

WORKSHOP PROGRAMME

		Thursday 8th April
18:00 - 19:00		Welcome Reception and Registration CAPE Building (Centre for Advanced Photonics and Electronics)
		Friday 9th April
08:00 Onwards		Registration William Gates Building, Computer Laboratory
08:30 – 09:15	FrA	Plenary: Evolution of Planar Waveguide Devices: Communication and Sensing Applications <i>Katsunari Okamoto</i> . Location: LR1 (Lecture Room 1)
Session 1 09:15 - 10:45	FrJA	ECIO / OWTNM Joint Session: Microresonators Chair: Trevor Benson, University of Nottingham, UK Location: LR2 (Lecture Room 2)
09:15 - 09:45	FrJA1	Analysis of Rotationally Symmetric Resonators (Invited) <i>A. Vukovic, P. Sewell, T. M. Benson</i>
09:45 - 10:00	FrJA2	3D Light Confinement in Air : The Photon Cage <i>C. Sieutat, X. Letartre, P. Viktorovitch, J. L. Leclercq, A. Danescu, G. Grenet, H. Magoariec</i>
10:00 - 10:15	FrJA3	Light Localization and Collection Systems Employing Micro/Nano-Spheres <i>B. Stout, A. Devilez, N. Bonod</i>
10:15 - 10:30	FrJA4	Modeling of Rare Earth Doped Microspheres <i>A. Di Tommaso, M. De Sario, M. Ferrari, L. Mescia, T. Palmisano, G. C. Righini, F. Prudenzano</i>
10:30 - 10:45	FrJA5	Modeling of Racetrack Resonator with Grating Assisted Coupling <i>P. Orlandi, M. Gnan, A. Samarelli, G. Bellanca, A. Melloni, R. M. De La Rue, M. Sorel, P. Bassi</i>
10:45 - 11:15		Coffee Break and Informal Viewing of Poster Presentations - Location: FW11
Session 2 11:15 - 12:45	FrJB	ECIO / OWTNM Joint Session: Quantum Phenomena Chair: Dominic Gallagher, Photon Design Location: LR2 (Lecture Room 2)
11:15 - 11:30	FrJB1	Quantum Random Walks Circuits with Photonic Waveguides <i>A. Peruzzo, J. Matthews, A. Politi, M. Lobino, X-Q. Zhou, M. G. Thompson, J. O'Brien, N. Matsuda, N. Ismail, K. Wörhoff, Y. Bromberg, Y. Lahini, Y. Silberberg</i>
11:30 - 11:45	FrJB2	Integrated Optics Implementation of Universal Quantum Gates, Bell States Preparation Circuit, Quantum Relay and Quantum LDPC Decoders <i>I. B. Djordjevic</i>
11:45 - 12:00	FrJB3	Monolithic Directional Optical Antennas for Funneling Photons to Single Emitters <i>X-W. Chen, V. Sandoghdar, M. Agio</i>

12:00 - 12:15 FrJB4 **Tm:Ti:LiNbO₃ Waveguide for Quantum Memory Applications**
M. George, R. Ricken, W. Sohler, E. Saglamyurek, N. Sinclair, C. La Mela, W. Tittel

12:15 - 12:30 FrJB5 **A Compiled Version of Shor's Quantum Factoring Algorithm on a Waveguide Chip**
A. Politi, J. C. F. Matthews, J. L. O'Brien

12:30 - 12:45 FrJB6 **Entangled Multi-Photon States in Waveguide for Quantum Metrology**
J. C. F. Matthews, A. Politi, D. Bonneau, J. L. O'Brien, A. Stefanov

12:45 - 13:45

Lunch Break - Department of Physics, Cavendish Laboratory

Session 3 FrE
13:45 - 15:30 **Periodic Structures and Photonic Bandgaps**
Chair: John Love, The Australian National University, Canberra
Location: LR2 (Lecture Room 2)

13:45 - 14:00 FrE1 **Semi-Analytical Approach to the Analysis and Design of Photonic Crystal Cavities**
M. Felici, K. A. Atlasov, A. Surrente, K. F. Karlsson, E. Kapon

14:00 - 14:15 FrE2 **Normalized Analysis for Large Tolerance Binary Gratings from a Modal Approach**
T. Kämpfe, E. Gamet, F. Pigeon, O. Parriaux

14:15 - 14:30 FrE3 **Three-Dimensional Far Field Analysis for Photonic-Crystal Nanolasers**
J. Adam, K. A. Atlasov, E. Kapon, M. Gerken

14:30 - 14:45 FrE4 **Optimizing Two-Dimensional Photonic Crystal Waveguide Bends**
Z. Hu, Y. Y. Lu

14:45 - 15:00 FrE5 **Robust Topology Optimization of Photonic Crystal Waveguides with Tailored Dispersion Properties**
F. Wang, O. Sigmund, J. Søndergaard Jensen

15:00 - 15:15 FrE6 **Optimal Tunability of Waveguides based on Silicon Photonic Crystals Infiltrated with Liquid Crystals**
J. Cos, J. Ferré-Borrull, J. Pallarés and L. F. Marsal

15:15 - 15:30 FrE7 **Coupled-Resonator Optical Waveguides: Q-factor and Disorder Influence**
J. Grgić, E. Campaioli, S. Raza, N. A. Mortensen

15:30 - 16:30

Coffee Break and Formal Viewing of Poster Presentations - Location: FW11
Authors are requested to man their posters

Poster Presentations

P1 **Plasmonic Resonant Modes in Coupled and Overlapping Nanowires**
A. Stefanski, A. Manjavacas, V. Myroshnychenko, D. A. Pawlek, J. Garcai de Abajo

- P2 **Scattering by a Periodic Chain of Dielectric Cylinders and Lasing Eigenmodes of a Chain of Quantum Wires**
V. O. Byelobrov, J. Ctyroky, T. M. Benson, R. Sauleau, A. I. Nosich
- P3 **High Q Vertically Coupled Bloch Mode**
T. Benyattou, X. Letartre
- P4 **Accurate Time Domain Simulation of Optical Microcavity Ring Resonators**
N. Abujnah, R. Letizia, S. S. A. Obayya
- P5 **New Design of Directional Polarising Beam Splitter**
G. A. Gannat, S. S. A. Obayya
- P6 **An HCMT Model of Optical Microring-Resonators**
M. Hammer
- P7 **Oscillations in Plasma Sphere after its Instant Formation**
A. Nerukh, T. Remayeva, N. Sakhnenko
- P8 **Numerical Simulation of Arbitrarily Shaped Dielectric Bodies**
A. Al-Jarro, P. Sewell, T. Benson, A. Vukovic, J. Paul
- P9 **Accuracy Issues in the Numerical Modelling of Micro and Nano Cavities**
H. G. Dantanarayana, P. Sewell, A. Vukovic, T. M. Benson
- P10 **Step Approximation of Oblique Boundaries to Compute Band Structures of Photonic Crystals**
S. F. Helfert
- P11 **A Fourier-based WA-BPM with Complex Jacobi Iteration**
R. Godoy-Rubio, S. Romero-García, A. Ortega-Moñux, J. G. Wangüemert-Pérez
- P12 **Absorbing Boundaries for Structure Related Beam Propagation Methods**
K. Chan, P. Sewell, A. Vukovic
- P13 **BPM Simulation of Polarization Rotator based on Near Z-axis Propagation in Curved and Straight Anisotropic Channel Waveguides in LiNbO₃**
A. V. Tsarev
- P14 **Simple and Fast Algorithm for Calculation of Optical Fiber Chromatic Dispersion Approximate Estimates**
V. A. Burdin, A. V. Bourdine
- P15 **Analysis of Multiplexer-Demultiplexer based on Nematic Liquid Crystal Photonic Crystal Fiber Coupler**
M. F. O. Hameed, S. S. A. Obayya
- P16 **Progress in Finite Element Analysis of Photonic Crystal Fibers**
B. M. A. Rahman, A. Agrawal, N. Kejalakshmy, R. Uthman, Y. Azabi, K. T. V. Grattan
- P17 **Modelling Backscattering in Optical Waveguides**
A. Canciamilla, F. Morichetti, A. Artuso, A. Melloni

- P18 **Chebyshev Collocation Dirichlet-to-Neumann Map Method for Lamellar Diffraction Gratings in Conical Mounting**
D. Song, Y. Y. Lu
- P19 **Influence of Scattering Layers on Waveguide Modes and the External Efficiency of OLED Structures**
S. Alexey, A. Tishchenko
- P20 **Dimensionality Reduction for 3D Vectorial Optical Scattering Problems**
O. V. Ivanova, R. Stoffer, M. Hammer
- P21 **Loss Reduction at Resonances in a Grated Waveguide Cavity**
H. Alatas, A. A. Iskander, M. O. Tjia, H. J. W. M. Hoekstra
- P22 **Image Resolution of MMI Waveguides**
L. Cahill
- P23 **True-Model Approach for 2D Grating Calculation**
I. F. Gushchin, A. V. Tishchenko
- P24 **Long Period Gratings in Tapered Fibers and Equivalent Chirped Gratings**
E. K. Sharma, K. Ch. Patra
- P25 **2-D Metallic Photonic Crystal Waveguide Bends for Terahertz Range**
E. Degirmenci, F. Surre, P. Landais
- P26 **Terahertz Ring Resonator Based Photonic Crystals**
R. Selim, D. Pinto, S. S. A. Obayya
- P27 **Design of High Sensitive Photonic Crystal Based Sensors**
J. Derbali, F. AbdelMalek, S. S. A. Obayya, H. Bouchriha
- P28 **Bandgaps in One-Dimensional Dissipative Photonic Crystals**
G. V. Morozov, F. Placido
- P29 **Linear and Triangle Order Placement of Optical Directional Couplers**
Saktioto, D. Irawan, N. F. Hanim, J. Ali
- P30 **Comparison of Resonant Coupling and Adiabatic Mode Transfer for Integrated Mode Adapters**
A. Wieczorek, B. Roycroft, F. H. Peters, B. Corbett
- P31 **Compound Waveguide on the Photorefractive Crystal**
B. Usievich, J. Nurligareev, V. Sychugov
- P32 **Analysis of Leakage Loss in Very Deeply Etched Ridge Waveguides**
Q. Lu, W. Guo, D. Byrne, J. F. Donegan

P33		Synthesis of Gradient Refractive Index Profile Waveguides with Desired Propagation Properties <i>N. E. Nikolaev</i>
P34		Effective-Index-Based Matrix Method: A Semi-Analytical Tool to Design Graded-Index Waveguides and Directional Coupler Devices <i>P. Ganguly, J. C. Biswas, S. K. Lahiri, R. Chakraborty</i>
P35		Improved Variational Effective Index Approximation for Photonic Crystal Slabs <i>P. Bindal, A. Sharma</i>
P36		Parallel Simulation of Non-Local Non-Linear Schrödinger Systems using Multithreaded Graphical Processing Unit <i>M. Baregheh, V. Mezentsev, H. Schmitz</i>
P37		Fundamentals of Multi-Reflector Filtering Technology <i>A. V. Tsarev</i>
P38		Numerical Simulation of Power Beam-Splitter based on Photonic Crystal Row of Holes and Brewster Effect <i>A. V. Tsarev</i>
P39		Design and Simulation of Photonic Crystal Thin Film Photovoltaic Cells <i>G. Gomard, E. Drouard, O. El Daif, X. Meng, A. Kaminski</i>
16:30 - 18:00	FrF	Special Focus Session on Metamaterials Chair: Christoph Wächter, Fraunhofer Institut fuer Angewandte Optik und Feinmechanik Jena Location: LR2 (Lecture Room 2)
16:30 - 17:00	FrF1	Modelling Plasmonic Antennas and Related Metallic Nanostructures (Invited) <i>O. J. F. Martin</i>
17:00 - 17:30	FrF2	Perfect Imaging with Positive Refraction (Invited) <i>U. Leonhardt</i>
17:30 - 18:00	FrF3	Nonlinear and Switchable Photonic Metamaterials (Invited) <i>N. I. Zheludev, V. A. Fedotov, K. F. MacDonald</i>
20:00	Workshop Dinner - St Catharines College	
Saturday 10th April		
Session 4	SaA	Methods
08:30 - 10:30		Chair: Salah Obayya, Photonics Research Group, University of Glamorgan Location: LR2 (Lecture Room 2)
08:30 - 09:00	SaA1	Recent Developments on Wide Angle and Bidirectional Propagation Methods (Invited) <i>A. Sharma, D. Bhattacharya</i>

09:00 - 09:15	SaA2	Field Enhancement at a Graded-Index Interface between Positive- and Negative-Index Optical Materials <i>I. Mozjerin, T. Gibson, E. P. Furlani, I. R. Gabitov, A. A. Hardy, N. M. Litchinitser</i>
09:15 - 09:30	SaA3	Adaptive Spatial Resolution in Fourier Modal Methods for Modelling Guided-Wave Structures <i>J. Čtyroký, I. Richter, P. Kwiecien</i>
09:30 - 09:45	SaA4	Modified Padé Approximant Operators for Efficient Time-Domain Beam Propagators <i>K. Q. Le, T. Benson, P. Bienstman</i>
09:45 - 10:00	SaA5	Bio-Inspired Computing Applied to the Design of Novel Photonic Devices <i>C. H. Silva-Santos, M. S. Gonçalves, H. E. Hernández-Figueroa</i>
10:00 - 10:15	SaA6	Generalization of Aperiodic Rigorous Coupled Wave Analysis Technique to Anisotropic Structures <i>P. Kwiecien, I. Richter, J. Čtyroký</i>
10:15 - 10:30	SaA7	Light Propagation in Metal-Clad, Dielectric-Core Multimode Fibres <i>J. Love, J. Lambert, S. Law</i>

10:30 - 11:00

Coffee Break

Session 5

SaB

Modelling Techniques

11:00 - 12:45

Chair: J. Čtyroký, Institute of Photonics and Electronics, Czech Republic

Location: LR2 (Lecture Room 2)

11:00 - 11:30

SaB1

2D Finite Element Solution for the Maxwell's Equations (Invited)

B. M. A. Rahman, A. Agrawal, S. M. Raiyan Kabir, K. T. V. Grattan

11:30 - 11:45

SaB2

Recent Advances in Time Domain Modelling of Photonics Devices

S. S. A. Obayya

11:45 - 12:00

SaB3

Time-Domain Topology Optimization of Pulse-Shaping Filters

L. Yang, O. Sigmund, A. V. Lavrinenko, J. M. Hvam

12:00 - 12:15

SaB4

A Multigrid Solver for the Steady-State Solution of Rate Equations Based Semiconductor Optical Amplifier Models

J. Bos, R. Stoffer

12:15 - 12:30

SaB5

Photonic Crystal Fiber with Bends Based Biosensors

A. Teyeb, F. AbdelMalek, S. S. A. Obayya, H. Bouchriha

12:30 - 12:45

SaB6

Investigation of CMOS Compatible Widely Tunable Multiplexers on SOI Technology

A. V. Tsarev, F. De Leonardis, V. M. N. Passaro

12:45 - 13:30

Lunch Break

Session 6 13:30 - 15:00	SaC	Plasmonics Chair: Oliver Martin, EPFL, Lausanne Location: LR2 (Lecture Room 2)
13:30 - 13:45	SaC1	Simulating Plasmonic Ring Resonators using the Legendre Pseudospectral Time-Domain Method <i>S.-Y. Chung, C.-Y. Wang, C.-H. Teng, C.-P. Chen, H.-C. Chang</i>
13:45 - 14:00	SaC2	Transmission Characteristics in Plasmonic Multimode Waveguides <i>A. G. Edelmann, S. F. Helfert, J. Jahns</i>
14:00 - 14:15	SaC3	Guiding and Focusing Electromagnetic Fields at the Nanoscale with Wedge and Channel Plasmon Polaritons <i>S. G. Rodrigo, E. Moreno, S. I. Bozhevolnyi, L. Martín-Moreno, F. J. García-Vidal</i>
14:15 - 14:30	SaC4	Plasmonic Waveguides Modelling: Density of Guided Modes Approach <i>G. Colas des Francs, J. Grandidier, A. Bouhelier, J. C. Weeber, A. Dereux</i>
14:30 - 14:45	SaC5	Computational Techniques for the Analysis and Design of Dielectric-Loaded Plasmonic Circuitry <i>O. Tsilipakos, A. Ptilakis, A. C. Tasolamprou, T. V. Yioultsis, E. E. Kriezis</i>
14:45 - 15:00	SaC6	Surface Plasmon Characterization Method based on Two-Groove Interference Pattern <i>Y. Edlitz, S. Ruschin</i>
15:00 - 15:30		Coffee Break
Session 7 15:30 - 16:45	SaD	Applications Chair: Andrea Melloni, Politecnico di Milano Location: LR2 (Lecture Room 2)
15:30 - 16:00	SaD1	Quantum Photonics using Guided Waves (Invited) <i>I. A. Walmsley, N. Thomas-Peter, M. Hu, H. Coldenstrot-Ronge, T. Bartley, B. J. Smith</i>
16:00 - 16:15	SaD2	Single-Shot 3D Reconstruction of Complex Dielectric Function of the Glass during the Femtosecond Laser Micro-Fabrication <i>A. V. Turchin, M. Dubov, J. A. R. Williams</i>
16:15 - 16:30	SaD3	A Guided Mode View on Near-Field Scanning Optical Microscopy Measurements of Optical Magnetic Fields with Slit Probes <i>R. Stoffer, M. Hammer, O. V. Ivanova, H. J. W. M. Hoekstra</i>
16:30 - 16:45	SaD4	Enhanced Transmission of Electromagnetic Radiation through Subwavelength Apertures beyond the Cutoff Wavelength <i>S. Carretero-Palacios, S. G. Rodrigo, L. Martín-Moreno, F. J. García-Vidal</i>
16:45		Concluding Remarks and Close