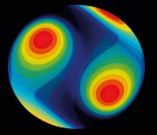


Sunday 31 August

IOP Institute of Physics

# PHOTON14

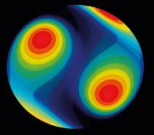
1-4 September 2014, Imperial College London, London, UK



**18:00** Registration - Sherfield Building - Level 2  
Drinks reception - Blackett Laboratory, Level 8, Common Room

**20:00** Close

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08:00 Registration - Location: Sheffield Building Foyer - Level 2

09:15 Welcome - G D Love, Conference Chair and D Bradley, Imperial College London (Vice Provost for Research)  
Location - Great Hall

09:30 (plenary) Quantum technology for a networked world  
P Knight, Imperial College London, UK  
Great Hall

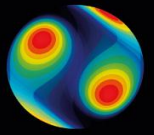
10:15 Refreshment break - Queen's Tower Room

Session 1

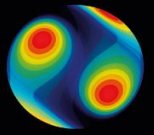
	Location: Great Hall	Location: Huxley LT 340	Location: Huxley LT 308	Location: Huxley LT 311
	<b>Active and Adaptive Optics -</b> Chair: C Paterson, Imperial College London, UK	<b>Photonic Systems -</b> Chair: T Wilkinson, University of Cambridge, UK	<b>Metamaterials Nanophotonics and Plasmonics - Hybrid Structures -</b> Chair: S Maier, Imperial College London, UK	<b>Quantum Optics - Entangled Photons -</b> Chair: W Langbein, Cardiff University, UK
10:45	(INVITED) Toward real time aberration correction in fast moving, live organism C Bourgenot, Durham University, UK	(INVITED) Organic semiconductor colour converters for high speed visible light communication P Manousiadis, University of St Andrews, UK	(INVITED) Complex and hybrid plasmonics - from basics to applications H Giessen, University of Stuttgart, Germany	(INVITED) Interfacing single photons and semiconductor spins Y Delley, ETH Zürich, Switzerland
11:00				
11:15	<b>Wave and pulse front distortions in focusing of ultrashort laser pulses</b> B Sun, University of Oxford, UK	<b>A novel method to improve Light Beam Induced Current measurement (LBIC) using compressed sensing</b> M Cashmore, National Physical Laboratory, UK	<b>Hexagonal boron nitride nanostructures: Spectral tuning of a natural hyperbolic material for mid-infrared resonators</b> Y Chen, Imperial College London, UK	<b>Bright indistinguishable photons from a "noisy" quantum dot in a planar cavity antenna</b> T Santana, Heriot-Watt University, UK
11:30	<b>Optical characterisation of direct laser written waveguides</b> X Liu, University of Oxford, UK	<b>FDTD-based study of optical properties of Si solar cells with micro pillars</b> A Agrawal, City University London, UK	<b>Hybrid plasmonic strip and slot waveguides for deep subwavelength nanofocusing of TE and TM modes</b> L Lafone, Imperial College London, UK	<b>Production and analysis of qubit entanglement on a silicon photonic chip</b> R Santagati, University of Bristol, UK
11:45	<b>Adaptive optics in confocal microscopy using backscattered light</b> N Correa, Imperial College London, UK		<b>Z-Scan characterisation of Epsilon-Near-Zero metamaterial</b> M R Kaipurath, Heriot-Watt University, UK	<b>Compressive coincidence imaging</b> P Morris, University of Glasgow, UK
12:00	<b>Power-scaling a continuous-wave Nd:YVO<sub>4</sub> Raman laser using intracavity adaptive optics</b> R Li, University of Strathclyde, UK	<b>The fabrication of wavelength shifting lightguides from clear acrylic sheet by disperse dyeing</b> J McMillan, University of Sheffield, UK	<b>Tunable hybrid plasmonic modes in cut-wire waveguide arrays</b> J Wood, Imperial College London, UK	<b>Joint spectral characterisation of photons from spontaneous four-wave mixing: classical versus quantum</b> A Clark, University of Sydney, Australia

12:15 Lunch - Queen's Tower Room

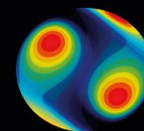
13:00 - Making the most of your early career - Hints and tips to support your professional development  
13:30 S Richardson, Head of Membership, Institute of Physics, UK,  
Great Hall



<b>13:45</b>	<b>(plenary) Functional imaging single cells in the living eye</b> D R Williams, University of Rochester, USA, <b>Great Hall</b>			
<b>Session 2</b>				
	<b>Location: Great Hall</b>	<b>Location: Huxley LT 340</b>	<b>Location: Huxley LT 308</b>	<b>Location: Huxley LT 311</b>
	<b>Non-linear and Spectral Imaging in Biophotonics -</b> Chair: F Papoff, University of Strathclyde, UK	<b>Structured Optical Materials -</b> Chair: K Weir, Imperial College London, UK	<b>Metamaterials - Plasmonics for Sensing -</b> Chair: K MacDonald, University of Southampton, UK	<b>Quantum Optics - Strongly Coupled Systems -</b> Chair: TBC
<b>14:30</b>	<b>High-resolution Brillouin microscopy for mechanical imaging</b> G Antonacci, Imperial College London, UK	<b>(INVITED) Polarisation studies of natural and artificial chiral nanostructures</b> K Järrendahl, Linköping University, Sweden	<b>Annular nanoplasmonic void arrays as programmable molecular sensors</b> Z Li, University of Glasgow, UK	<b>(INVITED) Photon BEC in a dye-microcavity system and the effects of interactions</b> R Nyman, Imperial College London, UK
<b>14:45</b>	<b>Rapid hyperspectral coherent anti-Stokes Raman imaging with optical nonresonant background removal</b> B Littleton, King's College London, UK		<b>Spectroscopy with a kick: Towards optical Sorting of nanoparticles</b> R Bowman, University of Cambridge, UK	
<b>15:00</b>	<b>Unsupervised quantitative chemical analysis of hyperspectral coherent anti-Stokes Raman scattering images</b> W Langbein, Cardiff University, UK	<b>Digital micromirror devices for rapid fabrication of large-area laser-ablated multicolour-grating patterns</b> B Mills, University of Southampton, UK	<b>Single particle sensing with conically scattered surface plasmons</b> M Foreman, Max Planck Institute for the Science of Light, Germany	<b>Chiral-specific electron-vortex-beam spectroscopy</b> J Yuan, University of York, UK
<b>15:15</b>	<b>Coherent anti-Stokes Raman scattering microscopy of single nanodiamonds</b> P Borri, Cardiff University, UK	<b>Silvery fish reflectors and the polarization-insensitive localization of light</b> T Jordan, University of Bristol, UK	<b>Stretch tunable gold nanoparticle mats with sensing applications</b> M Millyard, University of Cambridge, UK	<b>Line-narrowing phenomena of intersubband cavity polaritons</b> F Murphy, Imperial College London, UK
<b>15:30</b>	<b>High-speed snapshot multispectral imaging</b> J Fernandez Ramos, University of Glasgow, UK	<b>Scattering in optical structure: photonic crystal and CMOS image sensors</b> E Dieudonné, CEA, France	<b>Radiative behaviour of selectively localised quantum dots coupled to ring resonators</b> A Rakovich, Imperial College London, UK	<b>Interactions of two-species Bose-Einstein condensates in optical lattices</b> R Campbell, University of Strathclyde, UK
<b>15:45</b>	<b>Lipid phase domains in model membrane systems studied by CARS, Fluorescence and quantitative DIC microscopy</b> C McPhee, Cardiff University, UK	<b>The circularly polarised response of Lomaptera beetles</b> I Carter, Imperial College London, UK	<b>Gold nanowire plasmonic mode photo-thermal modulation at telecom wavelengths</b> S Kaya, Université de Bourgogne, France	<b>2D addressability in cavity-based parallel quantum memory</b> A Vetlugin, St. Petersburg State University, Russia
<b>16:00</b>	<b>Refreshment break - Queen's Tower Room</b>			
<b>Session 3</b>				
	<b>Location: Great Hall</b>	<b>Location: Huxley LT 340</b>	<b>Location: Huxley LT 308</b>	<b>Location: Huxley LT 311</b>



	<p><b>Clinical Themes in Biophotonics -</b> Chair: P Tomlins, Queen Mary, University of London, UK</p>	<p><b>Fibre Optics and Waveguides -</b> Chairs: A Agrawal, City University London, UK</p>	<p><b>Metamaterials - Transformation Optics -</b> Chair: M McCall, Imperial College London, UK</p>	<p><b>Quantum Information 1</b> Chair: M Keller, University of Sussex, UK</p>
16:30	<p><b>(INVITED) Gradient index endomicroscopes for surgery</b> M Hughes, Imperial College London, UK</p>	<p><b>(INVITED) Photonics in complex media and imaging using multimode waveguides</b> T Cizmar, University of Dundee, UK</p>	<p><b>(INVITED) Employing surface curvature in transformation optics</b> R Mitchell-Thomas, University of Exeter, UK</p>	<p><b>(INVITED) Qubits, qutrits and ququads stored in single photons</b> A Kuhn, University of Oxford, UK</p>
17:00	<p><b>Spatial and temporal tracking of fluorescent compounds in the skin and eye using a combined reflection and fluorescence confocal instrument</b> K Buttenschoen, Durham University, UK</p>	<p><b>Multi-trench Fiber for high power laser applications</b> D Jain, University of Southampton, UK</p>	<p><b>Windows into non-Euclidean spaces</b> S Oxburgh, University of Glasgow, UK</p>	<p><b>(INVITED) Control of interactions and quantum coherence in composite quantum systems</b> F Mintert, Imperial College London, UK</p>
17:15	<p><b>Compact and portable autofluorescence lifetime instrumentation and its application to the study of heart disease and osteoarthritis</b> J Lagarto, Imperial College London, UK</p>	<p><b>Applications of negative curvature fibre, for high power and the near infra-red</b> R Carter, Heriot-Watt University, UK</p>	<p><b>Removing singular refractive indices with sculpted surfaces</b> S Horsley, University of Exeter, UK</p>	
17:30	<p><b>Fluorescence lifetime imaging endoscopes for biomedical applications</b> H Sparks, Imperial College London, UK</p>	<p><b>Full vectorial finite element analysis of Al<sup>3+</sup>-doped ZnO Coated Au waveguide sensor for gas monitoring</b> A Rahman, City University London, UK</p>	<p><b>Transformation optics makes van der Waals force calculation easier</b> Y Luo, Imperial College London, UK</p>	
17:45	<p><b>Lensless measurement of chromophore optical absorption using objective speckle: application to oximetry in the retina and beyond</b> L Brewer, University of Glasgow, UK</p>	<p><b>Broadly tuneable Cr<sup>2+</sup>:ZnSe channel waveguide laser</b> A Lancaster, Heriot-Watt University, UK</p>	<p><b>Transformation mechanics: carpets and waves</b> P Kinsler, Imperial College London, UK</p>	
18:00	<p><b>Poster session 1</b> <b>Drinks reception</b> <b>Queen's Tower Room</b></p>			
19:30	<p><b>Close</b></p>			

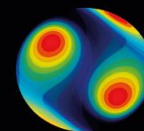


08:00 Registration

09:00 (Optics and Photonics Prize Lecture) Commercializing university research - A personal experience - warts and all  
 D Walker, Professor of Optics at Glyndwr University, Professional Research Associate, University College London, Research Director, Zeeko Ltd)  
 Great Hall

09:45 Refreshment break and Exhibition - Queen's Tower Room

Session 1				Session 1 - ITP Programme
Location: Great Hall	Location: Huxley LT 340	Location: Huxley LT 308	Location: Huxley LT 311	Location: Read Lecture room - Sheffield Building
<b>Experimental Techniques in Biophotonics -</b> Chair: N Krstajic, University of Edinburgh, UK	<b>Advances in Terahertz Technology 1 -</b> Chair: S Hadjiloucas, University of Reading, UK	<b>Nonlinear Photonics 1 -</b> Chair: G-L Oppo, University of Strathclyde, UK	<b>Quantum Information - 2</b> Chair: D Segal, Imperial College London, UK	<b>Withers &amp; Rogers LLP Session -</b> From concept to commercialisation: the use of IP in the innovation process in a series of interactive session
<b>10:15 Micro-LED arrays and micro-optics optimisations for optoelectronic neural stimulation</b> M Neil, Imperial College London, UK	<b>(INVITED) Biophysical applications and instrumentation in MM-Wave EPR</b> G Smith, University of St Andrews, UK	<b>(INVITED) Optomechanical self-organization in a cold atomic cloud</b> G Labeyrie, Institut Non Linéaire de Nice, France	<b>(INVITED) Quantum simulation experiments with integrated quantum photonics</b> J Matthews, University of Bristol, UK	<b>An invention workshop and "What is Intellectual Property?"</b>
<b>10:30 Combined optical sectioning and resolution enhancement in structured illumination microscopy</b> M Shaw, National Physical Laboratory, UK				
<b>10:45 Lens vibration lock-in amplified raman spectroscopy for biological applications</b> R Thompson, University of Sheffield, UK	<b>On-chip filter bank spectrometers for terahertz astronomy</b> C Thomas, University of Cambridge, UK	<b>All-optical modification of the rate of one- and two photon absorption</b> J Ford, University of East Anglia, UK	<b>(INVITED) Thermodynamics at the quantum level: learning from quantum information theory</b> M Paternostro, Queen's University Belfast, UK	<b>Creativity and Branding workshops - the use of designs and trade marks</b>
<b>11:00 A new giant lens for confocal mesoscopy</b> J Tragardh, University of Strathclyde, UK	<b>Developments in terahertz optics for space telescopes</b> N Trappe, NUI Maynooth, Ireland	<b>Space and time, light and matter</b> P Kinsler, Imperial College London, UK		
<b>11:15 Single molecule detection with a high Q plasmonic-photonic biosensor</b> M Foreman, Max Planck Institute for the Science of Light, Germany	<b>Dynamical photogratings for THz modulation, beam steering and imaging</b> E Hendry, University of Exeter, UK	<b>Statistical analysis of pump-pulse propagation in gas-filled capillaries for high-harmonic generation</b> A Degen-Knifton, University of Southampton, UK	<b>Microwave quantum key distribution</b> M Everitt, University of Leeds, UK	<b>Exploitation workshop - commercialisation, IP enforcement and finance</b>



<p><b>11:30</b> <b>Accelerate super-resolution localization</b> P Fox-Roberts, King's College London, UK</p>	<p><b>Revisiting old ideas with new materials and methods - towards development of a room-temperature, continuous-wave, high-power, broadband THz source</b> R Donnan, Queen Mary University of London, UK</p>	<p><b>Photon-pair generation in PT-symmetric quadratic nonlinear couplers with loss</b> D Antonosyan, The Australian National University, Australia</p>	<p><b>Sensing and imaging at the quantum limit</b> A Datta, University of Oxford, UK</p>	
<p><b>11:45</b> <b>Polarisation-dependent phase modulation with a liquid crystal SLM and its use for axial super-localisation</b> A Jesacher, Innsbruck Medical University, Austria</p>		<p><b>Graphene plasmonics and photonics: exploring surface nonlinearities</b> A Gorbach, University of Bath, UK</p>	<p><b>An experimental implementation of quantum digital signatures that does not require quantum memory</b> R J Donaldson, Heriot-Watt University, UK</p>	

**12:00** Lunch and Exhibition - Queen's Tower Room

**13:00-** Seminar - 'How to get published'

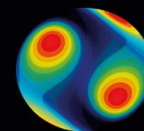
**13:30** J McKenna, Institute of Physics, UK - Location: Great Hall

**13:30** (Rank Prize Lecture) Applied research in photonics: from micro-LEDs to VECSELs and from start-ups to Fraunhofer

M D Dawson University of Strathclyde and Fraunhofer Centre for Applied Photonics, UK

Great Hall

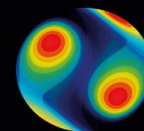
Session 2				Session 2 - ITP Programme
Location: Great Hall	Location: Huxley LT 340	Location: Huxley LT 308	Location: Huxley LT 311	Location: Read Lecture room - Sheffield Building
<p><b>Advanced Technologies in Biophotonics -</b> Chair: P Borri, Cardiff University, UK</p>	<p><b>Advances in Terahertz Technology 2 -</b> Chair: K Ozanyan, University of Manchester, UK</p>	<p><b>Nonlinear Photonics 2 -</b> Chair: G-L Oppo, University of Strathclyde, UK</p>	<p><b>Quantum Optics - Photonic Quantum Devices -</b> Chair: J Smith, University of Oxford, UK</p>	<p><b>Networks and open innovation</b></p>
<p><b>14:15</b> (INVITED) Fast spatio-temporal fluctuations in live cells E Gratton, University of California, USA</p>	<p>(INVITED) High-resolution THz microscopy: methods and applications O Mitrofanov, University College London, UK</p>	<p><b>Rogue waves and turbulence in singly resonant optical parametric oscillators</b> G-L Oppo, University of Strathclyde, UK</p>	<p><b>Tailoring the Diamond: micro/nano - structures coupled to colour centres on the diamond</b> L Marseglia, M.I.T., USA</p>	<p><b>Spinning photonics technologies out of UK Universities - Challenges and opportunities,</b> T Williams, Imperial Innovations, UK</p>
<p><b>14:30</b></p>		<p><b>Quantum field theory analogues in nonlinear optics</b> F Biancalana, Heriot-Watt University, UK</p>	<p><b>Collapse of the excitonic zero-phonon line in a carbon nanotube</b> I Wilson-Rae, University of York, UK</p>	<p><b>How the Knowledge Transfer Network (KTN) can help you: illustrated by Knowledge Transfer Partnership (KTP) Case Studies</b> A Reader, NanoKTN</p>



<b>14:45</b>	<b>Simultaneous angular multiplexing optical projection tomography at shifted focal planes</b> S Kumar, Imperial College London, UK	<b>Advanced LT-InGaAs-InAlAs 1550 nm photoconductive switches for a portable fiber coupled THz spectrometer</b> M Missous, The University of Manchester, UK	<b>Dispersion relation of a two-dimensional photon fluid</b> D Vocke, Heriot-Watt University, UK	<b>Scattering light through optical cavities and cavity-fiber networks</b> A Beige, University of Leeds, UK	<b>Title TBC</b> C Dorman
<b>15:00</b>	<b>Three-dimensional imaging of the intact rodent heart with remote focussing microscopy</b> A Corbett, University of Oxford, UK	<b>Single and Multiple lateral Photo-Dember emitters</b> V Apostolopoulos, University of Southampton, UK	<b>Rogue events from optical light bullets</b> T Roger, Heriot-Watt University, UK	<b>Manufacturable three dimensional diamond lattice photonic band-gap structures</b> M Taverne, University of Bristol, UK	<b>High level roadmap for UK photonics-opportunities and actions</b> J Lincoln, UK Photonics Leadership Group
<b>15:15</b>	<b>Deep imaging in living, moving tissue: correcting motion artefacts and tissue-induced distortion for improved imaging resolution</b> J Taylor, University of Glasgow, UK	<b>Efficiency evaluation and analysis of high power broadband interdigitated-electrode Terahertz photoconductive antennas</b> Y Zeng, Queen Mary University of London, UK	<b>Z-scan investigation of nonlinear optical properties of a graphene Poly-Vinyl alcohol composite</b> G Demetriou, Heriot-Watt University, UK	<b>Analysis of single photon micropillar optical switch using semi-analytical model</b> S Carswell, University of Bristol, UK	<b>Panel discussion</b>
<b>15:30</b>	<b>Moving towards high-throughput CARS microscopy for biological applications</b> I Pope, Cardiff University, UK	<b>Thermal infrared communications</b> S Lucyszyn, Imperial College London, UK	<b>Novel types of nonlinear enhancement in uniaxial crystalline whispering gallery mode resonators,</b> M Hauer, Max Planck Institute for the Science of Light, Germany	<b>A photonic crystal fibre source of photon pairs driven by a 1.5 GHz modelocked VECSEL</b> R Francis-Jones, University of Bath, UK	

**15:45 Refreshment break and Exhibition - Queen's Tower Room**

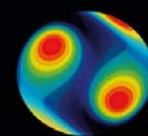
<b>Session 3</b>				<b>Session 3 - ITP Programme</b>
<b>Location: Great Hall</b>	<b>Location: Huxley LT 340</b>	<b>Location: Huxley LT 308</b>	<b>Location: Huxley LT 311</b>	<b>Location: Read Lecture Room - Sherfield Building</b>
<b>Advances in Imaging, Lighting &amp; Displays 1 -</b> Chair: L Laycock, BAE System	<b>Fringe Analysis Special Interest Group (FASIG) -</b> Chair: P Ruiz, Loughborough University, UK	<b>Metamaterials - Complex, Topological and Coupled Meta/Nano-Systems -</b> Chair: R Mitchell-Thomas, University of Exeter, UK	<b>Quantum Optics - Quantum state tomography -</b> Chair: W Langbein, Cardiff University, UK	<b>What next for the photonics sector in the UK?</b>
<b>16:15 (INVITED) Computational Imaging: exploiting redundancy and diversity in incoherent imaging</b> A Harvey, University of Glasgow, UK	<b>(INVITED) Fringe Analysis - from Lab to Product</b> J Tyrer, Loughborough University, UK	<b>(INVITED) Toroidal metamaterials: Resonant transparency and non-trivial non-radiating excitations</b> V Fedotov, University of Southampton, UK	<b>(INVITED) Quantum state estimation with unknown measurements</b> B Smith, University of Oxford, UK	<b>Mid infrared photonics development relevant to low power consumption fast response non-dispersive infrared gas</b> D Gibson, Gas Sensing Solution, UK
<b>16:30</b>				



<p><b>16:45</b> <b>Multi-aperture imaging for compact imagers</b> G Carles, University of Glasgow, UK</p>	<p><b>Machine-learning boosting techniques for improved phase discontinuity detection</b> F Sawaf, Delft University of Technology, The Netherlands</p>	<p><b>Plasmonics of coupled nanosystems</b> F Huang, Queen's University Belfast, UK</p>	<p><b>Operational tomography of quantum processes</b> M Karpinski, University of Oxford, UK</p>	<p><b>Germane innovation - demand driven R and D in the complex UK photonic landscape</b> S Andrews, Fraunhofer Centre for Applied Photonics, UK</p>
<p><b>17:00</b> <b>Large area superconducting nanowire arrays for infrared single-photon detection</b> A Pizzone, University of Glasgow, UK</p>	<p><b>Simultaneous phase-shifting and carrier fringes interferometry by superposing the first harmonic of two gratings</b> C Meneses-Fabian, Benemerita Universidad Autonoma de Puebla, Mexico</p>	<p><b>Emergence of collective strong coupling in the quenching regime</b> A Delga, Universidad Autonoma, Spain</p>	<p><b>Efficient quantum process tomography of linear optical devices</b> N Russell, University of Bristol, UK</p>	
<p><b>17:15</b> <b>Single snapshot, extended depth of field, 3D-imaging for incoherent imaging applications</b> P Zammit, University of Glasgow, UK</p>	<p><b>On-off non-quadrature amplitude modulation by a grid for achieving phase-visibility modulating interferometry in a single shot</b> C Meneses-Fabian, Benemerita Universidad Autonoma de Puebla, Mexico</p>	<p><b>Topologically ordered metamaterials</b> M Lawrence, University of Birmingham, UK</p>	<p><b>Testing randomness using multi-photon interference: A complete experimental characterisation of unitary t-designs</b> R Whittaker, University of Bristol, UK</p>	<p><b>Title TBC</b> N Hempler, M2 Lasers</p>
<p><b>17:30</b> <b>High dynamic range 3D beam profiling within a light sheet microscope</b> T Mitchell, Durham University, UK</p>	<p><b>Optical coherence tomography of the front and back faces of a wooden panel painting</b> P Liu, Delft University of Technology, Netherlands</p>	<p><b>Ultraviolet and visible plasmonic metamaterials made of topological insulator</b> J-K So, University of Southampton, UK</p>	<p><b>Unambiguous state discrimination in high dimensions</b> M Agnew, Heriot-Watt University, UK</p>	<p><b>Panel discussion</b></p>
<p><b>17:45</b> <b>Imaging between complex object and image positions</b> J Courtial, University of Glasgow, UK</p>	<p><b>Verification of an in process optical system based on high resolution interferometry for detecting flexible PV barrier films defects,</b> M Elrawemi, University of Huddersfield, UK</p>		<p><b>Quantum process discrimination of non-orthogonal processes acting on a spin qubit in diamond</b> J P Hadden, Bristol University, UK</p>	
<p><b>18:00</b> <b>Poster session 2 Exhibition and reception Queen's Tower Room</b></p>				<p><b>End of programme</b></p>

**19:30** Close



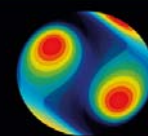


08:30 Registration

09:00 (plenary) **Combining the atomic-scale resolutions of time and space**  
 M Chergui, Ecole Polytechnique Fédérale de Lausanne, (EPFL), Switzerland  
**Great Hall**

09:45 Refreshment break and Exhibition - Queen's Tower Room

Session 1				
	Location: Great Hall	Location: Huxley LT 340	Location: Huxley LT 308	Location: Huxley LT 311
	<b>Advances in Imaging, Lighting and Displays 2 -</b> Chair: S Day, University College London, UK	<b>Optical Diagnostics -</b> Chair: R Groves, Delft University of Technology, Netherlands	<b>Metamaterials - Switching, Nonlinearity, Control of Gain/Absorption -</b> A Shore, University of Bangor, UK	<b>Ultrafast and Attosecond Physics - 1</b> Chair: J Tisch, Imperial College London, UK
10:15	<b>(INVITED) 3D Displays and micro-structured augmented reality screens</b> H Urey, Koç University, Turkey	<b>(INVITED) An Integrated-optic chip device for micro/nano embedded metrology</b> X J Jiang, University of Huddersfield, UK	<b>All-optical data processing via coherent control of metamaterial absorption</b> K MacDonald, University of Southampton, UK	<b>(INVITED) Overcoming limitations of carrier-envelope phase stabilization: New horizons for attosecond spectroscopy</b> G Steinmeyer, Max Born Institute, Berlin
10:30			<b>Plasmon emission and gain spectra of optically pumped graphene</b> A Page, Imperial College London, UK	
10:45	<b>Optimization of heavy metal free colloidal quantum dots and phosphor as down converters for high brightness white light emitting diode devices</b> D Webb, Heriot-Watt University / Nanoco Technologies, UK	<b>Temperature and velocity imaging in turbulent flows using thermographic phosphor particles</b> C Abram, Imperial College London, UK	<b>Single photon all-optical-switching in Sub-wavelength films</b> D Faccio, Heriot-Watt University, UK	<b>Few-cycle optical soliton and its spatiotemporal collapse in a multi-component nonlinear medium</b> I Melnikov, National Research University of Electronic Technology, Russian Federation
11:00	<b>Computational analysis of a scanning microwave microscope using 3D finite-element method</b> A Oladipo, Bio-Nano Consulting, UK	<b>Monitoring of mechanical and chemical deterioration of artworks using fringe projection and hyperspectral imaging</b> R Groves, Delft University of Technology, Netherlands	<b>Second harmonic generation from plasmonic metamaterials in the vicinity of epsilon-near-zero</b> G Marino, King's College London, UK	<b>Single quantum emitter spectroscopy with visible sub-10 fs pulses</b> A Sebesta, University of Oxford, UK



<p><b>11:15</b></p> <p><b>MEMS Q-switched solid-state lasers</b> A Paterson, University of Strathclyde, UK</p>	<p><b>Polarization-holographic sensor for determining the stress distribution in different constructions</b> B Kilosanidze, Institute of Cybernetics of the Georgian Technical University, Georgia</p>	<p><b>Optical micro-spectroscopy of single metallic nanoparticles: Polarization-resolved extinction and transient four-wave mixing</b> L Payne, Cardiff University, UK</p>	<p><b>Carrier-envelope phase stability of few-cycle pulses from hollow-fibre pulse compression</b> W Okell, Imperial College London, UK</p>
<p><b>11:30</b></p>	<p><b>Fast parallel reconstruction for Hard-Field Optical Tomography using wavelets</b> J Guevara-Escobedo, The University of Manchester, UK</p>	<p><b>Analysis of the nonlinear lasing dynamics in plasmonic nanowire lasers</b> S Wuestner, Imperial College London, UK</p>	<p><b>Isolating quantum coherence in semiconductor quantum wells with pathway selective multi-dimensional spectroscopy</b> J Tollerud, Swinburne University of Technology, Australia</p>
<p><b>11:45</b></p>	<p><b>Study of flow inside a picolitre sessile droplet by digital micro-holographic particle tracking velocimetry</b> L Yang, Durham University, UK</p>	<p><b>Ultrafast ZnO nanowire lasers: nanoplasmonic acceleration of gain dynamics at the surface plasmon polariton frequency</b> T Sidiropoulos, Imperial College London, UK</p>	<p><b>Ultrafast characteristics in low-band-gap polymers based on poly(thienylenevinylene) derivative</b> I-S Kim, Gwangju of Institute Science and Technology, South Korea</p>

**12:00** Lunch and Exhibition - Queen's Tower Room

**12:45** (plenary) **Translating innovative technology into business**

F Saunders, Institute of Physics President - Great Hall

**13:30** (plenary) **Zig-zag gratings, obliquity and surface waves**

J R Sambles, University of Exeter, UK

Great Hall

**Session 2**

**Location: Great Hall**

**Location: Huxley LT 340**

**Location: Huxley LT 308**

**Location: Huxley LT 311**

**Trapping & Manipulation - Trapping -**  
Chair: M Dickinson, University of Manchester, UK

**Optical Environmental Sensing -**  
Chair: H Mortimer, STFC, UK

**Metamaterials - Optical properties of active and structured nano-systems -**  
Chair: P Kinsler, Imperial College London, UK

**Ultrafast and Attosecond Physics - 2**  
Chair: J Tisch, Imperial College London, UK

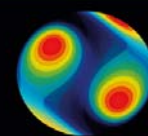
**14:15** **Laser cooling and slowing of CaF molecules**  
A Cournol, CCM - Imperial College London, UK

**(INVITED) Mid-infrared coherent remote sensing of molecules**  
D Weidmann, STFC Rutherford Appleton Laboratory, UK

**(INVITED) Active nanoplasmonics and metamaterials: From loss-compensation to stopped-light nanolasing**  
O Hess, Imperial College London, UK

**(INVITED) Attosecond Photonics: from atoms to condensed matter**  
E Goulielmakis, Max Planck Institut, Germany,

**14:30** **A microwave trap for sympathetic cooling of polar molecules**  
D Dunseith, Imperial College London, UK

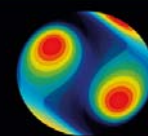


<b>14:45</b>	<b>Direct laser cooling of BH molecules</b> D Holland, Imperial College London, UK	<b>Observation of the laser filament induced secondary ice multiplication process</b> M Matthews, University of Geneva, Switzerland	<b>Directional excitation of surface plasmon polaritons by vertical-cavity surface emitting lasers</b> C McPolin, King's College London, UK	<b>Attosecond sampling of arbitrary optical waveforms</b> A Wyatt, STFC, UK
<b>15:00</b>	<b>Optomechanical cooling of levitated nanospheres</b> J Millen, University College London, UK	<b>Photoacoustic trace gas sensing using a miniature 3D printed gas cell</b> R Bauer, University of Strathclyde, UK	<b>Infrared imaging of surface waves in resonant metallic nanogratings</b> C H Gan, University of Exeter, UK	<b>The dispersion-scan technique: generation and measurement of carrier-envelope phase stabilized 3 fs single-cycle pulses and 4 fs high-energy pulses</b> H Crespo, Universidade do Porto, Portugal
<b>15:15</b>	<b>Atom trapping in a slotted optical nanofibre</b> K Deasy, OIST Graduate University, Japan	<b>Photoacoustic detection of pollutant trace gases inside the Bucharest's underground network</b> I Ruxandra Ivascu, National Institute for Laser, Plasma, and Radiation Physics, Romania	<b>Plasmonic nanogaps for broadband and large spontaneous emission rate enhancement</b> A Edwards, University of Hull, UK	<b>Simultaneous VUV and XUV attosecond pulse generation and characterisation for attosecond pump probe experiments</b> D Fabris, Imperial College London, UK
<b>15:30</b>	<b>Cold-atom densities of over <math>10^{12}</math> cm<sup>3</sup> in a holographically shaped dark spontaneous-force optical trap</b> N Radwell, University of Glasgow, UK		<b>Spectral Interferometric microscopy reveals absorption by individual optical nano-antennas from extinction phase</b> S Gennaro, Imperial College London, UK	<b>Attosecond streaking on metallic films</b> T Uphues, Center for Free Electron Laser Science, Germany

**15:45 Refreshment break and Exhibition - Queen's Tower Room**

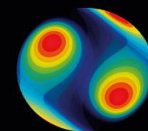
**Session 3**

	<b>Location: Great Hall</b>	<b>Location: Huxley LT 340</b>	<b>Location: Huxley LT 308</b>	<b>Location: Huxley LT 311</b>	<b>Location: Read Lecture Room - Sheffield Building</b>
	<b>Trapping &amp; Manipulation - Tweezers -</b> Chair: M Dickinson, University of Manchester, UK	<b>Optical &amp; Quantum Metrology 1 -</b> Chair: G Buller, Heriot Watt University, UK	<b>Metamaterials - Theory -</b> Chair: O Hess, Imperial College London, UK	<b>Quantum Dots, Nanocrystals and low dimensional materials -</b> Chair: R Oulton, University of Bristol, UK	
<b>16:15</b>	<b>3D imaging and optical manipulation through a single objective</b> A Curran, University of Oxford, UK	<b>(INVITED) Practical photonic quantum-enhanced sensing</b> J Matthews, University of Bristol, UK		<b>(INVITED) Engineering entangled photon emission from site controlled quantum dots</b> E Pelucchi, Tyndall National Institute, Ireland	<b>16:15 -18:15 Fraunhofer Centre for Applied Photonics industrial workshop</b>
<b>16:30</b>	<b>Optical trapping of interfaces and droplets in colloid-polymer mixtures</b> L Verhoeff, University of Oxford, UK				



16:45	<p><b>Combining Raman tweezing and motion detection in a microfluidic channel to investigate reactions in a dishwasher</b> P Lawton, Durham University, UK</p>	<p><b>Attaining sub-classical metrology in lossy systems with entangled coherent states</b> P Knott, University of Leeds, UK</p>	<p><b>Light trapping states in media with longitudinal electric waves</b> F Papoff, University of Strathclyde, UK</p>	<p><b>(INVITED) Core/shell quantum dot photovoltaics</b> A Watt, University of Oxford, UK</p>	
17:00	<p><b>An optical trapping and Raman spectroscopy platform for the production and characterisation of low-interfacial tension emulsion droplets</b> A Kirby, Durham University, UK</p>	<p><b>Tomographic measurement of an 11025-dimensional entangled state</b> E Bolduc, Heriot-Watt University, UK</p>	<p><b>A time-dependent density functional theory study of quantum plasmons in graphene nano-flakes</b> W Wu, University College London, UK</p>		
17:15	<p><b>A numerical model for optical deformation of emulsion droplets</b> J Taylor, Glasgow University, UK</p>	<p><b>Arrayed single-photon technologies for free-space light-in-flight imaging</b> G Gariepy, Heriot-Watt University, UK</p>	<p><b>De-excitation of dipole emitters in finite ordered charge-sheet structures</b> A Al-Kamli, Jazan University, Saudi Arabia</p>	<p><b>Size-dependence of ultrafast charge dynamics in monodisperse Au nanoparticles on colloidal TiO<sub>2</sub> spheres</b> M Leontiadou, The University of Manchester, UK</p>	
17:30	<p><b>Driving a colloid on an optical landscape: dynamic mode locking and the 'Devil's Staircase'</b> M Juniper, University of Oxford, UK</p>	<p><b>Multispectral single-photon detection in time-of-flight depth profiling</b> X Ren, Heriot-Watt University, UK</p>	<p><b>Analysis of the large and small signal direct current modulation response of metal-clad nano-lasers</b> A Shore, Bangor University, UK</p>	<p><b>Anomalous anticrossing of neutral exciton states in GaAs/AlGaAs quantum dots</b> S Kumar, Heriot-Watt University, UK</p>	
17:45			<p><b>The plasmonic modes of nanoparticle clusters</b> B Hourahine, University of Strathclyde, UK</p>	<p><b>Phonon-assisted neutral exciton state preparation for a single quantum dot</b> A Brash, University of Sheffield, UK</p>	
18:00			<p><b>Plasmon induced Casimir forces between graphene sheets</b> V Giannini, Imperial College London, UK</p>	<p><b>Phonon influences in cavity quantum dot systems</b> J Iles-Smith, Imperial College London, UK</p>	
18:15	<b>Close</b>				<b>End of programme</b>

20:00 Dinner at Queens Tower Room, Imperial College London,



08:45 Registration

## Session 1

Location: Huxley LT 341/342

Location: Huxley LT 340

Location: Huxley LT 308

Location: Huxley LT 311

Computational Photonics -

Chair: S Chavez-Cerda, INAOE, Mexico

Optical &amp; Quantum Metrology 2 -

Chair: G Buller, Heriot-Watt University, UK

Advances in Lasers -1

Chair: D Binks, The University of Manchester, UK

Quantum Coherence Control -

Chair: J Marangos, Imperial College London, UK

09:00

**Nonlinear generalized source method for modeling bulk and surface second harmonic generation in diffraction gratings**  
M Weismann, University College London, UK

**(INVITED) Metrology for quantum key distribution**  
C Chunnillal, National Physical Laboratory, UK

**(INVITED) Recent advanced laser source development at the Fraunhofer Centre for Applied Photonics**  
J-M Hopkins, Fraunhofer, UK

**(INVITED) Storing light up to one minute by EIT in a doped solid**  
T Halfmann, Technische Universität Darmstadt, Germany

09:15

**Evolutionary design of linear chains of metallic nanoparticles for field enhancement and localization effects**  
C H Gan, University of Exeter, UK

09:30

**Optical snowflakes: from Fresnel diffraction to a new class of unstable resonator**  
J Christian, University of Salford, UK

**Methods for characterizing the dispersion of passive optical cavities using a femtosecond optical frequency comb**  
S Kyriacou, Oxford University/ National Physical Laboratory, UK

**Diode-pumped Alexandrite slab Lasers in the bounce geometry**  
G Thomas, Imperial College London, UK

**(INVITED) Control of electronic and nuclear resonances - Fundamental physics in the time domain**  
T Pfeifer, Max-Planck Institute for Nuclear Physics, Germany

09:45

**Diffraction of fractal light by simple apertures**  
J Christian, University of Salford, UK

**Reducing the acceleration sensitivity of an optical cavity through feedforward correction**  
R Williams, National Physical Laboratory, UK

**Diode pumped erbium-doped lasers at 3 micron: free-running and Q-switched operation**  
E Arbabzadah, Imperial College London, UK

10:00

**Light confinement in hyperuniform photonic slabs: High Q cavities and low-loss waveguides**  
T Amoah, University of Surrey, UK

**Towards an international optical clock comparison between NPL and SYRTE using an optical fibre network**  
J Kronjaeger, National Physical Laboratory, UK

**Synchronously pumped femtosecond diamond Raman laser**  
M Murtagh, Strathclyde University, UK

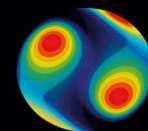
**Quantum computation mediated by an ancilla of arbitrary dimension**  
V Kendon, University of Leeds, UK

10:15

**Improved determination of surface topography from optical measurements via use of the instruments transfer function**  
A Henning, National Physical Laboratory, UK

**Three-dimensional, self-similar, fractal light in canonical resonators**  
J Courtial, University of Glasgow, UK

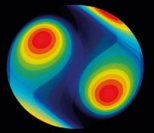
**Deep UV discrimination of biomolecules by coherent control**  
S Kiseleva, Université de Genève, Switzerland



10:30 Refreshment break, Queen's Tower Room

**Session 2**

	Location: Huxley LT 341/342	Location: Huxley LT 340	Location: Huxley LT 308	Location: Huxley LT 311
	<b>Optical Vortices, Polarization, Coherence and Non-Gaussian Beams -</b> Chair: D Andrews, University of East Anglia, UK	<b>Fibre Optic Sensors -</b> Chair: K Weir, Imperial College London, UK	<b>Advances in Lasers - 2</b> Chair: D Binks, University of Manchester, UK	<b>Silicon and Carbon Photonics -</b> Chair: P Harrison, Imagination Technologies Ltd
11:00	<b>What does a light-ray field that appears wave-optically forbidden look like?</b> S Oxburgh, University of Glasgow, UK	<b>(INVITED) Novel optical fibre sensors for structural and environmental monitoring</b> T Sun, City University London, UK	<b>(INVITED) Spectral phase control for optimal pulse compression of the CP-OPCPA seeded Vulcan 10PW upgrade</b> A Wyatt, STFC, UK	<b>(INVITED) Formation and control of silicon nanocrystals by ion-beams for photonic applications</b> M Halsall, The University of Manchester, UK
11:15	<b>Characteristics of C- shaped beams produced by computer generated holograms</b> M Mousley, University of York, UK			
11:30	<b>Engineering structured light vortices</b> S Chavez-Cerda, Instituto Nacional de Astrofisica Optica y Electronica, Mexico	<b>Excitation and absorption of optical nanofibre higher order modes by <sup>87</sup>Rb atoms</b> K Deasy, OIST Graduate University, Japan	<b>High-power quantum-dot tapered external-cavity lasers: a comparison between chirped and unchirped structures</b> S Haggett, University of Dundee, UK	<b>Highly efficient directional coupling using a compact plasmonic-photonic coupler for integrated silicon photonic circuits</b> M Nielsen, Imperial College London, UK
11:45	<b>Spatially dependent EIT from structured light</b> T Clark, University of Glasgow, UK	<b>Strain isolated optical fibre sensors for high temperature applications</b> J Mathew, Heriot-Watt University, UK	<b>Modes of structurally chiral micro-lasers</b> R D M Topf, Imperial College London, UK	<b>Pair generation by spontaneous four wave mixing in a silicon waveguide</b> G Sinclair, University of Bristol, UK
12:00	<b>Self-focusing of optical beams below the diffraction limit</b> C Travis, University of Strathclyde, UK	<b>Embedding fibre optic sensors in metals using laser additive manufacturing</b> D Havermann, Heriot-Watt University, UK	<b>Modelling of a cholesteric liquid crystal laser</b> J Jones, University College London, UK	<b>Group IV photonics and low index waveguides integration</b> F Gardes, University of Southampton, UK
12:15	<b>Topology of quantised vortices in scalar fields</b> A Taylor, University of Bristol, UK	<b>Optical fiber internal mirror based in-line interferometer sensor</b> D Wang, Hong Kong Polytechnic University, Hong Kong	<b>Gain compression in InAs/GaAs quantum dot lasers</b> F Zubov, St. Petersburg Academic University, Russian Federation	<b>Coupling of NV centres in nanodiamond to tunable, open-access optical microcavities</b> S Johnson, University of Oxford, UK



12:30

**Method for 3D vector control of the PSF of a microscope using a binary spatial light modulator**  
J Clegg, Imperial College London, UK

**Nonlinear broadband frequency conversion of CO and CO2 laser radiation into Mid-IR**

Y Klimachev, P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Russia

12:45

13:00

Packed lunches will be available for delegates to collect from 11.00 in the Queen's Tower room

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