

Programme Overview

Key: JWC = James Watt Centre; JWC2 = James Watt Centre 2; HWB = Heriot-Watt Building

Tuesday 26 August

08:30 – 19:45	Registration (Location: JWC2)			
09:30	Plenary: Optical coherence tomography technology and applications, J Fujimoto, Massachusetts Institute of Technology (MIT), USA Location: JWC Auditorium Chair: A Harvey, Heriot-Watt University, UK			
10:15	Refreshments (Location: Lounge Area & Portrait Corner, JWC2)			
Location	James Watt Auditorium	Carnegie Room, JWC1	Lecture Theatre 3, HWB	Wardlaw Room, JWC1
10:45	Trapping & Manipulation 1 (QEP/OPD) Chair: K Dholakia, University of St Andrews, UK	Diffraction Optics (OPD) Chair: M Booth, Oxford University, UK	Optical Diagnostic Engineering (OPD) Chair: D Greenhalgh, Heriot-Watt University, UK	ITP: Funding & Commercialisation: Acquiring Funding: how to fund your business to the next level Chair: B Bryan, Entrepreneur Business School Ltd, UK
10:45	Invited: Optical manipulation of nanocontainers and nanotubes for single molecule studies K Helmersen, NIST, USA	Design and fabrication of irregular sub-wavelength diffractive phase elements F Hudelist, A J Waddie, M R Taghizadeh, Heriot-Watt University, UK	Invited: Applications of laser diagnostics in combustion M Aldén, Lund Institute of Technology, Sweden	Show me the money - photonics/electronics KTN funding roadmap A Evans ¹ , A Wilson ² , ¹ EKTN, UK, ² PKTN, UK
11:00		Diffractive multi-beam ultrafast laser processing by using a spatial light modulator Z Kuang, W Perrie, M Sharp, S Edwardson, et. al., University of Liverpool, UK		
11:15	High-throughput measurements of stem cell deformability in the optical stretcher F Lautenschläger ¹ , M Beil ² , K Van Vliet ³ , J Guck ¹ , ¹ University of Cambridge, UK, ² University of Ulm, Germany, ³ Massachusetts Institute of Technology	Influence of non-plane wave illumination on the performance of DOEs for high power laser applications A J Waddie, A J Caley, M R Taghizadeh, Heriot-Watt University, UK	High-speed chemical species tomography of engineering processes H McCann, J Davidson, K B Ozanyan, S Pal, University of Manchester, UK	Where is the money going? J Harris, Young Company Finance, UK
11:30	Optical manipulation of stem cells in microfluidic devices H Zhang, K Liu, A El Haj, Keele University, UK	Design of two-dimensional finite aperture diffractive optical elements using the flip-flop method of optimization M Mirsalehi, H Kazemi, A R Attari, Ferdowsi University of Mashhad, Iran	Dispersed supercontinuum radiation for measurements of h2o in a laminar flame R S Watt, C Kaminski, J Hult, University of Cambridge, UK	
11:45	Concurrent 'real-time' optical tweezing and confocal imaging of live t cells and dendritic cells using a low numerical aperture lens J Harris, G McConnell, University of Strathclyde, UK	Invited: Biophotonics workstation enabling interactive microscopic analysis and control J Gluckstad, Technical University of Denmark, Denmark	High resolution optical sensor for online detection of harmful combustion gases in automotive application M Degner ¹ , N Damaschke ¹ , H Ewald ¹ , E Lewis ² ¹ University of Rostock, Germany, ² University of Limerick, Ireland	Investing in university IP Rob Rule, IP Group plc, UK
12:00			The optical cell rotator: a tool for single cell tomography M Kreysing ¹ , J Käs ² , J Guck ¹ , ¹ University of Cambridge, UK, ² Universität Leipzig, Germany	
12:15 12:30 12:30	Lunch (Location: Lounge Area & Portrait Corner, JWC2) Tutorial 1: J Courtial "The Push, Pull and Twist of Light" (Location: JWC Auditorium) ISAT AGM (Bruce Room, JWC2)			
13:45	Quantum Degenerate Gases (QEP) Chair: M Fromhold, University of Nottingham, UK	Microfluidics (OPD) Chair: D McGloin, Dundee University, UK	ISAT 1 (OPD) Chair: A Augousti, Kingston University, UK	ITP: Funding & Commercialisation: Technology Transfer - From concept to profit Chair: C Reeves, Scottish Enterprise, UK
13:45	Invited: (De-)coherence and quantum noise in 1d many body systems J Schmiedmayer, Atominstitut der Österreichischen Universitäten, Austria	Quantitative mapping of microfluidic temperature with sub-degree resolution using fluorescence lifetime imaging microscopy A Jones ¹ , E Graham ¹ , K Iwai ² , S Uchiyama ³ , et. al.,	Invited: Image processing and optimal inspection of food products R Davies, Royal Holloway, University of London, UK	Routes to commercialising Heriot-Watt University inventions M Cox, Heriot-Watt University, UK

Programme Overview

		¹ University of Edinburgh, UK, ² Nara Women's University, Japan, ³ University of Tokyo, Japan		
14:00		Nanofluidic pumping using optical tweezers D A Woods ¹ , C D Mellor ² , J J Taylor ¹ , C Bain ¹ , et. al., ¹ University of Durham, UK, ² National Institute for Medical Research, UK		
14:15	Condensate formation under compression: steady state and shock dynamics A Ratnapala ¹ , C Vale ² , M Davis ³ , E van Ooijen ³ ¹ Imperial College London, UK, ² Swinburne University of Technology, Australia, ³ The University of Queensland, Australia	Optically trapped fluorescence lifetime sensors for local temperature measurement on the microscale J Arlt, A Jones, D T Dryden, P Richardson, et. al., University of Edinburgh, UK	Influence of acceptance angle on high-finesse microcavity two photon absorption photodetectors J O'Dowd, W H Guo, E Flood, M Lynch, et. al., Trinity College Dublin, Ireland	Innovation and how we can effectively manage it P Dobson, Oxford University Begbroke Science Park, UK
14:30	Large magnetic storage ring and beamsplitter for Bose-Einstein condensates A S Arnold, University of Strathclyde, UK	Holographic optical manipulation of water droplets via optothermal forces D McGloin ¹ , D Burnham ¹ , M Cordero ² , C Baroud ² , ¹ University of Dundee, UK, ² Ecole Polytechnique, France	Adaptive optics control of lasers W Lubeigt ¹ , M Griffith ² , L C Laycock ² , D Burns ¹ ¹ University of Strathclyde, UK, ² BAE Systems Advanced Technology Centre, UK	
14:45	Magneto-optical trapping of calcium atoms I Norris ¹ , U Dammalapati ¹ , M Borkowski ¹ , A S Arnold ¹ et al. ¹ University of Strathclyde, UK	Microfibre resonating optical sensors for microfluidics G Brambilla, F Xu, University of Southampton, UK	Development and calibration of a hyperspectral retinal imager towards accurate quantitative oximetric measurements I ALabboud ¹ , D Mordant ² , A McNaught ² , A R Harvey ¹ , ¹ Heriot-Watt University, UK, ² Cheltenham General Hospital, UK	Tending the flame: supporting Welsh innovation in photonics N Roberts, Department for the Economy & Transport for the Welsh Assembly Government, UK
15:00	Atom chip interferometry of bose-einstein condensates based on soliton decay and phase fluctuations R G Scott, T E Judd, T M Fromhold University of Nottingham, UK	Propulsion of clusters of microspheres along sub-wavelength optical wires G Brambilla, G S Murugan, J Wilkinson, D J Richardson, University of Southampton, UK	A 3D laser scanner system for autonomous vehicle navigation F Maurelli ¹ , D Droeschel ² , T Wisspeintner ³ ¹ Università degli Studi di Roma, Italy, ² FH Bonn-Rhein-Sieg, Germany, ³ Fraunhofer Institut IAIS, Germany	
15:15	Refreshments (Location: Lounge Area & Portrait Corner, JWC2)			
15:45	Coherent Atom Manipulation (QEP) Chair: B Sauer, Imperial College London, UK	Optical Trapping (OPD) Chair: M Booth, Oxford University, UK	ISAT 2 (OPD) Chair: G McConnell, University of Strathclyde, UK	ITP: Funding & Commercialisation: Company case studies - covering a range of business maturity Chair: P J Dobson, Oxford University Begbroke Science Park, UK
15:45	Invited: Manipulation and detection of cold atoms on chips and elsewhere C Westbrook, Laboratoire Charles Fabry Institut d'Optique, France	Brownian motion studies of optically trapped aerosols D R Burnham ¹ , D McGloin ² , ¹ University of St. Andrews, UK, ² University of Dundee, UK	Miniaturised hydrogen sensor based on a thin dome shaped Palladium foil R R J Maier ¹ , J S Barton ¹ , J D C Jones ¹ , J R Miller ² , et. al., ¹ Heriot-Watt University, UK, ² AWE Plc	
16:00		Holographic white light optical micromanipulation J Morris ¹ , A Carruthers ¹ , P Reece ² , S Skelton ¹ , et.al., ¹ University of St Andrews, UK, ² The University of New South Wales, Australia	Comparison of depolarisation approaches for high resolution spectroscopic FBG measurements R O'Byrne ¹ , S Sergeev ¹ , D Flavin ¹ , S Slattery ² , ¹ Waterford Institute of Technology, Ireland, ² University College Cork, Ireland	Revolutionizing digital x-ray detection M Robinson, Kromek Ltd, UK
16:15	Efficient blue light generation by 4-wave mixing in Rubidium A Vernier ¹ , S Clark ² , S Franke-Arnold ¹ , E Riis ² et al. ¹ University of Glasgow, UK, ² University of Strathclyde, UK	Construction of 3-D photonic band gap templates D C Benito ¹ , S Simpson ¹ , D Carberry ¹ , G Gibson ² , et. al., ¹ University of Bristol, UK, ² University of Glasgow, UK	Evaluation of femtosecond laser written diffraction grating structure in polymethyl methacrylate for strain measurement R Sun, S Liang, P J Scully, T Li, et. al., University of Manchester, UK	
16:30	Non-Abelian atom optics P Öhberg ¹ , G Juzeliunas ² , J Ruseckas ² , A Jacob ³ et al. ¹ Heriot-Watt University, UK, ² Institute of Theoretical Physics and Astronomy of Vilnius, Lithuania, ³ Leibniz Universität, Germany	Independent polarisation control of multiple optical traps D C Preece ¹ , J Leech ¹ , R Bowman ¹ , E Botvinick ² ¹ Glasgow University, UK, ² Beckman Laser Institute, USA	Development of a snapshot spectral retinal camera for blood oximetry G Muyo ¹ , I ALabboud ¹ , A S Gorman ¹ , D Mordant ² , et. al., ¹ Heriot-Watt University, UK, ² Cheltenham General Hospital, UK	Commercialising adaptive optics A Zadrozny, Starpoint Adaptive Optics, UK
16:45	Dark dynamic acousto-optic ring lattices for	Colloidal optical trapping studies in physical	Functional optical assessment of engineered	

Programme Overview

	ultracold atoms N Houston, E Riis, A S Arnold University of Strathclyde, UK	chemistry G Ritchie, N van Leeuwen, L Moore, G Ritchie, University of Oxford, UK	tendons and human tendons P Bagnaninchi ¹ , M Bonesi ² , I Meglinski ³ , N Maffulli ⁴ , et. al., ¹ University of Edinburgh, UK, ² University of Sheffield, UK, ³ Cranfield University, UK, ⁴ Keele University, UK	Speaker TBC
17:00	Controlled creation of spatial superposition states for single atoms T Busch ¹ , K Deasy ² , S Nic Chormaic ¹ ¹ University College Cork, Ireland, ² Cork Institute of Technology, Ireland	Emergent behaviour of optically bound microparticles in laser beam traps J J Taylor, L Y Wong, C Bain, G D Love, University of Durham, UK	Adaptive optics for optimisation of laser processing R Beck, E Ramsay, D T Reid, D P Hand, Heriot-Watt University, UK	
17:15	Relaxation to “Negative Temperatures” of BEC in Optical Lattices G Oppo ¹ , R Franzosi ² , A Politi ³ , R Livi ² ¹ University of Strathclyde (United Kingdom) ² Universita' di Firenze (Italy), ³ Istituto Sistemi Complessi CNR (Italy)	Optically trapped microstructures:- A new method for Pico-Newton force measurements M Pollard ¹ , S Botchway ¹ , A Clark ¹ , W Fischer ² , et. al., ¹ CCLRC Rutherford Appleton Laboratory, UK, ² University of Oxford, UK	Sinogram recovery by hough transform for low number of measurements in hard-field tomography K B Ozanyan, E Constantino, University of Manchester, UK	
17:30	Poster Session and Reception (Location: Great Hall in JWC2)			
18:30	Free for Dinner			

Wednesday 27 August

08:30 – 18:30	Registration (Location: JWC2)				
09:00	Plenary: Far-field optical microscopy, S Hell, Max Planck Institute for Biophysical Chemistry, Germany Location: James Watt Auditorium Chair: T Shepherd, QinetiQ, UK				
09:45	Refreshments / Exhibition (Location: Great Hall in JWC2)				
Location	James Watt Auditorium	Carnegie Room, JWC1	Lecture Theatre 3, HWB	Wardlaw Room, JWC1	Bruce Room, JWC2
10:15	Quantum Information Processing (QEP) Chair: E Andersson, Heriot-Watt University, UK	Optical Vortices (OPD) Chair: M Dennis, Southampton University, UK	Structured Optical Materials (OPD) Chairs: K Weir & M McCall, both Imperial College London, UK	ITP: Future Technologies 1: Roadmaps: Availability and how they can help your business Chair: S Welch, PKTN, UK	Laser-Based Medical Procedures Chair: D Hand, Heriot-Watt University
10:15	Invited: Optical quantum state-discrimination experiments S Barnett, University of Strathclyde, UK	The world through a spinning window J Leach ¹ , S Franke-Arnold ¹ , L Allen ¹ , A Wright ² , et. al., ¹ University of Glasgow, UK, ² University of Strathclyde, UK	Stretchable polymer photonic crystals D Snoswell ¹ , O Pursiainen ¹ , J J Baumberg ¹ , B Viel ² , et. al., ¹ University of Cambridge, UK, ² Deutsches Kunststoff-Institut, Germany		
10:30		Spiral multivortex solitons in nonlocal nonlinear media D Buccoliero ^{1,2} , A S Desyatnikov ¹ , W Krolikowski ² , Y S Kivshar ¹ , ¹ Nonlinear Physics Centre, Australia, ² Laser Physics Centre, Australia	A simplified theory of propagation in structured chiral media M W McCall, K Weir, Imperial College London, UK		Refractive surgery of the eye with ultrashort laser pulses H Lubatschowski, Laser Zentrum Hannover, Germany
10:45	Experimental quantum process discrimination A Laing ¹ , T G Rudolph ² , J O'Brien ¹ ¹ University of Bristol, UK, ² Imperial College London, UK	Birth and evolution of orbital angular coherence momentum associated with coherence vortex W Wang ¹ , M Takeda ² , ¹ Heriot-Watt University, UK, ² The University of Electro-Communications, Japan	Polarization sensitive intensity modulation for diffraction gratings with 2D chirality A Potts, W Zhang, D M Bagnall, University of Southampton, UK	Photonics roadmaps: a review S Wilson, PKTN, UK	Lasers and light sources in aesthetic dermatology J Exley, Lynton, UK
11:00	Scalable error-correction in a distributed ion-trap quantum computer D K Oi ¹ , S Devitt ² , ¹ University of	An angular diffraction analogue to create orbital angular momentum superpositions	The effect of pulse duration on writing photonic structures in poly(methyl methacrylate) using femtosecond		

Programme Overview

	Strathclyde, UK, ² National Institute of Informatics, UK	B Jack, University of Glasgow, UK	lasers A Baum ¹ , P J Scully ¹ , W Perrie ² , D Jones ³ , et. al., ¹ University of Manchester, UK, ² University of Liverpool, UK, ³ University of Strathclyde, UK		
11:15	A practical QKD system based on entanglement H Hübel ¹ , M Hentschel ¹ , A Treiber ¹ , A Zeilinger ² ¹ University of Vienna, Austria, ² Institute for Quantum Optics and Quantum Information, Austria	Transfer of orbital angular momentum from a white light beam A Wright ¹ , J Girkin ¹ , G Gibson ² , J Leach ² , ¹ University of Strathclyde, ² University of Glasgow	Single pulse picosecond laser ablation studies on metals J Cheng, W Perrie, S Edwardson, M Sharp, et. al., University of Liverpool, UK	Opportunities for European industry in emerging nanophotonics technologies T Pearsall, EPIC, UK	
11:30	Quantum key distribution with superconducting nanowire single-photon detectors R H Hadfield R J Collins ¹ , G Buller ¹ , J Habif ² , et. al., ¹ Heriot-Watt University UK, ² BBN Technologies, USA	Polarization singularities in random vector-wave fields, their 3D structure and distribution of singularity type F Flossmann ¹ , K O`Holleran ¹ , M R Dennis ² , ¹ University of Glasgow, UK, ² University of Bristol, UK	Ray optics without wave-optical analog J K Courtial, A C Hamilton, University of Glasgow, UK		Dentistry and Light J Colles, Denfotex, UK
11:45	Estimating the expectation value of spin-1/2 observables with finite resources T Brougham ¹ , A E Andersson ² , ¹ Czech Technical University, Czech Republic, ² University of Strathclyde, UK	Invited: Angular entanglement of two photons H Woerdman, Leiden University, The Netherlands	Invited: Evolutionary Photonics: natural design protocols for manipulating light and colour P Vukusic, University of Exeter, UK	A company case study Speaker TBC	
12:00	Silica-on-silicon waveguide quantum circuits A Politi, J G Rarity, J O'Brien University of Bristol, UK				
12:15 12:30 12:30	Lunch / Exhibition (Location: Great Hall in JWC2) Tutorial 2: C Cunningham "Technology Challenges for future Optical and IR Astronomical Telescopes" (Location: James Watt Auditorium) QEP AGM				
13:45	Quantum Optics (QEP) Chair: J Rarity, University of Bristol, UK	Trapping and Manipulation 2 (OPD) Chair: D McGloin, Dundee University, UK	Optical Nanoscience (OPD) Chair: P Scully, Manchester University, UK	ITP: Future Technologies 1: Displays - A European roadmap and where the UK is putting its money Chair: Ian Underwood, MED	Laser-based manufacturing for medical applications Chair: D Hand, Heriot-Watt University
13:45	Invited: Quantum information science & technology with photons J O'Brien, University of Bristol, UK	Novel trapping geometries for laser-cooled atoms S Nic Chormaic ¹ , T Bandi ² , V Minogin ³ , ¹ University College Cork, Ireland, ² Cork Institute of Technology, Ireland, ³ Tyndall National Institute, Ireland	Invited: The diversity and biomimetics of optical devices in nature A Parker, University of Oxford, UK	European displays roadmap C Gracie, ADRIA	Laser machining of zirconia ceramic for manufacture of dental restorations J Parry ¹ , Nick Jones ² , ¹ Heriot-Watt University, UK ² Renishaw PLC, UK
14:00		Atom trapping and manipulation at material surfaces using twisted light M Babiker ¹ , V Lembessis ² , A Carter ³ , D L Andrews ⁴ , ¹ University of York, UK, ² Salford University, UK, ³ University of Sheffield, UK, ⁴ East Anglia University, UK			
14:15	A fully tunable microcavity for semiconductor quantum electrodynamics experiments R J Barbour, A Curran, P A Dalgarno, K M Nowak, et. al., Heriot-Watt University, UK	Optical ferris wheel for ultracold atoms S Franke-Arnold ¹ , J Leach ¹ , A Wright ² , J Girkin ¹ , et. al., ¹ University of Glasgow, UK, ² University of Strathclyde, UK	Morphology of electromagnetic fields in hemispherical microcavities M Dennis ¹ , T Liew ² , C J Howls ² , J Baumberg ³ , et. al., ¹ University of Bristol, UK, ² University of Southampton, UK, ³ University of Cambridge, UK	Keynote on plastics/OLED C Williams, D&L KTN, UK	
14:30	Microcavities and atom guides for cavity quantum electrodynamics J Kenner, M Trupke, J Goldwin Imperial College London, UK	Controlled creation of spatial superposition states for single atoms T Busch ¹ , K Deasy ² , S Nic Chormaic ¹ , ¹ University College Cork, Ireland, ² Cork Institute of Technology, Ireland	High-order 1D photonic crystal filters with tapered Bragg mirrors Q Chen, D W Allsopp, University of Bath, UK		Harnessing the power of light - the fibre laser revolution D Richardson, University of Southampton, UK

Programme Overview

14:45	The Optical Dirac Equation S M Barnett, University of Strathclyde, UK	Computation of optically induced forces and torques arising in connection with holographic optical assembly D C Benito, University of Bristol, UK	Calculations on the mechanical effects of Laguerre-Gaussian beams S Hanna, University of Bristol, UK	Flexible displays - a case study W McDonald, DuPont Teijin Films	Fabrication of micro-fluidic channels with Nd:YVO4 and CO2 laser systems D Brabazon, Dublin City University, Ireland
15:00	Fiber-optical analogue of the event horizon F Koenig ¹ , T Philbin ² , C Kuklewicz ¹ , S Robertson ¹ , et. al., ¹ University of St. Andrews, UK, ² Max Planck Research Group of Optics, Information and Photonics, Germany	Holographic assembly workstation for optical manipulation G Gibson, University of Glasgow, UK	Ultrafast laser inscription of active and passive waveguide devices R R Thomson, N Psaila, H T Bookey, D T Reid, et. al., Heriot-Watt University, UK		
15:15	Refreshments (Location: Lounge Area & Portrait Corner, JWC2)				
15:45	OPD Prize Plenary: Light's twist, M Padgett, University of Glasgow, UK Location: James Watt Auditorium			ITP – PhotoVoltaics: How to make a profit while saving the planet	Laser-Enhanced Bio-Research Chair: D Hand, Heriot-Watt University
15:45	Chair: A Boardman, University of Salford, UK			PhotoVoltaics roadmap S Irvine, WOF	Getting a Grip on the Micro-world J Leach, Glasgow University, UK
16:15				Keynote on PhotoVoltaics & energy Speaker TBC	Cellular nano-surgery (enhanced techniques for optical transfection by the control of femtosecond lasers) T Brown, University of St Andrews, UK
16:45	Slow Light (QEP) Chair: O Hess, University of Surrey, UK	Attosecond Optics (QEP) Chair: B Brocklesby, University of Southampton, UK	Optical Techniques for Materials Characterisation (OPD) Chair: M Healey, Cranfield University, UK	The SUPERGEN PV-21 Project K Durose, Durham Centre for Renewable Energy, UK	Lasers for single-photon and multi-photon excitation microscopy G McConnell, Centre for Biophotonics, University of Strathclyde, UK
16:45	Ultralow and stopped light in metamaterials O Hess, K Tsakmakidis, University of Surrey, UK	Invited: Attosecond nanoplasmonics M Stockman, Georgia State University, USA	Exploration of the gas phase chemistry in microwave-activated diamond deposition plasmas using an intrapulse quantum cascade laser spectrometer J Ma ¹ , A Cheesman ¹ , G Duxbury ² , N J Langford ² et. al., ¹ University of Bristol, UK, ² University of Strathclyde		
17:00	Delayed rapid passage and transient gain signals generated using a chirped 8 micron quantum cascade laser G Duxbury, N J Langford, K G Hay, University of Strathclyde, UK		Photoacoustic probe for underwater NDT measurements J Zainal ¹ , R Abdul Rahman ¹ , R J Dewhurst ² , ¹ UTM, Malaysia, ² University of Manchester, UK		
17:15	Invited: Slow and stopped light in optical waveguides D J Gauthier, Duke University, USA	Spatially resolved Ar and Ar+ fluorescence imaging as a diagnostic for capillary based high harmonic generation E Rogers, E T Rogers ¹ , J Grant-Jacob ¹ , M Praeger ¹ , T Butcher, et. al., University of Southampton, UK	Studies of physical properties of MIS structures with aluminium gate W Rzdokiewicz ¹ , P Borowicz ² , P Borowicz ¹ , M Guziewicz ¹ , et. al., ¹ Institute of Electron Technology, Poland, ² Institute of Physical Chemistry PAS, Poland		
17:30		Towards coherent synthesis of few-cycle pulses using a mode-locked Ti:sapphire laser and synchronously-pumped optical parametric oscillator B Gale, D T Reid, J Hua Sun, Heriot-Watt University, UK	Development of optical techniques for non-contact inspection of ceramic parts M Matysiak, D P Hand, Heriot-Watt University, UK		
17:45	Poster Session (Location: Great Hall in JWC2)				
19:30	Conference Dinner at Dynamic Earth.				

Programme Overview

Thursday 28 August

08:30 – 19:00	Registration (Location: JWC2)				
09:00	Plenary: Nonlinear waves in photonic lattices: from lattice solitons and photonic quasi-crystals to Anderson localization of light, M Segev, Technion, Israel Location: James Watt Auditorium Chair: A Boardman, University of Salford, UK				
09:45	Refreshments / Exhibition (Location: Great Hall in JWC2)				
Location	James Watt Auditorium	Carnegie Room, JWC1	Lecture Theatre 3, HWB	Wardlaw Room, JWC1	Bruce Room, JWC2
10:15	Nanophotonics and Plasmonics (QEP) Chair: N Zheludev, University of Southampton, UK	Advances in Laser Science (QEP) Chair: M Dawson, University of Strathclyde, UK	Advances in Imaging 1 (OPD) Chair: G Love, Durham University, UK	FASIG 1 Chair: A Moore, Heriot-Watt University, UK	ITP: Future Technologies 2: Communications: A high speed future with the next generation network Chair: A McLaughlin, Scottish Enterprise
10:15	Invited: Si-based plasmonic devices and active metamaterials H A Atwater Jr., California Institute of Technology, USA	Array-format microchip semiconductor disk laser using a microlens-patterned diamond heatspreader N Laurand, C L Lee, E Gu, J Hastie, et. al., University of Strathclyde, UK	Invited: Contrast mechanisms in third-harmonic generation microscopy of cells and tissues E Beaufrepaire, Ecole Polytechnique, France	Invited: Coherence holography and 3-D coherence synthesis for dispersion-free spatial coherence tomography and profilometry M Takeda, University of Electro-Communications, Japan	
10:30		A transportable optical frequency comb with a 500 – 2100 nm measurement range B Walton, H S Margolis, G Marra, P Gill, et. al., National Physical Laboratory, UK			
10:45	Single-particle spectroscopy of the plasmon resonances of hybridized metal ring/disc plasmon gap nanocavities Y Sonnefraud ¹ , P van Dorpe ² , F Hao ³ , M Burnett ³ , et. al., ¹ Imperial College London, UK, ² IMEC, UK, ³ University of Bath, UK	Efficient Yb³⁺/Tm³⁺/Ho³⁺ co-doped tellurite fibre laser operating at " 2.1 μm Y Tsang ¹ , B Richards ² , D Binks ¹ , J Lousteau ² , et. al., ¹ University of Manchester, UK, ² University of Leeds, UK	Nanoscale optical microscopy in the vectorial focusing regime K A Serrels, E Ramsay, R E Warburton, D T Reid, Heriot-Watt University, UK	Spectral optical coherence tomography with in-plane and out-of-plane displacement sensitivity P D Ruiz ¹ , M H de la Torre-Ibarra ² , J Huntley ¹ , ¹ Loughborough University, UK ² Centro de Investigaciones en Óptica, Mexico	Towards next generation access networks in the UK M Robertson, CIP, UK
11:00	"Mouth of the Void": The strong effect of rim modes on localized plasmons R H Cole ¹ , B F Soares ¹ , J J Baumberg ¹ , F J Garcia de Abajo ² ¹ University of Cambridge, UK ² Instituto de Optica, CSIC, Spain	Invited: All-fibre based sources for spectral and temporal versatility R Taylor, Imperial College London, UK	Characterisation of periodically poled materials using multi-photon microscopy J Harris, G Norris, E Esposito, G McConnell, University of Strathclyde	Speckles and their dynamics at structured target illumination M L Jakobsen ¹ , H T Yura ² , S G Hanson ² ¹ Technical University of Denmark, Denmark, ² The Aerospace Corporation, USA	
11:15	Femtosecond control of surface plasmon-polariton propagation K MacDonald ¹ , Z L Samson ¹ , N Zheludev ¹ , M Stockman ² , ¹ University of Southampton, UK, ² Georgia State University, USA		Adaptive optics for three-dimensional microscopy M J Booth, D Debarre, K Grieve, T Wilson, University of Oxford, UK	The use of digital image cross correlation to investigate the compaction of granular media J W Addiss, D Williamson, W G Proud University of Cambridge, UK	Next decade optical communications trends M Lebbby, OIDA, UK
11:30	Pulse propagation studied en route in photonic crystal waveguides: a real space investigation H Gersen, University of Bristol, UK	Power scaling in compact disk lasers using synthetic diamond as a heatspreader P Millar, R Birch, A Kemp, D Burns University of Strathclyde, UK	Adaptive optics for improved signal at increased penetration depth in CARS microscopy A Wright ¹ , S P Poland ¹ , J Girkin ¹ , C Freudiger ² , et. al., ¹ University of Strathclyde, UK, ² Harvard University, USA	Diagnosis of polarization speckle based on frequency-multiplex fourier transform method W Wang ¹ , A Matsuda ² , S G Hanson ³ , M Takeda ³ , ¹ Heriot-Watt University, UK, ² The University of Electro-Communications, Japan, ³ Technical University of Denmark, Denmark	
11:45	Invited: Surface plasmon photonics T W Ebbesen, University Louis Pasteur Strasbourg, France	Compressively strained GaInSb/AlGaInSb quantum well lasers S Przeslak ¹ , G Nash ^{1,2} , S Smith ² , C	Direct comparison of tunable filter technologies and their characteristics for use in spectral imaging systems	Intelligent real-time 3d body measurement system using fringe analysis	Optical transport network evolution - market drivers and technology challenges

Programme Overview

		Storey ² , et. al., ¹ University of Bristol, UK, ² QinetiQ, UK	C Stedham ¹ , A R Harvey ² , C Pannell ³ , J Ward ¹ , et. al., ¹ Gooch and Housego UK Limited, ² Heriot Watt University, UK, ³ Optronic Laboratories Inc, UK	M Al Sa'D, F Lilley, D Burton, M Lalor, et. al., Liverpool John Moores University, UK	R Dorward, Ericsson
12:00		High-brightness Mid-IR optically-pumped semiconductor disk laser J Hopkins ¹ , N Hempler ² , A Kemp ¹ , D Burns ¹ , et. al., ¹ University of Strathclyde, UK, ² Institute of Photonics, UK	High speed focusing for biological imaging E Botcherby, M J Booth, R Juskaitis, T Wilson, University of Oxford, UK	Calibration in a colour and shape measuring fringe projection system Z Zhang, C Towers, D Towers University of Leeds, UK	
12:15	Lunch / Exhibition (Location: Great Hall in JWC2) 12:30 Tutorial 3: A Boardman "Negative Index Metamaterials" (Location: James Watt Auditorium) 12:15 Optical Group AGM (Location: Carnegie Room, JWC1)				
13:45	Microstructured Photonic Materials (QEP) Chair: T Shepherd, QinetiQ, UK	Terahertz and Quantum Cascade Lasers (QEP) Chair: P Harrison, University of Leeds, UK	Advances in Imaging 2 (OPD) Chair: A Harvey, Heriot-Watt University, UK	FASIG 2 Chair: P Ruiz, Loughborough University, UK	ITP: Future Technologies 2: Defence - Photonics, defending the UK at a profit
13:45	Invited: 3D photonic nanostructures by direct laser writing M Wegener, Universität Karlsruhe, Germany	Wavelength conversion by terahertz electro-optic modulation in asymmetric coupled quantum wells J Zhang, D W Allsopp, University of Bath, UK	Invited: Adaptive coded aperture imaging in the visible and infrared C Slinger, QinetiQ, UK	MONALISA: Nanometre scale distance measurements over large distances M Warden, P A Coe, D Urner, A Reichold, University of Oxford, UK	Photonics in the defence industry K Lewis, DTC, UK
14:00		Theory and design of (111) oriented Si/SiGe quantum cascade lasers A Valavanis, L Lever, Z Ikonic, R W Kelsall, University of Leeds, UK		A novel, rugged and robust longitudinal range finding method for formation flying satellite missions G J McDonald, A Lewin, D Orchard QinetiQ, UK	
14:15	Strong whispering gallery modes in sub-micron spheres R H Cole ¹ , B F Soares ¹ , J J Baumberg ¹ , S Mahajan ² , ¹ University of Cambridge, UK, ² University of Southampton, UK	Control of chirped femtosecond laser pulses by using Fibonacci photonic structures L Makarava ¹ , M Nazarov ² , I Ozheredov ² , A Shkurinov ² , et. al., ¹ Belarusian State Agricultural Technical University, Belarus, ² Moscow State University, Russia	Simulating refractive-index changes with confocal pairs of lenslet arrays J K Courtial, A C Hamilton, University of Glasgow, UK	Wavelength selections for reliable distance metrology using the method of excess fractions K Falaggis, D Towers, C Towers University of Leeds, UK	What industry can offer the MOD Speaker TBC
14:30	Nano-optical studies of superconducting nanowire single-photon detectors J A O'Connor, P A Dalgarno, R H Hadfield, R J Warburton, et. al., Heriot-Watt University, UK	Dual-core photonic crystal fibre laser for terahertz radiation generation D M Taylor, C R Bennett, L F Michaille, T J Shepherd, QinetiQ, UK	Imaging with ray-rotation sheets A C Hamilton, J K Courtial, University of Glasgow, UK	A simple and accurate calibration method for multi-sensor fringe projection measurement systems M Qudeisat, M Gdeisat, F Lilley, D Burton, et. al. Liverpool John Moores University, UK	
14:45	Aspect-ratio dependent plasma etching of anisotropic microstructures for fabricating AlGaInP/GaAs distributed Bragg reflector lasers G Edwards, P Smowton, D Westwood Cardiff University, UK	Invited: Terahertz quantum cascade lasers E Linfield, University of Leeds, UK	Wavefront coding for ultra compact zoom lenses M Demenikov ¹ , E Findlay ² , A R Harvey ¹ , ¹ Heriot Watt University, UK, ² STMicroelectronics, UK	Combining fringe projection and photogrammetry for the non-contact measurement of objects with free-form surfaces Y Huddart ¹ , JDR Valera ² , N Weston ¹ AJ Moore ² , ¹ Renishaw, UK, ² Heriot-Watt University, UK	Working with the MOD A Mathis, ThinkTank Mathematics, UK
15:00			XUV diffraction from a self-assembled 2D array of hexagonal close-packed 200 nm diameter PMMA spheres C Chau, E T Rogers, J Grant-Jacob, S L Stebbings, et. al., University of Southampton, UK		
15:15	Refreshments (Location: Lounge Area & Portrait Corner, JWC2)				

Programme Overview

15:45	Metamaterials (QEP) Chair: A Boardman, University of Salford, UK	Organic Semiconductors (QEP) Chair: D Lidzey, University of Sheffield, UK	Fibre-optic Systems (OPD) Chair: G McConnell, University of Strathclyde, UK	Computational Photonics (OPD) Chair: M Molinari, University of Southampton, UK	ITP: Future Technologies 2: Fibre Lasers - What next for these high power flexible lasers? Chair: A O'Neil, AILU
15:45	Invited: From metamaterials to metadevices: progress and challenges V Shalaev, Purdue University, USA	Single molecule spectroscopy of a red-emitting conjugated polymer G Khalil, A Adawi, A M Fox, D G Lidzey, University of Sheffield, UK	Invited: Micro-volume drop analysis/spectroscopy - extending the frontiers of UV and fluorescence spectroscopy N McMillan, Institute of Technology Carlow, Ireland	TLM modeling of Helmholtz soliton propagation P Chamorro-Posada ¹ , G S McDonald ² , ¹ University of Valladolid, Spain, ² Salford University, UK	Photonics and Healthcare Roadmap A Whitaker, TWI, UK
16:00		Comparative studies of n- and p-dopable phenyl-substituted polythiophenes for optoelectronic applications S Lattante, T Yohannes ² , S Luzzati ³ , H Neugebauer ¹ , et.al., ¹ Johannes Kepler University, Austria, ² Addis Ababa University, Ethiopia, ³ ISMAC-CNR, Italy		Radiation Modes and Coupled Power Theory in Buried Channel Waveguides I Papakonstantinou, D R Selviah, R James, University College London, UK	
16:15	Causality-based conditions for negative refraction provide a flawed insight P Kinsler, M W McCall, Imperial College London, UK	Invited: Organic semiconductor lasers G Turnbull, University of St Andrews, UK	A comparative study of optical fibre types for a laser-induced ignition system J Mullett, R Dodd, G Triantos, G Dearden, et. al., University of Liverpool, UK	Modelling the optical interactions between hundreds of micro-particles M Mazilu, K Dholakia, St Andrews University, UK	Fibre lasers for industrial applications J Gabzdyl, SPI Lasers, UK
16:30	Asymmetric transmission through planar chiral photonic nanostructures E Plum ¹ , A S Schwanecke ¹ , V Fedotov ¹ , S Prosvirnin ² , et. al., ¹ University of Southampton, UK, ² Institute of Radio Astronomy and Kharkov National University, Ukraine		Photonic guided-path tomography for imaging 2-D distribution of measurands using sensitised polymer optical fibre sensors P J Scully, N Nurgiyatna, E Constantino, J Vaughan, University of Manchester, UK	Modelling and simulation of moth-eye photonic crystal structures A Asadollahbaik, M Molinari, University of Southampton, UK	
16:45	Is negative refraction signalled by $P.k < 0$ in moving media? Relativity says no! M McCall, P Kinsler, Imperial College London, UK	Invited: Nanostructured and molecular materials for photovoltaic energy conversion J Nelson, Imperial College London, UK	Very high density optical interconnects using novel microstructured fibres D M Taylor, C R Bennett, L Michaille, T J Shepherd, QinetiQ, UK	Three-dimensional numerical modelling of disordered surface patterns in light-emitting diodes I Buss ¹ , G R Nash ² , J G Rarity ¹ , M J Cryan ¹ , ¹ University of Bristol, UK, ² QinetiQ, UK	The Talisker laser C Dorman, Coherent, UK
17:00	Optical activity in toroidal metamaterials N Papisimakis ¹ , K Marinov ¹ , V Fedotov ¹ , A D Boardman ² , et.al., ¹ University of Southampton, UK, ² University of Salford, UK		Er/Ce codoped tellurite fibre amplifier for high-gain and low-noise operation Y Wei ¹ , R Penty ¹ , I White ¹ , S Shen ² , A Jha ² , ¹ University of Cambridge, UK, ² University of Leeds, UK	Design and fabrication of a mid infrared photonic crystal defect laser in indium antimonide J Pugh ¹ , P Heard ¹ , G R Nash ² , T Ashley ² , et. al., ¹ University of Bristol, ² QinetiQ, UK	
17:15 - 17:45	Invited: Nanoplasmonics and metaphotonics: fabrication challenges A Boltasseva, Technical University of Denmark				
17:15	Refreshments available (Location: tba)				
18:00	Commemorative Lecture: Celebrating 150 Years of Telecommunications : 1858 - 2008 , W Sibbett, University of St. Andrews Location: James Watt Auditorium Chair: J Jones, Heriot-Watt University, UK				
18:40	Free time				

Programme Overview

Friday 29 August

08:30 – 13:45	Registration (Location: JWC2)			
09:00	Plenary: The Rank Lecture: Surface plasmon sensing, R Sambles, University of Exeter, UK Location: James Watt Auditorium Chair: J Jones, Heriot-Watt University, UK			
09:45	Refreshments (Location: Lounge Area & Portrait Corner, JWC2)			
Location	James Watt Auditorium	Carnegie Room, JWC1	Lecture Theatre 3, HWB	Wardlaw Room, JWC1
10:00	Nonlinear Optics (QEP) Chair: G-L Oppo, University of Strathclyde, UK	Quantum Dots (QEP) Chair: J Baumberg, University of Cambridge, UK	Optical Fibre Sensors (OPD) Chair: A Augousti, Kingston University, UK	Biophotonics (OPD) Chair: S Morgan, Nottingham University, UK
10:00	Cascaded generation of multiply charged optical vortices and spatiotemporal helical beams in a Raman medium A Gorbach, D V Skryabin, University of Bath, UK	Invited: Charges and spins in self-assembled quantum dots R J Warburton, Heriot-Watt University, UK	Invited: UV written planar Bragg grating sensors - geometries and applications P Smith, University of Southampton, UK	Invited: Biomedical imaging and coherent control C Boccara, ESPCI, France
10:15	Ultrafast all optical switching using photonic crystals integrated into a Mach Zehnder interferometer D Szymanski ^{1,2} , B D Jones ¹ , D O'Brien ² , M S Skolnick ¹ , et. al., ¹ University of Sheffield, UK ² University of St Andrews, UK			
10:30	Dissipative optical solitons and cavity soliton lasers A Scroggie, G Oppo, W J Firth, University of Strathclyde, UK	Shortcomings in semiconductor-based entangled photon sources U Hohenester, H Pfanner, M Seilger, Universität Graz, Austria	Towards practical gas sensing with microstructured fibres J P Parry ¹ , N Gayraud ¹ , E McNaghten ² , A M Parkes ² , W N MacPherson ¹ , D P Hand ¹ ¹ Heriot-Watt University, UK, ² AWE, UK	Three dimensional imaging on the nanoscale: applications in single cell biological imaging and nano-particle tracking H I Campbell, P A Dalgarno, A Putoud, A Kerr, et. al., Heriot-Watt University, UK
10:45	Carrier-wave shock formation and other properties of the Short Pulse Equation M Pietrzyk, WIAS Berlin, Germany	Secure quantum key distribution using single photons from a semiconductor quantum dot emitting at a telecommunication wavelength P M Intallura ¹ , M Ward ² , O Karimov ² , Z Yuan ² , et. al., ¹ University of Cambridge, UK, ² Toshiba Research Europe Limited, UK	Optical sensing for hydrogen fuel cells for stationary applications J Vaughan, P J Scully, University of Manchester, UK	Novel studies of femtosecond cellular transfection X Tsampoula ¹ , K Taguchi ² , V Garcés-Chávez ¹ , M M Comrie ¹ , et. al., ¹ University of St Andrews, UK, ² Ritsumeikan University, Japan
11:00	Invited: Light is guiding light - nonlinear refractive index changes for photonic applications C Denz, Institut f. Angew. Physik, Germany	Coherent coupling of excitons in quantum dots revealed by two-dimensional nonlinear spectroscopy J Kasprzak, W Langbein, Cardiff University, UK	Sensing properties of tellurite and germanate glass fibres H Li ¹ , J Lousteau ² , W MacPherson ¹ , X Jiang ² , et. al., ¹ Heriot-Watt University, UK, ² University of Leeds, UK	Optical monitoring of tissue using differential polarization spectroscopy A Huong, I Stockford, J A Crowe, S P Morgan, University of Nottingham, UK
11:15		Single photons on demand using GHz voltage pulses over a quantum dot J McFarlane ¹ , P A Dalgarno ¹ , B Gerardot ¹ , K Karrai ² , et. al., ¹ Heriot-Watt University, UK, ² LMU, Germany	Optical microcavities for spectroscopic applications F E Watts, N Laurand, A Wright, J Girkin, et. al., University of Strathclyde, UK	Living optical fibres in the vertebrate retina K Franze ¹ , M K Kreysing ¹ , A Reichenbach ² , J Guck ¹ , ¹ University of Cambridge, UK, ² University of Leipzig, Germany
11:30	Refreshments (Location: Lounge Area & Portrait Corner, JWC2)			
12:00	Semiconductor Optoelectronics & Dynamics (QEP) Chair: G Buller, Heriot-Watt University, UK	Optical Environmental Sensing (OPD) Chair: P Hodgson, Corus, UK	Optical Fibre Sensors (OPD) Chair: P Sculley, Manchester University, UK	Biophotonics (QEP/OPD) Chair: P Borri, Cardiff University, UK
12:00	Invited: Progress and opportunities in silicon photonics G Reed, University of Surrey, UK	Invited: LIBS for environmental sensing – where do we stand and where might we go? H Telle, Swansea University, UK	The properties of tapered optical fibres with nanostructured coatings R Jarzebinska ¹ , C S Cheung ¹ , S James ¹ , G Ashwell ² , et. al., ¹ Cranfield University, ² Bangor University	Multimodal CARS microscopy using a femtosecond laser source and spectral focussing I Rocha-Mendoza, P Borri, W Langbein, Cardiff University, UK

Programme Overview

12:15			A macrobending singlemode fiber based refractometer: proposal and design P Wang, Y Semenova, G Farrell, Dublin Institute of Technology, Ireland	Photocycle in a single photoreceptor protein molecule studied by surface enhanced raman spectroscopy (SERS) K Singhal, W Hoff, A Xie, K Kalkan, Oklahoma State University, USA
12:30	Spontaneous symmetry breaking in an exciton-polariton Bose condensate at room temperature S Christopoulos ¹ , J J Baumberg ¹ , A J Grundy ² , A Kavokin ² , et. al. ¹ University of Cambridge, ² University of Southampton	Cavity enhanced detection of multiple trace gas species using a supercontinuum radiation source J Hult, T Laurila, R S Watt, R Jones, et. al., University of Cambridge, UK	An inexpensive optical fibre sensor, for the monitoring of harmful pollutants, in coastal waters E O'Connell, University of Limerick, Ireland	Analysis of multi-modal multi-spectral endoscopic images T Wood, K Koh, V Sauvage, G Yang, Imperial College London, UK
12:45	Exciton-exciton annihilation in isolated carbon nanotubes: reaction-limited and diffusion-limited regimes K Litvinenko, R W Sutton, Z Wang, K Bourdakos, et. al., University of Surrey, UK	Trace gas detection with novel QCL and DFG room temperature continuous wave single mode mid-infrared laser sources V Kasyutich, R Holdsworth, P A Martin, TDL Sensors Ltd, UK	Long period gratings with nanostructured coatings operating near the phase matching turning point S Topliss ¹ , C S Cheung ² , S James ¹ , G Ashwell ¹ , et. al., ¹ Cranfield University, ² Bangor University, UK	A complete and portable instrument capable of single nucleotide polymorphism identification by means of FRET based fluorescence detection technology aimed towards use in large scale pharmacogenetic studies M Mohammed, E Ellis, J Girkin, University of Strathclyde, UK
13:00	InGaAs/InP single-photon avalanche diodes: device performance, afterpulsing and sub-Geiger mode single-photon detection R E Warburton, G S Buller, Heriot-Watt University, UK	All fibre hydrogen sensing through palladium coated long period and tilted gratings R Carter ¹ , R R Maier ¹ , J S Barton ¹ , B J Jones ² , et. al., ¹ Heriot-Watt University, UK, ² AWE Plc, UK	Optical sensing for perspiration J Vaughan, P J Scully, University of Manchester, UK	Invited: Coherent vibrational microscopy: Exploring the molecular structure and dynamics of individual biopolymers, living cells, and tissue A Volkmer, University of Stuttgart, Germany
13:15	Gain dynamics in InGaAs quantum dot amplifiers: the effect of p-doping P Borri ¹ , V Cesari ¹ , W Langbein ¹ , M Rossetti ² , et. al., ¹ Cardiff University, UK, ² Ecole Polytechnique Federale de Lausanne, France	Calibration free gas composition measurements for industrial process control using a phasor decomposition approach to tunable diode laser spectroscopy W Johnstone, A McGettrick, K Duffin, G Stewart, University of Strathclyde, UK	Ratiometric interrogation of dynamically strained fiber Bragg gratings R R J Maier ¹ , J S Barton ¹ , M Kuhn ² , ¹ Heriot Watt University, UK, ² Universität Würzburg, Germany	
13:30	Buffet Lunch (Location: Lounge Area & Portrait Corner, JWC2) End of Conference			