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)*	

AAPPS Association of Asia Pacific Physical Societies

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:**	Australian Government Department of Defence Science and Technology	
0945-1030	Cosmology: where are we and what will happen next? Richard Easther, University of Auckland							
1030-1100	Morning Tea *(Great Halls 3 & 4)*					**Sponsored by:**	CUDOS An ARC Centre of Excellence	
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 satelite *Ling-An Wu*	Experiments with positronium negative ions *Yasuyuki Nagashima*	Comparing Experiments to the Fault-Tolerance Threshold *Andrew Doherty*	Development of a 2 micron squeezed light source *Georgia Mansell*	Australian Axion Dark Matter Search *Michael Tobar*	Acoustofluidics: Manipulating Fluids at the Microscale and Nanoscale for Biomedical Applications *Leslie Yeo*	An Innovative Approach in Active Learning in Physics *Monika Raharti*	1100-1130 Strongly Coupled Plasmas in Astrophysics *Setsuo Ichimaru*
1115-1130								
1130-1145	Splitting the fringe: laser interferometry in the Advanced LIGO gravitational wave detectors *Robert Ward*	Threshold effects and trends in positronium formation from atoms/molecules *Josh Machacek*	Approximate symmetries as witnesses of ground space degeneracy *Christopher Chubb*	Estimating spacetime parameters with quantum probes in a lossy environment *Sebastian Kish*	Chiral corrections to electromagnetic form factors in the NJL model *Robert Perry*	Viscoelastic flows generated by vibrating nanoscale structures in simple liquids *John Sader*	No one told me I needed mathematics for physics *John Daicopoulos*	1130-1150 Gyrokinetic theory of collisional and turbulent transport in toroidal plasmas *Hideo Sugama*
1145-1200		Recent progress in atomic and molecular collision theory *Igor Bray*	Detecting Topological Order with Ribbon Operators *Jacob Bridgeman*	TorPeDO - An Oscillator for Low Frequency Gravitational Force Sensing *David McManus*	Zeptosecond dynamics in breakup and the suppression of complete fusion *Kaitlin Cook*		Sub-optimal Maths preparation and it's long-term effect on Physics outcomes *Andrew MacKinnon*	1150-1210 Progress of full-f gyrokinetic simulations including kinetic electrons *Yasuhiro Idomura*

1200-1215	The critial role of lasers in accurate dimensional measurements at the nanoscale *Jan Herrmann*	Electron scattering from molecular hydrogen *Dmitry Fursa*	Physics of braided anyons on a ladder *Babtunde Ayeni*	Squeezed Black holes *Daiqin Su*	Search for the associated production of a Higgs Boson with a top quark pair in multilepton final states with the ATLAS detector *Marco Milesi*	Orientational order of liquids and glasses via fluctuation diffraction *Andrew V Martin*	ASELL Schools: Using a pedagogical tool for science investigations *Manjula Sharma*	1210-1230 The impact of anisotropy and plasma flow on tokamaks *Matthew Hole*
1215-1230		Electron impact excitation of OH in the Earth's upper atmosphere *Laurence Campbell*	Entanglement and fluctuations in the Majumdar--Ghosh model ground state *Jade Farrah Dianne Mendoza*	White-light signal recycled laser interferometer gravitational wave detectors *Chunnong Zhao*		Hyogen diffusion in a strained palladium lattice: A first-principles study *Hajime Kimizuki*	Connecting Students' Scientific Thinking and Learning Outcomes: A Research Review *Lina Aviyanti*	
1230-1400	Lunch (included for all attendees) & Poster Session 1 *(Great Halls 3 & 4)*							
1230-1400	Physics Eduction Group Meeting (Invitation Only) *(Room: P5)*							
1230-1400	Australian Optical Society AGM *(Room: P1)*							
1400-1430	Medal Session 1: Bragg Medal *(Great Halls 1 & 2)*			***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 *Hui Cao*	Using Bose-Einstein condensates for precision measurements of gravity and magnetic fields *Nick Robins*	Measurements on the Reality of the Wavefunction *Wing Yung Lau*	The Cherenkov Telescope Array - Next Generation Gamma-ray Observatory *Gavin Rowell*	The Stawell Underground Physics Laboratory (SUPL) *Anthony Williams*	Manipulating Sound with Rayleigh-Bloch waves on holey surfaces *Roy Sambles*	Innovating Education to Educate Innovators *Eric Mazur*	1430-1500 Nonlinear laser plasma interactions *Predihiman Kaw*
1445-1500								
1500-1515	Functional graphene devices and their applications to ultrafast fiber lasers *Dong-Il Yeom*	Steady state coherent emissions from a 87Rb cold atom MOT *Aaron Tranter*	Reference-frame independent EPR-steering *Sabine Wollman*	New Innovations and Science at the AAO (NISA) *Warrick Couch*	Microscopic approach to heavy-ion fusion *Cedric Simenel*	Properties of nonequilibrium fluids in nanoporous materials from molecular dynamics simulation *Debra Bernhardt*	Blended concepts and disparate students *David Hoxley*	1500-1520 Kilo-tesla external magnetic field assisted fast ignition inertial confinement fusion *Shinsuke Fujioka*
1515-1530		A magic-wavelength Faraday light-matter interface free of all light shifts *Russell Anderson & Lincoln Turner*	BosonSampling lives in a manifold *Austin Lund*	The POLARBEAR-2 experiment for the cosmic microwave background polarization detection *Yuki Inoue*	Kinematic interpretation for Ridge in heavy-ion collisions *Jin-Hee Yoon*		Grouping Mixed Ability Student Matters: A Pilot Study in Physics *Maria Parappilly*	1520-1540 Laboratory and space plasma experiments: emerging role of `CubeSat' nano-satellites *Christine Charles*
1530-1545	Advances in quantum dots for lasers and single photon sources *Yasuhiko Arakawa*	Atto-Newton force sensing in three-dimensions using a single ion *Valdis Blums*	Heralded EPR-steering with no detection loophole over high-loss quantum channel *Morgan Weston*	The EMU Survey: a deep all-sky astronomical survey with ASKAP *David Parkinson*	Vacuum Correlation Between Electromagnetic and Strong Forces on the Lattice *Josh Charvetto*	Bicontinuous Gyroid-Phase in Purely Entropic Self-Assembly of Hard Pears *Philipp Schonhofer*	Supporting students with disabilities in our undergraduate classes *Lisa Starkey*	1540-1600 Surface modifications by energetic ions for functionalisation of scaffolds *Marcela Bilek*
1545-1600		High-Speed Single Ions from a Cold Rydberg Atom Beam *Ben Sparkes*	Tests for EPR Steering in Systems of Identical Bosons *Bryan Dalton*	ALMA Observations of Spiral Accretion Flows Towards Extremely Young Protostars *Shih-ping Lai*		A two-dimensional hyogen-bonded substitutional solid solution *Jennifer MacLeod*	Active Learning using Interactive Simulations *Timothy Mcintyre*	
1600-1630	Afternoon tea *(Great Halls 3 & 4)*							
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 terahetrz 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 *Darren Hudson*	Strong-coupling ansatz for the harmonically trapped one-dimensional Fermi gas *Jesper Levinsen*	Is gravity quantum? A Proposal for a cavity-optomechanical test *Stefan Forstner*	Thanks for the memory: gravitational-wave memory from binary black holes *Eric Thrane*	New Magicity and Magicity Loss in Atomic Nuclei *Hiroyoshi Sakurai*	Nanostructure property analysis in a transmission electron microscope *Dmitri Golberg*	Embedding IOL in a laboratory program: 5 years of data *Theo Hughes*	1630-1700 Coherent emission processes in astrophysical plasmas *Don Melrose*
1645-1700							LEGO in the Physics Lab: Making uncertainty vivid for undergraduates *Maria Parappilly*	
1700-1715	MIR Nulling on a Chalcogenide Photonic Chip for Exoplanet Detection *Harry-Dean Kenchington Goldsmith*	Finite-temperature hyodynamics of harmonically trapped 1D Bose gases. *Karen Kheruntsyan*	Probing Quantum Gravity via Quantum Noise *Parth Girdhar*	Acoustic tests of Lorentz symmetry using quartz oscillators Maxim Goryachev	Penguin diagrams with the emission of two gauge Bosons *Swee-ping Chia*	Microstructure investigations using ultra-small-angle neutron scattering *Christine Rehm*	Modular black-boxes: A concept to enhance the teaching of modelling *Clinton Jackson*	1700-1720 Understanding type II bursts: Fundamental plasma physics to space weather *Iver Cairns*
1715-1730	All solid-state THz lasers based on intracavity stimulated polariton scattering *Andrew Lee*	A quantum many-body bounce in a harmonically trapped Tonks-Girardeau gas *Yasar Atas*	Holographic Spin Networks from Tensor Networks *Nathan McMahon*	Bulk causality from Quantum erasure correction *Eric Howard*	Bell II Layer 3 Silicon Vertex Detector final construction review *Scott Williams*	Diamond surface engineering: Synchrotron science to quantum technologies *Alastair Stacey*	Modelling archery: real-world physics and computational experimental archaeology *Timo Nieminen*	1720-1740 MHD modelling in space weather: Accuracy issues *Dong-Hun Lee*
1730-1745	Generation of frequency-tunable THz output from intracavity surface-emitting MgO:LiNbO3 crystal *Tiago Ortega*	Superfluid Flow Arising from the He-McKellar-Wilkens Effect in Dipolar Condensates *Andy Martin*	Quantum Markov causal models *Fabio Costa*	Black Hole Field Theory with a Firewall *C. T. Marco Ho*	Searching for Double Internal Conversion in 137m Ba *Jackson Dowie*	Nano-scale plasma processing of functional 2D materials *Kostya Ostrikov*	Education Medal Presentation *Margaret Wegener*	1740-1800 Fundamental Physics using Ultra-Strong Lasers *Sang Pyo Kim*
1745-1800	Synchronously pumped frequency-tunable picosecond terahertz generation via stimulated polariton *scattering* *Ran Li*		A quantum causal discovery algorithm *Christina Giamatzi*	Sound clocks and sonic relativity *Scott Todd & Nicolas Menicucci*		Ultrafast confined micro-explosion: A way to create high-pressure material phases *Andrei Rode*		
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 *(Foyer)*							
0730-0900	Women in Physics Breakfast *(Room P1)*					**Sponsored by:** eQus ARC CENTRE OF EXCELLENCE FOR ENGINEERED QUANTUM SYSTEMS		
0900-1030	**PLENARY SESSION 2** *(Great Halls 1 & 2)*		***Chairs: Mitsuru Kikuchi and Cathy Foley***					
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:** ASP		
1030-1035	IOP Publishing Presentation Roy Sambles, University of Exeter							
1035-1100	Morning Tea *(Great Halls 3 & 4)*							
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 *Yun-Feng Xiao*	Quantum simulations with cold trapped ions *Rainer Blatt*	Hybrid Quantum Information Processing *Akira Furusawa*	Brightness and photostability of fluorescent nanomaterials for bioimaging *Phillipp Reineck*	Highlights from the LHC-ATLAS experiment *Yu Nakahama*	Set-and-freeze threshold voltage in nanowire-based devices using polymer electrolyte gates *Adam Micolich*	The Role of Women in Physics for the R&D of Basic Science in Indonesia *Evvy Kartini*	1100-1120 Progress of edge and divertor plasma physics study on EAST *Lian Wang*
1115-1130				Collagen anisotropy in tibiofemoral cartilages of kangaroo using magic-angle-effect *Tonima Ali*		Nanoscale Oscillators based on Threshold Switching in NbOx *Robert Elliman*		1120-1140 Multi-species gyrokinetic Vlasov simulations of ITG and TEM iven turbulence and zonal flows in tokamak and helical plasmas *Motoki Nakata*
1130-1145	Ultrasensitive and broadband magnetometry using cavity optomechanics *Beibei Li*	Quantum Networks using an Integrated Ion-Photon Interface *Mojtaba Ghadimi*	Surpassing the no-cloning limit with a heralded hybrid linear amplifier *Jin-Yan Haw*	Constructing stable 3-D cellular assembly by laser with crowding polymer *Takahiro Kenmotsu*	Isovector properties of the nucleon-nucleaon interation from quark-meson coupling *Ellen Mcrae*	Dilute Manganese-doped ZnO Nanowires for High Photoelectrical Performance *Mon-Shu Ho*	Positive Actions of the Women in Physics Committee in Korea *Jin-Hee Yoon*	1140-1200 Toward Dream Beams: A Personal Perspective on the Physics of Plasma Based Acceleration *Wei Lu*
1145-1200		Fast Scalable Trapped Ion Architectures for Quantum Information Processing *Richard Taylor*	Full and efficient characterisation of non-Markovian quantum processes *Kavan Modi*	Speckle enhanced resolution in 3D light-field microscopy *Michael Taylor*	Spectroscopy of 111 Cd: Challenging the Particle-Vibration Model *Ben Coombes*	Transforming Carbon Onions into Nanodiamond *Nigel Marks*	Developments of Women in Physics in Taiwan *Yi-Chun Chen*	1200-1220 Kinetic-MHD hybrid simulations of runaway electron physics in tokamak disruptions *Akinobu Matsuyama*
1200-1215	Towards a scalable ultrasensitive optomechanical magnetometer *Varun Prakash*	Single photon interference from an entangled atom pair *Daniel Higginbottom*	Hybrid reduced-noise linear amplifier for coherent states *Jie Zhao*	Evanescent single-molecule biosensing with quantum limited precision *Nicolas Mauranyapin*	Measurement of the Higgs boson production cross section and signal strength *Petar Rados*	Observing current flow in graphene with a diamond quantum imager *Jean-Philippe Tetienne*	Activities of JPS–JSAP Liaison Committee on Women in Physics *Hatsumi Mori*	
1215-1230	TorPeDO Simulation and Control: Building a Torsional Gravitational Wave Sensor *Perry Forsyth*		Non-Gaussian entanglement from optical fibre *Joel Corney*	Fibre-integrated Brillouin microspectroscopy: the first step towards Brillouin endoscopy *Irina Kabakova*	Belle II Silicon Vertex Detector electrical assessment using infra-red laster *James Webb*	Switching effect in TlBiSe2 Chalcogenide Semiconductors *Nevin Kalkan*	Chinese Women in Physics *Kuijuan Jin*	
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 *Mikael Kall*	Precision measurements of frequency ratios with optical lattice clocks *Nils Nemitz*	Experimental demonstration of multiqubit controlled-unitary operations *Joseph Ho*	Measurement of radiation therapy beams in the vicinity of high density objects using optical gel dosimetry *Jamie Trapp*	Structure of Finite Nuclei starting at the Quark level *Anthony Thomas*	Growing graphene on semiconducting nanostructures: atomic scale physics and applications *Nunzio Motta*	Strategic Promotion Advice and Mentoring for Women in STEMM *Kate Jolliffe*	1430-1450 Nonthernal acceleration of relativistic particles due to turbulent wakefield *Yasuhiro Kuramitsu*
1445-1500				Method for Structure Determination of Individual Molecules using Single Qubi *Viktor Perunicic*		Hybrid nanowire ion-to-electron transducers for integrated bioelectronic circuitry *Adam Micolich*		1450-1510 Gas Plasma in Liquid – Exciting Opportunities *Jane Dai*

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

1745-1800		Atom-molecule interactions in 85Rb-87Rb mixtures *Mahasen Sooriyabandara*	Proposal for an integrated nearly Raman-free correlated photon source *Daniel Blay*	Generation of Ultra-Short and Ultra-Intense Laser Pulses by Stimulated Brillouin Scattering *Updesh Verma*		On-chip circulators: Breaking time reversal symmetry with Quantum phase slips *Nicolas Vogt*		
1800-2000	Poster Session 2 (Great Halls 3 & 4) *Drinks and canapes provided*							
1930-2100	OSA Centennial Celebration (Great Halls 3 & 4)							
2000-2200	Informal Late Dinner Breakout							

Wednesday 7 December 2016

0700-1800	Registration open (*Foyer)*							
0730-0900	LGBT Breakfast *(Room P3)*					Speaker sponsored by: eQus ARC CENTRE OF EXCELLENCE FOR ENGINEERED QUANTUM SYSTEMS		
0900-1030	**PLENARY SESSION 3** *(Great Halls 1 & 2)*		***Chairs: Paul Meredith and Robert Sang***					
0900-0945	Quantum computing in silicon with donor electron spins Michelle Simmons, Scientia and Laureate Fellow, University of New South Wales							
0945-1030	Gravitational waves and LIGO David Reitze, Executive Director of the Laser Interferometer Gravitational-wave Observatory (LIGO)							
1030-1100	Morning tea (*Great Halls 3 & 4)*							
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 *Birgit Stiller*	Topological Quantum Phenomena in Spinor Bose-Einstein Condensates *Masahito Ueda*	Hybrid diamond nano-sensors - A tale of two particles *Renbao Liu*	Duality Quantum Computing: A bridge between quantum and classical algorithms *Gui-Lu Long*	The radiative width of the Hoyle state from pair conversion and proton-gamma-gamma measurements *Tibor Kibedi*	From Band to Mott Insulator in Tungsten-Doped Vanadium Dioxide *Jamie Booth*	Core and SOL transport physics in negative triangularity tokamak *Mitsuru Kikuchi*	Sputtering yield shape ile under stationary plasma thruster conditions *Mukesh Ranjan*
1115-1130						First-Principles Study on Metal-Insulator Control by Atomic Adsorption onto Ti2CO2 *Yasunobu Ando*	Stokes-Einstein relation and anomalous pinch in a turbulent tokamak plasma *Shaojie Wang*	Asymmetric laser pulse interaction with plasmas in nonrelativistic regime *Devki Nandan Gupta*
1130-1145	Quantum nonlinear opto-acoustics in nanoscale optical waveguides *Michael Steel*	Topological transition from a non-Abelian Yang-Mills monopole *Ian Spielman*	Spin Qubits in Silicon – Advantages of essed States *Arne Laucht*	Practical adaptive quantum tomography *Christopher Granade*	Experimental study of neutron rich matter EOS at *RIKEN-RIBF* *Tadaaki Isobe*	Breakdown of universality of the Kadowaki-Woods ratio in arbitrary bandstructures *David Cavanagh*	Bounce-Averaged Gyrokinetic Simulation of Micro-Turbulence in tokamak Plasma *Lei Qi*	Plasma dynamics and momentum conversion in magnetic nozzle plasma thruster *Kazunori Takahashi*
1145-1200	Bloch Mode Analysis in Photonic/Phononic Band Gap Structure Design *Shuo Li*		Large-scale quantum computing in silicon *Charles Hill*	Corrected quantum walk for optimal Hamiltonian simulation *Dominic Berry*	β decay of spontaneous fission fragments as a test of nuclear structure in exotic nuclei *A. J. Mitchell*	NMR Study of Bismuth based 3D Topological Insulators *Robin Guehne*	Fluctuations and transport in toroidal and linear magnetized plasmas *Clive Michael*	Protons in the Near-Lunar Plasma Wake *M. B. Dhanya*
1200-1215	Optomechanically Induced Carrier-Envelope Phase-dependent Effect *Jinyong Ma*	Getting dressed for Quantum Technology *Barry Garraway*	Scaling up a donor based silicon quantum processor *Vivien Schmitt*	Efficient quantum circuits for quantum walks *Jingbo Wang*	Vcb measurement from Semileptonic B Decays *Eiasha Waheed*	Anomalous Hall Coulomb ag in magnetic topological insulator films *Hong Liu*	Incorporating pedestals with feedback into sandpile models for fusion plasmas *Craig Bowie*	Supernova Shock Propagation in Realistic Interstellar Medium *Tsuyoshi Inoue*
1215-1230	Quantum magnetomechanics towards the ultra strong coupling regime *Erick Romero Sanchez*	Quantum simulation with ultracold atoms in a magnetic lattice *Peter Hannaford*	Atomically precise spatial metrology of dopants in silicon *Muhammad Usman*	Simulating quantum circuits using quasi-probabilistic representations *Hakop Pashayan*	Quark-gluon vertex in Landau gauge on the Lattice *Ayse Kizilersu*	Structure and Dynamic Response to High Pressure – KBe2BO3F2 *Dehong Yu*	Toroidal modelling of plasma response to RMP fields in ITER *Li Li*	Jeans Instability in Radiative Collisional Dusty Plasma with Polarization Force *Ramprasad Prajapati*

1230-1400	Lunch (provided for all attendees) & Poster Session 3 *(Great Halls 3 & 4)*							
1230-1400	Heads of Physics meeting (invitation only) *(M1)*							
1230-1400	Physics Honours/Masters Coordinators Meeting (invitation only) *(M2)*							
1400-1430	Medal Session 3: Massey Medal *(Great Halls 1 & 2)*			***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 *Christopher Baker*	Cold highly charged ions for highest precision spectroscopy *José R. Crespo López-Urrutia*	Experimentally Identifying Topological Order by Measuring the Modular Matrices *Xinhua Peng*	Cavity-free nondestructive detection of a single optical photon *Jason Twamley*	The Recursive Jigsaw Reconstruction *Marco Santoni*	Quantum enhancement of Bose-glass pinning length in nanoscale Josephson-junction chains *Timothy Duty*	Largescale Long-term Simulations on Runaway Dynamics in Tokamaks *Jian Liu*	Formation of Functional Plasma Polymer Films *Solmaz Saboohi*
1445-1500					Development of the track trigger systems at the LHC *Takashi Kubota*		Theory of geodesic acoustic mode frequency geometric scaling *Zhe Gao*	Investigating a magnetically enhanced hyogen plasma source across magnetic filters *Stuart Nulty*
1500-1515	Optical spring oscillations of an unbound mirror towards coherent levitation *Giovanni Guccione*	Precision atomic spectra calculations for highly-charged ions and electron-hole transitions *Julian Berengut*	Experimental Realization of Quantum Epsilon Machine for 1D Ising Spin_Chai *Farzad Ghafari Jouneghani*	A passive CPHASE gate via cross-Kerr nonlinearities *Joshua Combes*	Structure of neutron ip-line nuclei probed by breakup reactions *Takashi Nakamura*	Self-heating in Josephson junction chains: new insight from old circuits *Jared Cole*	Analytical Collisionless Damping Rate of Geodesic Acoustic Mode *Haijun Ren*	Motional Stark effect imaging on DIII-D *Alexander Thorman*
1515-1530	Near-field levitation for quantum opto-mechanics *Mathieu Juan*		Tomography is necessary for universal entanglement detection with single-copy observables *Tao Xin*	Volume monogamy of quantum steering ellipsoids for multi-qubit systems *Shuming Cheng, Michael Hall & Howard Wiseman*		Large arrays of High Temperature Superconducting Josephson Junctions *Kirsty Hannam*	Simulations of energetic particle iven geodesic acoustic mode in LHD *Hao Wang*	Revisiting Resistive Instability in a Dusty Hall Thruster Plasma *Jasvena Tyagi*
1530-1545	Using a Levitating Mirror to explore Chaos and Quantum Gravity *Ruvindha Lecamwasam*	X-ray measurements in exotic atoms increase discrepancy in QED tests *Christopher Chantler*	Symmetry protected topological order in the 3D cluster state *Sam Roberts*	Waveguide based quantum frequency conversion interface for Yb+ trapped ions *Mirko Lobino*	CP violation on Belle II *Chia-Ling Hsu*	High-Speed Magneto-Optical Imaging of Superconducting Thin Films *Alexey V Pan*	Self Organization of Plasma Equilibrium at poloidal beta limit *Kishore Mishra*	Amplification of laser pulses through nonlinear self-compression in weakly-relativistic plasmas *Mamta Singh*
1545-1600	Absolute temperature measurements in optical tweezers by simultaneous position-force detection *Anatolii Kashchuck*	Chaotic compound states in electronic, photonic and atomic processes *Victor Flambaum*	Green Sampling: using recycled randomness in Monte Carlo simulations *Christopher Ferrie*	Optimising device-independent random number generation rates from a Belltype experiment *Syed Assad*		A 3D Printed Superconducting Aluminium Microwave Cavity *Michael Tobar*	Study of edge turbulence and transport in QUEST and NSTX *Santanu Banerjee*	
1600-1630	Afternoon tea *(Great Halls 3 & 4)*							
1630-1800	**CONCURRENT SESSION 9**							
	AOS Session 9	ATMOP/QUICC Session 9	QUICC Session 11	QUICC Session12	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 *Thomas Volz*	Ghost imaging with atoms *Andrew Truscott*	Experimental quantum simulation of the Rabi model with deep-strong coupling *Nathan Langford*	Boson Sampling with continuous variable measurements *Timothy Ralph*	Ultrafast Atomic and Molecular Dynamics Explored with High Harmonics *Chang Hee Nam*	An Introduction to Quantum Spin Nematics *Nic Shannon*	Role of detector characterisation in aLIGO's detection of gravitational waves *Bram Slagmolen*	1630-1650 Computational modelling of arc welding: The importance of the plasma *Anthony Murphy*

1645-1700								1650-1710 Nanopowder synthesis processes using the time-controlled induction thermal plasmas *Yasunori Tanaka*
1700-1715	Exploring superradiance from nitrogen-vacancy centres in nanodimaonds *Rochelle Martin*	Disordered atoms in 2D *Ivan Herrera-Benzaquen*	Spin resonance at the quantum limit using high-Q superconducting resonators *Jarryd Pla*	Measurement-based linear optics *Rafael Alexander*	Attoclock using atomic Hydrogen *Undurti Satya Sainadh*	Spin Dynamics in Singlet Fission *Dane McCamey*	Multi-wavelength Implications of Relativistic Jet Interactions with Inhomogeneous Media *Geoffrey Bicknell*	1710-1730 Collective Thomson scattering diagnostics for industrial plasmas *Kentaro Tomita*
1715-1730	A New Spin on the NV Centre in Diamond *Alexander Wood*	Mean-field Dynamics and Fisher Information in Matterwave Interferometry *Simon Haine*	A photonic quantum diode using superconducting qubits *Andres Rosario Hamann*	Quantum discord empowered continuous variable quantum illumination *Mark Bradshaw*	Modeling of continuum processes using square integrable basis sets *Alexander Kozlov*	Nanoscale nuclear magnetic resonance with a single spin in diamond *Alastair Stacey*	Manifestations of Dark Matter and Variations of Fundamental Constants *Victor Flambaum*	1730-1800 Presentation of Young Research Award
1730-1745	Single Crystal Diamond Membrane for Photonics and Quantum Sensing Applications *Kumaravelu Ganesan*	Optimal pump-enhanced SU(1,1) interferometry *Stuart Szigeti*		Secure Continuous Variable Teleportation and Einstein-Podolsky-Rosen Steering *Laura Rosales-Zarate*	How does a photon scatter off a hyogen atom? *Swaantje Grunefeld*	Recent Progress in Spintronics with Ferromagnetic Semiconductors *Masaaki Tanaka*	Violation of cosmic censorship in dynamical p-brane systems *Kunihito Uzawa*	
1745-1800	Opto-mechanics of Levitated Nanodiamonds containing Nitrogen Vacancy centres *Reece Roberts*	Decoherence in the Production and Manipulation of Spin-Cat States *Samuel Nolan*	Towards a spin quantum bus for large-scale diamond quantum computing *Marcus Doherty*	Observations of Bell-like correlations from continuous variables *Oliver Thearle*	Anomalous Two-Photon Spectral Features in Warm Rubidium Vapour *Chris Perrella*			
1900-2300	**Congress Dinner** **Including presentation of 2014, 2015 and 2016 Chaasekhar Prize winners.**							
Thursday 8 December 2016								
0700-1800	Registration open (*Foyer)*							
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:** CENTRE FOR QUANTUM COMPUTATION & COMMUNICATION TECHNOLOGY AUSTRALIAN RESEARCH COUNCIL CENTRE OF EXCELLENCE		
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 (*Great Halls 3 & 4)*							
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 *Yuta Nakano*	Experimental realization of a two-dimensional synthetic spin-orbit coupling in ultracold Fermi gases *Jing Zhang*	Quantum optomechanics experiments with photonic crystals *Simon Groblacher*	Emergence of chaos controlled by quantum measurement *Jessica Eastman*	Multi-link laser interferometer architecture for a future GRACE-like mission *Samuel Francis*	Spin Correlation in Pyrochlore Magnets *Jason Gardner*	Installation of Cryogenic Facilities in the KAGRA Gravitational Wave Detector *Kieran Craig*	1100-1120 Onset Mechanism of Solar Eruptions *Kanya Kusano*
1115-1130					High-Resolution Lucky Imaging of Low-Earth Orbit Satellites *Anna Zovaro*			1120-1140 Investigating Magnetic Topology and Flares in Solar Active Regions *Michael Wheatland*

1130-1145	Femtosecond laser nanofabrication for multifunctional devices *Hong-Bo Sun*	Exploring 2D Fermi gases via collective oscillations *Paul Dyke*	The spin-mechanical interaction of the NV centre in diamond *Michael Barson*	The emergence of chaos in a single donor in silicon *Vincent Mourik*	Resolving satellite in Low Earth Orbit with Adaptive Optics *Francis Bennet*	The Frustrated Quantum Spin Chain, Linarite, In High Magnetic Fields *Kirrily Rule*	Gravitational Effects Of Rotating Black Holes In Kaluza-Klein Theory *Daylan Esmer Göksel*	1140-1200 Earth's plasma environment and formation of the radiation belts *Frederick Menk*
1145-1200		Low-energy excitations of a tunable Fermi superfluid *Sascha Hoinka*	Generation of Mechanical Interference Fringes by Multi-Photon Quantum Measurement *Martin Ringbauer*	Quantum Simplicity: Classical-Quantum Divergences in the Complexity of Predictive Modelling *Mile Gu & Jayne Thompson*	Adaptive Optics for Object Characterisation in Low Earth Orbit *Francis Bennet*	Magnetic structure of DyN: A 161Dy-Mossbauer study *Glen Stewart*	Quantum and Classical Behaviour of Axion Dark Matter *Mark Hertzberg*	1200-1220 Investigations of atmospheric plasma on plasma vortex and plasma bubble *Hong-Yu Chu*
1200-1215	An ultraviolet femtosecond laser for multiphoton ionization in mass spectrometry *Tomoko Imasaka*	Many-body-localization of strongly interacting Fermi polarons in an optical superlattice *Jia Wang*	Freezing the Decoherence of a Mechanical Oscillator with Unitary Interactions *James Bennett*	Using quantum theory to simplify input-output processes *Jayne Thompson*	Matched template signal processing for laser tracking of space debris *Shasidran Raj*	Study of phase transition in strained BiFeO3 films *Yi-Chun Chen*	Demonstration of Electrostatic Damping of Parametric Instability at Advanced LIGO *Carl Blair*	
1215-1230		Majorana Fermions: From Gapless Fulde-Ferrell Superfluidity to Disordered Optical Lattice *Ye Cao*	Control of single photon states via a mechanical resonator *Sahar Basiri Esfahani*		Internally sensed optical phased arrays for space debris manoeuvring *Lyle Roberts*	Laser threshold magnetometry with NV centres - theory and experiments *Jan Jeske*	General relativistic effects in quantum interference of "clocks" *Magdalena Zych*	
1230-1400	Lunch (provided for all attendees) (*Great Halls 3 & 4)*							
1300-1400	National Committee of Physics - Town Hall Meeting *(Room: P1)*							
1230-1330	AIP Topical Group STSP Meeting *(Room: M2)*							
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 nanoscopy	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 *Ania Bleszynski Jayich*	Shape shifting molecules: Photoisomerization action spectroscopy of molecular ions *Evan Bieske*	Parity-Time-Symmetric Optics, extraordinary spin in evanescent waves, and the quantum spin Hall effect of light *Franco Nori*	Experimentally-Achievable Proposal for a Quantum Heat Engine *Behnam Tonekaboni*	The Australian Bureau of Meteorology Space *Weather Services* *Murray Parkinson*	Electric and magnetic photonic topological transitions in zigzag nanoparticle arrays *Sergey Kruk*	Gravitation, Causality, and Quantum Consistency *Mark Hertzberg*	1400-1420 Dust acoustic rogue waves in dusty plasmas *Lin I*
1415-1430							Smooth lattice methods for Ricci flow and numerical *relativity* *Leo Brewin*	1420-1440 Coherence Imaging of Flows in the ITER Tokamak Boundary *John Howard*
1430-1445	Widefield Microwave Imaging using Atoms and Diamond NV Centres *Andrew Horsley*	Damage and orientation in single molecule imaging *Justine K Corso*	Multiwavelength optical activity measurements with entangled photons *Nora Tischler*	Quantum fluctuation theorems in engineered environments *Andre Carvalho*	Mapping Magnetic Field Lines between the sun and Earth *Iver Cairns*	Mapping of Topological Twisted-Ring to Planar Optical Waveguide Arrays *Andrey Sukhorukov*	Free for discussion	1440-1500 Ion-atom collision data for plasma applications *Alisher Kadyrov*
1445-1500	Scanning nearfield imaging of optical nanofibres with sub-nanometre resolution *Lars Skovgaard Madsen*	Electronic structure of the YbF molecule and the electron EDM *Daniel Flynn*	Adaptive estimation of time-varying phase with power-law spectrum *Dominic Berry*	Discrete fluctuations in memory erasure without energy cost *Toshio Croucher*	Studies of Interplanetary Scintillation with the Murchison Widefield Array *John Morgan*	Nonlinear mirror effect with silicon metasurfaces *Lei Xu*		1500-1520 Current profile measurement in KSTAR using the MSE diagnostics *Jinseok Ko*
1500-1515	Quantum enhanced non linear microscopy *Catxere Casacio*	Molecular simulation of liquid noble gases using ab initio potentials *Maryna Vlasiuk*	Quantum software for linear photonic simulations *Bogdan Opanchuk*	Analysing correlated decay processes in higher order perturbation theory *Clemens Muller*	Field localization of oblique whistler waves in the magnetopause region *Nitin Yadav*	Dielectric metasurface for simultaneous optimal reconstruction of Stokes parameters *Kai Wang*		

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