

## Monday 3 December

17:00-19:00	Registration and Reception at Turitea House
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## Tuesday 4 December

8:30 - 8:55	Registration, AgHort Lecture Block Foyer
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9:00 - 9:05	Welcome and Opening Remarks, AH1
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9:05 - 10:00	<b>NZIAS Plenary Lecture - John Sader, AH1</b> Dynamics of Nanoscale Mechanical Devices in Fluid with Applications to Atomic and Molecular Sensing Chair: <i>John Butcher</i>
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10:00 - 10:35	Coffee, Ag Hort Lecture Block Foyer
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	Session 1, AH1 Chair: <i>Igor Boglaev</i>	Session 2, AH2 Chair: <i>David Simpson</i>	Session 3, AH3 Chair: <i>Graeme Wake</i>	Session 4, AH4 Chair: <i>Bruce vanBrunt</i>
10:40 - 11:05	<b>Robert McLachlan</b> Collective symplectic integrators	<b>Peter Langfield*</b> Isochrons in the Fitzhugh-Nagumo model	<b>Bing Huang*</b> Strategic real options under stochastic volatility	<b>Chris Tuffley</b> Correcting the apparent mutation rate acceleration at shorter time scales under a Jukes-Cantor model
11:10 - 11:35	<b>Fleur McDonald*</b> Backward error analysis of travelling wave solutions for multisymplectic discretisations of wave equations	<b>Pingyu Nan*</b> Reducing dimensions of physiological models based on time scales analysis	<b>Callum Lowcay</b> Target Sets for Social Networks: A Hybrid Approach	<b>Karen McCulloch*</b> Transmission dynamics of rabies in domestic dogs
11:40 - 12:05	<b>John Butcher</b> The accuracy of numerical methods	<b>Anup Purewal*</b> Global dynamics of the subcritical Hopf normal form subject to Pyragas time-delayed feedback control	<b>Wayne Burrows*</b> Maximising Common Fixtures in a Round Robin Tournament with Two Divisions	<b>Mick Roberts</b> How epidemiology interacts with ecology

12:10 - 13:30	Lunch and Poster Session, AgHort Lecture Block Foyer
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13:30 - 14:25	<b>NZMS Plenary Lecture - Astrid an Huef, AH1</b> Algebraic systems of isometries Chair: <i>Graham Weir</i>
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14:30 - 14:55	Coffee, Ag Hort Lecture Block Foyer
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	Session 5, AH1 Chair: <i>Robert McKibbin</i>	Session 6, AH2 Chair: <i>Alona Ben-Tal</i>	Session 7, AH3 Chair: <i>Mark McGuinness</i>	Session 8, AH4 Chair: <i>Chris Tuffley</i>
15:00 - 15:25	<b>Graeme Wake</b> A model of asymmetric cell division: implications for tumour biology and some new non-local calculus	<b>Stefanie Hittmeyer*</b> Untangling wild chaos	<b>Katie Sharp*</b> A Steady State Model of Fluid Flow	<b>John Hannah</b> Diagrammatic reasoning in pre-symbolic algebra
15:30 - 15:55	<b>Bruce van Brunt</b> An initial-boundary value problem arising in a fragmentation/cell division model	<b>Jennifer Creaser*</b> The Lorenz system near the loss of the foliation condition	<b>Peter Bratby*</b> A Model of Adaptive Noise Filtering in the Shark Brain	<b>Michael Lockyear*</b> Path connectedness of generalised inverse limits
16:00 - 16:25	<b>Ali Ashher Zaidi*</b> Multiple delay differential equations and a non-linear eigenvalue problem	<b>David Simpson</b> Resonance in piecewise-smooth continuous maps	<b>Nurul Syaza Abdul Latif*</b> Modelling induced resistance to plant disease using dynamical systems	<b>Graeme O'Brien*</b> Discrete Subgroups of $SL(2, \mathbb{C})$ whose Isometric Circles are Orthogonal to the Unit Circle
16:30 - 16:55	<b>Saima Gul*</b> Different techniques and methods for solving advanced functional differential equations	<b>Rua Murray</b> Approximation of escape rates in open dynamical systems	<b>James Wang*</b> Modelling methane production in ruminants	<b>Shayne Waldron</b> A SIC-POVM with a nonabelian index group

17:00 - 18:00	NZMS and Colloquium AGM, AH1
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## Wednesday 5 December

9:00 - 9:55	<b>Plenary Lecture - Bill Barton, AH1</b> The teacher-researcher interface: What is research-based teaching really? Chair: <i>James Sneyd</i>			
10:00 - 10:25	Coffee, Ag Hort Lecture Block Foyer			
	Session 9, AH1 Chair: <i>Luke Fullard</i>	Session 10, AH2 Chair: <i>Bruce van Brunt</i>	Session 11, AH3 Chair: <i>Winston Sweatman</i>	Session 12, AH4 Chair: <i>James Sneyd</i>
10:30 - 10:55	<b>Graeme Weir</b> Large scale properties of porosity and permeability in the Taupo Volcanic Zone	<b>Heiko Knospe</b> Nonstandard representations of measures and integrals with values in p-adic fields	<b>Matt Wilkins*</b> Symplectic integrators for index one constraints	<b>Pengxing Cao*</b> Mathematical investigation of calcium puffs
11:00 - 11:25	<b>Robert McKibbin</b> Instability in sloping layered warm-water aquifers	<b>Manfred Sauter*</b> The regular part of second order differential sectorial forms	<b>Stephen Joe</b> An intermediate bound on the star discrepancy	<b>Xingjiang Chen*</b> Regulation of electrical bursting in a spatio-temporal model of a GnRH neuron
11:30 - 11:55	<b>Andrea Babylon*</b> Modelling sedimentation in lakes	<b>Sione Ma`u</b> Transfinite diameter on an algebraic curve	<b>Shafiq Rehman*</b> Efficiency of some integrators and interpolation schemes while performing long-term simulations	<b>Catherine O'Byrne*</b> Airway Smooth Muscle Contraction: The Latch State Phenomenon
12:00 - 12:25	<b>Amjad Ali*</b> Modelling transport in phreatic aquifers	<b>Nicholas Witte</b> Askey Table - Sakai Scheme correspondence	<b>Igor Boglaev</b> Inexact monotone methods for nonlinear elliptic problems	<b>Paul Hadwin*</b> Unknown boundary data in electrical impedance tomography problems
12:30 - 12:55	<b>Mark McGuinness</b> Exploding dusts and volcanoes	<b>Ittay Weiss</b> Quantales and the foundations of analysis	<b>Hidenori Ogata</b> Convergence of the invariant scheme of the method of fundamental solutions for two-dimensional potential problem in a Jordan region	
13:00 - 14:00	Lunch and ANZIAM AGM (AH1)			

14:00 - 15:30	Excursion
18:30 - 22:00	Drinks and Dinner at Wharerata

## Thursday 6 December

9:00 - 9:55	<p style="text-align: center;"><b>Plenary Lecture Kate Smith-Miles, AH1</b>  Footprints in Instance Space: steps towards a free lunch  Chair: <i>Robert McLachlan</i></p>		
10:00 - 10:25	<p style="text-align: center;">Coffee, Ag Hort Lecture Block Foyer</p>		
	<p>Session 13, AH1  Chair: <i>Tammy Lynch</i></p>	<p>Session 14, AH2  Chair: <i>Charles Little</i></p>	<p>Session 15, AH3  Chair: <i>Igor Boglaev</i></p>
10:30 - 10:55	<p><b>Luke Fullard</b>  Mass Flow Mixing in a Conical Hopper: The Coulomb or the Conical Model?</p>	<p><b>Antoine Nectoux</b>  The essential rank of the alternating group</p>	<p><b>Gail Forbes Allen</b>  By the Numbers - MyMathLab</p>
11:00 - 11:25	<p><b>Mark McGuinness</b>  Modelling Sand Dunes</p>	<p><b>Ian Raeburn</b>  Self-similar groups</p>	<p><b>Dion O'Neale</b>  A mathematical approach to identifying opportunities and advantages in science and innovation</p>
11:30 - 11:55	<p><b>Boris Baeumer</b>  Markovian subordination for fractional Cauchy problems</p>	<p><b>John Turner</b>  On the Twin Primes Conjecture</p>	<p><b>Miguel Moyers-Gonzalez</b>  Hydrodynamic stability of a thixotropic fluid</p>
12:00 - 12:25	<p><b>Winston Sweatman</b>  Gravitational few-body scattering</p>	<p><b>Gunter Steinke</b>  2-transitive finite elation Laguerre planes are miquelian</p>	<p><b>Mohammad Almahameed</b>  Maximum Principles In Some Elliptic Equations</p>
12:30 - 13:25	<p style="text-align: center;">Lunch (AH Foyer) and Maths HOD meeting (AH3)</p>		

13:30 - 14:25	<b>ANZIAM Plenary Lecture - Ilze Ziedins, AH1</b> Stochastic networks: queues, delays and bottlenecks Chair: <i>Vivien Kirk</i>	
14:30 - 14:55	Coffee	
	Session 16, AH1 Chair: <i>Dion O'Neale</i>	Session 17, AH3 Chair: Chris Tuffley
15:00 - 15:25	<b>Florian Beyer</b> AVTD solutions of Einstein's field equations	<b>Charles Little</b> Matching covered graphs with three removable classes
15:30 - 15:55	<b>Michael Smith</b> An introduction to periodic problems in platronics	<b>Richard Clarke</b> Fluid-immersed microdevice components moving at high speeds close to a compliant surface
16:00	Conference Closing Remarks, AH1	