

Ballroom (all) - Wed

Plenary Talk

- ▶ 08:20 Konstantin Avrachenkov (INRIA Sophia Antipolis)
Graph Clustering Problem: Beyond Binary Interactions

Mathematical Biology

- ▶ 09:40 Matthew Simpson (Queensland University of Technology)
Computationally efficient framework for diagnosing, understanding, and predicting biphasic population growth
- ▶ 10:00 Adriana Zanca (The University of Melbourne)
Comparison of locally and globally acting wound closure mechanisms
- ▶ 10:20 Isabel Cowlshaw (The University of Auckland)
Optimisation of corneal tissue engineering to facilitate epithelial wound healing
- ▶ 11:00 Pascal R. Buenzli (Queensland University of Technology)
Bone adaptation with embedded mechanical memory
- ▶ 11:20 Murk Bottema (Flinders University)
Modelling remodelling in rat bones
- ▶ 11:40 Domenic Paul Joe Germano (The University of Melbourne)
Free and interfacial boundaries in individual-based models of multicellular biological systems
- ▶ 12:00 Alex Tam (University of South Australia)
Front stability for a moving-boundary model for biological invasion and recession
- ▶ 12:20 Alistair Falconer (The University of Queensland)
Cell migration in sinusoidal geometries
- ▶ 12:40 Michael Dallaston (Queensland University of Technology)
The effect of chemotaxis on T-cell regulatory dynamics
- ▶ 15:00 Stuart Johnston (The University of Melbourne)
Analytic solutions for diffusive processes on multiple growing domains
- ▶ 15:20 Dilan Pathirana (University of Bonn/MPI Bonn)
Faster model selection, with applications in systems biology

Machine Learning

- ▶ 16:00 Nan Ye (None)
Keynote Talk Machine Learning as a New Tool for Applied Mathematicians: A Tutorial
- ▶ 17:00 Marcus Hoerger (The University of Queensland)
Tractable Online POMDP Planning: Challenges and Methods

Null Session

- ▶ 18:30 Conference Dinner

Tully 1 (all) - Wed

Optimisation

- ▶ 09:40 Radislav Vaisman (The University of Queensland)
Optimal balanced chain decomposition of partially ordered sets with applications to operating cost minimization in aircraft routing problems
- ▶ 10:00 Vera Somers (The University of Melbourne)
Optimal control of spreading processes on dynamic networked systems
- ▶ 10:20 Matthew Tam (The University of Melbourne)
Convergence of Multi-Block ADMM

Statistics and Data Science

- ▶ 11:00 Sarah Vollert (Queensland University of Technology)
Strategic model reduction by analysing model sloppiness: matching model complexity to data complexity
- ▶ 11:20 Matthew Adams (Queensland University of Technology)
Using mechanistic and statistical models to predict Great Barrier Reef coral calcification responses to cumulative acidification and light stress
- ▶ 11:40 Shalem Leemaqz (Flinders University)
Predicting risk of pregnancy complications: a statistical model
- ▶ 12:00 John Maclean (The University of Adelaide)
A new construction explains Particle Filter degeneracy
- ▶ 12:20 Markus Neuhaeuser (Koblenz University of Applied Sciences)
The propensity score for the analysis of observational studies
- ▶ 12:40 Sharon Leemaqz (The University of Queensland)
Phenotyping cell populations in cytometry data using a statistical model

Material Science, Solid Mechanics

- ▶ 15:00 Natalie Thamwattana (The University of Newcastle)
A variational model for metal folding
- ▶ 15:20 Vivien Challis (Queensland University of Technology)
Understanding failure with computational finite fracture mechanics

Scientific Computing and Numerical Analysis

- ▶ 17:00 Lauren Smith (The University of Auckland)
Data assimilation for networks of coupled oscillators

Dynamical Systems

- ▶ 17:20 Rahil Valani (The University of Adelaide)
Attractor-driven matter

Tully 2 (all) - Wed

Mathematical Ecology and Conservation

- ▶ 09:40 Luz Pascal (Queensland University of Technology)
Technology development for conservation purposes as an adaptive management problem
- ▶ 10:00 Elise Mills (Queensland University of Technology)
A generalised sigmoid population growth model with energy dependence: application to quantify a tipping point for Antarctic shallow seabed algae
- ▶ 10:20 Daniel Longmuir (CSIRO)
Little Red Flying Foxes Under the Hood: Using metapopulation models to investigate population dynamics

Partial Differential Equations

- ▶ 11:00 Scott McCue (Queensland University of Technology)
Interpreting Burgers' equation in the complex plane
- ▶ 11:20 Luke Filippini (Queensland University of Technology)
Simplified models of diffusive transport in radially-symmetric media.
- ▶ 11:40 Gene Nakauchi (Queensland University of Technology)
Propagating fronts for a Fisher-KPP-type moving boundary problem
- ▶ 12:00 Thomas Miller (University of South Australia)
Properties of a non-classical symmetry solution to a reaction diffusion equation with a region of negative diffusivity

Dynamical Systems

- ▶ 12:20 Serena Dipierro (The University of Western Australia)
Civil wars: a new Lotka-Volterra competitive system
- ▶ 12:40 Courtney Rose Quinn (University of Tasmania)
Finite-time dynamics, hyperbolicity, and regime behaviour

Climate Modelling

- ▶ 15:00 Noa Kraitzman (Macquarie University)
Slow Migration of Brine Inclusions in First-Year Sea Ice
- ▶ 15:20 Jordan Pitt (The University of Adelaide)
The Reduction in Wave Energy in Ice Covered Oceans
- ▶ 17:00 Terence O’Kane (CSIRO)
A framework for regime dependent causal graphs for assessing climate risk

Mathematical Ecology and Conservation

- ▶ 17:20 Simon Watt (UNSW Canberra)
Modelling of a five reactor Activated Sludge cascade process

Tully 3 (all) - Wed

Dynamical Systems

- ▶ 09:40 Hinke Osinga (The University of Auckland)
Heterodimensional cycles as organising centres of complicated dynamics
- ▶ 10:00 Eugene Tan (The University of Western Australia)
Selecting embedding delays: A new method using persistent homology
- ▶ 10:20 Bernd Krauskopf (University of Auckland)
The structure of accumulating global bifurcations of two coupled phase-amplitude oscillators

Fluid Dynamics

- ▶ 11:00 Edward Hinton (The University of Melbourne)
Mechanisms by which buoyancy segregation can suppress viscous fingering
- ▶ 11:20 Andrey Pototsky (Swinburne University of Technology)
Nonlinear periodic and solitary rolling waves in falling two-layer viscous liquid films
- ▶ 11:40 Eunice Blessica Yuwono (The University of Adelaide)
Mathematical modelling of heat conduction in extrusion
- ▶ 12:00 Laura Karantgis (La Trobe University)
Modelling rainfall induced landslides with Smoothed Particle Hydrodynamics
- ▶ 12:20 Larry Forbes (University of Tasmania)
The Completed Boussinesq Model for Fluid Flow
- ▶ 12:40 Kaname Matsue (Kyushu University)
Dynamics of hydrodynamically unstable premixed flames in a gravitational field

Mathematical Epidemiology

- ▶ 15:00 Michael Plank (University of Canterbury)
Simulation-based inference and communicating uncertainty in epidemiological models
- ▶ 15:20 Roslyn Hickson (CSIRO and James Cook University)
Exploring the interactions between policy and human mobility patterns during the covid pandemic through flight data: An Australian case study
- ▶ 17:00 Giorgia Vattiato (University of Auckland)
The making of New Zealand's COVID-19 Frankenstein's monster model
- ▶ 17:20 Pantea Pooladvand (UNSW Sydney)
The role of cultural innovation in the emergence of new diseases