

Australian and New Zealand Conference on Optics and Photonics 2013

Perth, 8-11 December

ISBN 978-1922107183

The Australian Optical Society (AOS) is pleased to provide the contents/index pages of this conference*.

The conference program contains the individual paper summaries, and full ACOFT papers are with Informit (www.informit.org); please refer to the website: <http://optics.org.au/AOS-Conference>



Authors	Title	Page in Program (Poster no.) (Informit number)
MONDAY 9 DECEMBER		
R Blatt	Frew Lecture: Quantum Information Science with Trapped Ions	4
P Bucksbaum	OSA President-elect Presentation: Ultrafast AMO physics with strong laser fields: high harmonic generation and x-ray free electron lasers	4
Precision Measurements		
G-W Truong, T Stace, J Anstie, EF May & AN Luiten	Accurate thermometry using atoms	4
C Khurmi, WC Wallace, O Ghafur, DE Laban, K Bartschat, AN Grum-Grzhimailo, IV Litvinyuk, RT Sang & D Kielpinski	Measurement of photoionization yield of h-atom using intense few cycle laser pulses	4
SSY Chua, AR Wade, GL Mansell, BJJ Slagmolen, DA Shaddock & DE McClelland	Next-generation squeezed light technology for the enhancement of gravitational-wave detectors	4
J Anstie, C Perrella, A Sutton & A Luiten	A dual microwave and optical frequency comb optical spectrum analyser	6
M Bick, M Blundell, D Bowman, J Brown, J Burke, S Dligatch, M Elliott, D Farrant, R Fleddermann, S Francis, M Gray, K Green, T Lam, D McClelland, T McCrae, C Mow-Lowry, S Ngo, B Oreb, L Roberts, J Seckhold, D Shaddock, C Smith, D Stevanovich, A Stochino, A Sutton, P Tregoning, R Ward, B Warrington & D Wuchenich	Design and test of the GRACE follow-on triple mirror assembly	6
RT White, JD Anstie, PS Light & AN Luiten	Stabilised erbium fibre laser for precision measurement	6
Chiral Light and Chiral Photonics		



SS Kruk, M Decker, I Staude, S Schlecht, M Greppmair, DN Neshev & YS Kivshar	Chiral emission with magnetic metamaterials	4
X Zambrana-Puyalto	Inducing giant circular dichroism in non-chiral structures with the angular momentum of light	4
M Decker, I Staude, M Renner, E Waller, DN Neshev, G von Freymann & YS Kivshar	3D-hybrid nanofabrication for near-infrared double-helix metamaterials	4
BP Cumming, MD Turner, GE Schröder-Turk, S Debbarma, B Luther-Davies & M Gu	Direct laser written chalcogenide chiral composites with broadband circular dichroism	6
K Hannam, DA Powell, IV Shadrivov & YS Kivshar	Dispersionless optical activity in coupled chiral meta-atoms	6
DW Coutts	Generating high orbital angular momentum white-light vortex beams	6
	Fluorescence, Upconversion and Nanoparticles	
BC Wilson, DW Roberts & F Leblond	Quantitative fluorescence imaging: models, prototype instrumentation and surgical applications	5
L Scolaro, D Lorensen, W-J Madore, A Kramer, GC Yeoh, N Godbout, DD Sampson, C Boudoux & RA McLaughlin	Optical needle probe for dual optical coherence tomography and fluorescence imaging	5
EA Grebenik, A Nadort, AV Nechaev, AN Generalova, VKA Sreenivasan, SM Deyev & AV Zvyagin	Modelling of breast lesion detection with upconversion nanoparticles	5
A Nadort, EA Grebenik, VKA Sreenivasan, Z Song, AV Nechaev & AV Zvyagin	Evaluation of upconversion nanoparticles for biomedical imaging	7
BC Wilson, P McVeigh & G Zheng	Surface enhanced Raman scattering (SERS) nanoparticle-based imaging of lung cancer	7
H Kang X Li & Gu	Two-photon fluorescence imaging beyond diffraction limit in fibre-optic microscopy	7
	Transmission Technologies	
L Oxenlowe	Invited: Photonic chips for ultra-high bit rate optical signal processing	5
Y Paquot, J Schröder, MD Pelusi & BJ Eggleton	Format transparent all-optical hash code generator and comparator	5
Y Yang, C Lim & A Nirmalathas	Investigation on digitized RoF for future mobile backhaul enabling simplified BS/RRH configuration	7
B Foo, L Du, C Zhu & A Lowery	Performance comparison of RZ and NRZ in dispersion unmanaged systems	7
M Pelusi	Pre-compensation of nonlinear fiber distortion of polarization multiplexed WDM signals by pre-distortion and fiber looped phase conjugation	7
	Atom Optics	
D Anderson	Invited: A matterwave transistor oscillator and other stories of atomtronics	6
M Ghadimi, V Blüms, BG Norton, H Hayden, JM Amini, C Volin, EW Streed & D Kielpinski	A micro-fabricated ion trap with integrated diffractive mirrors	8



BM Sparkes, D Murphy, RJ Taylor, RW Speirs & RE Scholten	Ultracold ion source with Rydberg blockade	8
S Haine	Squeezing the most out of your atom-interferometer: Information recycling beam-splitters for enhanced quantum sensing	8
RW Speirs, DJ Thompson, D Murphy, CT Putkunz, BM Sparkes & RE Scholten	Electron diffraction from a cold atom electron source	8
	Metamaterials	
I Staude, AE Miroshnichenko, M Decker, NT Fofang, S Liu, E Gonzales, J Dominguez, TS Luk, DN Neshev, I Brener & YS Kivshar	Invited: Silicon nanodisks for magnetic-light nanophotonics	6
IV Shadrivov, IV Iorsh, IS Mukhin, PA Belov & YS Kivshar	Graphene hyperbolic metamaterials	8
A Tuniz, KJ Kaltenecker, BM Fischer, M Walther, SC Fleming, A Argyros & BT Kuhlmeiy	Subdiffraction imaging in metamaterial fibres	8
M Liu, DA Powell, IV Shadrivov, M Lapine & YS Kivshar	Self-oscillation in torsional metamaterials	8
W Withayachumnankul, CM Shah, C Fumeaux, K Kaltenecker, M Walther, BM Fischer, D Abbott, M Bhaskaran & S Sriram	Terahertz plasmonic resonators from coaxial cavities	8
	Optical Coherence Tomography	
X Yang, D Lorensen, RA McLaughlin, RW Kirk, M Edmond, C Simpson, MD Grounds & DD Sampson,	Robust ultrathin needle probe with high sensitivity for imaging deep skeletal muscle structure with optical coherence tomography	7
GN Smith, K Kalli & MJ Withford	Femtosecond laser micro-inscription and ablation of optical coherence tomography and elastography phantoms	7
P Gong, YM Liew, L Chin, S Eshaghian, PRT Munro, FM Wood, DD Sampson & RA McLaughlin	Quantitative monitoring of human burn scars using parametric optical coherence tomography	9
L Chin, Aa Curatolo, BF Kennedy, BDoyle, PRT Munro, RA McLaughlin & DD Sampson	A computational model of the mechanical deformation and optical image formation in optical coherence elastography	9
A Curatolo, CC Singe, D Lorensen, PRT Munro & DD Sampson	Improving OCT image quality in turbid structured phantoms by beam shaping	9
PRT Munro, A Curatolo, L Chin, BF Kennedy & DD Sampson	A computational model of partially coherent imaging systems employing an electromagnetic description of light	9
	Workshop - Rogue Waves: Rogue waves and Extreme Events	
F Dias, L O'Brien & JM Dudley	Observation of rogue waves in the ocean	7
A Chabchoub	Experiments on exact NLS rogue wave solutions in water waves	9
NGR Broderick, A Runge, M Erkintalo, CA Yoshi Okawachi, A Johnson & AL Gaeta	Are noise-like pulses optical rogue waves?	9

M Tlidi, A Pimenov, AG Vladimirov, S V Gurevich & K Panajotov	Delayed feedback control of self-mobile localised structures: the role of the phase and carrier lifetime	9
Ultrafast and Strong-Field Phenomena		
JO Tollerud, CR Hal & JA Davis	Probing single quantum pathways in coherently coupled quantum wells with two colour coherent multidimensional spectroscopy	10
IV Litvinyuk, H Xu, WC Wallace, DE Laban, D Kielpinski & RT Sang	Observing the elusive double-peak structure in R-dependent tunneling ionization rate of hydrogen molecular ion	10
NS Gaffney, MG Pullen, CR Hall, JA Davis, A Dubrouil, HV Le, R Buividas, D Day, HM Quiney & LV Dao	High-order harmonic generation in a multi-jet array	10
JE Calvert, H Xu, DE Laban, RD Glover, IV Litvinyuk, D Kielpinski & RT Sang	The interaction of metastable neon with few cycle laser pulses	10
CR Hall, JO Tollerud, GH Richards, E Cannon & JA Davis	Resolving structure in light harvesting complexes with polarised 3D coherent multidimensional spectroscopy	10
X Han, A Zahid, DE Laban, IV Litvinyuk, D Kielpinski & RT Sang	Experiments toward time-domain measurement of attosecond XUV pulses	10
GH Richards, KE Wilk, PMG Curmi & JA Davis	Two-colour spectroscopy to reveal coherences in the photosynthetic light harvesting of cryptophytes	10
Novel Emission Phenomena		
L Zhang, X Zheng, D Liu, Y Liu, & D Jin	Biophotonics and nanophotonics powered by upconversion superdots	10
L Moura, J Canning, L Lindoy, K Cook, M Crossley, Y Luo, G-D Peng, L Glavind & M Kristensen	Fluorescence imaging as a speedy diagnostic tool for analysing self-assembled porous films	10
K Lau, I Staude, Y Liu, H Chen, Z Li & DN Neshev	Spatial control of broadband emission enhancement by selective bottom-up silver nanoparticle deposition	10
J McCallum	Optical switching and photoluminescence in erbium-implanted vanadium dioxide thin films	10
J Storteboom	Wavelength dependent lifetime investigation of nitrogen vacancy centres in nanodiamonds	10
E Bogomolny	Microbiological safety monitoring using an all-fibre spectroscopic fluorescence system	10
Fibre Grating Sensors		
J Sanghera	Invited: Optical materials, devices and applications	11
JW Arkwright, ID Underhill, KN Dodds & PG Dinning	A fibre optic catheter for measurement of pressure and transit in the gastrointestinal tract	11
D Baccini, S Hinckley, G Wild, C Banos & J Davies,	The effect of high dose gamma radiation on single mode fibre Bragg grating sensors	11
F Sidirolou, S Collins & T Nguyen	Monitoring of ammonia vapors using chitosan thin-films on etched fiber Bragg gratings	11
G Allwood, G Wild & S Hinckley	Intensimetric multiplexing of temperature and pressure fibre Bragg grating sensors	11
DY Stepanov & L Corena	Grating writing with 1000 nm of wavelength control	11



	Laser Development	
Q Mocaer, Y Zaouter, F Guichard, L Daniault, M Hanna, F Morin, C Hönninger, E Mottay, F Druon & P Georges	Femtosecond fiber chirped- and divided-pulse amplification	11
O Kitzler, A McKay, R Williams, VM Hadiya & RP Mildren	Fibre laser pumped continuous-wave external cavity diamond Raman laser	11
DD Hudson, RJ Williams, MJ Withford & SD Jackson	A single frequency mid-infrared fiber laser	11
B Wellmann, DJ Spence & DW Coutts	Tunable deep-UV laser based on Ce:LiCAF	11
F Xiao & K Alameh	A reconfigurable multi wave length fibre laser source for next generation of optical networks	11
DG Lancaster, S Gross, MW Withford, TM Monro, H Ebendorff-Heidepriem & SD Jackson	A miniature chip-scale mid-infrared glass laser	11
Posters - Optical Materials and Devices		
M Asaduzzaman, M Bakaul, S Skafidas & MRH Khandokar	High efficient multi-layered silicon mirror based grating coupler with high SNR	12-13 (P-1)
F Turella, BP Cumming & M Gu	Study of localised cumulative heating in chalcogenide glass thin films	12-13 (P-7)
A Maleki, A Hautin, T-P Vo, JE Downes & JM Dawes	Excitation of surface plasmon polaritons by half-circular gratings	12-13 (P-8)
TD James, S Earl, TJ Davis & A Roberts	Nano antenna families for optics applications	12-13 (P-9)
H An, A Arriola, S Gross, A Fuerbach, MJ Withford & S Fleming	Femtosecond laser written optical waveguides in boroaluminosilicate glass with thermal poling induced nonlinearity	12-13 (P-12)
CJ Davey, A Argyros, SG Solomon & SC Fleming	Neural interfacing devices fabricated by fibre drawing	12-13 (P-11)
MDR Kaysir, A Argyros, RW MacQueen, TW Schmidt & S Fleming	Novel approach for reducing reabsorption in luminescent solar concentrators	12-13 (P-10)
Yi Yu, X Gai, P Ma, T Wang, R Wang, Z Yang, D-Y Choi, S Madden & B Luther-Davies	Progress of mid-IR supercontinuum generation in chalcogenide glasses	12-13 (P-13)
J Harrison, S Foster & A Tikhomirov	External feedback in distributed-feedback fibre lasers	12-13 (P-14)
T Hu, DD Hudson & SD Jackson	3- μ m-class ring cavity fibre laser	12-13 (P-15)
MI Hussain	Graphene saturable absorber mirror for fiber laser mode-locking at 15.9 nm bandwidth	12-13
N Iwanus, DD Hudson, T Hu, L Shterengas & SD Jackson	Dual wavelength pumped holmium fibre laser	12-13 (P-17)
S-H Kim, M-H Lee, J-S Park, K-G Lee & I-K Hwang	Design and experimental evaluation of solar lighting fiber	12-13 (P-18)
J-S Park, D-H Kwak, S-H Kim & I-K Hwang	Microfluid manipulation in capillary tube by acoustic wave	14-15 (P-19)
A Khaleque, Z Li & HT Hattori	Controlling the properties of photonic nanojets by using the magneto-optical effect	14-15 (P-22)
RH Khandokar, M Bakaul, S Skafidas, T Nirmalathas & M Asaduzzaman	Tailoring dispersion by exploiting geometry of silicon waveguides	14-15 (P-23)



RH Khandokar, M Bakau, S Skafidas, T Nirmalathas & M Asaduzzaman	Performance bounds of silicon waveguides in engineering dispersion	14-15 (P-24)
L Liu, IV Shadrivov, DA Powell, R Raihan, HT Hattori, M Decker, E Mironov & DN Neshev	Liquid crystal tunable terahertz metamaterials	14-15 (P-25)
A McKay, OKitzler, AJ Lee & RP Mildren	Strong astigmatic lensing in high-power (>7 W) tungstate external-cavity Raman lasers	14-15 (P-26)
RJ Williams, O Kitzler, A McKay & RP Mildren	Quasi-CW-pumping of diamond Raman lasers	14-15 (P-27)
EG Mironov, WJ Toe, PJ Reece & HT Hattori	Titanium absorption layer in fishnet metamaterials.	14-15 (P-29)
A Mirzaei, A Miroshnichenko & I Shadrivov	Nonlinear scattering in plasmonic structures	14-15 (P-30)
M Murtagh, J Lin & DJ Spence	Synchronously pumped femtosecond diamond raman laser	14-15 (P-31)
Y Luo, Z Sathi, A Zareanborji, J Zhang, B Yan, J Canning & G D Peng	Bi/Er/Yb co-doped fibre with very broad 1030-1560 nm emission under 830nm pump	14-15 (P-33)
S Soltic & A Chalmers	Laser-based white-light illuminants	14-15 (P-35)
S Song, X Yi & T Huang	1550nm single-mode APC waveguides fabricated by laser cutting	14-15 (P-36)
S Tabrizi, B Jia & M Gu	Periodic nanostructure fabrication in amorphous silicon using direct laser printing	14-15 (P-21)
L Harris, M Clark, O Henderson-Sapir, D Ottaway & P Veitch	Compact Q-switched Er:YAG lasers at 1.64 um	14-15 (P-37)
K Yan, K Vu, R Wang, S Debbarma, B Luther-Davies & S Madden	Emission properties of Er-doped As ₂ S ₃ waveguides	14-15 (P-39)
Y Zhang, N Stokes, B Jia & M Gu	Large absorption enhancement in thin Si wafer solar cells by metallic nanoparticle light trapping	14-15 (P-20)
	Posters - Optical Communications and Photonic Systems	
D Saunders, A Bennet & G Pryde	Experimentally characterising nonlocal correlations in entanglement swapping	12-13 (P-2)
J Carpenter, BJ Eggleton & J Schröder	Measurement and inversion of the transfer matrix of a multimode fibre	12-13 (P-3)
CJ Chae & E Skafidas	Circular Bragg grating for reduced lateral and vertical diffraction in silicon waveguides	12-13 (P-4)
BA Clare, S Manning, KJ Grant & KA Mudge	Development of a long range scintillometer using the angle-of-arrival technique	12-13 (P-6)
S Manning, BA Clare, KA Mudge & KJ Grant	GPU-accelerated atmospheric propagation simulations	12-13 (P-5)
J McLaren, B Wedding, Skelly & B Field	Experimental investigation of light propagation through simulated turbulence: Comparison of narrow and broadband signals	14-15 (P-28) (4)
B Yan, Y Luo, A Zareanborji, J Zhang, J Canning & GD Peng	1350 - 1470 nm optical amplification with bismuth / erbium co-doped fibre	14-15 (P-32)
N Riesen, A Argyros, A Parini, R Lwin, SG Leon-Saval, G Bellanca, P Bassi & JD Love	Holey fibre mode-selective couplers	14-15 (P-34)



WZ Wan Ismail, TP Vo, DW Coutts, E M Goldys & JM Dawes	Comparison of random lasing threshold for dielectrics and metal nanoparticles	14-15 (P-38) (5)
WZ Wan Ismail, TP Vo, DW Coutts, EM Goldys & JM Dawes	Comparison of lasing threshold for dye-alumina and dye-gold nanoparticle random lasers	(2)
	Tuesday 10 December	
M Padgett	Plenary: Light in a twist: Optical angular momentum	16
J Harvey	AOS WH (Beattie) Steel Medalist presentation	16
	On-chip Quantum and Nonlinear Optics	
IV Kabakova, R Pant, D-Y Choi, S Debbarma, S J Madden, B Luther-Davies & BJ Eggleton	Spectral purifier using chalcogenide chip	16
J Titchener, AS Solntsev & AA Sukhorukov	On-chip generation of photon pairs with tailored spatial entanglement	16
C Xiong, J He, M J Collins, J Li, TF Krauss, AS Clark & BJ Eggleton	Degenerate correlated photon pair generation in an ultra-compact silicon chip	16
RB Patel, MA Pooley, DJP Ellis, AJ Bennett, AKH Chan, I Farrer, DA Ritchie & AJ Shields	Operation of an on-chip controlled-NOT gate using single photons from a quantum dot	18
AS Solntsev, F Setzpfandt, AS Clark, A Schreiber, F Katzschmann, R Schiek, W Sohler, C Silberhorn, T Pertsch, A A Sukhorukov, DN Neshev & YS Kivshar	Active biphoton quantum walks at the edge of quadratic waveguide arrays	18
C Xiong	Bi-directional multiplexing of heralded single photons from a silicon photonic chip	18
	Plasmonics	
S Xie, Y Chen, Z Ouyang, B Jia, W Cheng & M Gu	Enhanced light trapping of the indium tin oxide films by ultrathin gold nano-membrane	16
AN Poddubny, AE Miroshnichenko, AP Slobozhanyuk & YS Kivshar,	Topological Majorana edge states in zigzag chains of plasmonic nanoparticles	16
W Yan, MM Hossain & M Gu	High light-confining ability of micrometre-sized parabolic mirror arrays fabricated by direct laser writing	(P-40)
J Cadusch, T James & A Roberts	Polarization sensitive plasmonic cross apertures	16
AI Kuznetsov, AE Miroshnichenko, C Yiguo, V Viswanathan, YH Fu, D Pickard, Y Kivshar & B Luk'yanchuk	Nanoplasmonic split-ball resonator	18
Q Zhang, X Li, MM Hossain, J Song, Q Bao & M Gu	Enhancement of the propagation length of graphene surface plasmons on silicon waveguides at the tele-communication frequencies	18
	Distributed, Range and Position Sensing	
R Blaikie	Invited: Optical near-fields engineered for super-resolution lithography	17
L Roberts, R Ward, EMalikides, D Bowman, A Sutton, D Wuchenich, C Smith, D McClelland & D Shaddock	Optical phased arrays for space debris tracking, ranging and manoeuvring	17
TD Vo, J He, E Magi, MJ Collins, AS Clark, B Ferguson, C Xiong & BJ Eggleton	High resolution As ₂ S ₃ fibre-based distributed temperature sensor	19



N Riesen, TT-Y Lam & J H Chow	Digitally range-gated optical frequency domain reflectometry	19
A Nadort, RG Woolthuis, K Kalkman, TG van Leeuwen & DJ Faber	Quantitative laser speckle flowmetry: In vivo calibration using sidestream dark field microscopy	19
	Device Technologies	
JD Love & N Riesen	Wavelength-independent mode-selective couplers for few-mode fibre networks	17
I Spaleniak, S Gross, N Jovanovic, R Williams, M Ireland, J Lawrence & M Withford	On-chip, narrowband spectral filtering of multimode devices	17
S Song, X Yi & T Huang	Highly selective optical bandpass filter based on double-column serial microring array	17
S Stützer, AS Solntsev, JE Sipe, A Szameit & AA Sukhorukov	Simulation of two-mode squeezing in optical waveguide arrays	19
Z Chaboyer, T Meany, LG Helt, MJ Steel & MJ Withford	Tunable, monolithic, three-path interferometer using three-dimensional laser fabrication	19
Xi Chen, J He, A Li, J Ye & W Shieh	Channel dynamics of few-mode fiber transmission	19
	Degenerate Gases	
A Truscott	Invited: Matter wave coherence	18
I Mordovin, A Brolis, M Egorov, BV Hall & AI Sidorov	Observation of RF induced Feshbach resonances	20
M Lingham, K Fenech, S Hoinka & C Vale	Emergence of the Bose mode in a unitary Fermi gas	20
S Jose, P Surendran, Y Wang, I Herrera, M Singh, L Krzemien, S Whitlock, R McLean, A Sidorov & P Hannaford	Bose-Einstein condensation in a magnetic lattice	20
	Optical Antennas	
A Roberts	Invited: Optical antennas: Dynamic control with tunable substrates and tailored beam excitation	18
IS Maksymov & YS Kivshar	Broadband light coupling to dielectric slot waveguides with tapered plasmonic nanoantennas	20
B Hopkins, AN Poddubny, AE Miroshnichenko & YS Kivshar	The physics of Fano resonances in nanoscale oligomers	20
S Earl, TD James, DE Gomez, TJ Davis, RF Haglund & A Roberts	Fabrication and thermoplasmonic simulation of tunable optical antennas	20
N Kostylev, IS Maksymov, AO Adeyeye, S Samarin, Mostylev & JF Williams	Surface-plasmon-enhanced transverse magneto-optical Kerr effect in Permalloy gratings	20
	Chemical and Material Sensing	
J Kvensakul, D Measday, P Zhong, P Farrell, NA Tse & A Roberts	In-situ dynamic speckle analysis in cultural materials conservation	19
J Dong, TT-Y Lam, MB Gray & JH Chow	Cavity enhanced amplitude modulated laser absorption spectroscopy for isotopic ratio sensing	19
F Chu, G Tsiminis, C E Lang, NA Spooner & TM Monro	Measuring nitroaromatic explosives using polymer-coated microstructured optical fibers	21

B Orr, Y He & I Jamie	Trace sensing of ammonia in air by fiber-coupled continuous-wave cavity-ringdown spectroscopy	21
JM Dawes, J Zhao, D Jin, Y Lu, L Zhang, EM Goldys JA Piper, C McRae, EP Schartner & TM Monro	Tuning the properties of upconversion nanoparticles - luminescence and lifetime	21
EP Schartner, J Zhao, D Jin & TM Monro	Detection of NaYF ₄ : Tm/Yb nanoparticles using suspended core microstructured optical fibres	21
	Workshop - Rogue Waves: Rogue Waves and Extreme Events	
N Hoffmann & A Chabchoub	Wave tank experiments and HOSM simulations on breather solutions of the nonlinear Schrodinger equation	19
SU Galiev & BR Mice	Transresonant catastrophic amplification of ocean waves	19
S Chen, P Grelu & JM Soto-Crespo	Dark rogue waves in media with long wave – short wave resonance	21
AFJ Runge, C Agueraray, N R Broderick & M Erkintalo	Raman rogue waves in long cavity fibre laser	21
M Taki, Z Liu, S Coulibaly & F Léo	Secondary instabilities and dissipative rogue waves in fibre cavities	21
W Chang & N Akhmediev	Exploding solitons and rogue waves	21
	Post-deadline Papers	
R Guo, M Decker, I Staude, DN Neshev & YS Kivshar	Frequency-selective bi-directional Fano antennas	20
AP Slobozhanyuk, PV Kapitanova, DS Filonov, DA Powell, IV Shadrivov, M Lapine, PA Belov, RC McPhedran & YS Kivshar	Nonlinear optical bridges for metamaterials	22
RJ Williams, O Kitzler, A McKay & RP Mildren	Planar diamond waveguide Raman laser operating at 573 nm and 620 nm	22
Y Yu, X Gai, P Ma, Z Yang, R Wang, D-Y Choi, S Madden, S Debbarma & B Luther-Davies	A stable broadband quasi-continuous mid-infrared supercontinuum generated in a chalcogenide glass waveguide	22
	Novel Platforms	
JC McCallum, C Yin, M Rancic, GG de Boo, N Stavrias, MJ Sellars & S Rogge	A hybrid optical-electrical pathway to Quantitative optical coherence elastography	20
N Lai, K Li, T Jegathees & J Canning	The detection of dopant adsorption onto silica nanoparticles through photon correlation spectroscopy	22
B Cai, B Jia & M Gu	Light trapping in ultrathin amorphous silicon solar cells with heterostructured lumpy nanoparticle conformal structure	22
J Canning, M Ma, BC Gibson, J Shi, K Cook & MJ Crossley	The nanostructure of self-assembled silica microwires: a crystalline pure silica zeolite?	22
	Imaging 1: Elastography	
KM Kennedy, L Chin, RA McLaughlin, DD Sampson & BF Kennedy	High-resolution stress sensor for quantitative Optical coherence elastography	21
RW Kirk, BF Kennedy, L Chin, KM Kennedy, DD Sampson & RA McLaughlin	GPU-accelerated video-rate optical coherence elastography	



BF Kennedy, KM Kennedy, L Chin, RA McLaughlin & DD Sampson	Optical elastography for high resolution imaging of tissue mechanical properties	
S Eshaghian, BF Kennedy, K Kennedy, L Chin, P Gong, RA McLaughlin & DD Sampson	In vivo micro-palpation imaging of human skin	
	Workshop - Rogue Waves: Rogue waves & extreme events	
L Guo, Y Zhang, L Wang & J He	Non-symmetrical optical rogue waves	21
IR Gabitov & AI Maimistov	Modulation instability in optical metamaterials	22
K Panajotov, M Virte, H Thienpont & M Sciamanna	Two-mode dynamics of vertical-cavity surface-emitting lasers	22
N Devine, A Ankiewicz, JM Soto-Crespo & N Akhmediev	Rogue waves and their early detection	22
	Posters - Atom, Quantum and Nonlinear Optics, and Optical Spectroscopy	
D Antonosyan, AS Solntsev, AA Sukhorukov & YS Kivshar	Single-photon down-conversion in nonlinear waveguide arrays	24-25 (P-71)
M Baker, L Humbert, B Henson, TW Neely, SA Haine, MWJ Bromley, MJ Davis, H Rubinsztein-Dunlop	Engineering synthetic rotations with ultracold atoms	24-25 (P-41)
MJ Collins, C Grillet, S Shahnian, AS Clark, AC Judge, EC Magi, P Grosse, B Bakir, S Menezzo, JM Fedeli, C Xiong, MJ Steel, DJ Moss, BJ Eggleton & C Monat	Photon-counting Raman spectroscopy of chip-scale photonic devices	24-25 (P-44)
EM Goldys B Witkowski, K Drozdowicz-Tomsia, M Sobhan, M Godlewski & JM Dawes	Incoherent cathodoluminescence in plasmonic gold nanostructures	24-25 (P-47)
K Fenech, MG Lingham, T Pepler, S Hoinka & CJ Vale	Towards large two-dimensional Fermi gases	24-25 (P-48)
X Fernandez-Gonzalvo & J Longdell	Exploring the hyperfine structure of $^{167}\text{Er}:\text{Y}_2\text{SO}_5$ via spectral hole burning	24-25 (P-49)
S-H Han & Y Lee	Laser-induced breakdown spectroscopy of heavy metal ions in water: improving limits of detection	24-25 (P-51)
R Donaldson & E Jaatinen	Phase conjugate enhancement of doughnut mode beam intensity	24-25 (P-55)
S Grunefeld & E Jaatinen	Quantum model of second harmonic generation in gold nanoparticles	24-25 (P-56)
I Jizan, LG Helt, MJ Collins, E Mägi, C Xiong, MJ Steel, AS Clark & BJ Eggleton	High resolution joint spectral intensity measurements of photon pairs	24-25 (P-57)
L Li, A Chia, & HM Wiseman	The pointer basis and the feedback stabilization of quantum systems	26-27 (P-62)
N McKay-Parry, C Harabula, J Sabbatini, TW Neely & H Rubinsztein-Dunlop	Dual-component condensates for quantum emulation of percolation	26-27 (P-65)
R McLean, D Budker & A Akulshin	Directionality of frequency-converted infrared and blue radiation generated by parametric wave mixing	26-27 (P-66)
L Mejling, DV Reddy, CJ McKinstrie, K Rottwitz & MG Raymer	Optimization of quantum-state-preserving frequency conversion by changing the input	26-27 (P-67)



	signal	
I Mordovin, A Brolis, M Egorov, BV Hall & AI Sidorov	Precision measurement of the highest bound state energy in ^{87}Rb	26-27 (P-68)
T Mcrae, S Ngo, D Shaddock & M Gray	Using a fibre Michelson interferometer as a laser frequency reference	26-27 (P-69)
JS Torrance, BM Sparkes & RE Scholten	Laser locking and linewidth reduction techniques	26-27 (P-73)
Y Wang, P Surendran, S Jose, I Herrera, S Whitlock, R McLean, A Sidorov & P Hannaford	Sub-micron period 2D magnetic lattices for ultracold atoms	26-27 (P-75)
H Xu, J-P Maclean, DE Laban, WC Wallace, D Kielinski, RT Sang & IV Litvinyuk	Carrier-envelope phase effect for dissociation of molecular hydrogen	26-27 (P-76)
Z Yan, Y Duan, MJ Withford & MJ Steel	Femtosecond laser-written fused silica waveguides for quantum optics	26-27 (P-77)
A Zahid, X Han, DE Laban, IV Litvinyuk, D Kielinski & RT Sang	Optimization of attosecond XUV pulses	26-27 (P-78)
	Posters - Optical Sensors and Imaging, Including Microscopy	
S Gao, J Canning & K Cook	Broadband, chirped regenerated fibre Bragg gratings for ultrahigh temperature operation	24-25 (P-42)
S Gao, J Canning, A Loubert, K Cook & M Lancry	Regenerated fibre Bragg grating array by high-temperature strain-tuning	24-25 (P-43)
M Nazari, M Duke, MR Hill, S Collins & F Sidirolglou	Zeolite-based optical fibre sensor for selective sensing of alcohols in water	24-25 (P-45)
MA Go, A Colibaba, C Stricker, S Redman, H Bachor & V Daria	Femtosecond-laser surgery for analysing morphology-dependent neuronal function	24-25 (P-46)
PR Dolan, XP Li, J Storteboom & M Gu	Imaging nitrogen vacancy centres with cylindrically polarised beams for orientation determination of magnetic dipoles	24-25 (P-60)
BJ Gouhier, K-L Lee, A Nirmalathas, C Lim & E Skafidas	Measurement of E-field using an electro-optic probing scheme with a balanced heterodyne architecture	24-25 (P-50)
P Jansz, S Richardson, G Wild & S Hinckley	Characterising the resolvability of OCT light sources using an interferometry model	24-25 (P-52)
M Keenan, G Allwood, G Wild & S Hinckley	The effects of lateral and longitudinal loading on a fibre Bragg grating pressure sensor	24-25 (P-53)
H Laiq, K Amir, G Oscar, W Qin, N Bertrand & P Håkan	Structural and optical characterization of MBE and MOVPE grown InSb QDS on InAs substrate	24-25 (P-16) (P-54)
X Li, Y Jiang & M Gu	Configuring light-induced magnetization by tightly focusing cylindrically polarized beams	24-25 (P-59)
H Ren, H Lin, X Li & M Gu	Three-dimensional parallel recording with a diffraction-limited multifocal array	24-25 (P-58)
B Klyen, L Scolaro, T Shavlakadze, MD Grounds & DD Sampson	Diseased muscle can be assessed by near-infrared imaging of the tissue optical extinction	26-27 (P-61)
LR Taylor, DL McAuslan & JJ Longdell	Using quantum memories for ultrasound-modulated optical tomography	26-27 (P-63)
P Ma, D-Y Choi, Z Yang, Y Yu, S Madden & B Luther-Davies	Low-loss chalcogenide waveguides for chemical sensing in the mid-infrared	26-27 (P-64)
D-T Pham, LV Nguyen & T Monro	Toluene vapour sensing using β -cyclodextrin	26-27



	immobilized within a suspended core optical fibre	(P-70)
EW Streed	Limits to imaging trapped ions	26-27 (P-72)
P Veitch, K Boyd, W Kim & J Munch	Single shot, high sensitivity laser beam profiling using Hartmann wavefront sensors	26-27 (P-74)
Wednesday 11 December		
B Tromberg	Plenary: Engineering optics from benchtop to bedside	28
P Stahl	SPIE President-elect Presentation: James Webb Space Telescope – the first light machine	28
Quantum Information Theory		
S Daryanoosh & H Wiseman	Quantum jumps are more quantum than quantum diffusion	28
TM Wright, JZill, M Rigol, T Gasenzer, KV Kheruntsyan & MJ Davis	Geometric measures of quantum relaxation	28
I Herrera, F Schäfer, FS Cataliotti, F Caruso & A Smerzi	Quantum dynamics in a zeno subspace	28
I Guevara	Quantum smoothing & completely positive quantum trajectories	28
J Christensen, L Mejling & K Rottwitt	Nonlinear pulse-resaping of sub-picosecond pulses by non-degenerate four-wave mixing	30
Nanophotonics		
C Poulton	Invited: Stimulated Brillouin Scattering and acoustic mode confinement in integrated photonic circuits	28
Y Cao, X Li & M Gu	Breaking the diffraction limit for ultra-high density optical memory	28
KE Chong, B Hopkins, I Staude, AE Miroshnichenko, J Dominguez, M Decker, DN Neshev, I Brener & YS Kivshar	Observation of Fano resonance in silicon oligomers	28
RF/Microwave Technologies		
B Morrison, D Marpaung, R Pant, D-Y Choi, S Madden, B Luther-Davies & BJ Eggleton	High resolution on-chip RF photonic notch filter with enhanced energy efficiency	29
KGH Baldwin, Y He, BJ Orr, RB Warrington, AN Luiten, P Mirtschin, T Tzioumis, C Phillips, G Aben, T Newlands & T Rayner	RF laser-transfer timing for radio astronomy	29
SW Schediwy, N Altman, J Anstie, P Light & Andre N Luiten	Microwave frequency transfer over optical fibre	29
L Li, X Yi, T Chen & T Huang	Novel continuously tunable spectrum sliced microwave photonic signal processor	29
Z Yan, J-P Bourgoin, BL Higgins, E Meyer-Scott, N Gigov & T Jennewein	High speed BB84 decoy state quantum key distribution source for uplink quantum satellite	31
Workshop - Rogue Waves: Rogue waves and Extreme Events		
SC Müller, TSakurai & H Miike	Large amplitude waves in an active medium	29
HR Brand, C Cartes, J Cisternas & O Descalzi	Exploding dissipative solitons in two dimensions	29



A Ankiewicz, MA Chowdhury, N Devine & N Akhmediev	Rogue waves: effect of higher-order terms	29
N Akhmediev, J Kedziora & A Ankiewicz	Rogue waves – higher order structures	29
SU Galiev & RGJ Flay	Extreme wave/hull element interaction	31
	Quantum Optics and Quantum Information	
A Jechow, M Seefeldt, H Kurzke, A Heuer & R Menzel	Invited: Enhanced two photon excited fluorescence by photon bunching	30
M Weston, MJ Hall, MS Palsson, HM Wiseman & GJ Pryde	Experimental investigation of a quantum joint measurement uncertainty relation	30
B Bell, S Kannan, A McMillan, AS Clark, WJ Wadsworth & JG Rarity	Quantum metrology with non-degenerate entangled photons	30
M Zhong, MJ Sellars, RL Ahlefeldt & JP Bartholomew	Maximizing spin coherence times in rare-earth optical centres	32
GA Brawley, MR Vanner, S Schmid, A Boisen & WP Bowen	Quadratic measurement and conditional state preparation in an optomechanical system	32
	Fibre and Waveguide Technologies	
SWarren-Smith, R Kostecki, H Ebendorff-Heidepriem & T Monro	Fabrication and splicing of exposed core microstructured optical fibres	30
TFS Büttner, IV Kabakova, DD Hudson, R Pant, CG Poulton, AC Judge & BJ Eggleton	Generation of picosecond pulses via stimulated Brillouin scattering and four wave mixing	30
I Aryanfar, C Wolff, A Casas-Bedoya, MJ Steel, CG Poulton & BJ Eggleton	Radiation pressure and non-reciprocal mode-conversion in nanophotonic waveguides	30
KJ Rowland & H Ebendorff-Heidepriem	Extruded soft glass single-ring hollow core fibres	30
WQ Zhang, S Manning, H Ebendorff-Heidepriem & TM Monro	Lead silicate microstructured optical fibres for electro-optical applications	32
SC Warren-Smith & TM Monro	Exposed-core microstructured optical fibre Bragg grating refractometer	32
	Sensing Technologies	
CJR Sheppard, R Heintzmann, S Mehta, G Vicidomini & A Diaspro	Invited: Imaging and super resolution using source and detector arrays	31
SHM Larsen & K Rottwitt	Effect of aircladding on Bessel-like modes	31
S Askraba, A Paap, K Alameh, J Rowe & C Miller	Optoelectronics-based plant discrimination sensor for precision agriculture	31
L Zhang, A McKay, J Dawes & D Jin	Multimodality characterisation system to study lanthanide doped upconversion superdots	33
G Sharafutdinova, A Hosseini, J Holdsworth & D van Helden	Investigating a new volume scanner	33 (1)
	Novel Integrated Photonics	
J Chennupati	Invited: Compound semiconductor nanowires for optoelectronic device applications	31
Y Zhang, C Husko, J Schröder, S Lefrancois, I Rey, T Krauss & BJ Eggleton	Single-pump phase sensitive amplification in silicon photonic crystal waveguides	31
S Francis, K McKenzie, T Lam, A Sutton, R Ward, D McClelland & D Shaddock	Femtowatt level weak light phase tracking	31
A Blanco-Redondo, C Husko, D Eades, Y Zhang, J Li, T Krauss & BJ Eggleton	First observation of soliton compression in silicon photonic crystals	33

J Schröder, LB Du, J Carpenter, BJ Eggleton & AJ Lowery	Reconfigurable universal transmitter for rapid prototyping and flexible signal generation	33
Nonlinear Fibre Optics		
DA Smirnova, AV Gorbach, IV Iorsh, IV Shadrivov & YS Kivshar	Linear and nonlinear graphene waveguide couplers	32
MJ Petrasiusnas, MI Hussain, J Canning, M Stevenson & D Kielpinski	High-power 370 nm picosecond pulse source for trapped-ion quantum logic	32
W Chang, P Hölzer, JC Travers & P Russell,	Ionization-induced soliton blue-shift and compression in gas-filled photonic crystal fibers	32
S Legge, J Holdsworth, B Zwan, L Collins, J Martin, K Cook & J Canning	Low order solitons in higher order electromagnetic modes of photonic crystal fibre	32 (3)
PS Light, J Poulin & AN Luiten	Laser-cooled rubidium in hollow optical fibres	34
C Perrella, PS Light, JD Anstie, A Lurie, F Benabid, TM Stace, AG White & AN Luiten	Non-linear spectroscopy of gas-filled hollow-core optical fibres	34
Nonlinear Materials and Characterisation		
B Jia, B Mashford, X Zheng & M Gu	Nonlinear photonic crystal in quantum dot films	32
X Gai, Y Yu, B Kuyken, P Ma, SJ Madden, J Van Campenhout, P Verheyen, G Roelkens, R Baets & B Luther-Davies	The measurement of nonlinear absorption and refraction in crystalline silicon for 2.75–5.5 μm	32
Y Sheng, V Roppo, D Ma & W Krolikowski	Unified approach to nonlinear Cerenkov radiation in waveguides and bulk media	32
Y Sun & AA Sukhorukov	Optomechanical chaos with nanobeam cavities	32
A Rose, DA Powell, IV Shadrivov, DR Smith & YS Kivshar	Third order nonlinearity in chiral metamaterials	34
X Zheng, B Jia, XChen & M Gu	Ellipsometry characterisation of graphene oxide thin films through the laser-induced reduction process	34
Wavefront Propagation, Imaging and Correction		
CJR Sheppard, SS Kou & J Lin	Optical propagation using three-dimensional spatial frequency representation	33
D Lorensen, CC Singe, A Curatolo, SR Henn & DD Sampson	Energy-efficient achromatic low-Fresnel-number Bessel-like beams for optical imaging generated using a spatial light modulator	33
K Ingerslev, SH Larsen & K Rottwitt	S ² -imaging of Bessel-like beams	33
HV Le, KB Dinh, P Hannaford & LV Dao	Coherent diffractive imaging with table-top high harmonic generation	33
S Sané, N Robins, H Bachor & V Daria	Optimising light delivery into brain	35
Quantum and Nonlinear Optics		
S Slussarenko, V D'Ambrosio, N Spagnolo, L Del Re, E Nagali, SP Walborn, L Aolita, Y Li, L Chuan Kwek, L Marrucci & F Sciarrino	Polarization gears: Controlling the polarization rotation by orbital angular momentum	33
SMM Friis & K Rottwitt	Raman and loss induced quantum noise in a depleted phase-sensitive parametric amplifier	33
C Husko, AS Clark, MJ Collins, A De Rossi, S Combrié, G Lehoucq, IH Rey, TF Krauss, C Xiong & BJ Eggleton	Nonlinear limits to heralded photon sources	33

LG Helt, RT Horn, P Kolenderski, D Kang, P Abolghasem, SV Zhukovsky, G Weihs, AS Helmy, T Jennewein & JE Sipe	Effect of spectral correlations on optical bell state polarisation fringe visibility	33
J Carpenter, C Xiong, MJ Collins, J Li, TF Krauss, BJ Eggleton, AS Clark & J Schröder	Orbital angular momentum multiplexed single-photon and classical channels in a few-mode fibre	35
LG Helt, JE Sipe & MJ Steel	Spontaneous four-wave mixing dynamics	35
	Award-Ceremony	
I Aharonovich	AOS Geoff Opat (Early Career Researcher) Award	34

*AOS provides this document as a service to the community, but accepts no responsibility for any errors it might contain

