13-15 December 2023
IET London: Savoy Place
London, United Kingdom

Welcome!

On behalf of the full BICOP 2023 committee, please let me be the first to welcome you to the British and Irish Conference on Optics and Photonics! After a three-year hiatus, we are excited to share with you the latest world-leading research and development advancements in optics and photonics from the UK and Ireland to global stakeholders across industry and academia. Over the next 2.5 days, you'll hear from a lineup of speakers covering a broad range of critical topics from communications, data storage and photonic integrated circuits to quantum and manufacturing to medicine. You'll also get the chance to interact with a robust poster program and hear from our exhibitors about their unique contributions to the field. We hope you enjoy the programme!

Richard Pitwon
Resolute Photonics / Seagate, Ireland
General Chair of the British and Irish Conference on Optics and Photonics

About Optica

Optica (formerly OSA), Advancing Optics and Photonics Worldwide, is the society dedicated to promoting the generation, application, archiving and dissemination of knowledge in the field. Founded in 1916, it is the leading organization for scientists, engineers, business professionals, students and others interested in the science of light. Optica's renowned publications, meetings, online resources and in-person activities fuel discoveries, shape real-life applications and accelerate scientific, technical and educational achievement.

Presented by:

OPTICA Advancing Optics and Photonics Worldwide

About BICOP

The British and Irish Conference on Optics and Photonics (BICOP) is a flagship conference on optics and photonics in the UK and Ireland reporting on disruptive advances in optics and photonics across diverse fields. As in past years, the primary purpose of the 2.5-day conference will again be to showcase the UK and Ireland's world-leading research and development in optics and photonics to global stakeholders with a proper balance of industry and academia.

Program Committee

Richard Pitwon, Chair, Resolute Photonics / Seagate, Ireland
Alison McLeod, Photonics Scotland, UK
Liam O'Faolain, Munster Technological University, Ireland
Cleitus Antony, Tyndall National Institute, Ireland
Lee Crudgington, Caeleste, Belgium
Filipe M Ferreira, University College London, UK
Aditya Jain, Lightmatter, USA
Akhil Kallepalli, University of Glasgow, UK
Callum Littlejohns, Southampton University, UK
Anke Lohmann, Anchored In Ltd., UK
Chao Wang, University of Kent, UK

BICOP 2023 Break/Meal Overview	
Wednesday, 13 December	
10:20-10:50	Break **Sponsored by Vanguard Automation** / Posters / Exhibition
12:30-13:30	Lunch **Sponsored by Resolute Photonics** / Posters / Exhibition
15:00-15:30	Break / Posters / Exhibition
17:10-19:00	BICOP Reception
Thursday, 14 December	
10:00-10:30	Break / Posters / Exhibition
12:00-13:00	Lunch / Posters / Exhibition
14:30-15:00	Break / Posters / Exhibition
Friday, 15 December	
10:00-10:30	Break / Posters / Exhibition

Get Connected!

IET-Guest

Password - Thoma8MurrayFu8eBox

Wednesday, 13 December			
8:00	Registration Opens		
8:30-9:00	Welcome and Opening Remarks: Richard Pitwon, BICOP Chair and Carol Monaghan, Scottish National Party MP for Glasgow North West		
9:00-9:30	**Session 1: Plenary,** Chair: Richard Pitwon, Resolute Photonics / Seagate, Ireland		
8:50-9:30	PL	Graham Reed Optoelectronics Research Centre, University of Southampton, UK	Beyond 300Gb/s from an Integrated Single Channel Silicon Photonics Modulator Driver Combination
9:30-10:20	**Session 2a: Optical Communications,** Chair: Richard Pitwon, Resolute Photonics / Seagate, Ireland		
9:30-10:00	KN	Harald Haas University of Strathclyde, UK	Recent Advances in Light-Based Wireless Networking
10:00-10:20	IN	Ruth Mackey mBryonics, Ireland	Developing Optical Satellite Communication Systems
10:20-10:50	Break / Posters / Exhibition **Sponsored by Vanguard Automation**		
10:50-12:00	**Session 2b: Optical Interconnects,** Chair: Filipe Ferreira, University College London, UK		
10:50-11:20	KN	Francesco Poletti Optoelectronics Research Centre, University of Southampton and Microsoft Azure Fiber, UK	Nothing is Better Than Glass to Guide Light
11:20-11:40	IN	Victor Fernandez Laguna Airbus Space Systems, UK	Optical Interconnects in Airbus Space Systems: Status, Vision and Challenges Ahead
11:40-12:00	IN	Kazuhiko Kurata AIO Core, Japan	Reliable and High Temperature Operable Ultra Compact Si Photonics Transceiver Using Quantum Dot Laser
12:00-12:30	**Session: Quantum Plenary,** Chair: Richard Pitwon, Resolute Photonics / Seagate, Ireland		
12:00-12:30	PL	Sir Peter Knight UK National Quantum Technology Programme, UKRI and Quantum Metrology Institute, UK National Physical Laboratory, UK	Progress Towards Quantum Optical Routes to Quantum Information Processing
12:30-13:30	Lunch / Posters / Exhibition **Sponsored by Resolute Photonics**		
13:30-15:00	**Session 3a: Photonic Integrated Circuits,** Chair: Cleitus Anthony, Tyndall National Institute, Ireland		
13:30-14:00	KN	Wim Bogaerts Ghent University-IMEC, Photonics Research Group, Belgium	Progammable Photonics
14:00-14:20	IN	Nicolas Psaila Intel Corporation, UK	Glass Photonic Interconnect Bridges for Scalable Optically Interconnected Computing
14:20-14:40	IN	Takaaki Ishigure Keio University, Japan	Polymer Optical Waveguide Circuit for High-Density Co-Packaging
14:40-15:00	IN	Iwan Davies IQE plc, UK	Compound Semiconductors for Quantum and Photonic Applications
15:00-15:30	Break / Posters / Exhibition		
15:30-17:10	**Session 3b: Optical Devices,** Chair: William Whelan-Curtin, Munster Technological University, Ireland		
15:30-15:50	IN	Richard Pitwon Seagate, Ireland	Advances in Heat Assisted Magnetic Recording (HAMR) - Using Plasmonics for High Volume and High Density Data Storage
15:50-16:10	IN	Hideyuki Nasu Furukawa Electric Co., Ltd., Japan	Ultra-Compact VCSEL-Based Optical Transceivers for Co-Packaged Optics
16:10-16:30	IN	Una Marvet Alter Technology, UK	Fast Data Rate, Low Power Consumption Optical Transceivers for VHTS Satellites
16:30-16:50	CT	Jenitta Johnson Mapranathukaran Munster Technological University and Tyndall National Institute, Ireland	Photonic Integrated Circuit Assisted Photo-Thermal Spectroscopy
16:50-17:10	CT	Daniel Townend and Justin Ho-Tin Chan University of Huddersfield, UK	Ultra-Compact Sensors Realized via Metasurfaces
17:10-19:00	Reception		

Thursday, 14 December			
8:15		Registration Opens	
8:30-10:00	**Session 4a: Quantum Computation,** Chair: Richard Pitwon, Resolute Photonics / Seagate, Ireland		
8:30-9:20	SP	Ian Walmsley Imperial College London, UK	Lighting the Quantum Future
9:20-9:40	IN	Josh Nunn ORCA Computing, UK	ORCA Computing: The Route from NISQ Processors to Fault-Tolerance
9:40-10:00	CT	Sarah Thomas Imperial College London, UK	Deterministic Storage and Retrieval of Telecom Light from a Quantum Dot Single-Photon Source Interfaced with an Atomic Quantum Memory
10:00-10:30	Break / Posters / Exhibition		
10:30-12:00	**Session 4b: Quantum Communication,** Chair: William Whelan-Curtin, Munster Technological University, Ireland		
10:30-11:00	KN	Cathy White BT, UK	Deploying Quantum Networks for Commercial Applications, Reality of Today and Visions of Potential
11:00-11:20	IN	Taofiq Paraiso Toshiba Europe, Cambridge Research Lab, UK	Recent Advances in Photonic Integration for Quantum Cryptography
11:20-11:40	IN	Deirdre Kilbane Walton Institute for Information and Communication Systems Science, Ireland	Feasibility of Satellite QKD for Ireland
11:40-12:00	CT	Robert Ferguson National Physical Laboratory, UK	Characterisation of Mode Field Diameter for "Quantum-Grade" Interconnects
12:00-13:00	Lunch / Posters / Exhibition		
13:00-14:30	**Session 5a: Quantum Packaging,** Chair: Cathy White, BT, UK		
13:00-13:30	KN	Simon Andrews Fraunhofer UK Research Ltd, UK	Quantum Technologies - Lab to Market
13:30-13:50	IN	Bernard Lee SENKO Advanced Components (HK) Ltd, Hong Kong SAR, China	MQC - High Performance Metallic QPIC Coupler
13:50-14:10	IN	James O'Callaghan Tyndall National Institute, Ireland	Next-Generation Large-Scale PIC Enabled by Micro-Transfer Printing Technology
14:10-14:30	IN	Laura Horan Vanguard Automation GmbH, Germany	Low-Loss Photonic Wire Bonds and Facet-Attached Micro-Optical Elements: from Telecom to Quantum Applications
14:30-15:00	Break / Posters / Exhibition		
15:00-16:50	**Session 5b: Quantum Sensing and Imaging,** Chair: Cleitus Anthony, Tyndall National Institute, Ireland		
15:00-15:30	KN	Miles Padgett The University of Glasgow, UK	An Endoscope the Width of a Human Hair
15:30-15:50	IN	Chris Phillips Digistain / Imperial College London, UK	Digistain mid-IR Cancer Diagnosis; Saving Lives with Quantum Entanglement
15:50-16:10	CT	Zhongyi Xia University of Strathclyde, UK	Scalable Optical Excitation and Modulation of Semiconductor Nanowire Emitters
16:10-16:30	CT	Will Smith University of Bath, UK	Hybrid Optical Fibre for Photon Pair Sources
16:30-16:50	CT	Weijie Nie Quantum Engineering Technology (QET) Laboratories, University of Bristol, UK	Quantum-Inspired Frequency-Agile Rangefinding

Friday, 15 December			
8:15		Registration Opens	
8:30-10:00	**Session 6a: Lasers,** Chair: Anke Lohman, Anchored In, UK		
8:30-9:00	KN	Richard Taylor Vector Photonics, UK	PCSELs: The 2D Laser Commercialisation Journey
9:00-9:20	IN	Shane Duggan Pilot Photonics, Ireland	Recent Developments in Integrated Comb and Tunable Laser Assemblies
9:20-9:40	IN	Shiyoshi Yokoyama Kyushu University, IMCE, Japan	High-Speed Electro-Optic Modulators
9:40-10:00	CT	Audrius Jasaitis Imagine Optic, France	Laser Metrology and Beam Diagnostic: A New Approach to ISO 11146 Standard
10:00-10:30	Break / Posters / Exhibition		
10:30-11:40	**Session 6b: Photonics Foundries,** Chair: Richard Pitwon, Resolute Photonics / Seagate, Ireland		
10:30-11:00	KN	Sebastian Schulz University of St Andrews, UK	Dynamic Metasurfaces
11:00-11:20	CT	Imanda Jayawardena Tyndall National Institute, Ireland	Spectroscopic Evaluation of PEGDM Hydrogels for Osteogenic Progression Monitoring
11:20-11:40	CT	Arthur Cardoso University of Bristol, UK	Methane Sensing with Undetected Light
11:40-12:00	Closing Remarks: Richard Pitwon, BICOP Chair		

Paper Type Key	
PL	Plenary
SP	Special Presentation
KN	Keynote
IN	Invited
CT	Contributed

View all abstracts and speaker bios on optica.org. Scan here:

Anti-Harassment Policy and Code of Conduct

Optica is committed to providing an environment that is conducive to the free and robust exchange of scientific ideas. This environment requires that all participants be treated with equal consideration and respect. While Optica encourages vigorous debate of ideas, personal attacks create an environment in which people feel threatened or intimidated. This is not productive and does not advance the cause of science. All participants in Optica and Optica-managed events and activities are therefore expected to conduct themselves professionally and respectfully.

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- ·Use the online portal optica.org/incidentreport
- ·Email codeofconduct@optica.org

Poster Session Guide

Posters will be available to view Wednesday, 13 December and Thursday, 14 December during breaks and lunch.

P1	**Investigation of a Graded Epsilon-Near-Zero Medium in a Plasmonic Metasurface** Anindita Das, *University of St Andrews, UK*
P2	**Optical Measurements of Oscillating Shock Waves by High-Speed Mach-Zehnder Interferometry with the Finite-Fringe Setting** Takato Inadomi, *The University of Kitakyushu, Japan*
P3	**Quantum Communications ATP Systems: Challenges and Next Steps** James Shawe, *Walton Institute, Ireland*
P4	**Tilted Fiber Bragg Grating Sensing Platforms: How to Process Their Comb-Like Amplitude Spectrum?** Christophe Caucheteur, *University of Mons, Belgium*
P5	**The Topology of Twisted Fibres** Brook Salter, *University of Bath, UK*
P6	**440 GHZ Bandwidth Frequency Comb via Fiber Loop Modulation** Mahrokh Avazpour, *Dublin City University, Ireland.*
P7	**Preliminary Assessment of Satellite Quantum Key Distribution for Ireland** Deirdre Kilbane, *Walton Institute for Information and Communication Systems Science, Ireland*
P8	**Performance of Fibre Optical Parametric Amplifiers for QAM Signals Amplification** Mariia Bastamova, *Aston Institute of Photonic Technologies, Aston University, UK*
P9	**Proposal for Integrated Optical Isolator at Visible Wavelength on Silicon Nitride Waveguide Platform** Risov Das, *Tyndall National Institute, Ireland.*
P10	**Hermite-Gaussian Image Scanning** Alexander Duplinskiy, *University of Oxford, UK*
P11	**Generalization Capabilities of Machine Learning-Based PDM Equalization** Samuel Lennard, *University College London, UK*
P12	**Experimental Evaluation of Optical Pre-Amplification Solutions for Real-Time FSO Communications Impaired by Turbulence** Vitor Correia, *Instituto de Telecomunicações and University of Aveiro, Portugal*
P13	**Feasibility of Direct Quantum Communications Between the UK and Ireland via 224 km of Underwater Fibre** Ben Amies-King, *University of York, UK*
P14	**Improvements in Optical Fiber Based Distance Sensor Fabrication for Ophthalmic Micro-Surgery Integration** Radu-Florin Stancu, *University of Kent, UK*
P15	**Solid-State Polymer Based 1D and 2D Tunable Random Laser in Visible Spectrum** Bhupesh Kumar, *Bar-Ilan University, Israel and University of St. Andrews, UK*

Notes

Thank you to our exhibitors and sponsors!

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Coffee Break
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