

APPC-AIP Congress Program

Sunday 4 December 2016

0900-1730 **AAPPS Meeting (Room M1)**



0900-1200	33rd Council Meeting
1200-1400	Lunch for AAPPS Meeting
1400-1600	OGM & Election of New Council
1630-1730	AAPPS New Council Meeting

1000-1500 Lone Pine Sanctuary (External Event)

1500-1930 Registration open (Foyer)

1700-1800 AIP Branches meeting (Meet in Foyer)

1800-1930 Welcome Reception (Great Halls 3 & 4)

Monday 5 December 2016

0700-1800 Registration open (Foyer)

0830-1030 **PLENARY SESSION 1 (Great Halls 1 & 2)**

0830-0900 Welcome & Congress opening

Chairs: Warrick Couch and Halina Rubinsztein-Dunlop

Welcome by Congress Co-Chairs

Welcome to Country

Official Opening

0900-0945 The discovery of neutrino oscillations
Takaaki Kajita, Director, Institute for Cosmic Ray Research, University of Tokyo

Sponsored by:



0945-1030 Cosmology: where are we and what will happen next?
Richard Easter, University of Auckland

1030-1100 Morning Tea (Great Halls 3 & 4)

Sponsored by:



1100-1230 **CONCURRENT SESSION 1**


	AOS Session 1	ATMOP Session 1	QUICC Session 1	Astro/Re/ Grav Session 1	NUPP Session 1	CMM/ASR Session 1	PEG Session 1	Plasma Session 1
Topic:	Prokhorov Symposium on Lasers 1	Lepton scattering	Quantum computation and simulation I			General, theory and soft matter 1		Space/MCF
Chair:	Halina Rubinsztein-Dunlop	James Sullivan	Jason Twamley	Leo Brewin	Cedric Simenel	Debra Bernhardt	Tim McIntyre	Lin I
Room:	Great Hall 1 & 2	M1	M2	P3	P4	P1	P5	P2
1100-1115	From Mo Zi to lasers on the Mo Zi satellite <i>Ling-An Wu</i>	Experiments with positronium negative ions <i>Yasuyuki Nagashima</i>	Comparing Experiments to the Fault-Tolerance Threshold <i>Andrew Doherty</i>	Development of a 2 micron squeezed light source <i>Georgia Mansell</i>	Australian Axion Dark Matter Search <i>Michael Tobar</i>	Acoustofluidics: Manipulating Fluids at the Microscale and Nanoscale for Biomedical Applications <i>Leslie Yeo</i>	An Innovative Approach in Active Learning in Physics <i>Monika Raharti</i>	1100-1130 Strongly Coupled Plasmas in Astrophysics <i>Setsuo Ichimaru</i>
1115-1130								
1130-1145	Splitting the fringe: laser interferometry in the Advanced LIGO gravitational wave detectors <i>Robert Ward</i>	Threshold effects and trends in positronium formation from atoms/molecules <i>Josh Machacek</i>	Approximate symmetries as witnesses of ground space degeneracy <i>Christopher Chubb</i>	Estimating spacetime parameters with quantum probes in a lossy environment <i>Sebastian Kish</i>	Chiral corrections to electromagnetic form factors in the NJL model <i>Robert Perry</i>	Viscoelastic flows generated by vibrating nanoscale structures in simple liquids <i>John Sader</i>	No one told me I needed mathematics for physics <i>John Daicopoulos</i>	1130-1150 Gyrokinetic theory of collisional and turbulent transport in toroidal plasmas <i>Hideo Sugama</i>
1145-1200		Recent progress in atomic and molecular collision theory <i>Igor Bray</i>	Detecting Topological Order with Ribbon Operators <i>Jacob Bridgeman</i>	TorPeDO - An Oscillator for Low Frequency Gravitational Force Sensing <i>David McManus</i>	Zeptosecond dynamics in breakup and the suppression of complete fusion <i>Kaitlin Cook</i>		Sub-optimal Maths preparation and it's long term effect on Physics outcomes <i>Andrew Mackinnon</i>	1150-1210 Progress of full-f gyrokinetic simulations including kinetic electrons <i>Yasuhiro Idomura</i>

1200-1215	The critical role of lasers in accurate dimensional measurements at the nanoscale <i>Jan Herrmann</i>	Electron scattering from molecular hydrogen <i>Dmitry Fursa</i>	Physics of braided anyons on a ladder <i>Babtunde Ayeni</i>	Squeezed Black holes <i>Daiqin Su</i>	Search for the associated production of a Higgs Boson with a top quark pair in multilepton final states with the ATLAS detector <i>Marco Milesi</i>	Oriental order of liquids and glasses via fluctuation diffraction <i>Andrew V Martin</i>	APELL Schools: Using a pedagogical tool for science investigations <i>Manjula Sharma</i>	1210-1230 The impact of anisotropy and plasma flow on tokamaks <i>Matthew Hole</i>
1215-1230		Electron impact excitation of OH in the Earth's upper atmosphere <i>Laurence Campbell</i>	Entanglement and fluctuations in the Majumdar-Ghosh model ground state <i>Jade Farrah Dianne Mendoza</i>	White-light signal recycled laser interferometer gravitational wave detectors <i>Chunnong Zhao</i>		Hyogen diffusion in a strained palladium lattice: A first-principles study <i>Hajime Kimizuki</i>	Connecting Students' Scientific Thinking and Learning Outcomes: A Research Review <i>Lina Aviyanti</i>	
1230-1400	Lunch (included for all attendees) & Poster Session 1 (<i>Great Halls 3 & 4</i>)							
1230-1400	Physics Education Group Meeting (Invitation Only) (<i>Room: P5</i>)							
1230-1400	Australian Optical Society AGM (<i>Room: P1</i>)							
1400-1430	Medal Session 1: Bragg Medal (<i>Great Halls 1 & 2</i>)			Chair: Warrick Couch				
1430-1600	CONCURRENT SESSION 2							
	AOS Session 2	ATMOP/AOS/QUICC Session 2	QUICC Session2	Astro/Re/ Grav Session 2	NUPP Session 2	CMM/ASR Session 2	PEG Session 2	Plasma Session 2
Topic:	Prokhorov Symposium on Lasers 2	Applications I	Discrete variable quantum optics			General, theory and soft matter 2		Laser plasma interaction
Chair:	Halina Rubinsztein-Dunlop	Robert Scholten	Tim Ralph	Eric Thrane	Phillip Urquijo	John Sader	Theo Hughes	Sang Pyo Kim
Room:	Great Hall 1 & 2	M1	M2	P3	P4	P1	P5	P2
1430-1445	Spatial Coherence Engineering of Lasers <i>Hui Cao</i>	Using Bose-Einstein condensates for precision measurements of gravity and magnetic fields <i>Nick Robins</i>	Measurements on the Reality of the Wavefunction <i>Wing Yung Lau</i>	The Cherenkov Telescope Array - Next Generation Gamma-ray Observatory <i>Gavin Rowell</i>	The Stawell Underground Physics Laboratory (SUPL) <i>Anthony Williams</i>	Manipulating Sound with Rayleigh-Bloch waves on holey surfaces <i>Roy Sambles</i>	Innovating Education to Educate Innovators <i>Eric Mazur</i>	1430-1500 Nonlinear laser plasma interactions <i>Predihiman Kaw</i>
1445-1500								
1500-1515	Functional graphene devices and their applications to ultrafast fiber lasers <i>Dong-Il Yeom</i>	Steady state coherent emissions from a 87Rb cold atom MOT <i>Aaron Tranter</i>	Reference-frame independent EPR-steering <i>Sabine Wollman</i>	New Innovations and Science at the AAO (NISA) <i>Warrick Couch</i>	Microscopic approach to heavy-ion fusion <i>Cedric Simenel</i>	Properties of nonequilibrium fluids in nanoporous materials from molecular dynamics simulation <i>Debra Bernhardt</i>	Blended concepts and disparate students <i>David Hoxley</i>	1500-1520 Kilo-tesla external magnetic field assisted fast ignition inertial confinement fusion <i>Shinsuke Fujioka</i>
1515-1530		A magic-wavelength Faraday light-matter interface free of all light shifts <i>Russell Anderson & Lincoln Turner</i>	BosonSampling lives in a manifold <i>Austin Lund</i>	The POLARBEAR-2 experiment for the cosmic microwave background polarization detection <i>Yuki Inoue</i>	Kinematic interpretation for Ridge in heavy-ion collisions <i>Jin-Hee Yoon</i>		Grouping Mixed Ability Student Matters: A Pilot Study in Physics <i>Maria Parappilly</i>	1520-1540 Laboratory and space plasma experiments: emerging role of 'CubeSat' nano-satellites <i>Christine Charles</i>
1530-1545	Advances in quantum dots for lasers and single photon sources <i>Yasuhiko Arakawa</i>	Atto-Newton force sensing in three-dimensions using a single ion <i>Valdis Blums</i>	Heralded EPR-steering with no detection loophole over high-loss quantum channel <i>Morgan Weston</i>	The EMU Survey: a deep all-sky astronomical survey with ASKAP <i>David Parkinson</i>	Vacuum Correlation Between Electromagnetic and Strong Forces on the Lattice <i>Josh Charvetto</i>	Bicontinuous Gyroid-Phase in Purely Entropic Self-Assembly of Hard Pears <i>Philipp Schonhofer</i>	Supporting students with disabilities in our undergraduate classes <i>Lisa Starkey</i>	1540-1600 Surface modifications by energetic ions for functionalisation of scaffolds <i>Marcela Bilek</i>
1545-1600		High-Speed Single Ions from a Cold Rydberg Atom Beam <i>Ben Sparkes</i>	Tests for EPR Steering in Systems of Identical Bosons <i>Bryan Dalton</i>	ALMA Observations of Spiral Accretion Flows Towards Extremely Young Protostars <i>Shih-ping Lai</i>		A two-dimensional hydrogen-bonded substitutional solid solution <i>Jennifer MacLeod</i>	Active Learning using Interactive Simulations <i>Timothy McIntyre</i>	
1600-1630	Afternoon tea (<i>Great Halls 3 & 4</i>)							
1630-1800	CONCURRENT SESSION 3							
	AOS Session 3	ATMOP Session 3	QUICC Session 3	Astro/Re/ Grav Session 3	NUPP Session 3	CMM/ASR Session 3	PEG Session 3	Plasma Session 3
Topic:	Mid-infrared and terahertz photonics	1-D Superfluids	Fundamentals - quantum gravity			Microstructure and processing 1		Space plasmas


Chair:	Lars Madsen	Yun Li	Andrew White	Carl Blair	Anthony Williams	Adam Miclich	Manju Sharma	Brian James
Room:	Great Hall 1 & 2	M1	M2	P3	P4	P1	P5	P2
1630-1645	Intense pulses at long wavelengths from ultrashort mid-IR fiber lasers <i>Darren Hudson</i>	Strong-coupling ansatz for the harmonically trapped one-dimensional Fermi gas <i>Jesper Levinsen</i>	Is gravity quantum? A Proposal for a cavity-optomechanical test <i>Stefan Forstner</i>	Thanks for the memory: gravitational-wave memory from binary black holes <i>Eric Thrane</i>	New Magicity and Magicity Loss in Atomic Nuclei <i>Hiroyoshi Sakurai</i>	Nanostructure property analysis in a transmission electron microscope <i>Dmitri Golberg</i>	Embedding IOL in a laboratory program: 5 years of data <i>Theo Hughes</i>	1630-1700 Coherent emission processes in astrophysical plasmas <i>Don Melrose</i>
1645-1700							LEGO in the Physics Lab: Making uncertainty vivid for undergraduates <i>Maria Parappilly</i>	
1700-1715	MIR Nulling on a Chalcogenide Photonic Chip for Exoplanet Detection <i>Harry-Dean Kenchington Goldsmith</i>	Finite-temperature hydrodynamics of harmonically trapped 1D Bose gases. <i>Karen Kheruntsyan</i>	Probing Quantum Gravity via Quantum Noise <i>Parth Girdhar</i>	Acoustic tests of Lorentz symmetry using quartz oscillators <i>Maxim Goryachev</i>	Penguin diagrams with the emission of two gauge Bosons <i>Swee-ping Chia</i>	Microstructure investigations using ultra-small-angle neutron scattering <i>Christine Rehm</i>	Modular black-boxes: A concept to enhance the teaching of modelling <i>Clinton Jackson</i>	1700-1720 Understanding type II bursts: Fundamental plasma physics to space weather <i>Iver Cairns</i>
1715-1730	All solid-state THz lasers based on intracavity stimulated polariton scattering <i>Andrew Lee</i>	A quantum many-body bounce in a harmonically trapped Tonks-Girardeau gas <i>Yasar Atas</i>	Holographic Spin Networks from Tensor Networks <i>Nathan McMahan</i>	Bulk causality from Quantum erasure correction <i>Eric Howard</i>	Bell II Layer 3 Silicon Vertex Detector final construction review <i>Scott Williams</i>	Diamond surface engineering: Synchrotron science to quantum technologies <i>Alastair Stacey</i>	Modelling archery: real-world physics and computational experimental archaeology <i>Timo Nieminen</i>	1720-1740 MHD modelling in space weather: Accuracy issues <i>Dong-Hun Lee</i>
1730-1745	Generation of frequency-tunable THz output from intracavity surface-emitting MgO:LiNbO3 crystal <i>Tiago Ortega</i>	Superfluid Flow Arising from the He-McKellar-Wilkins Effect in Dipolar Condensates <i>Andy Martin</i>	Quantum Markov causal models <i>Fabio Costa</i>	Black Hole Field Theory with a Firewall <i>C. T. Marco Ho</i>	Searching for Double Internal Conversion in 137m Ba <i>Jackson Dowie</i>	Nano-scale plasma processing of functional 2D materials <i>Kostya Ostrikov</i>	Education Medal Presentation <i>Margaret Wegener</i>	1740-1800 Fundamental Physics using Ultra-Strong Lasers <i>Sang Pyo Kim</i>
1745-1800	Synchronously pumped frequency-tunable picosecond terahertz generation via stimulated polariton scattering <i>Ran Li</i>		A quantum causal discovery algorithm <i>Christina Giamatzki</i>	Sound clocks and sonic relativity <i>Scott Todd & Nicolas Menicucci</i>		Ultrafast confined micro-explosion: A way to create high-pressure material phases <i>Andrei Rode</i>		
1730-1900	UQ Alumni Event - Great Hall Mezzanine Concourse - Invitation Only							
1900-2100	Public Lecture (Great Halls 1 & 2) Chair: Hans Bachor Sponsor Presentation: Cedric Simenel Takaaki Kajita Director, Institute for Cosmic Ray Research, University of Tokyo						 Australian National University	
Tuesday 6 December 2016 - Day sponsored by IOP Publishing						IOP Institute of Physics		
0700-1800	Registration open (<i>Foyer</i>)							
0730-0900	Women in Physics Breakfast (<i>Room P1</i>)					Sponsored by:  ARC CENTRE OF EXCELLENCE FOR ENGINEERED QUANTUM SYSTEMS		
0900-1030	PLENARY SESSION 2 (<i>Great Halls 1 & 2</i>)		Chairs: <i>Mitsuru Kikuchi and Cathy Foley</i>					
0900-0945	Progress of ITER and related physics issues Jean Jacquinot, Senior advisor to the ITER Director General							
0945-1030	W-Leadership, Key iver of Innovative Engines Youngah Park, President of Korea Institute of S&T Evaluation and Planning (KISTEP)					Sponsored by: 		
1030-1035	IOP Publishing Presentation Roy Sambles, University of Exeter							
1035-1100	Morning Tea (<i>Great Halls 3 & 4</i>)							
1100-1230	CONCURRENT SESSION 4							
	AOS Session 4	ATMOP/QUICC/AOS Session 4	QUICC Session 4	Bio/Med Phys 1	NUPP Session 4	CMM/ASR Session 4	WIP Session 1	Plasma Session 4
Topic:	Precision sensing	Quantum-atom	Continuous variable quantum optics I			Electronic materials and devices 1	A focus on Women in Physics in Asia	Magnetic confinement fusion
Chair:	Warwick Bowen	Hans A. Bachor	Ping Koy Lam	Maryellen Giger	Elizabetta Barberio	Dmitri Goldberg	Helen Maynard-Casely	Shaojie Wang
Room:	Great Hall 1 & 2	M1	M2	P3	P4	P1	P5	P2

1100-1115	Optical microcavity sensing: from reactive to dissipative interactions <i>Yun-Feng Xiao</i>	Quantum simulations with cold trapped ions <i>Rainer Blatt</i>	Hybrid Quantum Information Processing <i>Akira Furusawa</i>	Brightness and photostability of fluorescent nanomaterials for bioimaging <i>Phillipp Reineck</i>	Highlights from the LHC-ATLAS experiment <i>Yu Nakahama</i>	Set-and-freeze threshold voltage in nanowire-based devices using polymer electrolyte gates <i>Adam Micolich</i>	The Role of Women in Physics for the R&D of Basic Science in Indonesia <i>Evvy Kartini</i>	1100-1120 Progress of edge and divertor plasma physics study on EAST <i>Lian Wang</i>
1115-1130				Collagen anisotropy in tibiofemoral cartilages of kangaroo using magic-angle-effect <i>Tonima Ali</i>		Nanoscale Oscillators based on Threshold Switching in NbOx <i>Robert Elliman</i>		1120-1140 Multi-species gyrokinetic Vlasov simulations of ITG and TEM even turbulence and zonal flows in tokamak and helical plasmas <i>Motoki Nakata</i>
1130-1145	Ultrasensitive and broadband magnetometry using cavity optomechanics <i>Beibei Li</i>	Quantum Networks using an Integrated Ion-Photon Interface <i>Mojtaba Ghadimi</i>	Surpassing the no-cloning limit with a heralded hybrid linear amplifier <i>Jin-Yan Haw</i>	Constructing stable 3-D cellular assembly by laser with crowding polymer <i>Takahiro Kenmotsu</i>	Isovector properties of the nucleon-nucleon interaction from quark-meson coupling <i>Ellen Mrae</i>	Dilute Manganese-doped ZnO Nanowires for High Photoelectrical Performance <i>Mon-Shu Ho</i>	Positive Actions of the Women in Physics Committee in Korea <i>Jin-Hee Yoon</i>	1140-1200 Toward Dream Beams: A Personal Perspective on the Physics of Plasma Based Acceleration <i>Wei Lu</i>
1145-1200		Fast Scalable Trapped Ion Architectures for Quantum Information Processing <i>Richard Taylor</i>	Full and efficient characterisation of non-Markovian quantum processes <i>Kavan Modi</i>	Speckle enhanced resolution in 3D light-field microscopy <i>Michael Taylor</i>	Spectroscopy of ¹¹¹ Cd: Challenging the Particle-Vibration Model <i>Ben Coombes</i>	Transforming Carbon Onions into Nanodiamond <i>Nigel Marks</i>	Developments of Women in Physics in Taiwan <i>Yi-Chun Chen</i>	1200-1220 Kinetic-MHD hybrid simulations of runaway electron physics in tokamak disruptions <i>Akinobu Matsuyama</i>
1200-1215	Towards a scalable ultrasensitive optomechanical magnetometer <i>Varun Prakash</i>	Single photon interference from an entangled atom pair <i>Daniel Higginbottom</i>	Hybrid reduced-noise linear amplifier for coherent states <i>Jie Zhao</i>	Evanescent single-molecule biosensing with quantum limited precision <i>Nicolas Mauranyapin</i>	Measurement of the Higgs boson production cross section and signal strength <i>Petar Rados</i>	Observing current flow in graphene with a diamond quantum imager <i>Jean-Philippe Tetienne</i>	Activities of JPS-JSAP Liaison Committee on Women in Physics <i>Hatsumi Mori</i>	
1215-1230	TorPeDO Simulation and Control: Building a Torsional Gravitational Wave Sensor <i>Perry Forsyth</i>		Non-Gaussian entanglement from optical fibre <i>Joel Corney</i>	Fibre-integrated Brillouin microspectroscopy: the first step towards Brillouin endoscopy <i>Irina Kabakova</i>	Belle II Silicon Vertex Detector electrical assessment using infrared laser <i>James Webb</i>	Switching effect in TlBiSe2 Chalcogenide Semiconductors <i>Nevin Kalkan</i>	Chinese Women in Physics <i>Kuijuan Jin</i>	
1230-1400	Industry Day Lunch (Lunch is included for all attendees)							
1230-1400	Australian Optical Society Council Meeting - Invitation only (Room: M1)							
1330-1400	Australian Plasma Physics Community Meeting (Australian ITER Forum) (Room: P2)							
1400-1430	Medal Session 2: Ruby Payne-Scott Medal (Great Halls 1 & 2)			Chair: Andrew Peele				
1430-1600	CONCURRENT SESSION 5							
	AOS Session 5	ATMOP/AOS Session 5	QUICC Session 5	Bio/Med Phys 2	NUPP Session 5	CMM/ASR Session 5	WIP Session 2	Plasma Session 5
Topic:	Optical tweezers	Applications II	Quantum computation and simulation II			Electronic materials and devices 2	Moving forward for Women in Physics	Plasma processing/basic/space
Chair:	Michael Taylor	Thomas Stace	Geoff Pryde	Christian Langton	Tibor Kibedi	Steve Lee	Joanna Turner	Anthony Murphy
Room:	Great Hall 1 & 2	M1	M2	P3	P4	P1	P5	P2
1430-1445	Optically driven plasmonic nanorotors <i>Mikael Kall</i>	Precision measurements of frequency ratios with optical lattice clocks <i>Nils Nemitz</i>	Experimental demonstration of multiqubit controlled-unitary operations <i>Joseph Ho</i>	Measurement of radiation therapy beams in the vicinity of high density objects using optical gel dosimetry <i>Jamie Trapp</i>	Structure of Finite Nuclei starting at the Quark level <i>Anthony Thomas</i>	Growing graphene on semiconducting nanostructures: atomic scale physics and applications <i>Nunzio Motta</i>	Strategic Promotion Advice and Mentoring for Women in STEM <i>Kate Jolliffe</i>	1430-1450 Nonthermal acceleration of relativistic particles due to turbulent wakefield <i>Yasuhiro Kuramitsu</i>
1445-1500				Method for Structure Determination of Individual Molecules using Single Qubit <i>Viktor Perunicic</i>		Hybrid nanowire ion-to-electron transducers for integrated bioelectronic circuitry <i>Adam Micolich</i>		1450-1510 Gas Plasma in Liquid – Exciting Opportunities <i>Jane Dai</i>

1500-1515	Sculptured light in a single pass: Interpretation, applications & optimisation <i>Alexander Stigloe</i>	Inverted crossover resonance with 171Yb and laser cooling to 20 μ K <i>John McFerran</i>	Discriminating quantum states with minimum average number of resources <i>Sergei Slussarenko</i>	Optical rotational microrheology of biomimetic systems <i>Shu Zhang</i>	Magnetic moments and hyperfine fields with LaBr3 detectors and pulsed beams <i>Timothy James Gray</i>	On-surface synthesis of iron-terpyridine nanochains <i>Agustin Schiffrin</i>	What's the current situation for Women in Physics within Australia? <i>Helen Maynard-Casely</i>	1510-1530 Plasma delivery of RONS into tissue fluid and tissue <i>Endre Szili</i>
1515-1530	Finite difference time domain method for computationally modelling optical trapping <i>Isaac Lenton</i>	Loading of Magneto-Optically Cooled Rubidium Atoms into Hollow-Core Photonic-Crystal Fibre <i>Ashby Hilton</i>	Proposal to outperform a classical computer using current technology <i>Joe Hope</i>	Effect of pulse parameters on infrared nerve stimulation in vitro <i>Blake Entwisle</i>	SABRE: Direct Dark Matter Detection in the Northern and Southern Hemispheres <i>Francesco Nuti</i>	Spin-orbit coupling in cyclic molecules and molecular crystals <i>Anthony Jacko</i>	Presentation of posters JSAP's activities for promotion of "Women in Physics" <i>Atsushi Masuda</i> Recent Activities of Gender Equality Promotion in JP <i>Nojiri Mohako</i>	1530-1550 Development of surfaces to preserve and release growth factors <i>Jason Whittle</i>
1530-1545	Absolute calibration of optical tweezers for measurement of non-optical forces <i>Ann Bui</i>	Steady-state and dynamic density matrix solutions of metastable state transitions <i>Milad Dakka</i>	Quantum simulation of the Hubbard model with dopant atoms <i>Sven Rogge</i>	Computer-Aided Diagnosis and Deep Learning in Breast Cancer Imaging <i>Maryellen Giger</i>	Reconsidering leptoquark: flavour anomalies and opportunities for neutrino mass <i>Johnathan Gargalionis</i>	Equilibrium between Free and Bound Charges in Organic Solar Cells <i>Ardalan Armin</i>	Structured discussion on women in physics: bring your data— getting a snapshot of women in physics in the region	
1545-1600	Ultra-high bandwidth tracking of micro/nano particles in fluid <i>Muhammand Waleed</i>	Dynamics of Stationary Light <i>Jesse Everett</i>				Effect of thermal annealing emissive layer on efficiency of OLEDs <i>Soniya Yambem</i>		
1600-1630	Afternoon tea (<i>Great Halls 3 & 4</i>)							
1630-1800	CONCURRENT SESSION 6							
	AOS Session 6	ATMOP Session 6	QUICC Session 6	Plasma Session 6	NUPP Session 6	CMM/ASR Session 6	Plasma Session 7	Plasma Session 8
Topic:	Nonlinear optics	BEC	Photon sources and detectors	General MCF/Space/Basic		General, theory and soft matter 3	MCF	Space/Basic
Chair:	Kenneth Crozier	Mark Baker	Mirko Lobino	Matthew Hole	Anthony Thomas	Muhammad Shiddiky	Youwen Sun	Shinsuke Fujioka
Room:	Great Hall 1 & 2	M1	M2	P3	P4	P1	P5	P2
1630-1645	Multipolar second-harmonic generation from III-V semiconductor nanoantennas <i>Mohsen Rahmani</i>	Observation of Modulational Instability in a Bose-Einstein Condensate <i>Patrick J Everitt</i>	Quantum Optical Routes to Quantum Supremacy <i>Peter Knight</i>	Magnetically-assisted fast-ignition scheme for inertial confined fusion <i>Weimin Wang</i>	Belle II: Searching for new phenomena at the Intensity Frontier <i>Phillip Urquijo</i>	Dynamic in-vivo optical microscopy imaging of mammalian vascular systems <i>Steve Lee</i>	Damping of geodesic acoustic mode in rotating tokamak plasmas <i>Guo Wenfeng</i>	Resonant second harmonic generation of chirped pulse laser in plasma <i>Niti Kant</i>
1645-1700		Minimally destructive phase contrast imaging of ultracold atoms <i>Paul Wigley</i>		Nonlinear Interaction of 3D KAW and Ion Acoustic Waves <i>Nitin Yadav</i>			Initial Results from the Wendelstein 7-X Limiter Langmuir Probe Array <i>Boyd Blackwell</i>	International Collaboration among China, Japan and Korea on Plasma Physics <i>Shigeru Morita</i>
1700-1715	Photon-pair creation and sum-frequency generation in AlGaAs nano-resonators <i>Alexander Solntsev</i>	Faraday magnetic resonance imaging of Bose-Einstein condensates <i>Russell Anderson</i>	Suppressing parasitic (X3) photon generation with Bragg gratings <i>Luke Helt</i>	Influence of energetic ions on tearing modes <i>Huishan Cai</i>	New effects of dark matter linear in the interaction strength <i>Victor Flambaum</i>	The effects of breaking time reversal symmetry in Jaynes-Cummings-Hubbard lattices <i>Andy Martin</i>	LHCD optimization for high performance plasma in EAST <i>Bojiang Ding</i>	Laser interaction with collisional plasma Role of thermal effects on THz emission <i>Divya Singh</i>
1715-1730	Shaping the third-harmonic radiation of silicon nanostructures <i>Dragomir Neshev</i>	Faraday and darkground in-situ imaging of vortices in a BEC <i>Tyler W Neely</i>	Multi-photon experiment with solid-state single-photon sources <i>Marcelo de Almeida</i>	Finding and Understanding of AITG Modes in an Ohmic Plasma <i>Wei Chen</i>	Oscillation parameter degeneracies in the presence of a sterile neutrino <i>Zachary Matthews</i>	Novel Plasmon-Coupling Theory of the Electron Inelastic Mean Free Path <i>Christopher Thomas Chantler</i>	Design of geometric phase measurement in EAST Tokamak <i>Ting Lan</i>	Atomic Hyogen Densities and Temperatures in a Helicon Plasma Device <i>Samuel Cousens</i>
1730-1745	High-power third-order nonlinearity for electrochemical graphene oxide towards optical applications <i>Jun Ren</i>	Excitations and coherence of BECs in time-averaged optical traps <i>Thomas Bell</i>	Quantum Tomography of Superconducting Nanowire Detector with Continuous Wave Light <i>Shota Yokoyama</i>	Plasma surface modification of PETG sheets for enhanced adhesion performance <i>Hernando Salapare III</i>	Decay constants and SU(3) symmetry breaking of B-mesons on the lattice <i>Sophie Hollit</i>	Itinerant electron theory of resonant inelastic x-ray scattering in iridate <i>Tatsuya Nagao</i>	Nonlinear dynamics of toroidal Alfvén eigenmodes with tearing modes <i>Zhi-Wei Ma</i>	Pressure anisotropy effects on solitary waves in five component plasmas <i>Sijo Sebastian</i>

1745-1800		Atom-molecule interactions in 85Rb-87Rb mixtures <i>Mahasen Sooriyabandara</i>	Proposal for an integrated nearly Raman free correlated photon source <i>Daniel Blay</i>	Generation of Ultra-Short and Ultra-Intense Laser Pulses by Stimulated Brillouin Scattering <i>Updesh Verma</i>		On-chip circulators: Breaking time reversal symmetry with Quantum phase slips <i>Nicolas Vogt</i>			
1800-2000	Poster Session 2 (Great Halls 3 & 4) <i>Drinks and canapes provided</i>								
1930-2100	OSA Centennial Celebration (Great Halls 3 & 4)								
2000-2200	Informal Late Dinner Breakout								
Wednesday 7 December 2016									
0700-1800	Registration open (<i>Foyer</i>)								
0730-0900	LGBT Breakfast (<i>Room P3</i>)					Speaker sponsored by:		 <small>ARC CENTRE OF EXCELLENCE FOR ENGINEERED QUANTUM SYSTEMS</small>	
0900-1030	PLENARY SESSION 3 (<i>Great Halls 1 & 2</i>)		Chairs: <i>Paul Meredith and Robert Sang</i>						
0900-0945	Quantum computing in silicon with donor electron spins <i>Michelle Simmons, Scientia and Laureate Fellow, University of New South Wales</i>								
0945-1030	Gravitational waves and LIGO <i>David Reitze, Executive Director of the Laser Interferometer Gravitational-wave Observatory (LIGO)</i>								
1030-1100	Morning tea (<i>Great Halls 3 & 4</i>)								
1100-1230	CONCURRENT SESSION 7								
	AOS Session 7	ATMOP/AOS/QUICC Session 7	QUICC Session 7	QUICC Session 8	NUPP Session 7	CMM/ASR Session 7	Plasma Session 9	Plasma Session 10	
Topic:	Photon-phonon interactions	Topological BECs	Spin qubits and processors	Quantum computation, walks and simulation		Insulators and electronic physics	Magnetic confinement fusion	Space/Basic	
Chair:	Ben Eggleton	Kristian Helmerson	Lloyd Hollenberg	Andrew Doherty	Mark Hertzberg	Nic Shannon	Hideo Sugama	Dong-Hun Lee	
Room:	Great Hall 1 & 2	M1	M2	P3	P4	P1	P5	P2	
1100-1115	Phonon-photon interaction for on-chip light storage <i>Birgit Stiller</i>	Topological Quantum Phenomena in Spinor Bose-Einstein Condensates <i>Masahito Ueda</i>	Hybrid diamond nanosensors - A tale of two particles <i>Renbao Liu</i>	Duality Quantum Computing: A bridge between quantum and classical algorithms <i>Gui-Lu Long</i>	The radiative width of the Hoyle state from pair conversion and proton-gamma-gamma measurements <i>Tibor Kibedi</i>	From Band to Mott Insulator in Tungsten-Doped Vanadium Dioxide <i>Jamie Booth</i>	Core and SOL transport physics in negative triangularity tokamak <i>Mitsuru Kikuchi</i>	Sputtering yield shape file under stationary plasma thruster conditions <i>Mukesh Ranjan</i>	
1115-1130						First-Principles Study on Metal-Insulator Control by Atomic Adsorption onto Ti2CO2 <i>Yasunobu Ando</i>	Stokes-Einstein relation and anomalous pinch in a turbulent tokamak plasma <i>Shaojie Wang</i>	Asymmetric laser pulse interaction with plasmas in nonrelativistic regime <i>Devki Nandan Gupta</i>	
1130-1145	Quantum nonlinear opto-acoustics in nanoscale optical waveguides <i>Michael Steel</i>	Topological transition from a non-Abelian Yang-Mills monopole <i>Ian Spielman</i>	Spin Qubits in Silicon – Advantages of esed States <i>Arne Laucht</i>	Practical adaptive quantum tomography <i>Christopher Granade</i>	Experimental study of neutron rich matter EOS at RIKEN-RIBF <i>Tadaaki Isobe</i>	Breakdown of universality of the Kadowaki-Woods ratio in arbitrary bandstructures <i>David Cavanagh</i>	Bounce-Averaged Gyrokinetic Simulation of Micro-Turbulence in tokamak Plasma <i>Lei Qi</i>	Plasma dynamics and momentum conversion in magnetic nozzle plasma thruster <i>Kazunori Takahashi</i>	
1145-1200	Bloch Mode Analysis in Photonic/Phononic Band Gap Structure Design <i>Shuo Li</i>		Large-scale quantum computing in silicon <i>Charles Hill</i>	Corrected quantum walk for optimal Hamiltonian simulation <i>Dominic Berry</i>	β decay of spontaneous fission fragments as a test of nuclear structure in exotic nuclei <i>A. J. Mitchell</i>	NMR Study of Bismuth based 3D Topological Insulators <i>Robin Guehne</i>	Fluctuations and transport in toroidal and linear magnetized plasmas <i>Clive Michael</i>	Protons in the Near-Lunar Plasma Wake <i>M. B. Dhanya</i>	
1200-1215	Optomechanically Induced Carrier-Envelope Phase-dependent Effect <i>Jinyong Ma</i>	Getting dressed for Quantum Technology <i>Barry Garraway</i>	Scaling up a donor based silicon quantum processor <i>Vivien Schmitt</i>	Efficient quantum circuits for quantum walks <i>Jingbo Wang</i>	Vcb measurement from Semileptonic B Decays <i>Eiasha Waheed</i>	Anomalous Hall Coulomb ag in magnetic topological insulator films <i>Hong Liu</i>	Incorporating pedestals with feedback into sandpile models for fusion plasmas <i>Craig Bowie</i>	Supernova Shock Propagation in Realistic Interstellar Medium <i>Tsuyoshi Inoue</i>	
1215-1230	Quantum magnetomechanics towards the ultra strong coupling regime <i>Erick Romero Sanchez</i>	Quantum simulation with ultracold atoms in a magnetic lattice <i>Peter Hannaford</i>	Atomically precise spatial metrology of dopants in silicon <i>Muhammad Usman</i>	Simulating quantum circuits using quasi-probabilistic representations <i>Hakop Pashayan</i>	Quark-gluon vertex in Landau gauge on the Lattice <i>Ayşe Kizilersu</i>	Structure and Dynamic Response to High Pressure – KBe2B3O3F2 <i>Dehong Yu</i>	Toroidal modelling of plasma response to RMP fields in ITER <i>Li Li</i>	Jeans Instability in Radiative Collisional Dusty Plasma with Polarization Force <i>Ramprasad Prajapati</i>	

1230-1400	Lunch (provided for all attendees) & Poster Session 3 (<i>Great Halls 3 & 4</i>)							
1230-1400	Heads of Physics meeting (invitation only) (<i>M1</i>)							
1230-1400	Physics Honours/Masters Coordinators Meeting (invitation only) (<i>M2</i>)							
1400-1430	Medal Session 3: Massey Medal (<i>Great Halls 1 & 2</i>)				Chair: Roy Sambles			
1430-1600	CONCURRENT SESSION 8							
	AOS Session 8	ATMOP/AOS Session 8	QUICC Session 9	QUICC Session 10	NUPP Session 8	CMM/ASR Session 8	Plasma Session 11	Plasma Session 12
Topic:	Optomechanics	Extreme spectroscopy	Quantum computation, complexity and simulation	Quantum computation and communication		Superconducting physics	Magnetic confinement fusion	Basic/Processing/Space
Chair:	Ben Buchler	Kenneth Baldwin	Jayne Thompson	Margaret Reid	Takashi Kubota	Masaaki Tanaka	Mitsuru Kikuchi	Yasunori Tanaka
Room:	Great Hall 1 & 2	M1	M2	P3	P4	P1	P5	P2
1430-1445	Optomechanics with superfluid helium films <i>Christopher Baker</i>	Cold highly charged ions for highest precision spectroscopy <i>José R. Crespo López-Urrutia</i>	Experimentally Identifying Topological Order by Measuring the Modular Matrices <i>Xinhua Peng</i>	Cavity-free nondestructive detection of a single optical photon <i>Jason Twamley</i>	The Recursive Jigsaw Reconstruction <i>Marco Santoni</i>	Quantum enhancement of Bose-glass pinning length in nanoscale Josephson-junction chains <i>Timothy Duty</i>	Largescale Long-term Simulations on Runaway Dynamics in Tokamaks <i>Jian Liu</i>	Formation of Functional Plasma Polymer Films <i>Solmaz Saboohi</i>
1445-1500					Development of the track trigger systems at the LHC <i>Takashi Kubota</i>		Theory of geodesic acoustic mode frequency geometric scaling <i>Zhe Gao</i>	Investigating a magnetically enhanced hydrogen plasma source across magnetic filters <i>Stuart Nulty</i>
1500-1515	Optical spring oscillations of an unbound mirror towards coherent levitation <i>Giovanni Guccione</i>	Precision atomic spectra calculations for highly-charged ions and electron-hole transitions <i>Julian Berengut</i>	Experimental Realization of Quantum Epsilon Machine for 1D Ising Spin <i>Chai Farzad Ghafari Jouneghani</i>	A passive CPHASE gate via cross-Kerr nonlinearities <i>Joshua Combes</i>	Structure of neutron ip-line nuclei probed by breakup reactions <i>Takashi Nakamura</i>	Self-heating in Josephson junction chains: new insight from old circuits <i>Jared Cole</i>	Analytical Collisionless Damping Rate of Geodesic Acoustic Mode <i>Haijun Ren</i>	Motional Stark effect imaging on DIII-D <i>Alexander Thorman</i>
1515-1530	Near-field levitation for quantum opto-mechanics <i>Mathieu Juan</i>		Tomography is necessary for universal entanglement detection with single-copy observables <i>Tao Xin</i>	Volume monogamy of quantum steering ellipsoids for multi-qubit systems <i>Shuming Cheng, Michael Hall & Howard Wiseman</i>		Large arrays of High Temperature Superconducting Josephson Junctions <i>Kirsty Hannam</i>	Simulations of energetic particle even geodesic acoustic mode in LHD <i>Hao Wang</i>	Revisiting Resistive Instability in a Dusty Hall Thruster Plasma <i>Jasvena Tyagi</i>
1530-1545	Using a Levitating Mirror to explore Chaos and Quantum Gravity <i>Ruvindha Lecamwasam</i>	X-ray measurements in exotic atoms increase discrepancy in QED tests <i>Christopher Chantler</i>	Symmetry protected topological order in the 3D cluster state <i>Sam Roberts</i>	Waveguide based quantum frequency conversion interface for Yb ⁺ trapped ions <i>Mirko Lobino</i>	CP violation on Belle II <i>Chia-Ling Hsu</i>	High-Speed Magneto-Optical Imaging of Superconducting Thin Films <i>Alexey V Pan</i>	Self Organization of Plasma Equilibrium at poloidal beta limit <i>Kishore Mishra</i>	Amplification of laser pulses through nonlinear self-compression in weakly-relativistic plasmas <i>Mamta Singh</i>
1545-1600	Absolute temperature measurements in optical tweezers by simultaneous position-force detection <i>Anatolii Kashchuk</i>	Chaotic compound states in electronic, photonic and atomic processes <i>Victor Flambaum</i>	Green Sampling: using recycled randomness in Monte Carlo simulations <i>Christopher Ferrie</i>	Optimising device-independent random number generation rates from a Belltype experiment <i>Syed Assad</i>		A 3D Printed Superconducting Aluminium Microwave Cavity <i>Michael Tobar</i>	Study of edge turbulence and transport in QUEST and NSTX <i>Santanu Banerjee</i>	
1600-1630	Afternoon tea (<i>Great Halls 3 & 4</i>)							
1630-1800	CONCURRENT SESSION 9							
	AOS Session 9	ATMOP/QUICC Session 9	QUICC Session 11	QUICC Session 12	ATMOP/AOS Session 10	CMM/ASR Session 9	Astro/Re/ Grav Session 4	Plasma Session 13
Topic:	Diamond photonics	Quantum atom optics	Cavities and buses	Continuous variable quantum optics II	Strong fields and atoms	Spin and magnetic physics 1		Plasma processing
Chair:	Marcus Doherty	Joel Corney	Timothy Duty	Mile Gu	Anatoli Kheifets	Jason Gardner	Virginia Kilborn	Jane Dai
Room:	Great Hall 1 & 2	M1	M2	P3	P4	P1	P5	P2
1630-1645	Observation of room-temperature spontaneous superradiance from single diamond nanocrystals <i>Thomas Volz</i>	Ghost imaging with atoms <i>Andrew Truscott</i>	Experimental quantum simulation of the Rabi model with deep-strong coupling <i>Nathan Langford</i>	Boson Sampling with continuous variable measurements <i>Timothy Ralph</i>	Ultrafast Atomic and Molecular Dynamics Explored with High Harmonics <i>Chang Hee Nam</i>	An Introduction to Quantum Spin Nematics <i>Nic Shannon</i>	Role of detector characterisation in aLIGO's detection of gravitational waves <i>Bram Slagmolen</i>	1630-1650 Computational modelling of arc welding: The importance of the plasma <i>Anthony Murphy</i>

1645-1700								1650-1710 Nanopowder synthesis processes using the time-controlled induction thermal plasmas <i>Yasunori Tanaka</i>
1700-1715	Exploring superradiance from nitrogen-vacancy centres in nanodiamonds <i>Rochelle Martin</i>	Disordered atoms in 2D <i>Ivan Herrera-Benzaquen</i>	Spin resonance at the quantum limit using high-Q superconducting resonators <i>Jarryd Pla</i>	Measurement-based linear optics <i>Rafael Alexander</i>	Attoclock using atomic Hydrogen <i>Undurti Satya Sainadh</i>	Spin Dynamics in Singlet Fission <i>Dane McCamey</i>	Multi-wavelength Implications of Relativistic Jet Interactions with Inhomogeneous Media <i>Geoffrey Bicknell</i>	1710-1730 Collective Thomson scattering diagnostics for industrial plasmas <i>Kentaro Tomita</i>
1715-1730	A New Spin on the NV Centre in Diamond <i>Alexander Wood</i>	Mean-field Dynamics and Fisher Information in Matterwave Interferometry <i>Simon Haine</i>	A photonic quantum diode using superconducting qubits <i>Andres Rosario Hamann</i>	Quantum discord empowered continuous variable quantum illumination <i>Mark Bradshaw</i>	Modeling of continuum processes using square integrable basis sets <i>Alexander Kozlov</i>	Nanoscale nuclear magnetic resonance with a single spin in diamond <i>Alastair Stacey</i>	Manifestations of Dark Matter and Variations of Fundamental Constants <i>Victor Flambaum</i>	1730-1800 Presentation of Young Research Award
1730-1745	Single Crystal Diamond Membrane for Photonics and Quantum Sensing Applications <i>Kumaravelu Ganesan</i>	Optimal pump-enhanced SU(1,1) interferometry <i>Stuart Szigeti</i>		Secure Continuous Variable Teleportation and Einstein-Podolsky-Rosen Steering <i>Laura Rosales-Zarate</i>	How does a photon scatter off a hydrogen atom? <i>Swaantje Grunefeld</i>	Recent Progress in Spintronics with Ferromagnetic Semiconductors <i>Masaaki Tanaka</i>	Violation of cosmic censorship in dynamical p-brane systems <i>Kunihito Uzawa</i>	
1745-1800	Opto-mechanics of Levitated Nanodiamonds containing Nitrogen Vacancy centres <i>Reece Roberts</i>	Decoherence in the Production and Manipulation of Spin-Cat States <i>Samuel Nolan</i>	Towards a spin quantum bus for large-scale diamond quantum computing <i>Marcus Doherty</i>	Observations of Bell-like correlations from continuous variables <i>Oliver Thearle</i>	Anomalous Two-Photon Spectral Features in Warm Rubidium Vapour <i>Chris Perrella</i>			
1900-2300	Congress Dinner Including presentation of 2014, 2015 and 2016 Chaasekhar Prize winners.							
Thursday 8 December 2016								
0700-1800	Registration open (<i>Foyer</i>)							
0730-0900	ATSI Breakfast (Room P3)							
0900-1030	PLENARY SESSION 4 (Great Halls 1 & 2)		Chairs: Michael Bromley and Gui-Lo Long					
0900-0945	Momentum-resolved observation of thermal and quantum depletion in a Bose gas Alain Aspect, ENS Cachan and Universite d'Orsay					Sponsored by: 		
0945-1030	Atomic-level control of quantum materials: from quantised anomalous hall effect to high Tc superconductivity Qi-Kun Xue, Director of State Key Lab of Quantum Physics, Vice President for Research, Department of Physics, Tsinghua University							
1030-1100	Morning tea (<i>Great Halls 3 & 4</i>)							
1100-1230	CONCURRENT SESSION 10							
	AOS Session 10	ATMOP/QUICC Session 11	QUICC/AOS Session 1	QUICC Session 13	AOS Session 13	CMM/ASR Session 10	Astro/Re/ Grav Session 5	Plasma Session 14
Topic:	Atto- and Femtosecond physics	Fermi gases	Quantum optomechanics	Quantum chaos and complexity	Space applications	Spin and magnetic physics 2		Space/Basic
Chair:	Igor Litvinyuk	Chris Vale	Christopher Baker	Joe Hope	Daniel Shaddock	Gail Iles	Georgia Mansell	Iver Cairns
Room:	Great Hall 1 & 2	M1	M2	P3	P4	P1	P5	P2
1100-1115	Generation of sub-cycle optical pulses via four-wave Raman mixing <i>Yuta Nakano</i>	Experimental realization of a two-dimensional synthetic spin-orbit coupling in ultracold Fermi gases <i>Jing Zhang</i>	Quantum optomechanics experiments with photonic crystals <i>Simon Groblacher</i>	Emergence of chaos controlled by quantum measurement <i>Jessica Eastman</i>	Multi-link laser interferometer architecture for a future GRACE-like mission <i>Samuel Francis</i>	Spin Correlation in Pyrochlore Magnets <i>Jason Gardner</i>	Installation of Cryogenic Facilities in the KAGRA Gravitational Wave Detector <i>Kieran Craig</i>	1100-1120 Onset Mechanism of Solar Eruptions <i>Kanya Kusano</i>
1115-1130					High-Resolution Lucky Imaging of Low-Earth Orbit Satellites <i>Anna Zovaro</i>			1120-1140 Investigating Magnetic Topology and Flares in Solar Active Regions <i>Michael Wheatland</i>

1130-1145	Femtosecond laser nanofabrication for multifunctional devices <i>Hong-Bo Sun</i>	Exploring 2D Fermi gases via collective oscillations <i>Paul Dyke</i>	The spin-mechanical interaction of the NV centre in diamond <i>Michael Barson</i>	The emergence of chaos in a single donor in silicon <i>Vincent Mourik</i>	Resolving satellite in Low Earth Orbit with Adaptive Optics <i>Francis Bennet</i>	The Frustrated Quantum Spin Chain, Linarite, in High Magnetic Fields <i>Kirrily Rule</i>	Gravitational Effects Of Rotating Black Holes In Kaluza-Klein Theory <i>Daylan Esmer Göksel</i>	1140-1200 Earth's plasma environment and formation of the radiation belts <i>Frederick Menk</i>
1145-1200		Low-energy excitations of a tunable Fermi superfluid <i>Sascha Hainka</i>	Generation of Mechanical Interference Fringes by Multi-Photon Quantum Measurement <i>Martin Ringbauer</i>	Quantum Simplicity: Classical-Quantum Divergences in the Complexity of Predictive Modelling <i>Mile Gu & Jayne Thompson</i>	Adaptive Optics for Object Characterisation in Low Earth Orbit <i>Francis Bennet</i>	Magnetic structure of DyN: A 161Dy-Mossbauer study <i>Glen Stewart</i>	Quantum and Classical Behaviour of Axion Dark Matter <i>Mark Hertzberg</i>	1200-1220 Investigations of atmospheric plasma on plasma vortex and plasma bubble <i>Hong-Yu Chu</i>
1200-1215	An ultraviolet femtosecond laser for multiphoton ionization in mass spectrometry <i>Tomoko Imasaka</i>	Many-body-localization of strongly interacting Fermi polarons in an optical superlattice <i>Jia Wang</i>	Freezing the Decoherence of a Mechanical Oscillator with Unitary Interactions <i>James Bennett</i>	Using quantum theory to simplify input-output processes <i>Jayne Thompson</i>	Matched template signal processing for laser tracking of space debris <i>Shasidran Raj</i>	Study of phase transition in strained BiFeO3 films <i>Yi-Chun Chen</i>	Demonstration of Electrostatic Damping of Parametric Instability at Advanced LIGO <i>Carl Blair</i>	
1215-1230		Majorana Fermions: From Gapless Fulde-Ferrell Superfluidity to Disordered Optical Lattice <i>Ye Cao</i>	Control of single photon states via a mechanical resonator <i>Sahar Basiri Esfahani</i>		Internally sensed optical phased arrays for space debris manoeuvring <i>Lyle Roberts</i>	Laser threshold magnetometry with NV centres - theory and experiments <i>Jan Jeske</i>	General relativistic effects in quantum interference of "clocks" <i>Magdalena Zych</i>	
1230-1400	Lunch (provided for all attendees) (<i>Great Halls 3 & 4</i>)							
1300-1400	National Committee of Physics - Town Hall Meeting (<i>Room: P1</i>)							
1230-1330	AIP Topical Group STSP Meeting (<i>Room: M2</i>)							
1400-1600	CUNCURRENT SESSION 11							
	AOS Session 11	ATMOP/AOS Session 12	QUICC/AOS Session 2	QUICC Session 14	STP Session 1	AOS Session 14	Astro/Re/ Grav Session 5	Plasma Session 15
Topic:	Microscopy and nanoscropy	Chemical Physics	Quantum optics foundation and applications	Quantum thermodynamics		Topological and metamaterials		Basic/MCF
Chair:	Thomas Volz	Berwyck Poad	Howard Wiseman	Kavan Modi	Fred Menk	Dragomir Neshev	C.T Marco Ho	Shigeru Morita
Room:	Great Hall 1 & 2	M1	M2	P3	P4	P1	P5	P2
1400-1415	Diamond spins for quantum sensing, imaging, and hybrid quantum networks <i>Ania Bleszynski Jayich</i>	Shape shifting molecules: Photoisomerization action spectroscopy of molecular ions <i>Evan Bieske</i>	Parity-Time-Symmetric Optics, extraordinary spin in evanescent waves, and the quantum spin Hall effect of light <i>Franco Nori</i>	Experimentally-Achievable Proposal for a Quantum Heat Engine <i>Behnam Tonekaboni</i>	The Australian Bureau of Meteorology Space Weather Services <i>Murray Parkinson</i>	Electric and magnetic photonic topological transitions in zigzag nanoparticle arrays <i>Sergey Kruk</i>	Gravitation, Causality, and Quantum Consistency <i>Mark Hertzberg</i>	1400-1420 Dust acoustic rogue waves in dusty plasmas <i>Lin I</i>
1415-1430							Smooth lattice methods for Ricci flow and numerical relativity <i>Leo Brewin</i>	1420-1440 Coherence Imaging of Flows in the ITER Tokamak Boundary <i>John Howard</i>
1430-1445	Widefield Microwave Imaging using Atoms and Diamond NV Centres <i>Andrew Horsley</i>	Damage and orientation in single molecule imaging <i>Justine K Corso</i>	Multiwavelength optical activity measurements with entangled photons <i>Nora Tischler</i>	Quantum fluctuation theorems in engineered environments <i>Andre Carvalho</i>	Mapping Magnetic Field Lines between the sun and Earth <i>Iver Cairns</i>	Mapping of Topological Twisted-Ring to Planar Optical Waveguide Arrays <i>Andrey Sukhorukov</i>	Free for discussion	1440-1500 Ion-atom collision data for plasma applications <i>Alisher Kadyrov</i>
1445-1500	Scanning nearfield imaging of optical nanofibres with sub-nanometre resolution <i>Lars Skovgaard Madsen</i>	Electronic structure of the YbF molecule and the electron EDM <i>Daniel Flynn</i>	Adaptive estimation of time-varying phase with power-law spectrum <i>Dominic Berry</i>	Discrete fluctuations in memory erasure without energy cost <i>Toshio Croucher</i>	Studies of Interplanetary Scintillation with the Murchison Widefield Array <i>John Morgan</i>	Nonlinear mirror effect with silicon metasurfaces <i>Lei Xu</i>		1500-1520 Current profile measurement in KSTAR using the MSE diagnostics <i>Jinseok Ko</i>
1500-1515	Quantum enhanced non linear microscopy <i>Catxere Casacio</i>	Molecular simulation of liquid noble gases using ab initio potentials <i>Maryna Vlasniuk</i>	Quantum software for linear photonic simulations <i>Bogdan Opanchuk</i>	Analysing correlated decay processes in higher order perturbation theory <i>Clemens Muller</i>	Field localization of oblique whistler waves in the magnetopause region <i>Nitin Yadav</i>	Dielectric metasurface for simultaneous optimal reconstruction of Stokes parameters <i>Kai Wang</i>		

1515-1530	General search algorithm results from biological nanoscopy <i>Daniel W Drumm</i>	UV Stand-off Raman Spectroscopy for Ranged Explosive Detection Under the MPE <i>Joshua Carroll</i>	Two-photon tomography based on quantum walks in static integrated circuits <i>James Titchener</i>			Frequency-selective metasurfaces <i>Ann Roberts</i>		
1530-1600	Afternoon tea (<i>Great Halls 3 & 4</i>)							
1530-1600	AIP Topical Group ATMOP Annual General Meeting (<i>Room: M1</i>)							
1600-1730	CONCURRENT SESSION 12							
	AOS Session 12	ATMOP/AOS Session 13	QUICC/AOS Session 3	QUICC Session 15	STP Session 2	AOS Session 15	CMM/ASR Session 11	Plasma Session 16
Topic:	Photonic applications	Superfluids	Quantum memories and resources	Fundamentals of quantum mechanics		Plasmonics	General theory	Magnetic confinement fusion
Chair:	Ane Luiten	Matthew Davis	Geoff Campbell	Andrea Morello	Dong-Hun Lee	Andrey Sukhorukov		John Howard
Room:	Great Hall 1 & 2	M1	M2	P3	P4	P1	P5	P2
1600-1615	Laser frequency stabilisation using cryogenic silicon optical cavities <i>Philip Light</i>	Bose-Einstein condensate of exciton polaritons in optically induced potentials: from quantized vortices to exceptional points <i>Elena Ostrovskaya</i>	Towards quantum frequency-conversion between microwaves and light using rare-earth-ion dopants <i>Jevon Londgell</i>	Experimental Nonlocal and Surreal Bohmian Trajectories <i>Howard Wiseman</i>	Space Situational Awareness <i>Melrose Brown</i>	Plasmonic effects in photocatalysis: nanostructures for light absorption <i>Daniel Gomez</i>	Confined magnon transport in two-dimensional spin sheet <i>Muhammad Ahmed</i>	1600-1620 Toroidal modelling of 3D field physics in tokamak plasmas <i>Yueqiang Liu</i>
1615-1630	A remote radio-frequency reference over long-haul optical-fiber networks <i>Ken Baldwin</i>						New experimental and theoretical tools for investigating the many-body spin bath problem at the nanoscale <i>Liam Hall</i>	1620-1640 3D Physics with RMP on the EAST tokamak <i>Yueqiang Liu</i>
1630-1645	Laser Signalling for the Royal Australian Navy <i>Bradley Clare</i>	Dynamics of exciton-polariton condensation: from non-equilibrium to equilibrium regime <i>Eliezer Estrecho</i>	Cold atom memory as a platform for quantum information <i>Geoff Campbell</i>	Many interacting worlds: measurement, uncertainty relations and quantum simulations <i>Michael Hall</i>	A description of the ELOISE trial and some preliminary results <i>Robert Gardiner-Garden</i>	Nanostructure engineering of metal oxides for solar energy harvesting <i>Ziqi Sun</i>	Entropy and disorder enable charge separation in organic solar cells <i>Samantha Hood</i>	1640-1700 Further progress on integrated transport analysis suite, TASK3D-a, and its contributions for promoting scientific understandings of LHD plasmas <i>Masayuki Yokoyama</i>
1645-1700	Does adiabatic transfer work for digital spatially coupled waveguides? <i>Vincent Ng</i>	Quantum Turbulence in Bose-Einstein Condensates <i>Tapio Simula</i>	Generating and storing entanglement in a solid-state, spin-wave quantum memory <i>Kate Ferguson</i>	Probing quantum contextuality with superconducting circuits <i>Arkady Fedorov</i>	3D axisymmetric simulation of the quasilinear electron-Langmuir wave interaction <i>James Harding</i>	Modelling the cumulative heating effects of gold nanoparticles in water due to laser heating <i>Joshua Davis</i>	DFT-based size-dependent structural properties of MoS2 monolayer nanoflakes <i>Maria Javaid</i>	1700-1720 Mutual interaction between ELMs and turbulence in ELM-crash-suppressed plasmas <i>Jaehyun Lee</i>
1700-1715	Fast Reconfigurable Integrated Multiple Channel Optical Switch <i>Benjamin Haylock</i>	Towards detection of single quantized vortex in 2D superfluid helium <i>Yauhen Sachkou</i>	Sub-Megahertz Single Photon Source Suitable for Quantum Memories <i>Markus Rambach</i>	A classical probabilistic model for qubit stabilizer sub-theory <i>Angela Karanaji</i>	Excitation of large whistler wave in electron beam-plasma interaction <i>Toshihiro Taguchi</i>	Sub-nanometer positioning accuracy based on symmetry breaking <i>Xavier Vidal</i>	Generating giant spin squeezed states in diamond <i>Jason Twamley</i>	
1715-1730	Real-time concentration measurements of CO2 with an optical frequency comb <i>Sarah Scholten</i>	Microphotonic force from the control of superfluid flow <i>Xin He</i>	Measurement of photon pair generation in waveguide arrays with specialized poling <i>Matteo Villa</i>	Hamiltonian Realizations of (3+1)-TQFTs <i>Dominic Williamson</i>		Integration of plasmonic colour filters onto a CMOS image sensor <i>Ranjith Rajasekharan Unnithan</i>	Lattice Path Counting for efficient computation of restricted diffusion propagators <i>Sean Powell</i>	
1730-1745	Conference Closing including presentation for student awards							