Sunday 3 December	
16.00 - 19.00	Conference Registration (Level 5 foyer)
17.00 - 19.00	**Welcome Reception**

Monday 4 December		
8:00	Conference Registration	
9:00	**Welcome and Opening**	
9:20	**Keynote 1 - Albert Polmann (Frew Fellow) | Room: Coronet & Remarkables**	
10:00	**Morning Tea**	
	Stream 1: Nano Photonics Room: Coronet | Session Chair: Ann Roberts	**Stream 2: Nonlinear & Quantum optics** Room: Remarkables | Session Chair: Howard Carmichael
10:30	**New regimes with nanophotonics: exotic solitons and topological edge states (Andrea Blanco-Redondo - winner of the Geoff Opat ECR prize 2016)**	**Transition-metal doped ZnS thin films for nonlinear optics in the near infrared (Ursula Gibson)**
11:00	41. Optics of interacting nanoparticles and molecules in the coupled-dipole approximation (Baptiste Auguié)	119. Free space laser communications with adaptive optics and quantum key distribution (Lyle Roberts)
11:15	3. Imaging plasmon vortices, phase singularities and topological charge (Tim Davis)	33. Heralded quantum steering with detection loophole closed over high-loss quantum channel (Morgan Weston)
11:30	37. Extreme sub-diffraction focusing of THz radiation with magnifying metamaterial hyperlenses (Juliano Grigoleto Hayashi)	157. Large-scale brightness enhancement of continuous-wave beams in diamond (Zhenxu Bai)
11:45	50. Far-field refraction from prism hyperlenses (Alessio Stefani)	83. Multiplexed Quantum Random Number Generation (Mirko Lobino)
12:00	**Lunch | Location: Bazaar Restaurant, Level 6**	
	Stream 1: Precision Metrology Room: Coronet | Session Chair: John McFerran	**Stream 2: Silicon optics and New material** Room: Remarkables | Session Chair: Andrea Blanco-Redondo
13:30	**LIGO Interferometry: Going beyond the Standard Quantum Limit (Rana Adhikari)**	**In-Fiber Silicon Photonics (Anna Peacock)**
14:00	52. A Single Atom sub Atto-Newton Force Sensor in Three-Dimensions (Erik Streed)	9. Reversible Thermal Tuning of Hybrid Metasurfaces (Mohsen Rahmani)
14:15	63. A New Quantum Noise Limited Cavity Enhanced Polarisation Spectroscopy for Molecular Gas (Yajie Guan)	134. Ultrathin, broad bandwidth, polarization-independent, complete absorber based on graphene metamerial (Martijn de Sterke)

14:30	74. Long-distance telecom-fibre transfer of a radio-frequency reference to enable VLBI radio astronomy (Ken Baldwin)	70. Nonlinear AlGaAs nanodisks as sources of sum-frequency light and heralded photons (Alexander Solntsev)
14:45	67. Hyperfine Structure and Coherent Properties of Erbium-167-doped Yttrium Orthosilicate (Jelena Rakonjac)	
15:00	**Afternoon Tea**	
	Stream 1: Precision Measurement/Spectroscopy Room: Coronet | Session Chair: Rana Adhikari	**Stream 2: Atom Optics/Cold Atoms** Room: Remarkables | Session Chair: Scott Parkins
15:30	**Large Ring Laser Gyroscopes (Jon-Paul Wells)**	**Nanofiber resonator for a cavity QED network (Takao Aoki)**
16:00	79. Real-time and Precise Concentration Measurements of CO2 (Andre Luiten)	42. Collectively enhanced atom–light interactions in a nanofibre-segment ring resonator (Samuel Ruddell)
16:15	44. Performance of Digital Interferometry with multiple channels (Paul Sibley)	35. Displacement sensing of atoms using the Gouy phase of light (Amita Deb)
16:30	86. Adsorption of dye molecules on metallic nanoparticles: unraveling the origins of the modified spectral absorption (Brendan Darby)	58. Observation of Bogoliubov-Cherenkov Radiation in an Atom Laser (Sean Hodgman)
16:45	29. Towards Quantum Spectoscopy on a LiNbO3 Chip (Alexander Solntsev)	151. Dynamics of polar-core spin vortices in a ferromagnetic spin-1 Bose-Eintein condensate (Lewis Williamson)
17:00	**Poster Session | Room: Clancy's**	
	149. Do Nanodiamond Random Lasers Shine Brighter? (Judith Dawes)	
	7. y-Radiation-Induced Photodarkening in Er/Yb Co-Doped Optical Fibre and Its Thermal Recovery (Desheng Fan)	
	16. Fibre Lasers Beyond 3 µm using PrYb:ZBLAN (Robert Woodward)	
	122. Ultrashort Optical Pulse Shaping Through Temporal Modulation of Frequency Components (Logan Baber)	
	93. 3D-printed polymer rib waveguides (Kevin Cook)	
	132. A Fibre Optic Temperature and Moisture Sensor for Concrete Infrastructure Monitoring (Martin Ams)	
	81. Initial Development of Frequency Stabilization of a 2.56 m^2 Ring Laser Gyroscope (Caroline Anyi)	
	147. Velocity measurement in optical tweezers for biology (Catxere Casacio)	
	104. Rare-Earth Doped Crystals as an Optical Filter for Acousto-Optic Imaging (Madeleine Cormack)	
	19. Polarimetric backscatter detection of super-cooled liquid in clouds (Murray Hamilton)	
	108. Quantum Sensing using Nitrogen-Vacancy Centres in Optically Trapped Nanodiamond (Lachlan Russell)	
	142. Fabrication and Structure of Hi-Bi Micro-structured Optical Fibres (Wenyu Wang)	

	53. OAM modes at THz frequencies by fibre twisting (Alessio Stefani)
	141. Optimal Pressure for Tuning the Lattice Structure of Photonic Crystal Fibre (Wenyu Wang)
	128. Glowing green – a comparison of SYTO 9, thiazole orange and acridine orange staining of bacteria (Cushla McGoverin)
	96. Fabrication of Ge28Sb12Se60 chalcogenide glass microstructured optical fiber with stack-and-draw method (Shengling Wu)
	49. Quantum superposition of future trajectories in stochastic processes (Farzad Ghafari Jouneghani)
	143. Indefinite Causal Order (Kaumudibikash Goswami)
	89. Study of Coupled Cavities with Time-Delayed Coherent Feedback (Nikolett Nemet)
	111. Interaction induced synthetic gauge fields with ultracold atoms (Dylan Brown)
	38. Thermalisation and Occasional Bilobe Formation in Bragg-Diffracted Bose-Einstein Condensates (Alexander McPhail)
	112. Scalable performance in solid-state single-photon sources (Nor Azwa Zakaria)
	62. Composable Security Analysis for Measurement-Device-Independent Quantum Cryptography with Continuous Variables (Yichen Zhang)
	68. Direct Characterization of a nonlinear photonic circuit's wave function with laser light (Mirko Lobino)
	100. A multi-spectroscopic approach for the detection of coeliac disease: an ex vivo proof of principle study (Sara Miller)
	91. Australian atom trap trace analysis facility: status update (Rohan Glover)
	71. Cold Rubidium Loading of Kagome Fibre for Ultra High Optical depths (Andre Luiten)
	84. Cavity QED engineered spinor physics (Stuart Masson)
	150. Domain percolation in a quenched ferromagnetic spinor condensate (Nanako Shitara)
18:30	**Poster Session concludes**
18:30	**Post Deadline Session**
18:30	154. Latest developments in Femtosecond Laser Written Optical Components for Space-Division Multiplexing (Michael Withford)
18:42	153. High-performance integrable graphene energy storages using ultrafast lasers (Letty Thekkekara)
18:54	158. Multi-site functional Calcium(Ca2+) imaging of oblique dendrites (Michael Lawrence Castanares)
19:06	161. Exploring the Limits of Ultra-Strong Light Atom Interaction in a Waveguide-trapped Cold Atoms (Ashby Hilton)
19:18	162. Optimal Matter-wave Gravimetry (Simon Haine)
19:30	**Post Deadline Session concludes**

Tuesday 5 December		
8:00	Conference Registration	
9:00	**Keynote 2 - Ewa Goldys | Room: Coronet & Remarkables**	
10:00	**Morning Tea**	
	Stream 1: Sensing Room: Coronet | Session Chair: Ursula Gibson	**Stream 2: Quantum Optics I** Room: Remarkables | Session Chair: Sile Nic Chormaic
10:30	**Advanced micro-nano-structured optical surfaces for display and sensing (Daniel Rodrigo)**	**Towards a quantum electro-optic converter through micromechanical motion (Cindy Regal)**
11:00	131. Metastable argon production via frustrated tunnel ionization with few cycle near infrared pulses (Dashavir Chetty)	54. Cavity enhanced microwave to optical frequency conversion in erbium doped crystal (Yu-Hui Chen)
11:15	59. Photon-Avalanche-Enhanced Population Inversion in Lanthanide Upconversion Nanocrystals (Yiqing Lu)	139. Generation of Mechanical Interference Fringes by Multi-Photon Quantum Measurement (Till Weinhold)
11:30	28. Monitoring the lasing threshold of whispering gallery mode resonantors as an alternative to mode tracking for refractive index sensing (Alexandre Francois)	103. Quantum Survival Resonances in a Dissipative Driven System (Shijie Chai)
11:45		137. A single-shot quantum heat engine (Thomas Guff)
12:00	**Lunch | Location: Bazaar Restaurant, Level 6**	
12:30	**AOS AGM | Room: Coronet Room**	
	Stream 1: Optical Communication Room: Coronet | Session Chair: Stuart Murdoch	**Stream 2: Quantum Memory** Room: Remarkables | Session Chair: Mike Reid
13:30	**Progress in nanophotonic approaches to optical information processing (Ann Roberts)**	**Extending bandwidth and capacity of a Brillouin-based memory for light (Birgit Stiller)**
14:00	23. Dynamics of cavity solitons with amplitude modulated driving fields (Ian Hendry)	12. Genuine Quantum Memory for Broadband Light (Patrick Ledingham)
14:15	118. Kilometer Scale Free Space Optical Communication Using Dither Locking and Frequency Modulation (James Spollard)	94. Sub-Megahertz Single Photon Source Suitable for Quantum Memories (W. Y. Sarah Lau)
14:30	90. Characterisation of an all-fibre laser with saturable absorber (Robert Otupiri)	30. The Quest for Nonclassicality using Number-Resolving Single-Photon Detectors (Raphael Abrahao)
14:45	14. Nanocrystalline Alkaline Earth Halides for Ultra-high Density Optical Data Storage (Nicolas Riesen)	61. Modelling the Electronic Structure of Lanthanide Ions in Y2SiO5 (Michael Reid)

15:00	**Afternoon Tea**	
	Stream 1: Frequency combs Room: Coronet | Session Chair: Noriaki Ohmae	**Stream 2: Metasurfaces** Room: Remarkables | Session Chair: Albert Polman
15:30	**Optical synthesis with photonic-chip Kerr frequency combs (Scott Papp)**	**Metasurfaces for the next-generation optics (Sergey Kruk - winner of the Geoff Opat ECR prize 2017)**
16:00	77. Picosecond pulse source with tunable repetition rate based on temporal cavity solitons (Alexander Nielsen)	10. Observation of Fano resonances in a high Q terahertz whispering gallery mode spherical resonator coupled to a multi-mode waveguide (Dominik Vogt)
16:15	60. Symmetry breaking and polarization domain walls in a normally dispersive passive resonator (Bruno Garbin)	21. Optimising cavity alignment using a spatial light modulator and a single diode supported by digitally enhanced interferometry (Tarquin Ralph)
16:30	High-Resolution Dual-Comb Spectroscopy with Ultra-Low-Noise Frequency Combs (Benjamin Sprenger)	80. Film-Coupled Nanoparticle Plasmonic Cavities and their Applications in Cavity Quantum Electrodynamics and Optical Gas Sensing (Boyang Ding)
16:45	51. Dual-comb spectroscopy based on mode-locked chip lasers (David Lancaster)	160. Mode-Splitting for Refractive Index Sensing in Whispering Gallery Mode Resonators with Broken Symmetry (Qiongyue Kang)
17:00	**Industry Session**	
	A series of presentations from industry participants, designed to showcase the world of photonics outside academia. Speakers and the titles of their talks will be provided at registration.	
18:30	**Industry Session concludes**	
19:30	**Conference Dinner**	
23:00		

Wednesday 6 December		
8:00	Conference Registration	
9:00	**Keynote 3 - Alain Aspect |Room: Coronet & Remarkables**	
10:00	**Morning Tea**	
	Stream 1: Near field Optics Room: Coronet | Session Chair: Frederique Vanholsbeeck	**Stream 2: Nonlinear Optics** Room: Remarkables | Session Chair: Birgit Stiller
10:30	**Particle Trapping and Manipulation using Near-Field Optics (Sile Nic Chormaic)**	**Noise-Inhibited Cavityless Parametric Mixers (Stojan Radic)**
11:00	95. Optical Trapping of Resonant Dielectric Nanoparticles (Peter Reece)	4. Low-power Light Nonlinear Photonics: Transduction of Acoustic Nonlinearities into the Optical Domain (Ivan Maksymov)
11:15	148. Laser control and readout of superfluid flow (Stefan Forstner)	126. Single framework for waveguide design for nano-lasing and four-wave mixing (Guangyuan Li)
11:30	97. Magnetic Pseudo-fields in a Rotating Electron-Nuclear Spin System (Alexander Wood)	66. Wideband wavelength tunability of parametric oscillation in silica microsphere resonators (Noel Lito Sayson)
11:45	6. Quantum-enhanced multiparameter estimation for low measurement counts (Jacob Dunningham)	36. Nonlinear up-conversion for room-temperature high-sensitivity microwave radiometers (Gabriel Santamaria-Botello)
12:00	**Lunch | Location: Bazaar Restaurant, Level 6**	
	Stream 1: Biophotonics & Sensing Room: Coronet | Session Chair: Luc Thévenaz	**Stream 2: Frequency Metrology** Room: Remarkables | Session Chair: Alain Aspect
13:30	**Upconversion nanoparticles based sub-diffraction imaging (Denitza Denkova)**	**Frequency comparison of optical lattics clocks (Noriaki Ohmae)**
14:00	48. Extraction of Group Velocity Dispersion value from standard Fourier Domain OCT data (Sylwia Kolenderska)	17. Photoassociation spectroscopy of Cs*Yb in an optical dipole trap (John McFerran)
14:15	73. Extracting Morphometric Information from Rat Sciatic Nerve Using optical coherence tomography (OCT) – Review and Comparison of Methods (James Hope)	92. Attoclock: Tunnelling time in strong field ionization of atomic hydrogen (Satya Sainadh Undurti)
14:30	64. A Multipoint, Inline, Continuous Wave Interferometric Acoustic Sensing Array (Chathura Bandutunga)	31. Unconditional shot noise limit violation in photonic quantum metrology (Sergei Slussarenko)
14:45	78. Non-contact estimation of the elastic Green's function using a dual beam laser Doppler vibrometer (Sam Hitchman)	152. Optimal and Robust Quantum Metrology Using Interaction-Based Readouts (Stuart Szigeti)

15:00	**Afternoon Tea**	
	Stream 1: Fibre sensors Room: Coronet | Session Chair: Sara Miller	**Stream 2: Laser** Room: Remarkables | Session Chair: Stojan Radic
15:30	**Distributed fibre sensors using Brillouin scattering: the way to go farther, sharper and faster (Luc Thevenaz)**	**Large-frequency shift optical parametric oscillation in a crystalline microresonator (Karen Webb)**
16:00	43. Optimizing the sensitivity of palladium based fiber optic hydrogen sensors (Maximilian Fisser)	115. Mid-Infrared Few-Cycle Pulse Generation with a Ho:ZBLAN Fibre Laser (Robert Woodward)
16:15	99. Novel microelectromechanical fiber sensors (Calida Tang)	20. 2-12 µm supercontinuum using a mid-IR ultrafast fiber laser and a chalcogenide taper (Darren Hudson)
16:30	22. Waveguides Inscribed in Lanthanum Dense Flint Glass with Femtosecond Laser (Yvonne Qiongyue Kang)	8. Widely Tunable Mid-Infrared All-Fibre Lasers Based on Mechanically Robust Fibre Bragg Gratings (Gayathri Bharathan)
16:45	72. Methods for Temperature Sensing in Natural Waters Based on Raman Spectroscopy and Blue Excitation (Andréa de Lima Ribeiro)	117. A Tunable Laser from 1610 - 1760 nm Using a Narrowband Acousto-Optic Tunable Filter (Adam Gambell)
17:00	**Poster Session | Room: Clancy's**	
	15. Self-Tuning Short-Pulse Fibre Lasers with Automated Algorithmic Optimisation (Robert Woodward)	
	45. Bright solitons interactions in harmonically trapped Bose-Einstein condensates (Antonio Muñoz Mateo)	
	146. Metallic and Dielectric Plasmonic Second Harmonic Conversion (Judith Dawes)	
	82. Apparent Chaos in Erbium Yttrium Orthosilicate Absorption (Gavin King)	
	109. Elastic Purcell effect (Michael Steel)	
	26. Ultrafast Spectral Bandwidth Compression using Sum Frequency Generation of Chirped Laser Pulses (Karen Thorn)	
	105. Enhancing second harmonic efficiency through selective coupling to whispering gallery modes (Luke Trainor)	
	18. Using Polarisation-Sensitive Optical Coherence Tomography and mechanical indentation for assessing cartilage degeneration in the bovine model of early osteoarthritis (Frederique Vanholsbeeck)	
	106. Refractive index measurements of normoxic and anoxic multicellular spheroids with optical coherence tomography (Frederique Vanholsbeeck)	
	110. There is a spike, but is there a point? (Claire Honney)	
	13. Towards high-resolution Spectral Optical Coherence Tomography with a long imaging range (Sylwia Kolenderska)	
	120. Three-dimensional brain tumour models: a tool to advance fluorescence-guided surgery (Annemarie Nadort)	
	5. Near real time evaluation of bacterial viability using the optrode (Fang Ou)	
	25. Light-shaping techniques in multimode fibres (Martin Ploschner)	
	102. Centrifugal Microfluidics for a Near Real-Time Bacteria Counting Device (Joni White)	

	98. Adaptive optics for free-space optical communications (Jordan Smith)
	24. Using fibre Bragg gratings for structural health monitoring of structures during earthquakes (Stefaan Janssens)
	69. Near Infrared Emission in Bismuth/Erbium Co-Doped Optical Fiber at Liquid Nitrogen Temperature Pumped by 830 nm Light (Mingjie Ding)
	85. Form Birefringence Reflector Enabled by Subwavelength Metallic Gratings (Fan Hong)
	136. Tunable fs Laser Characterisation of Active Centres of Bismuth/Erbium Co-Doped Fibre (Gui Xiao)
	2. Light Emitting Diode Arrays for Large Area Solar Simulation (Alaa Al-Ahmad)
	65. Digitally Enhanced Optical Delay Line Architecture for Laser Frequency Metrology (Chathura Bandutunga)
	27. Towards an optical-tweezers based platform for superresolution scanning imaging (Thomas Dixon)
	55. Spin-orbit coupled interferometry with ring–trapped Bose–Einstein condensates (John Helm)
	135. Quantum metrology with high efficiency temporal multi-photon detection (Alex Pepper)
	107. Air-Clad Optical Fibres for The Photocatalytic Degradation of Emerging Contaminants (Kevin Cook)
	159. Enhancing metastable production efficiency using few-cycle infra-red laser pulses (Adam Palmer)
	156. Assessment of Apple Juice by Aquaphotomics in a Temperature Dependent Environment (Harpreet Kaur)
18:30	**Poster Session concludes**
19:00	**Public Lecture | Venue: Queenstown Memorial Hall**
20:00	**Public Lecture concludes**

Thursday 7 December		
8:00	Conference Registration	
9:00	**Keynote 4 - Gerd Leuchs | Room: Coronet & Remarkables**	
10:00	**Morning Tea**	
	Stream 1: Quantum Optics II Room: Coronet | Session Chair: Gerd Leuchs	**Stream 2: Precision Measurements** Room: Remarkables | Session Chair: Cushla McGoverin
10:30	**Catching a Quantum Jump Mid-Flight in a Superconducting Circuit: A Quantum Trajectory Simulation (Howard Carmichael - Winner of the Dan Walls Medal 2017 of the NZIP)**	**Wavefront sensors and adaptive optics for gravitational wave detectors (Peter Veitch)**
11:00	123. Towards a Bell Test with Momentum-Spin Entangled Pairs of Massive Particles (Sean Hodgman)	101. Adaptive Optics for Mode-Matching in Advanced Gravitational Wave Detectors (Huy Tuong Cao)
11:15	46. Experimental realisation of a quantum controlled-shift gate (Joseph Ho)	145. Making light work of ultrasound: new applications with a fully optical acquisition system (Kasper Van Wijk)
11:30	88. Quantum state tomography with all-dielectric highly-transparent metasurfaces (Alexander S. Solntsev)	40. Continuous optical magnetometery using a dynamically decoupled quantum gas (Michael Kewming)
11:45	155. Investigating the dynamics of Majorana zero modes with a photonic simulator (Yongjian Han)	87. Space debris tracking with a continuous wave laser (Samuel Francis)
12:00	Conference Close	