

IEEE PHOTONICS SOCIETY  
**SUMMER TOPICALS**  
**MEETING SERIES 2020**

**Virtual Conference**  
**13-15 July 2020**  
[www.ieee-sum.org](http://www.ieee-sum.org)

**GENERAL CHAIR**

Michael Brodsky

U.S. Army Research Laboratory, USA





Monday, 13 July

8:30am **MA1: DSP for Coherent Transmission**  
Chaired by: Bernhard Schrenk (Austria)

8:30am **Opening Address**  
» [Bernhard Schrenk](#) (Austria)<sup>1</sup>, Fotini Karinou (United Kingdom)<sup>2</sup>  
(1. AIT Austrian Institute of Technology, 2. Microsoft Research Ltd)

8:45am **MA1.1 - Power-efficient ASIC Implementation of DSP Algorithms for Coherent Optical Communication (Invited)**  
» [Per Larsson-Edefors](#) (Sweden)<sup>1</sup>, Erik Börjesson (Sweden)<sup>1</sup> (1. Chalmers University of Technology)

9:15am **MA1.2 - Optical Transmission at Short Reach and High Speed Enabled by DSP: Coherent or Direct Detection? (Tutorial)**  
» [Mathieu Chagnon](#) (Germany)<sup>1</sup> (1. Nokia Bell Labs)

8:30am **MB1: Photonic Imaging**  
Chaired by: Yuki Yoshida (Japan)

8:30am **MB1.1 - Ultrafast Temporal Imaging (Invited)**  
» [Kenneth Kin-Yip Wong](#) (Hong Kong)<sup>1</sup>, Sheng Wang (Hong Kong)<sup>1</sup>, Yuan Wei (Hong Kong)<sup>1</sup>, Bowen Li (United States)<sup>2</sup> (1. The University of Hong Kong, 2. The University of Colorado Boulder)

9am **MB1.2 - Memory Effect Inspired Imaging Through Multimode Optical Fibres (Invited)**  
» [Shuhui Li](#) (China)<sup>1</sup>, Simon Horsley (United Kingdom)<sup>2</sup>, Tomas Tyc (Czech Republic)<sup>3</sup>, Tomáš Čížmár (Germany)<sup>4</sup>, David Phillips (United Kingdom)<sup>2</sup> (1. University of Exeter & Huazhong University of Science and Technology, 2. University of Exeter, 3. Masaryk University, 4. Leibniz Institute of Photonic Technology)

9:30am **MB1.3 - Computational Imaging with Randomness (Invited)**  
» [Ryoichi Horisaki](#) (Japan)<sup>1</sup> (1. Osaka University)

8:30am **MC1: SIMP-1**  
Chaired by: Oussama Mountanabbir (Canada)

8:30am **Opening Remarks**  
» [Oussama Mountanabbir](#) (Canada)<sup>1</sup> (1. École Polytechnique de Montréal)

8:45am **MC1.1 - Physics Does Digital Optimization—for Machine Learning, Control Theory, Silicon Photonics, etc. (Plenary)**  
» [Eli Yablonovitch](#) (United States)<sup>1</sup> (1. University of California, Berkeley)

9:30am **MC1.2 - Electrically injected GeSn lasers on Si (Invited)**  
» [Fisher Yu](#) (United States)<sup>1</sup> (1. University of Arkansas)

8:30am **MD1: Nonlinear Transmission in OAM Fibers**  
Chaired by: Georg Rademacher (Japan)

8:30am **Introduction**  
» [Georg Rademacher](#) (Japan)<sup>1</sup>, Cristian Antonelli (Italy)<sup>2</sup>, Roland Ryf (United States)<sup>3</sup> (1. National Institute of Information and Communications Technology, 2. University of LAquila, 3. Nokia Bell Labs)

8:45am **MD1.1 - Linear, Nonlinear and Peculiar Properties of OAM Fiber Modes (Tutorial)**  
» [Siddharth Ramachandran](#) (United States)<sup>1</sup> (1. Boston University)

8:30am **ME1: Optical Interaction**  
Chaired by: Martin Lavery (United Kingdom)

8:30am **ME1.1 - Optical Tweezers with Structured Light for Biology (Invited)**  
» [Halina Rubinsztein-Dunlop](#) (Australia)<sup>1</sup> (1. University of Queensland)

8:55am **ME1.3 - Investigating Spiral Beams (Invited)**  
» [Daryl Preece](#) (United States)<sup>1</sup>, Nicholas Mann (United States)<sup>2</sup>, Zhigang Chen (United States)<sup>3</sup> (1. University of California, Irvine, 2. UC Irvine, 3. San Francisco State universitu)



Continued from Monday, 13 July	
9:20am	<p><b>ME1.5 - Structured Light-Matter Interactions for Ultra-Precise Particle Localization (Invited)</b>                      » <a href="#">Peter Banzer</a> (Germany)<sup>1</sup> (1. Max Planck Institute)</p>
10:30am	<p><b>MA2: Coherent Links Inside and Outside the Datacenter</b>                      Chaired by: Fotini Karinou (United Kingdom)</p>
10:30am	<p><b>MA2.1 - Low Power Coherent Optics: The Future of Datacenter Interconnects (Invited)</b>                      » <a href="#">Clint Schow</a> (United States)<sup>1</sup> (1. University of California Santa Barbara)</p>
11am	<p><b>MA2.2 - High Density Silicon Photonics for Co-packaged Optics and Advanced Datacenter Interconnects (Invited)</b>                      » <a href="#">Aaron Zilkie</a> (United States)<sup>1</sup> (1. Rockley Photonics Inc.)</p>
11:30am	<p><b>MA2.3 - Pluggable Coherent Transport Modules for Datacenter Interconnects (Invited)</b>                      » <a href="#">Radhakrishnan Nagarajan</a> (United States)<sup>1</sup> (1. Inphi Corp)</p>
10:30am	<p><b>MB2: Compressive Sensing</b>                      Chaired by: George Valley (United States)</p>
10:30am	<p><b>MB2.1 - Single-pixel Speckle Imaging Using Integrated Optical Phased Array (Invited)</b>                      » <a href="#">Takuo Tanemura</a> (Japan)<sup>1</sup>, <a href="#">Taichiro Fukui</a> (Japan)<sup>1</sup>, <a href="#">Yoshiaki Nakano</a> (Japan)<sup>1</sup> (1. The University of Tokyo)</p>
11am	<p><b>MB2.2 - On the photonic compressive sensing with pulse stretch and compression (Invited)</b>                      » <a href="#">Hao chi</a> (China)<sup>1</sup> (1. Hangzhou Dianzi University)</p>
11:30am	<p><b>MB2.3 - Compressed Ultrafast Photography: Imaging Light-Speed Events in a Snapshot (Invited)</b>                      » <a href="#">Jinyang Liang</a> (Canada)<sup>1</sup> (1. Institut National de la Recherche Scientifique (INRS))</p>
10:30am	<p><b>MC2: SIMP-2</b>                      Chaired by: Donguk Nam (Singapore)</p>
10:30am	<p><b>MC2.1 - Efficient Light Emission From Direct Band Gap Hexagonal-Ge and SiGe Alloys (Invited)</b>                      » <a href="#">Alain Dijkstra</a> (Netherlands)<sup>1</sup> (1. Eindhoven University of Technology)</p>
11am	<p><b>MC2.2 - Modeling of SiGeSn Multi-Quantum-Well Disk Lasers (Invited)</b>                      » <a href="#">Bahareh Marzban</a> (Germany)<sup>1</sup>, <a href="#">Jovana Nojic</a> (Germany)<sup>1</sup>, <a href="#">Daniela Stange</a> (Germany)<sup>2</sup>, <a href="#">Zoran Ikonc</a> (United Kingdom)<sup>3</sup>, <a href="#">Dan Buca</a> (Germany)<sup>2</sup>, <a href="#">Jeremy Witzens</a> (Germany)<sup>1</sup> (1. RWTH Aachen University, Institute of Integrated Photonics, 2. Forschungszentrum Jülich, PGI9, 3. Leeds University)</p>
11:30am	<p><b>MC2.3 - Recent Advances Towards a GeSi-based QCL (Invited)</b>                      » <a href="#">Giovanni Capellini</a> (Germany)<sup>1</sup> (1. IHP – Leibniz-Institut für Innovative Mikroelektronik)</p>
10:30am	<p><b>MD2: Technoeconomics and Benefits of SDM Fibers</b>                      Chaired by: Guilhem de Valicourt (United States)</p>
10:30am	<p><b>MD2.1 - Applications for Spatial Division Multiplexing Fiber and Associated Cost per Bit (Invited)</b>                      » <a href="#">Hao Dong</a> (United States)<sup>1</sup>, <a href="#">John Downie</a> (United States)<sup>1</sup> (1. Corning Optical Communications)</p>
11am	<p><b>MD2.2 - Exploiting the spatial domain in the design of coded-modulation formats (Invited)</b>                      » <a href="#">Chigo Okonkwo</a> (Netherlands)<sup>1</sup> (1. Eindhoven University of Technology)</p>
1:30pm	<p><b>MB3: Photonic Neural Network</b>                      Chaired by: ripalta (patty) stabile (Netherlands)</p>
1:30pm	<p><b>MB3.1 - Light-powered Neurons and AI PIC Engines (Invited)</b>                      » <a href="#">George Dabos</a> (Greece)<sup>1</sup>, <a href="#">Angelina Totovic</a> (Greece)<sup>1</sup>, <a href="#">George Mourgias-Alexandris</a> (Greece)<sup>1</sup>, <a href="#">Nikolaos Passalis</a> (Greece)<sup>1</sup>, <a href="#">Anastasios Tefas</a> (Greece)<sup>1</sup>, <a href="#">Nikos Pleros</a> (Greece)<sup>1</sup> (1. Department of Informatics, Aristotle University of Thessaloniki)</p>



Continued from **Monday, 13 July**

2pm **MB3.2 - Matrix Multiplication Unit Scalability Investigation for InP SOA-based Photonic Deep Neural Network (Invited)**  
 » [Bin Shi](#) (Netherlands)<sup>1</sup>, Nicola Calabretta (Netherlands)<sup>1</sup>, ripalta (patty) stabile (Netherlands)<sup>1</sup> (1. Institute for Photonic Integration, Eindhoven University of Technology)

2:30pm **MB3.3 - Photonic-based Supervised and Unsupervised Learning for Image Classification (Invited)**  
 » [Frank Brueckerhoff-Plueckelmann](#) (Germany)<sup>1</sup>, Johannes Feldmann (Germany)<sup>1</sup>, Nathan Youngblood (United Kingdom)<sup>2</sup>, David Wright (United Kingdom)<sup>3</sup>, Harish Bhaskaran (United Kingdom)<sup>2</sup>, Wolfram Pernice (Germany)<sup>1</sup> (1. University of Muenster, 2. University of Oxford, 3. University of Exeter)

1:30pm **MC3: SIMP-3**  
 Chaired by: Fisher Yu (United States)

1:30pm **MC3.1 - SiGeSn photonics for MIR and THz wavelengths (Invited)**  
 » [Simone Assali](#) (Canada)<sup>1</sup>, Anis Attiaoui (Canada)<sup>1</sup>, Mahmoud Atalla (Canada)<sup>1</sup>, Samik Mukherjee (Canada)<sup>1</sup>, Sebastian Koelling (Canada)<sup>1</sup>, Oussama Mountanabbir (Canada)<sup>1</sup> (1. Polytechnique Montreal)

2pm **MC3.2 - TBD (Invited)**  
 » [Greg Salamo](#) (United States)<sup>1</sup> (1. University of Arkansas)

2:30pm **MC3.3 - Towards High Stability, High-Sn Composition GeSn Mid-Infrared and  $\alpha$ -Sn(Ge) Quantum Materials (Invited)**  
 » [Jifeng Liu](#) (United States)<sup>1</sup> (1. Dartmouth College)

3pm **MC3.4 - Co-Sputtered Monocrystalline GeSn for Infrared Photodetection**  
 » [Andrea Giunto](#) (Switzerland)<sup>1</sup>, Nicolas Humblot (Switzerland)<sup>1</sup>, Luc Burnier (Switzerland)<sup>1</sup>, Anna Krammer (Switzerland)<sup>1</sup>, Andreas Schuler (Switzerland)<sup>1</sup>, Anna Fontcuberta i Morral (Switzerland)<sup>1</sup> (1. EPFL)

1:30pm **MD3: Design and Fabrication of Coupled SDM Fibers**  
 Chaired by: Juan Carlos Alvarado Zacarias (United States)

1:30pm **MD3.1 - Optical Transmission Fiber Design and Fabrication: Exciting Challenges Ahead (Invited)**  
 » [Pierre Sillard](#) (France)<sup>1</sup> (1. Prysmian Group)

2pm **MD3.2 - Shape Optimization of Multimode Fiber Refractive Index Profiles (Invited)**  
 » [Karthik Choutagunta](#) (United States)<sup>1</sup>, Joseph Kahn (United States)<sup>1</sup> (1. Stanford University)

2:30pm **MD3.3 - Design of Randomly-Coupled Multicore Fibers (Invited)**  
 » [Kunimasa Saitoh](#) (Japan)<sup>1</sup> (1. Hokkaido University)

1:30pm **ME2: Structured Light Technology**  
 Chaired by: Nicolas Fontaine (United States)

1:30pm **ME2.1 - Optical Angular Momentum Opens the Door Towards Advanced Materials Technology (Invited)**  
 » [Takashi Omatsu](#) (Japan)<sup>1</sup> (1. Chiba University)

1:55pm **ME2.2 - Spatial transformation of light using multi-plane light conversion (Invited)**  
 » [Joel Carpenter](#) (Australia)<sup>1</sup> (1. The University of Queensland)

2:20pm **ME2.3 - Higher-Order Bessel Beams Integrated in Time (HOBBIT) for Structured Light Applications (Invited)**  
 » [Eric Johnson](#) (United States)<sup>1</sup> (1. Clemson University)

2:45pm **ME2.4 - Multimodal Imaging through Multimode Fibers (Invited)**  
 » [Rafael Piestun](#) (United States)<sup>1</sup> (1. University of Colorado Boulder)



Continued from **Monday, 13 July**

3:10pm **ME2.5 - Multiple Order and Broadband Optical Orbital Angular Momentum Source using a Single Photonic Crystal Device**  
 » [Yadunath T R](#) (India)<sup>1</sup>, [Sooraj R](#) (India)<sup>2</sup>, [Gopalkrishna Hegde](#) (India)<sup>3</sup>, [Partha P Das](#) (India)<sup>1</sup>, [Srinivas T](#) (India)<sup>4</sup> (1. Physics Dept, NITK, Mangalore, 2. Avionics Dept, IIST, Trivandrum, 3. BSSE Dept, IISc, Bengaluru, 4. ECE Dept, IISc, Bengaluru)

3:30pm **MB4: Wideband Signal Acquisition**  
 Chaired by: José Azaña (Canada)

3:30pm **MB4.1 - Deep Learning of Ultrafast Pulses with a Multimode Fiber (Invited)**  
 » [Hui Cao](#) (United States)<sup>1</sup> (1. Yale University)

4pm **MB4.2 - ASE-based low-coherence matched coherent detection (Invited)**  
 » [Yetian Huang](#) (China)<sup>1</sup> (1. Shanghai University)

4:30pm **MB4.3 - Novel Technique for 2D Temporal Femtosecond Laser Pulses Characterization (Invited)**  
 » [Alfredo A. Bravo-Hernandez](#) (Mexico)<sup>1</sup>, [Itzel Reyna-Morales](#) (Mexico)<sup>1</sup>, [Jesus Delgado-Aguillon](#) (Mexico)<sup>1</sup>, [Adrián Aupart Acosta](#) (Mexico)<sup>2</sup>, [Ramiro Contreras-Martinez](#) (Mexico)<sup>1</sup>, [Jennyfer Zapata-Farfan](#) (Mexico)<sup>1</sup>, [Martha Rosete-Aguilar](#) (Mexico)<sup>1</sup>, [Jesus Garduno-Mejia](#) (Mexico)<sup>3</sup> (1. Instituto de Ciencias Aplicadas y Tecnología, Universidad Nacional Autónoma de México (UNAM), 2. Instituto de, 3. Instituto de Ciencias Aplicadas y Tecnología- UNAM)

4pm **MA3: Optoelectronic Components for Coherent Links**  
 Chaired by: Bernhard Schrenk (Austria)

4pm **MA3.1 - Frequency Stabilized Coherent WDM Optical Links for Low-Energy Data Center Interconnects (Invited)**  
 » [Dan Blumenthal](#) (United States)<sup>1</sup> (1. University of California Santa Barbara)

4:30pm **MA3.2 - Ultra-Compact Silicon Photonics Coherent Optical Sub-Assemblies (COSAs) (Invited)**  
 » [Yusuke Nasu](#) (Japan)<sup>1</sup>, [Masayuki Takahashi](#) (Japan)<sup>1</sup>, [Makoto Jizoudou](#) (Japan)<sup>1</sup>, [Yuriko Kawamura](#) (Japan)<sup>1</sup>, [Yuichiro Ikuma](#) (Japan)<sup>1</sup>, [Kiyofumi Kikuchi](#) (Japan)<sup>1</sup>, [Shogo Yamanaka](#) (Japan)<sup>1</sup>, [Takashi Yamada](#) (Japan)<sup>1</sup>, [Toshihiro Itoh](#) (Japan)<sup>1</sup>, [Tsuzuki Ken](#) (Japan)<sup>1</sup>, [Shunichi Soma](#) (Japan)<sup>1</sup> (1. NTT Corporation)

4pm **ME3: Optical Interaction Panel Session**  
 Chaired by: Martin Lavery (United Kingdom)

4:30pm **MD4: Progress in SDM Transmission**  
 Chaired by: Ben Puttnam (Japan)

4:30pm **MD4.1 - Recent Progress and Roadmap of SDM Technologies (Invited)**  
 » [Itsuro Morita](#) (Japan)<sup>1</sup> (1. KDDI Research)

5pm **MD4.2 - Optical Transmission with Homogeneous MCFs and Amplifiers (Invited)**  
 » [Ben Puttnam](#) (Japan)<sup>1</sup>, [Ruben S. Luis](#) (Japan)<sup>1</sup>, [Georg Rademacher](#) (Japan)<sup>1</sup>, [Yoshinari Awaji](#) (Japan)<sup>1</sup>, [Naoya Wada](#) (Japan)<sup>1</sup> (1. National Institute of Information and Communications Technology)

5:30pm **MD4.3 - Initial Measurements of Field-deployed Coupled- and Uncoupled MCFs (Invited)**  
 » [Tetsuya Hayashi](#) (Japan)<sup>1</sup> (1. Optical Communications Laboratory, Sumitomo Electric Industries, Ltd.)

5pm **ME4: Structured Light Technology Panel Session**  
 Chaired by: Nicolas Fontaine (United States)

**Tuesday, 14 July**

8:30am **TuA1: Low-Complexity Coherent Access**  
 Chaired by: Bernhard Schrenk (Austria)



Continued from **Tuesday, 14 July**

- 8:30am **Preview of the Day**  
 » [Fotini Karinou](#) (United Kingdom)<sup>1</sup>, Bernhard Schrenk (Austria)<sup>2</sup>  
 (1. Microsoft Research Ltd, 2. AIT Austrian Institute of Technology)
- 8:45am **TuA1.1 - Low-Complexity Quasi-Coherent Reception for 100 Gb/s NGOA (Invited)**  
 » [Jose Antonio Altabas](#) (Denmark)<sup>1</sup>, Omar Gallardo (Denmark)<sup>1</sup>, Guillermo Silva Valdecasa (Denmark)<sup>1</sup>, Michele Squartecchia (Denmark)<sup>1</sup>, Jesper Bevensee Jensen (Denmark)<sup>1</sup> (1. Bifrost Communications)
- 9:15am **TuA1.2 - Coherent Access: Status and Opportunities (Invited)**  
 » [Md Saifuddin Faruk](#) (United Kingdom)<sup>1</sup>, Seb J. Savory (United Kingdom)<sup>1</sup> (1. Electrical Engineering Division, Department of Engineering, University of Cambridge)
- 9:45am **TuA1.3 - Extending Phase Noise Tolerance in UDWDM Access Networks**  
 » [Hubert Dzięcioł](#) (United Kingdom)<sup>1</sup>, Eric Sillekens (United Kingdom)<sup>1</sup>, Domanic Lavery (United Kingdom)<sup>1</sup> (1. University College London)

8:30am **TuB1: Metrology**  
 Chaired by: José Azaña (Canada)

- 8:30am **TuB1.1 - Phase-dispersion Spectroscopy with High Spectral Resolution Using a Wideband Ultra-linearly Swept Optical Source (Invited)**  
 » [Xinyu Fan](#) (China)<sup>1</sup> (1. Shanghai Jiao Tong University)
- 9am **TuB1.2 - Attosecond Photonic Timing and Its Applications (Invited)**  
 » [Jungwon Kim](#) (Korea, Republic of)<sup>1</sup> (1. KAIST)
- 9:30am **TuB1.3 - Photonics-Enhanced RF Spectrum Sensing (Invited)**  
 » Bowen Zhang (China)<sup>1</sup>, [Shilong Pan](#) (China)<sup>1</sup> (1. Nanjing University of Aeronautics and Astronautics)

8:30am **TuD1: Quantum Properties of SDM Fibers**  
 Chaired by: Luca Palmieri (Italy)

- 8:30am **TuD1.1 - Multi-port Beamsplitters Based on Multi-core Optical Fibers for High-dimensional Quantum Information Processing (Invited)**  
 » [Gustavo Lima](#) (Chile)<sup>1</sup> (1. Universidad de Concepción)
- 9am **TuD1.2 - Quantum Communications Using Spatial Modes in Optical Fibre (Invited)**  
 » [Davide Bacco](#) (Denmark)<sup>1</sup>, Beatrice Da Lio (Denmark)<sup>1</sup>, Daniele Cozzolino (Denmark)<sup>1</sup>, Yunhong Ding (Denmark)<sup>1</sup>, Karsten Rottwitt (Denmark)<sup>1</sup>, Leif Katsuo Oxenløwe (Denmark)<sup>1</sup> (1. DTU Fotonik)
- 9:30am **TuD1.3 - Robust Self-test of High-dimension Mutually Unbiased Bases with Commercial Multi-core Fiber**  
 » Farkas Máté (Poland)<sup>1</sup>, [Jaime Cariñe](#) (Chile)<sup>2</sup>, Nayda Guerrero (Chile)<sup>3</sup>, Gustavo Cañas (Chile)<sup>4</sup>, Gustavo Lima (Chile)<sup>3</sup> (1. Faculty of Mathematics, Physics and Informatics, University of Gdansk, 80-952 Gdansk, Poland, 2. Departamento de Ingeniería Eléctrica, Universidad Católica de la Santísima Concepción, Concepción, Chile, 3. Universidad de Concepción, 4. Departamento de Física, Universidad del Bío-Bío, Collao 1202, Casilla 5C, Concepción, Chile)

8:30am **TuE1: Structured Light Imaging**  
 Chaired by: Takashige Omatsu (Japan)

- 8:30am **TuE1.1 - The Impact of Photonic Functionality to Astronomy (Invited)**  
 » [Nemanja Jovanovic](#) (United States)<sup>1</sup> (1. California Institute of Technology)
- 8:55am **TuE1.2 - Star Crossed? Combining Photonics and Astronomy (Invited)**  
 » [Robert Harris](#) (Germany)<sup>1</sup>, Nick Cvetojevic (France)<sup>2</sup>, Nemanja Jovanovic (United States)<sup>3</sup> (1. Landessternwarte, Zentrum für Astronomie der Universität Heidelberg, 2. Laboratoire Lagrange, Observatoire de la Côte d'Azur, 3. The California Institute of Technology (Caltech))



Continued from **Tuesday, 14 July**

9:20am **TuE1.3 - Complex Focal Light Landscapes (Invited)**  
 » [Eileen Otte](#) (Germany)<sup>1</sup>, Kemal Tekce (Germany)<sup>1</sup>, Cornelia Denz (Germany)<sup>1</sup> (1. University of Muenster)

9:45am **TuE1.4 - Super-resolution Microscopy Meets Super-linear Emitters (Invited)**  
 » [Martin Ploschner](#) (Australia)<sup>1</sup>, Denitza Denkova (Australia)<sup>2</sup>, Minakshi Das (Australia)<sup>2</sup>, Lindsay Parker (Australia)<sup>2</sup>, Xianlin Zheng (Australia)<sup>2</sup>, Yiqing Lu (Australia)<sup>2</sup>, Antony Orth (Australia)<sup>3</sup>, Nicolle Packer (Australia)<sup>2</sup>, Jim Piper (Australia)<sup>2</sup> (1. ARC Centre of Excellence for Nanoscale Biophotonics, Macquarie University & The University of Queensland, 2. ARC Centre of Excellence for Nanoscale Biophotonics, Macquarie University, 3. ARC Centre of Excellence for Nanoscale Biophotonics, RMIT University)

10:10am **TuE1.5 - Nano-photonic 'Tongues' for Applications in Chemical Sensing (Invited)**  
 » [Alasdair Clark](#) (United Kingdom)<sup>1</sup>, Justin Sperling (United Kingdom)<sup>1</sup>, Gerard Macias (United Kingdom)<sup>1</sup>, William Peveler (United Kingdom)<sup>1</sup>, Glenn Burley (United Kingdom)<sup>2</sup>, Steven Neale (United Kingdom)<sup>1</sup> (1. University of Glasgow, 2. University of Strathclyde)

9am **TuC1: SIMP-4**  
 Chaired by: Oussama Mountanabbir (Canada)

9am **TuC1.1 - Excitons Bound to Tellurium Molecules in ZnSe: Taking Advantage of Cooperative Processes (Invited)**  
 » [Sébastien Francoeur](#) (Canada)<sup>1</sup> (1. École Polytechnique de Montréal)

9:30am **TuC1.2 - Practical, Portable LIDAR Enhanced Using Quantum Light (Invited)**  
 » [Amr Helmy](#) (Canada)<sup>1</sup> (1. University of Toronto)

10:30am **TuA2: Coherent Datacenters**  
 Chaired by: Fotini Karinou (United Kingdom)

10:30am **TuA2.1 - Locking Dynamics of an Analogue Coherent TDMA Receiver for Many-to-Any Network Architectures**  
 » [Nemanja Vokić](#) (Austria)<sup>1</sup>, Dinka Milovančev (Austria)<sup>1</sup>, Bernhard Schrenk (Austria)<sup>1</sup> (1. AIT Austrian Institute of Technology)

10:45am **TuA2.2 - IMDD vs Coherent - Will datacenter be the new battleground? (Tutorial)**  
 » [Chris Cole](#) (United States)<sup>1</sup> (1. Luminous Computing)

11:30am **TuA2.3 - Coherent Optics for Datacenter Networks (Invited)**  
 » [Chongjin Xie](#) (United States)<sup>1</sup>, Jingchi Cheng (China)<sup>1</sup> (1. Alibaba Infrastructure Service, Alibaba Group)

10:30am **TuB2: Reservoir Computing**  
 Chaired by: ripalta (patty) stabile (Netherlands)

10:30am **TuB2.1 - Opto-Electronic Reservoir Computing for Signal Recovery (Invited)**  
 » [Jean Benoit Heroux](#) (Japan)<sup>1</sup>, Toshiyuki Yamane (Japan)<sup>1</sup>, Hidetoshi Numata (Japan)<sup>1</sup>, Daiju Nakano (Japan)<sup>1</sup> (1. IBM Research - Tokyo)

11am **TuB2.2 - Waveform classification using a reservoir computer based on laser speckle in a multimode waveguide (Invited)**  
 » [Uttam Paudel](#) (United States)<sup>1</sup>, Marta Luengo-Kovac (United States)<sup>1</sup>, Thomas Justin Shaw (United States)<sup>1</sup>, George Valley (United States)<sup>1</sup> (1. The Aerospace Corporation)

11:30am **TuB2.3 - Photonic accelerator: reservoir computing and decision making for artificial intelligence (Invited)**  
 » [Atsushi Uchida](#) (Japan)<sup>1</sup>, Kazutaka Kanno (Japan)<sup>1</sup>, Satoshi Sunada (Japan)<sup>2</sup>, Makoto Naruse (Japan)<sup>3</sup> (1. Saitama University, 2. Kanazawa University, 3. The University of Tokyo)

10:30am **TuC2: SIMP-5**  
 Chaired by: Alexei Chelnokov (France)



Continued from Tuesday, 14 July	
10:30am	<p><b>TuC2.1 - Multi-scale simulation of direct-gap group-IV semiconductor alloys: electronic structure evolution and implications for device applications (Invited)</b></p> <p>» Christopher Broderick (Ireland)<sup>1</sup>, Edmond O'Halloran (Ireland)<sup>1</sup>, Michael Dunne (Ireland)<sup>1</sup>, Amy Kirwan (Ireland)<sup>1</sup>, Aleksey Andreev (Ireland)<sup>1</sup>, Stefan Schulz (Ireland)<sup>1</sup>, <u>Eoin O'Reilly</u> (Ireland)<sup>1</sup> (1. Tyndall National Institute)</p>
11am	<p><b>TuC2.2 - Pulsed Laser Irradiation for Synthesis and Modification of Novel Group IV Optoelectronic Materials (Invited)</b></p> <p>» <u>Jeffrey Warrender</u> (United States)<sup>1</sup> (1. U.S. Army CCDC-Armament Center)</p>
11:30am	<p><b>TuC2.3 - GeSn Material Development for Integrated Microwave Photonics (Invited)</b></p> <p>» <u>Aboozar Mosleh</u> (United States)<sup>1</sup> (1. University of Arkansas Pine Bluff)</p>
10:30am	<p><b>TuD2: Signal Processing in SDM Waveguides</b></p> <p>Chaired by: Karthik Choutagunta (United States)</p>
10:30am	<p><b>TuD2.1 - Space-Division Multiplexing Fibers for Radio Frequency Signal Processing (Invited)</b></p> <p>» Sergi García (Spain)<sup>1</sup>, Rubén Guillem (Spain)<sup>1</sup>, Mario Ureña (Spain)<sup>1</sup>, <u>Ivana Gasulla</u> (Spain)<sup>1</sup> (1. Universitat Politècnica de València)</p>
11am	<p><b>TuD2.2 - Intermodal Nonlinear Effects in Integrated Waveguides (Invited)</b></p> <p>» <u>Cosimo Lacava</u> (United Kingdom)<sup>1</sup>, Thalia Dominguez Bucio (United Kingdom)<sup>2</sup>, Johann Franz (United Kingdom)<sup>2</sup>, Massimiliano Guasoni (United Kingdom)<sup>2</sup>, Stuart May (United Kingdom)<sup>3</sup>, Frederic Gardes (United Kingdom)<sup>2</sup>, Periklis Petropoulos (United Kingdom)<sup>2</sup>, Marc Sorel (United Kingdom)<sup>3</sup>, Francesca Parmigiani (United Kingdom)<sup>4</sup> (1. University of Pavia, Optoelectronics Research Centre, University of Southampton, 2. Optoelectronics Research Centre, University of Southampton, 3. University of Glasgow, 4. Microsoft Research UK)</p>
11:30am	<p><b>TuD2.3 - Investigation of Inter-Modal Four Wave Mixing in p-i-n Diode Assisted SOI Waveguides</b></p> <p>» <u>Gregor Ronniger</u> (Germany)<sup>1</sup>, Stefan Lischke (Germany)<sup>2</sup>, Christian Mai (Germany)<sup>2</sup>, Lars Zimmermann (Germany)<sup>3</sup>, Klaus Petermann (Germany)<sup>1</sup> (1. Technische Universität Berlin, 2. IHP - Leibniz-Institut für Innovative Mikroelektronik, 3. Technische Universität Berlin; IHP - Leibniz-Institut für Innovative Mikroelektronik)</p>
1:30pm	<p><b>TuB3: Photonic Computing and Imaging</b></p> <p>Chaired by: George Valley (United States)</p>
1:30pm	<p><b>TuB3.1 - Large-scale optical reservoir computing (Invited)</b></p> <p>» <u>Mushegh Rafayelyan</u> (France)<sup>1</sup> (1. Kastler-Brossel Laboratory)</p>
2pm	<p><b>TuB3.2 - Real-time and Single-Shot Full Recovery of Arbitrary Subnoise Signals (Invited)</b></p> <p>» <u>Benjamin Crockett</u> (Canada)<sup>1</sup>, Luis Romero Cortés (Canada)<sup>1</sup>, Saikrishna Reddy Konatham (Canada)<sup>1</sup>, José Azaña (Canada)<sup>1</sup> (1. Institut National de la Recherche Scientifique (INRS))</p>
2:30pm	<p><b>TuB3.3 - Coherent Ising machine based on opto-electronic feedback for solving combinatorial optimization problems (Invited)</b></p> <p>» <u>Guy Van der Sande</u> (Belgium)<sup>1</sup> (1. Vrije Universiteit Brussel)</p>
1:30pm	<p><b>TuC3: SIMP-6</b></p> <p>Chaired by: Donguk Nam (Singapore)</p>
1:30pm	<p><b>TuC3.1 - GeSn: An Ideal Candidate for K-space Charge-separation Midwave IR Photodetectors (Invited)</b></p> <p>» <u>Yong-Hang Zhang</u> (United States)<sup>1</sup> (1. Arizona State University)</p>
2pm	<p><b>TuC3.2 - Group-IV Planar Light Emitters and Photodetectors for Mid-infrared Silicon Photonics (Invited)</b></p> <p>» Cheng-Hsun Tsai (Taiwan)<sup>1</sup>, Chen-Yang Chang (Taiwan)<sup>1</sup>, Kuan-Chih Lin (Taiwan)<sup>1</sup>, <u>Guo-En Chang</u> (Taiwan)<sup>2</sup> (1. National Chung Cheng University, 2. National Chung-Cheng University)</p>
2:30pm	<p><b>TuC3.3 - GeSn-based Photo-Detectors and Contacts (Invited)</b></p> <p>» <u>Gong Xiao</u> (Singapore)<sup>1</sup> (1. National University of Singapore)</p>





Continued from Tuesday, 14 July	
1:30pm	<b>TuE2: Structured Light in Fibers 1</b> Chaired by: Nicolas Fontaine (United States)
1:30pm	<b>TuE2.1 - Wavefront Shaping in Multimode Fibers by Transmission Matrix Engineering (Invited)</b> » Shachar Resisi (Israel) <sup>1</sup> , Sebastien Popoff (France) <sup>2</sup> , <u>Yaron Bromberg</u> (Israel) <sup>1</sup> (1. Racah Institute of Physics, The Hebrew University of Jerusalem, 2. ESPCI Paris, PSL University, CNRS, Institut Langevin)
1:55pm	<b>TuE2.2 - Arbitrary Optical Field Generation Through a Multimode Optical Fiber (Invited)</b> » <u>Mickael Mounaix</u> (Australia) <sup>1</sup> , Nicolas Fontaine (United States) <sup>2</sup> , David Neilson (United States) <sup>2</sup> , Roland Ryf (United States) <sup>2</sup> , Haoshuo Chen (United States) <sup>2</sup> , Juan Carlos Alvarado Zacarias (United States) <sup>3</sup> , Joel Carpenter (Australia) <sup>1</sup> (1. The University of Queensland, 2. Nokia Bell Labs, 3. University of Central Florida)
2:20pm	<b>TuE2.3 - Transmission Matrices of Multimode Fibers: Effect of Perturbations (Invited)</b> » Maxime Matthès (France) <sup>1</sup> , Yaron Bromberg (Israel) <sup>2</sup> , Julien de Rosny (France) <sup>1</sup> , <u>Sébastien Popoff</u> (France) <sup>1</sup> (1. ESPCI Paris, PSL University, CNRS, Institut Langevin, 2. Racah Institute of Physics, The Hebrew University of Jerusalem)
2:45pm	<b>TuE2.4 - Mode/Power Coupling Characteristics of Multi-core Fibers for Optical Communications (Invited)</b> » <u>Tetsuya Hayashi</u> (Japan) <sup>1</sup> (1. Optical Communications Laboratory, Sumitomo Electric Industries, Ltd.)
3:10pm	<b>TuE2.5 - Structuring Light in Fibers: Fundamentals and Applications (Invited)</b> » <u>Jian Wang</u> (China) <sup>1</sup> (1. Huazhong University of Science and Technology)
3:30pm	<b>TuA3: Simplified Coherent Reception</b> Chaired by: Fotini Karinou (United Kingdom)
3:30pm	<b>TuA3.1 - Techniques for Self-coherent Systems (Tutorial)</b> » <u>XI CHEN</u> (United States) <sup>1</sup> (1. Nokia Bell Labs)
4:15pm	<b>TuA3.2 - Stokes-vector-based Optical Transceivers for Low-cost Direct-detection and Coherent Systems (Invited)</b> » <u>Shota Ishimura</u> (Japan) <sup>1</sup> , Kosuke Nishimura (Japan) <sup>1</sup> , Yoshiaki Nakano (Japan) <sup>2</sup> , Takuo Tanemura (Japan) <sup>2</sup> (1. KDDI Research, Inc., 2. The University of Tokyo)
3:45pm	<b>TuB4: Quantum and Imaging</b> Chaired by: Haoshuo Chen (United States)
3:45pm	<b>TuB4.1 - Experimental Computational Advantage From Quantum Superposition of Multiple Temporal Orders of Logic Gates</b> » <u>Stephen Walborn</u> (Chile) <sup>1</sup> , Marcio Taddei (Brazil) <sup>2</sup> , Jaime Cariñe (Chile) <sup>3</sup> , Daniel Martinez (Chile) <sup>1</sup> , Nayda Guerrero (Chile) <sup>1</sup> , Tania García (Chile) <sup>1</sup> , Esteban Gomez (Chile) <sup>1</sup> , Alastair Abbott (Switzerland) <sup>4</sup> , Matheus Araújo (Austria) <sup>5</sup> , Cyril Branciard (France) <sup>6</sup> , Mario Leandro Aolita (Brazil) <sup>2</sup> , Gustavo Lima (Chile) <sup>1</sup> (1. Universidad de Concepción, 2. UFRJ, 3. UCSC, 4. University of Geneva, 5. Austrian Academy of Science, 6. University Grenoble Alpes)
4pm	<b>TuB4.2 - Nonlinear Silicon Photonic Physical Keys (Invited)</b> » <u>Mark Foster</u> (United States) <sup>1</sup> (1. Johns Hopkins University)
4:30pm	<b>TuB4.3 - Multiphoton Imaging of the Living Brain (Invited)</b> » <u>Chris Xu</u> (United States) <sup>1</sup> (1. CORNELL UNIVERSITY)
4pm	<b>TuE3: Structured Light Imaging Panel Session</b> Chaired by: Takashige Omatsu (Japan)
4:30pm	<b>TuD3: SDM Networks</b> Chaired by: Mikael Mazur (United States)
4:30pm	<b>TuD3.1 - Enabling Technologies for Spatial Channel Networks (Invited)</b> » <u>Masahiko Inno</u> (Japan) <sup>1</sup> (1. Kagawa University)



Continued from **Tuesday, 14 July**

- 5pm **TuD3.2 - An Overview on Recent Advancements Towards Hierarchical Spatial Division Multiplexing Network Architectures Using Homogeneous Multicore Fibers (Invited)**  
 » [Ruben S. Luis](#) (Japan)<sup>1</sup>, Ben Puttnam (Japan)<sup>2</sup>, Georg Rademacher (Japan)<sup>1</sup>, Tobias Eriksson (Japan)<sup>3</sup>, Yusuke Hirota (Japan)<sup>1</sup>, Satoshi Shinada (Japan)<sup>1</sup>, Andrew Ross-Adams (Australia)<sup>4</sup>, Simon Gross (Australia)<sup>4</sup>, Michael Withford (Australia)<sup>4</sup>, Ryo Maruyama (Japan)<sup>5</sup>, Kazuhiko Aikawa (Japan)<sup>5</sup>, Yoshinari Awaji (Japan)<sup>1</sup>, Hideaki Furukawa (Japan)<sup>1</sup>, Naoya Wada (Japan)<sup>1</sup>. National Institute of Information and Communications Technology, 2. Natiasdadsasd, 3. National Institute of Information and Communications Technology (NICT), 4. Macquarie University, 5. Fujikura Optical Technologies)
- 5:30pm **TuD3.3 - Field Usable Fusion Splicing Technique for Multicore Fiber**  
 » [Masanori Takahashi](#) (Japan)<sup>1</sup>, Toshiyuki Fujii (Japan)<sup>1</sup>, Ryuichi Sugizaki (Japan)<sup>1</sup>, Masayoshi Tsukamoto (Japan)<sup>1</sup>, Yoshihiro Arasitani (Japan)<sup>1</sup> (1. Furukawa Electric)

- 5pm **TuE4: Structured Light in Fibers 1 Panel Session**  
 Chaired by: Nicolas Fontaine (United States)

**Wednesday, 15 July**

- 8:30am **WA1: Cost-Effective Coherent Transceivers**  
 Chaired by: Bernhard Schrenk (Austria)
- 8:30am **Preview of the Day**  
 » [Fotini Karinou](#) (United Kingdom)<sup>1</sup>, Bernhard Schrenk (Austria)<sup>2</sup> (1. Microsoft Research Ltd, 2. AIT Austrian Institute of Technology)
- 8:45am **WA1.1 - Integrated Balanced Avalanche Photodiodes for Coherent Self-Homodyne Intra-Datacenter Links (Invited)**  
 » [Patrick Runge](#) (Germany)<sup>1</sup>, Tobias Beckerwerth (Germany)<sup>1</sup>, Martin Schell (Germany)<sup>1</sup> (1. Fraunhofer Heinrich-Hertz-Institute)

- 9:15am **WA1.2 - Low-Complexity Coherent Interfaces for Intra-Data-Center Networks (Tutorial)**  
 » [Joseph Kahn](#) (United States)<sup>1</sup>, Jose Krause Perin (United States)<sup>1</sup>, Anujit Shastri (United States)<sup>1</sup> (1. Stanford University)

- 8:30am **WB1: Optical Sampling**  
 Chaired by: Haoshuo Chen (United States)

- 8:30am **WB1.1 - Further Development Potential of Photonic ADCs Under Contention Among Error Terms in SNR (Invited)**  
 » [Tsuyoshi KONISHI](#) (Japan)<sup>1</sup>, Yuta KAIHORI (Japan)<sup>1</sup>, Yu YAMASAKI (Japan)<sup>1</sup>, Ryohei KAMIKAWA (Japan)<sup>1</sup> (1. Osaka University)

- 9am **WB1.2 - 2-D Photodetector Array for High-data-rate Spatial Sampling (Invited)**  
 » [Toshimasa Umezawa](#) (Japan)<sup>1</sup>, Yuki Yoshida (Japan)<sup>1</sup>, Atsushi Kanno (Japan)<sup>1</sup>, Naokatsu Yamamoto (Japan)<sup>1</sup> (1. National Institute of Information and Communications Technology (NICT))

- 9:30am **WB1.3 - Multi-Wavelength Optical Sampling with Temporal Lenticular Lens (Invited)**  
 » [Chester Shu](#) (Hong Kong)<sup>1</sup> (1. The Chinese University of Hong Kong)

- 8:30am **WD1: Modelling of Linear and Nonlinear Coupling in SDM Fibers**  
 Chaired by: Ivana Gasulla (Spain)

- 8:30am **WD1.1 - Distributed Characterization of Mode Coupling in Multimode and Multicore Fibers (Invited)**  
 » [Luca Palmieri](#) (Italy)<sup>1</sup>, Andrea Galtarossa (Italy)<sup>2</sup> (1. University of Padova, 2. University of Padova)

- 9am **WD1.2 - Stochastic ICXT Fluctuations and Performance of Weakly-Coupled Multicore Fiber Short-Reach Systems (Invited)**  
 » [Tiago Alves](#) (Portugal)<sup>1</sup>, João Rebola (Portugal)<sup>1</sup>, Adolfo Cartaxo (Portugal)<sup>1</sup> (1. ISCTE-University Institute of Lisbon; Instituto de Telecomunicações)



Continued from Wednesday, 15 July	
9:30am	<p><b>WD1.3 - Challenges in Modelling Optical Fibres for Spatial Division Multiplexing (Invited)</b></p> <p>» <a href="#">Filipe Ferreira</a> (United Kingdom)<sup>1</sup>, Eric Sillekens (United Kingdom)<sup>1</sup>, Robert Killey (United Kingdom)<sup>1</sup>, Polina Bayvel (United Kingdom)<sup>1</sup> (1. University College London)</p>
8:30am	<p><b>WE1: Scattering of Structured Light</b></p> <p>Chaired by: Takashige Omatsu (Japan)</p>
8:30am	<p><b>WE1.1 - Underwater OAM Structured Light Detection and Classification: Comparison of Image-based Approaches (Invited)</b></p> <p>» <a href="#">Abbie Watnik</a> (United States)<sup>1</sup>, Patrick Neary (United States)<sup>2</sup>, K. Peter Judd (United States)<sup>1</sup>, James R. Lindle (United States)<sup>3</sup>, Jonathan Nichols (United States)<sup>4</sup>, Nicholas Flann (United States)<sup>2</sup> (1. U.S. Naval Research Laboratory, 2. Utah State University, 3. DCS Corporation, 4. U.S)</p>
8:55am	<p><b>WE1.2 - Making the Most of Interference: High-precision Laser Metrology with Speckle (Invited)</b></p> <p>» <a href="#">Graham Bruce</a> (United Kingdom)<sup>1</sup>, Laura O'Donnell (United Kingdom)<sup>1</sup>, Mingzhou Chen (United Kingdom)<sup>1</sup>, Roopam Gupta (United Kingdom)<sup>1</sup>, Morgan Facchin (United Kingdom)<sup>1</sup>, Kishan Dholakia (United Kingdom)<sup>1</sup> (1. University of St Andrews)</p>
9:20am	<p><b>WE1.3 - Customizing Speckle Statistics for Patterned Illumination Microscopy (Invited)</b></p> <p>» <a href="#">Hui Cao</a> (United States)<sup>1</sup> (1. Yale University)</p>
9:45am	<p><b>WE1.4 - Twisted Beams in Scattering and Dispersive Channels</b></p> <p>» <a href="#">Martin Lavery</a> (United Kingdom)<sup>1</sup>, Grace Richard (United Kingdom)<sup>1</sup>, Gabriel Spalding (United States)<sup>2</sup>, Shaun Viola (United Kingdom)<sup>1</sup>, Zhaozhong Chen (United Kingdom)<sup>1</sup>, David Mckee (United Kingdom)<sup>3</sup>, Alison Yao (United Kingdom)<sup>3</sup> (1. University of Glasgow, 2. Illinois Wesleyan, 3. University of Strathclyde)</p>
10:10am	<p><b>WE1.5 - Distributed Sensing Beyond Rayleigh Scattering Limits in Single and Multicore Fiber Waveguides (Invited)</b></p> <p>» <a href="#">Paul Westbrook</a> (United States)<sup>1</sup> (1. OFS Labs)</p>
10:35am	<p><b>WE1.6 - Twisting Optical Modes (Invited)</b></p> <p>» <a href="#">Yoko Miyamoto</a> (Japan)<sup>1</sup> (1. The University of Electro-communications)</p>
10:30am	<p><b>WA2: Coherent Systems for Intra-Datacenter Networks</b></p> <p>Chaired by: Fotini Karinou (United Kingdom)</p>
10:30am	<p><b>WA2.1 - Coherent Optical Transmission Systems for Short Reach Applications (Invited)</b></p> <p>» <a href="#">David Plant</a> (Canada)<sup>1</sup> (1. McGill University)</p>
11am	<p><b>WA2.2 - FEC Implementation and Options for Short-Reach Optical Transmission (Invited)</b></p> <p>» <a href="#">Yi Cai</a> (United States)<sup>1</sup>, Weiming Wang (China)<sup>2</sup>, Kai Tao (China)<sup>2</sup>, Weifeng Qian (China)<sup>2</sup>, Ming Lei (China)<sup>2</sup>, Shihua Zhang (China)<sup>2</sup>, Zheng Liu (China)<sup>2</sup>, Han Liu (China)<sup>2</sup>, Hung-Chang Chien (United States)<sup>1</sup> (1. ZTE TX, 2. ZTE)</p>
11:30am	<p><b>WA2.3 - Coherent vs. Direct Detection for Next Generation Intra-Datacenter Optical Interconnects (Invited)</b></p> <p>» <a href="#">Ilya Lyubomirsky</a> (United States)<sup>1</sup> (1. Inphi)</p>
10:30am	<p><b>WB2: Signal Processing in Telecom</b></p> <p>Chaired by: Yuki Yoshida (Japan)</p>
10:30am	<p><b>WB2.1 - Influence of Electrical Noise on Temporal Optical Phase Reconstruction Using Transport-of-Intensity Equation (Invited)</b></p> <p>» <a href="#">Masayuki Matsumoto</a> (Japan)<sup>1</sup> (1. Wakayama University)</p>
11am	<p><b>WB2.2 - Fiber-Wireless Mobile Fronthaul for 5G and Beyond (Invited)</b></p> <p>» <a href="#">Peng-Chun Peng</a> (Taiwan)<sup>1</sup> (1. National Taipei University of Technology)</p>
11:30am	<p><b>WB2.3 - Photonic Reservoir Computing in Optical Transmission Systems (Invited)</b></p> <p>» <a href="#">Shi Li</a> (Germany)<sup>1</sup>, Stephan Pachnicke (Germany)<sup>1</sup> (1. Chair of Communications, Kiel University, Kaiserstr. 2, 24143 Kiel)</p>



Continued from Wednesday, 15 July	
10:30am	<p><b>WD2: SDM Amplifiers</b> Chaired by: Roland Ryf (United States)</p>
10:30am	<p><b>WD2.1 - Modelling and Optimization of Space-Division Multiplexing Amplifiers (Invited)</b> » <a href="#">Peter Krummrich</a> (Germany)<sup>1</sup>, Steffen Jeurink (Germany)<sup>1</sup>, Klaus Petermann (Germany)<sup>2</sup> (1. Technische Universität Dortmund, 2. Technische Universität Berlin,)</p>
11am	<p><b>WD2.2 - Components and Amplifiers for Space Division Multiplexing (Invited)</b> » <a href="#">Juan Carlos Alvarado Zacarias</a> (United States)<sup>1</sup>, Nicolas Fontaine (United States)<sup>2</sup>, Roland Ryf (United States)<sup>2</sup>, Haoshuo Chen (United States)<sup>2</sup>, Pierre Sillard (France)<sup>3</sup>, Rodrigo Amezcua Correa (United States)<sup>1</sup> (1. University of Central Florida, 2. Nokia Bell Labs, 3. Prysmian Group)</p>
11:30am	<p><b>WD2.3 - Optical Amplification Efficiency Improvement of Multicore EDFA by Using Turbo Cladding Pumping Scheme (Invited)</b> » <a href="#">Hitoshi Takeshita</a> (Japan)<sup>1</sup>, Keiichi Matsumoto (Japan)<sup>1</sup>, Hidemi Noguchi (Japan)<sup>1</sup>, Emmanuel Le Taillandier de Gabory (Japan)<sup>1</sup> (1. NEC)</p>
1:30pm	<p><b>WB3: Photonics for RF Signal Processing</b> Chaired by: José Azaña (Canada)</p>
1:30pm	<p><b>WB3.1 - Integrated Microwave Photonics for Measurements and Communications (Invited)</b> » <a href="#">Xihua Zou</a> (China)<sup>1</sup> (1. Southwest Jiaotong University)</p>
2pm	<p><b>WB3.2 - Real-time adaptive spectral analysis of RF signals in frequency shifting loops (Invited)</b> » <a href="#">hugues guillet de chatellus</a> (France)<sup>1</sup> (1. Laboratoire Interdisciplinaire de physique (LIPhy), UGA/CNRS)</p>
2:30pm	<p><b>WB3.3 - A Photonic Integrated Circuit based Compressive Sensing Radio Frequency Receiver (Invited)</b> » <a href="#">David Borlaug</a> (United States)<sup>1</sup>, Steven Estrella (United States)<sup>2</sup>, Carl Boone (United States)<sup>1</sup>, George Seifler (United States)<sup>1</sup>, Thomas Justin Shaw (United States)<sup>1</sup>, Angsuman Roy (United States)<sup>2</sup>, Leif Johansson (United States)<sup>2</sup>, George Valley (United States)<sup>1</sup> (1. The Aerospace Corporation, 2. Freedom Photonics)</p>
1:30pm	<p><b>WD3: SDM Components for Free-space Communications</b> Chaired by: Cristian Antonelli (Italy)</p>
1:30pm	<p><b>WD3.1 - Multimode Technology for Free Space Communications (Tutorial)</b> » <a href="#">Nicolas Fontaine</a> (United States)<sup>1</sup> (1. Nokia Bell Labs)</p>
1:30pm	<p><b>WE2: Structured Light in Fibers 2</b> Chaired by: Jian Wang (China)</p>
1:30pm	<p><b>WE2.1 - Spectral and Spatial Shaping of Spatiotemporal Nonlinearities in Multimode Fibers (Invited)</b> » <a href="#">Tegin Ugur</a> (Switzerland)<sup>1</sup>, Babak Rahmani (Switzerland)<sup>1</sup>, Eirini Kakkava (Switzerland)<sup>1</sup>, Navid Borhani (Switzerland)<sup>1</sup>, Christophe Moser (Switzerland)<sup>1</sup>, Demetri Psaltis (Switzerland)<sup>1</sup> (1. École Polytechnique Fédérale de Lausanne)</p>
1:55pm	<p><b>WE2.2 - Ultra-Compact Tunable Multi-Mode Converter based on Tilted Bragg Gratings in SOI Waveguides</b> » <a href="#">Eman Elzahaby</a> (Egypt)<sup>1</sup>, Ahmed M. R. Fath Elbab (Egypt)<sup>1</sup>, Prof. Hossam Shalaby (Egypt)<sup>2</sup> (1. Egypt-Japan University of Science and Technology (E-JUST), Alexandria 21934, Egypt, 2. Egypt-Japan University of Science and Technology (E-JUST))</p>
3:30pm	<p><b>WA3: Coherent Optics for Future Access</b> Chaired by: Bernhard Schrenk (Austria)</p>
3:30pm	<p><b>WA3.1 - Coherent Optics for Access Networks, from Point-to-Point to Point-to-Multipoint (Invited)</b> » <a href="#">Zhensheng lia</a> (United States)<sup>1</sup> (1. CableLabs)</p>



Continued from **Wednesday, 15 July**

4pm **WA3.2 - Digital Coherent DSP based PON Technology for Ultimate Capacity Optical Access Systems (Invited)**

» Suzuki Naoki (Japan)<sup>1</sup>, Hiroshi Miura (Japan)<sup>2</sup> (1. Mitsubishi Electric Corp., Information Technology R&D Center, 2. Information Technology R&D Center, MITSUBISHI ELECTRIC CORPORATION)

4:30pm **WA3.3 - Digital Coherent Technologies for Future Optical Access (Invited)**

» Jun-ichi Kani (Japan)<sup>1</sup>, Takuya Kanai (Japan)<sup>1</sup>, Sang-Yuep Kim (Japan)<sup>1</sup>, Ryo Koma (Japan)<sup>1</sup>, Masamichi Fujiwara (Japan)<sup>1</sup> (1. NTT Corporation)

3:30pm **WB4: Signal Recovery and Sampling**

Chaired by: Haoshuo Chen (United States)

3:30pm **WB4.1 - Full Field Reconstruction Based on the Kramers-Kronig Relations (Invited)**

» Cristian Antonelli (Italy)<sup>1</sup> (1. University of LAquila)

4pm **WB4.2 - Double-Side Band Signal Reception via Carrier assisted differential detection (Invited)**

» William Shieh (Australia)<sup>1</sup> (1. The University of Melbourne)

4:30pm **WB4.3 - Dual Frequency Comb Photonic Analog to Digital Conversion**

» Callum Deakin (United Kingdom)<sup>1</sup>, Temitope Odedeyi (United Kingdom)<sup>1</sup>, Zhixin Liu (United Kingdom)<sup>1</sup> (1. Department of Electronic and Electrical Engineering, University College London, London, U.K.)

4:45pm **WB4.4 - Impact on Frequency Combs of Nonlinearity Including Bleaching in p-i-n Photodetectors**

» SEYED EHSAN JAMALI MAHABADI (United States)<sup>1</sup>, Thomas F. Carruthers (United States)<sup>1</sup>, Curtis R. Menyuk (United States)<sup>1</sup>, Jason D. McKinney (United States)<sup>2</sup>, Keith J. Williams (United States)<sup>2</sup> (1. CSEE Department, University of Maryland, Baltimore County Baltimore, MD 21250 USA, 2. U.S. Naval Research Laboratory, Washington, DC 20375 USA)

4pm **WE3: Scattering of Structured Light Panel Session**

Chaired by: Takashige Omatsu (Japan)

4:30pm **WD4: Real-time and Parallel Integrated SDM Transceivers**

Chaired by: Ruben S. Luis (Japan)

4:30pm **WD4.1 - FPGA Implementation of MIMO DSP in Weakly-coupled Few Mode Fiber Transmission (Invited)**

» Koji Igarashi (Japan)<sup>1</sup>, Shohei Beppu (Japan)<sup>2</sup>, Takehiro Tsuritani (Japan)<sup>2</sup> (1. Osaka University, 2. KDDI Research, Inc.)

5pm **WD4.2 - Development of Integrated Membrane III-V/Si DMLs for Multi-Core Fiber Transmission (Invited)**

» Nikolaos Panteleimon Diamantopoulos (Japan)<sup>1</sup>, Takuro Fujii (Japan)<sup>1</sup>, Hidetaka Nishi (Japan)<sup>1</sup>, Kota Shikama (Japan)<sup>1</sup>, Takashi Matsui (Japan)<sup>1</sup>, Kazuhide Nakajima (Japan)<sup>1</sup>, Shinji Matsuo (Japan)<sup>1</sup> (1. NTT)

5:30pm **WD4.3 - Prospects of massive parallelism in Si-photonics transceivers for SDM networks (Invited)**

» Guilhem de Valicourt (United States)<sup>1</sup>, Alexander Gazman (United States)<sup>1</sup>, Zeyu pan (United States)<sup>1</sup>, Michael Kossey (United States)<sup>1</sup>, Tam Huynh (United States)<sup>1</sup>, jeffrey sinsky (United States)<sup>1</sup>, Siamak Abbaslou (United States)<sup>1</sup>, enrico Gonzales (United States)<sup>1</sup>, Pavel Mamyshev (United States)<sup>1</sup> (1. IPG Photonics)

6pm **WE4: Structured Light in Fibers 2 Panel Session**

Chaired by: Jian Wang (China)