

DAY 1 – Monday 3 July

08:00	Check in open (foyer in Sir Neil Waters Building, Massey University Albany)			
08:45	Conference Opening: Mihi whakatau & Welcome from Joachim Brand (President of NZIP) SNW300			
09:15	Keynote: Jodie Bradby (Australian National University)- Shear-Induced Diamond Formation SNW300 Chair: Joachim Brand			
10:00	Morning Tea + Exhibition open			
10:45 -12:15	1A SYMPOSIUM: Advances in light and matter interactions - materials, theory, fabrication, and characterisation SNW200 Chair: Marilou Raduban	1B SYMPOSIUM: Mātauranga Māori SNW2.31	1C EDUCATION SNW2.32	1D EDUCATION SNW2.36
10:45	High-rate reactive deposition of TiO ₂ , films for microstructured optical applications Jiří Olejníček	Mātauranga Māori Symposium Facilitators: Haggis Henderson & Mat Syngé	Promoting gender equity in STEM education: The Women in Engineering Project Ashleigh Fox	WORKSHOP: The Process of Science Chris Currie & Jeffery Yang
11:00	Development of scintillators for inertial confinement fusion experiments Kohei Yamanoi		Interacting with AI's in a Physics Classroom. More than a word bot Jason Morgan	
11:15	Massive enhancement of the NaMgF ₃ :Sm nanoparticle photoluminescence by 2-thenoyltrifluoroacetone Hellen Nalumaga		Physics teaching: a dying career? Matthew McGovern	
11:30	Using Magnetic data to understand electronic structure of rare-earth ions in crystals and nanoparticles Mike Reid			
11:45				
12:00				
12:15	Lunch in the Exhibition Area			
13:15- 14:45	2A GENERAL SNW200 Chair: Simon Granville	2B EDUCATION SNW2.31	2C EDUCATION SNW2.32	2D EDUCATION SNW2.36
13:15	Carbon Nanotube Field Effect Transistor Platforms for Sensitive and Real-time Sensing Natalie Plank	Measuring the Attitudes and Wellbeing of First Year Health Science Students: Effect on Academic Performance Terry Scott	The Einstein-First Project – Training teachers to deliver a modern, activity-based science curriculum Jesse Santoso (VIRTUAL)	WORKSHOP: Gamefying Physics Concepts. Exploring how a simple card game has revolutionized a teacher's attempt to assist students in linking concepts Jason Morgan
13:30	Atoms that avoid each other - counting nodal three-body states Chris Bradly			
13:45	Structural and Magnetic studies of CoMoO ₄ Joey Williamson	Public science engagement for physics student employability and engagement Ian Whittaker	Untangling Newton's second and third laws for students Kate Wilson	
14:00	Bidirectional Reflectance Distribution Function Measurements and Uncertainties Ellie Molloy			
14:15	Radiation-induced creep through dislocation motion in nano-crystalline alloys Noya Firman Dimanstein	Discussion on talent support and on competitions Daniel Schumayer		WORKSHOP: Teaching energy using energy bar charts Matthew McGovern
14:30	Open floor discussion			
14:45	Afternoon Tea in the Exhibition Area			

15:15-16:45	3A SYMPOSIUM: Advances in light and matter interactions - materials, theory, fabrication, and characterisation (cont'd) SNW200 Chair: Daniel Sando	3B EDUCATION SNW2.31	3C EDUCATION SNW2.32	3D EDUCATION SNW2.36
15:15	Functional surface formation by ultrashort pulse laser processing Shingo Ono	WORKSHOP: Supporting teaching Physics by non-physics specialists Kate Jackson	WORKSHOP: The Expanding Universe Nathan Mehrrens & Haggis Henderson	WORKSHOP: Learn Physics while outside Kris Bhatt
15:30	Scintillation materials from glass: advantages and applications Jakrapong Kaewkhao			
15:45	Deposition of WO ₃ and ZnO films by reactive magnetron sputtering Aneta Písařiková			
16:00	Tunable cross-luminescence in wide bandgap fluoride crystals through high pressure application Marilou Raduban			
16:15				
16:30				
17:00	Poster Reception in the Exhibition Area – canapés & drinks provided Foyer			
19:00	PUBLIC LECTURE: Mikkel Anderson (University of Otago)- Controlling individual atoms using lasers SNW300			

DAY 2 – Tuesday 4 July

08:30	Information desk & Exhibition Open (foyer in Sir Neil Waters Building)				
09:00	Day 2 Welcome				
09:15	Virtual Keynote: Stuart Farmer (Institute of Physics Scotland) - Curriculum Design: Lessons and Opportunities SNW300 Chair: David Housden				
10:00	Morning Tea in the Exhibition Area				
10:30-12:00	4A SYMPOSIUM: Localised linear and nonlinear waves in photonics and condensed matter SNW200 Chair: Chris Bradly	4B Meet the Editors SNW100 Chair: Marcus Wilson	4C EDUCATION SNW2.32	4D EDUCATION SNW2.36	
10:30	Flat Band Physics: Making and Controlling Compactly Localized Waves Sergej Flach	Take advantage of APC-free publishing in New Zealand Iain Trotter, IOP Publishing (VIRTUAL)	Simple Electrical Circuits. Using a visual approach for students who lack strong numerical skills. Uses a digital platform but can also be done on paper Jason Morgan	WORKSHOP: Physics in Construction: Some examples and contexts Haggis Henderson	
10:45					
11:00			Ultrashort pulses and optical frequency combs in laser-driven nonlinear resonators Miro Erkintalo		One problem and four approaches Daniel Schumayer
11:15					
11:30			Silicon-Germanium and Germanium Ring Resonators on-Chip with High Quality-Factors at Mid-Infrared Wavelengths Marko Perestjuk		
11:45	Nonlinear waves in coupled Bose-Einstein condensates: from false vacuum decay to vortex molecules Joachim Brand				
12:00	Lunch in the Exhibition Area				

13:00	Keynote: Kate Wilson (UNSW Canberra) - Teaching and Assessing for Improved Gender Equity in Physics SNW300 Chair: Richard Easterher			
13:45	Transition			
14:00 -15:00	5A GENERAL SNW200 Chair: Annette Koo	5B GENERAL SNW100 Chair: Cather Simpson	5C EDUCATION SNW2.32	5D EDUCATION SNW2.36
14:00	Everett's Many-Worlds Theory Biao Wu	Unusual Geometries Following Drop Impacts Geoff Willmott	2024 and Beyond – Assessment and teaching programmes Dave Thrasher & David Housden	WORKSHOP: Women in Engineering: teacher input into outreach activities Ashleigh Fox, Nicole Stevens & Dulsha Kularatna-Abeywardana
14:15		Humidity calibrations, definitions and reference functions: some issues associated with calibration of humidity sensors Jeremy Lovell-Smith		
14:30	Big science from a little country Richard Easterher	Could Planck's constant have a relativistic classical origin? Bill Trompetter		
14:45	Magnetic memories for superconducting electronics and quantum computers Simon Granville	Open floor discussion		
15:00	Afternoon Tea in the Exhibition Area			
15:30 – 17:00	6A SYMPOSIUM: Advances in light and matter interactions - materials, theory, fabrication, and characterisation (cont'd) SNW200 Chair: Mike Reid	6B GENERAL SNW100 Chair: Geoff Willmott	6C EDUCATION SNW2.32	6D EDUCATION SNW2.36
15:30	Passive optical sensing: defects, dopants, and luminescence in wide bandgap optical materials Joe Schuyt	Describing rechargeable batteries as fractional capacitors Marcus Wilson	WORKSHOP: Sustainable energy: illustrating the connections to high school physics and career opportunities for physics students Michael Jack	WORKSHOP: Teaching approaches using AP Physics Steve Chrystall
15:45		Modelling Hydrogen Adsorption on Liquid Gallium Alloy Surfaces Sam Case		
16:00	Optical functionalities of ferroelectric oxide thin films Daniel Sando	Electronic and magnetic properties of nitrogen- and boron-doped C60-dimer molecules Vladimir Bubanja		
16:15	Characterisation of Potential Energy Surfaces: Neon Clusters in Strong Magnetic Fields Tiantian Yu	An interdisciplinary view of bee magnetosense Ian Whittaker		
16:30	Plasma mediated water splitting Bill Trompetter	Collective emission of photons by an ensemble of atoms (time delayed feedback on cold atoms) Mohammad Sadeghi		
16:45	Optical physics and the future of metrology Annette Koo	Open floor discussion		
Break				
17:30	Buses depart for dinner venue Bus transport from the conference venue and return is provided. Buses will be departing from outside the Sir Neil Waters (SNW) Theatres at 5.30pm. Please gather in the Sir Neil Waters foyer at 5.15pm if you are using this option.			
18:15 – 22:30	Conference Dinner & Awards @ Markovina Vineyard Estate A fun evening together takes us to a lovely spot in North Auckland where guests will enjoy an evening of dining with plenty of time to relax and converse with both old and new friends. There will be two staggered bus returns to Massey University with the second bus leaving no later than 10:30pm.			

DAY 3 – Wednesday 5 July

08:30	Registration desk & Exhibition Open			
09:00	Day 3 Welcome			
09:15	Keynote: Amita Deb (University of Otago) - Atom-light interactions at ultra-low temperatures SNW300 Chair: David Wiltshire			
10:00	Morning Tea in the Exhibition Area			
10:30-12:00	7A SYMPOSIUM: Careers in physics SNW200 Chair: Caitlin Smith	7B SYMPOSIUM: Space physics research and pedagogy in Aotearoa SNW100 Chair: Tulasi Prashar	7C EDUCATION SNW2.32	7D EDUCATION SNW2.36
10:30	Shapeshifters: Where physicists actually work Anna Yang	A New Model of Galactic Atomic Hydrogen for Improved Analysis of Diffuse Gamma-Ray Emission from the Inner Galaxy with Implications for the Galactic Center Excess Chris Gordon	WORKSHOP: The Visible Spectrum of our Students Thalia Rutherford	WORKSHOP: Physics Assessment from NZQA's perspective Raymond Neal & Reta Snelling
10:45		Potential pathways for Aotearoa space sector Tim Searle		
11:00	Careers Panel Panellists: Darcey Graham (Rocket Lab)			
11:15	Abi Thampi (AUT Ventures)			
11:30	Will Jeremienko (Aquila)			
11:45	Nevin Koshy (Auckland District Health Board)	Open floor discussion		
12:00	Lunch in the Exhibition Area			
13:00-14:30	8A SYMPOSIUM: Careers in physics (cont'd) SNW200 Chair: Liam Quinn	8B SYMPOSIUM: Space physics research and pedagogy in Aotearoa (cont'd) SNW100 Chair: Chris Gordon	8C EDUCATION SNW2.32	8D EDUCATION SNW2.36
13:00	University Spin-outs: Lessons Learned Cather Simpson	Education for a career in space: ideas for discussion and debate Betina Pavri	WORKSHOP: Programming in Secondary Physics (bring your own device) Tristan O'Hanlon & Elke Pahl	WORKSHOP: Interactive Quizzes for use in Physics Classrooms Mark Standley
13:15				
13:30	Training and Tracking the Alumni of the MacDiarmid Institute Geoff Willmott	Space science and aerospace engineering education at the University of Auckland Nicholas Rattenbury		
13:45	Internship and PhD Research Opportunities at SOKENDAI and Inter-University Research Institutes in Japan Satoshi Mayama	Satellite constellations in the MOA database Jasmine Anderson Baldwin		
14:00	Scientists in the NZ Job Market: Challenges and Opportunities for science graduates in NZ Denis Simonov	Designing and implementing a novel major subject Tulasi Parashar		
14:15	Open floor discussion	Open floor discussion		
14:30	Afternoon Tea in the Exhibition Area			
15:00	Keynote: Pauline Harris (Massey University) - Mātauranga in a modern context SNW300 Chair: Natalie Plank			
15:45-16:00	Closing Session SNW300			

Poster Presentations

01	Participating in the Koeberg Nuclear Power Reactor (under-construction) Debate, Cape Town, June 1979 to April 1980; an outline for young physicists	Murray Bartle
02	Spatio-temporal Solitons in Cylindrical Resonators	Chris Brand
03	Investigating Reversible Assemblies of Janus Particles	Stephen Chung
04	Photoluminescence-based temperature sensing using sensitised fluoroperovskite nanoparticles	Harrison Devane
05	Detection of dislocation motion in atomistic simulations of nanocrystalline materials	Noya Firman Dimanstein
06	How the piezochromism of copper molybdate can potentially be utilised to improve magnetic sensing techniques	Jackson Fowler
07	Exploring more flexible boundary conditions for melting simulations of noble gas nanoclusters in strong magnetic fields	Aisha Malaaha Hussain
08	Accessing the Unseen World of Matter	Abigail Murcott
09	Demonstrating the Magnetic Memory Function of Tri-Layer Thin Films Using Rare-Earth Nitride Solid Solutions	Catherine Pot
10	Direct conversion of optical to electrical signals using a Ce:YAP scintillator coated with a TiO ₂ photoconductive sensor	Marilou Raduban
11	Electronic circuitry for shaping current pulses for small-scale transcranial magnetic stimulation (TMS) coil	Soniya Raju
12	Free Space Optical Communications in New Zealand	Nicholas Rattenbury
13	Professional and Amateur Astronomy and Astrophysics	Nicholas Rattenbury
14	Space Physics Research at The University of Auckland	Nicholas Rattenbury
15	Discovering Extrasolar Planets with the MOA, PRIME, Roman and CLEOPATRA Telescopes	Nicholas Rattenbury
16	Hafnium Nitride, an occasional superconductor	Ted Trewick
17	Defect-activated vs. intrinsic Raman spectra of GdN and LuN	Kiri Van Koughnet
18	Using field trips as undergraduate student mental wellbeing and engagement tools	Ian Whittaker



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Massey University Albany Campus
Auckland, Tāmaki Makaurau