Selection	**Chao Zhou:** Large ranking games with diffusion control
	Nitay Ben Schachar (S): Near-Continuum Oscillatory Gas Flows with Finite Gas-Surface Accommodation	**Calian Jeynes-Smith (S):** Adaptation in ecosystems: Lessons from cellular signalling networks	**Liam Timms (S):** A Room Inventory Model for Operating Room Planning and Scheduling	**Lin Ai (S):** Parasian over Parisian, how much earlier should one exercise?
1:00 pm	Lunch	WIMSIG Lunch, Bluewater 1 and 2		
1:30 pm				
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6:00 pm				
6:30 pm				

Dynamical Systems
Mathematical Epidemiology
Statistics and Data Science
Mathematical Biology
Climate Modelling
Stochastic Processes
Scientific Computing
Machine Learning
Other topics
Mathematical Ecology and Conservation
Networks, Operations Research and Logistics
Fluid Dynamics
Partial Differential Equations
Optimisation
Financial Mathematics
Material Science, Solid Mechanics

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	Tully 3	Tully 2	Tully 1	Ballroom
	Wednesday			
7:30 am				
8:00 am				
8:30 am	**Plenary talk 5** **Konstantin Avrachenkov** **Graph Clustering Problem: Beyond Bi- nary Interactions**			
9:00 am				
9:30 am	**Group Photo**			
10:00 am	**Hinke Osinga:** Heterodimensional cycles as organising centres of complicated dynamics	**Luz Pascal (S):** Technology development for conservation purposes as an adaptive management problem	**Radislav Valsman:** Optimal balanced chain decomposition of partially ordered sets with applications to operating cost minimization in aircraft routing problems	**Matthew Simpson:** Computationally efficient framework for diagnosing, understanding, and predicting biphasic population growth
10:30 am	**Eugene Tan (S):** Selecting embedding delays: A new method using persistent homology	**Elise Mills (S):** A generalised sigmoid population growth model with energy dependence: application to quantify a tipping point for Antarctic shallow seabed algae	**Vera Somers:** Optimal control of spreading processes on dynamic networked systems	**Adriana Zanca (S):** Comparison of locally and globally acting wound closure mechanisms
	Bernd Krauskopf: The structure of accumulating global bifurcations of two coupled phase-amplitude oscillators	**Daniel Longmuir (S):** Little Red Flying Foxes Under the Hood: Using metapopulation models to investigate population dynamics	**Matthew Tam:** Convergence of Multi-Block ADMM	**Isabel Cowlishaw (S):** Optimisation of corneal tissue engineering to facilitate epithelial wound healing
	Morning Tea			
11:00 am	**Edward Hinton:** Mechanisms by which buoyancy segregation can suppress viscous fingering	**Scott McCue:** Interpreting Burgers' equation in the complex plane	**Sarah Vollert (S):** Strategic model reduction by analysing model sloppiness: matching model complexity to data complexity	**Pascal Buenzli:** Bone adaptation with embedded mechanical memory
11:30 am	**Andrey Pototsky:** Nonlinear periodic and solitary rolling waves in falling two-layer viscous liquid films	**Luke Filippini (S):** Simplified models of diffusive transport in radially-symmetric media.	**Matthew Adams:** Using mechanistic and statistical models to predict Great Barrier Reef coral calcification responses to cumulative acidification and light stress	**Murk Bottema:** Modelling remodelling in rat bones
12:00 pm	**Eunice Blessica Yuwono (S):** Large amplitude non-spherical bubbles	**Gene Nakauchi (S):** Propagating fronts for a Fisher-KPP-type moving boundary problem	**Shalem Leemaqz:** Predicting risk of pregnancy complications: a statistical model	**Domenic Germano (S):** Free and interfacial boundaries in individual-based models of multicellular biological systems
12:30 pm	**Laura Karantgis (S):** Modelling rainfall induced landslides with Smoothed Particle Hydrodynamics	**Thomas Miller (S):** Properties of a non-classical symmetry solution to a reaction diffusion equation with a region of negative diffusivity	**John Maclean:** A new construction explains Particle Filter degeneracy	**Alex Tam:** Front stability for a moving-boundary model for biological invasion and recession
1:00 pm	**Larry Forbes:** The Completed Boussinesq Model for Fluid Flow	**Serena Dipierro:** Civil wars: a new Lotka-Volterra competitive system	**Markus Neuhaeuser:** The propensity score for the analysis of observational studies	**Alistair Falconer (S):** Cell migration in sinusoidal geometries
1:30 pm	**Kaname Matsue:** Dynamics of hydrodynamically unstable premixed flames in a gravitational field	**Courtney Rose Quinn:** Finite-time dynamics, hyperbolicity, and regime behaviour	**Sharon Leemaqz:** Phenotyping cell populations in cytometry data using a statistical model	**Michael Dallaston:** The effect of chemotaxis on T-cell regulatory dynamics
	Lunch			
2:00 pm	**Plenary talk 6** **Cecilia Gonzalez-Tokman** **A Journey into Random Dynamical Systems and Multiplicative Ergodic Theory**			
2:30 pm				
3:00 pm	**Michael Plank:** Simulation-based inference and communicating uncertainty in epidemiological models	**Noa Kraltzman:** Slow Migration of Brine Inclusions in First-Year Sea Ice	**Natalie Thamwattana:** A variational model for metal folding	**Stuart Johnston:** Analytic solutions for diffusive processes on multiple growing domains
3:30 pm	**Roslyn Hickson:** Exploring the interactions between policy and human mobility patterns during the covid pandemic through flight data: An Australian case study	**Jordan Pitt:** The Reduction in Wave Energy in Ice Covered Oceans	**Vivien Challis:** Understanding failure with computational finite fracture mechanics	**Dilan Pathirana:** Faster model selection, with applications in systems biology
	Afternoon Tea			
4:00 pm	**Keynote** **Nan Ye** **Machine Learning: A New Tool for Mathematicians**			
4:30 pm				
5:00 pm	**Giorgia Vattiato:** The making of New Zealand's COVID-19 Frankenstein's monster model	**Terence O'Kane:** A framework for regime dependent causal graphs for assessing climate risk	**Lauren Smith:** Data assimilation for networks of coupled oscillators	**Marcus Hoerger:** Tractable Online POMDP Planning: Challenges and Methods
5:30 pm	**Pantea Pooladvand:** The role of cultural innovation in the emergence of new diseases	**Simon Watt:** Modelling of a five reactor Activated Sludge cascade process	**Rahil Valani:** Attractor-driven matter	
6:00 pm				
6:30 pm	Conference Dinner			

	Tully 3	Tully 2	Tully 1	Ballroom
	Thursday			
7:30 am				
8:00 am				
8:30 am	**Plenary Talk 7** **Claudia Sagastizabal** **A Nonsmooth Optimizer's Perspective of Splitting Methods**			
9:00 am				
9:30 am				
10:00 am	**Douglas Brumley:** The role of bacterial chemotaxis in microbial symbiosis	**Mark Joseph McGuinness:** Reflections at the interface	**Michael Meehan:** Replicating superspreader dynamics with simple epidemic models	**Matthew Faria:** Quantitative assessment of targeted therapeutics and cells
10:30 am	**Jiahao Daio:** Modelling gene content across a phylogeny to determine when genes become associated	**Bronwyn Kajek:** Time-dependent solutions of a Fisher-KPP-like equation	**Kylie Ainslie:** Determining the trade-offs between different COVID-19 control strategies in the Netherlands: a counterfactual analysis	**Claire Miller:** Cell invasion in endometriosis
	Morenikeji Deborah Akinlotan: Beyond expected values: Making environmental decisions using value of information analysis when measurement outcome matters	**Hiroshi Takase:** Inverse problems for first-order hyperbolic equations	**Kylie Ainslie:** A scenario modelling analysis to anticipate the impact of COVID-19 vaccination in adolescents and children on disease outcomes in the Netherlands, summer 2021	**James Osborne:** An adaptive numerical method for multicellular simulations of organ development and disease
11:00 am	**Morning Tea**			
	Christopher Baker: Modelling species abundance and dynamics using removal data	**Rahil Valani:** Inertial particle focusing in curved ducts: Bifurcations and dynamics	**Emily Harvey:** Modelling spread of SARS-CoV-2 to household contacts and the impact of household quarantine and testing	**Michael Greg Watson:** Investigating Necrotic Core Localisation with a Spatial-Temporal-Structural Model of Early Atherosclerotic Plaque Formation
11:30 am	**Melanie Roberts:** Introducing HARP - A new metric to describe hysteresis	**Brendan Harding:** Inertial migration of spherical particles in curved ducts at moderate Dean numbers	**Joel Miller:** The impact of a single individual in an epidemic	**Jessica Crawshaw:** The role of hierarchical Bayesian inference in understanding macular degeneration treatment strategies
12:00 pm	**Bree Martin:** Bayesian belief network modelling for the Great Barrier Reef	**Matthew Cody Nitschke:** Male-biased mating sex ratios and the evolution of human pair bonds	**Andrew Black:** Efficient estimation of epidemic final size probabilities	**Michael Pan:** Computational modelling of metabolism within the ageing heart
12:30 pm	**Plenary talk 8** **James McCaw** **Infectious Disease Dynamics**			
1:00 pm	**Closing Remarks**			
1:30 pm	**Lunch**			
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