

IEEE PHOTONICS SOCIETY

# SUMMER TOPICALS MEETING SERIES 2021

Virtual Conference  
19-21 July 2021  
[www.ieee-sum.org](http://www.ieee-sum.org)



**General Chair:**  
**Michael Brodsky,**  
U.S. Army Research Laboratory, USA

**General Chair-Elect:**  
**Cristian Antonelli,**  
University of L'Aquila, Italy



## **Welcome to the 2021 IEEE Summer Topicals Meeting Series!**

The Summer Topicals is a premier conference for emerging areas in photonic science, technology and applications. Historically, the meetings are conducted in intimate resort environments and create opportunities to learn about new exciting areas from world experts and technology leaders during three days of talks, networking events, and unforgettable fun events.

We all would prefer to be meeting in person this year, however, while our return to normal seems to be just around the corner, unfortunately we are not there yet. The conference management and technical committees have put together a comprehensive virtual program, to be delivered through a new online platform with many Q&A sessions and panel discussions to be conducted live. Due to the virtual format the schedule of the conference is adjusted to spread the sessions throughout the day to better fit the daylight time around the globe.

The Summer Topicals' history includes topics ranging from bio-photonics and optical communications to quantum information science. The five topics for 2021 are:

- **Photonics for Information Processing (PIP)**
- **Reconfigurable Optics and Photonics (ROP)**
- **Silicon-Integrated Mid-Infrared Photonics (SIMP)**
- **Structured Light and Beyond (SLB)**
- **Ultra-wideband Optical Fiber Communication Systems (UWB)**

Each year the topics and organizers are brand new keeping the technical content fresh. The organizers have spent a full year in planning the topics from submitting a proposal to securing high quality plenary and invited speakers, as well as excellent contributed papers.

Networking, socializing, and mentorship are highly valued at the Summer Topicals. We hope that for the next year the conference will be back to its normal format – in person! And so we will be able to return to our valued tradition of having social events and special initiatives to complement the technical program, so as to allow all researchers, organizers, and the IEEE Photonics Society staff to meet: a get together reception, a Welcome/Poster Session on Monday, Automation Hackathon and Mentor Match program.

Whether you are a student, professional, or new to photonics, we encourage each of you to attend this and future Summer Topical series, and to build lasting relationships with colleagues, friends and collaborators.

See you next year at Summer Topicals 2022. Don't forget to submit your 2022 topic proposal!

**Michael Brodsky, 2021 General Chair**

**Cristian Antonelli, 2021 Chair-Elect, 2022-2023 General Chair**



## Monday, 19 July

- 9am **MA1 -**  
**MA1: Optical Processing**  
Chaired by: Yuki Yoshida (Japan)
- 9am **MA1.1 (Invited) - Optoelectronic Accelerators based on Integrated Nanophotonics**  
» Masaya Notomi (Japan)<sup>1</sup> (1. NTT Basic Research Laboratories and Tokyo Institute of Technology)
- 9:30am **MA1.2 (Invited) - Nanoscale Photonic Devices for Computing with Analog Signals**  
» Alfredo de Rossi (France)<sup>1</sup>, Maxime Delmulle (France)<sup>1</sup>, Sylvain Combrie (France)<sup>1</sup>, Sebastien Le Beux (Canada)<sup>2</sup>, Ivan Boikov (France)<sup>3</sup>, Lea Constans (France)<sup>1</sup>, Alexandre Bazin (France)<sup>4</sup>, Fabrice Raineri (France)<sup>4</sup> (1. Thales Research France, 2. Concordia, 3. Université Paris-Saclay, 4. Upsaclay)
- 10am **MA1.3 (Invited) - Integrated ultrahigh-bandwidth optical signal processing enabled by plasmonic modulator technologies**  
» Maurizio Burla (Switzerland)<sup>1</sup>, Claudia Hoessbacher (Switzerland)<sup>1</sup>, Wolfgang Heni (Switzerland)<sup>2</sup>, Christian Haffner (Switzerland)<sup>3</sup>, Yuriy Fedoryshyn (Switzerland)<sup>1</sup>, Dominik Werner (Switzerland)<sup>1</sup>, Tatsuhiko Watanabe (Switzerland)<sup>1</sup>, Yannick Salamin (United States)<sup>4</sup>, Hermann Massler (Germany)<sup>5</sup>, Delwin L. Elder (United States)<sup>6</sup>, Larry R. Dalton (United States)<sup>6</sup>, Juerg Leuthold (Switzerland)<sup>1</sup> (1. ETH Zurich, 2. ETH, 3. IMEC, 4. MIT, 5. Fraunhofer IAF, 6. University of Washington)
- 9am **MB1 -**  
**MB1: Joint Session SIMP-ROP I**  
Chaired by: Francesco Morichetti (Italy) and Oussama Moutanabbir (Canada)
- 9am **MB1.1 (Tutorial) - Reconfigurable Mid-infrared Photonics**  
» Tian Gu (United States)<sup>1</sup>, Juejun (JJ) Hu (United States)<sup>1</sup> (1. Massachusetts Institute of Technology)

- 9:45am **MB1.2 (Invited) - Mid-IR Photonic Integrated Circuits**  
» Jerry Meyer (United States)<sup>1</sup>, Mijin Kim (United States)<sup>2</sup>, Chul Soo Kim (United States)<sup>1</sup>, Chadwick Canedy (United States)<sup>1</sup>, Charles Merritt (United States)<sup>1</sup>, William Bewley (United States)<sup>1</sup>, Igor Vurgaftman (United States)<sup>1</sup> (1. Naval Research Laboratory, 2. Jacobs Corp.)
- 10:15am **MB1.3 (Invited) - Reconfigurable infrared optics based on insulator-metal transition materials**  
» Chenghao Wan (United States)<sup>1</sup>, Mikhail Kats (United States)<sup>1</sup> (1. University of Wisconsin-Madison)
- 9am **MD1 -**  
**MD1: SLB Panel I**  
Chaired by: Martin P.J. Lavery (United Kingdom) and Nick Fontaine (United States)
- MD1.1 (Invited) - Towards novel detector technology for the nano-optics toolbox and beyond**  
» Peter Banzer (Austria)<sup>1</sup> (1. Institute of Physics, University of Graz, NAWI Graz)
- MD1.2 (Invited) - Nanophotonic color devices for chemical sensing and security applications**  
» Alasdair Clark (United Kingdom)<sup>1</sup> (1. University of Glasgow)
- MD1.3 (Invited) - Super-resolution microscopy with super-linear emitters**  
» Martin Ploschner (Australia)<sup>1</sup>, Denitza Denkova (Spain)<sup>2</sup>, Simone de Camillis (Australia)<sup>3</sup>, Minakshi Das (Australia)<sup>3</sup>, Lindsay Parker (Australia)<sup>3</sup>, Xianlin Zheng (Australia)<sup>4</sup>, Yiqing Lu (Australia)<sup>3</sup>, Antony Orth (Canada)<sup>5</sup>, Samuel Ojosnegros (Spain)<sup>2</sup>, Nicolle Packer (Australia)<sup>3</sup>, Jim Piper (Australia)<sup>3</sup> (1. The University of Queensland, 2. IBEC, 3. Macquarie University, 4. Macq, 5. National Research Council)
- MD1.4 (Invited) - Micro/Nano-structured Optical Fiber Gas Sensors**  
» Wei Jin (Hong Kong)<sup>1</sup> (1. The Hong Kong Polytechnic University)



Continued from Monday, 19 July

### MD1.5 (Invited) - Stability of spatial eigenmodes of light in dynamic atmospheric turbulence

» David Bachmann (Germany)<sup>1</sup>, Andreas Buchleitner (Germany)<sup>2</sup>, Mathieu Isoard (Germany)<sup>1</sup>, Nicolas Treps (France)<sup>3</sup>, Giacomo Sorelli (France)<sup>3</sup>, Vyacheslav Shatokhin (Germany)<sup>2</sup> (1. Institute of Physics, Albert-Ludwigs-Universität Freiburg, 2. Physikalisches Institut, Albert-Ludwigs-Universität Freiburg i.Br., 3. Laboratoire Kastler Brossel, Paris)

### MD1.7 (Invited) - Weather monitoring by propagation of structured light through turbulent channel

» Zhaozhong Chen (United Kingdom)<sup>1</sup>, Martin P.J. Lavery (United Kingdom)<sup>1</sup> (1. University of Glasgow)

### 9am ME1 - ME1: Optical Networks

Chaired by: Wlodek Forysiak (United Kingdom)

### 9am ME1.1 (Invited) - Opportunities for ultra wide-band optical networking for international carriers

» Andrew Lord (United Kingdom)<sup>1</sup>, Asif Iqbal (United Kingdom)<sup>1</sup>, Abhijit Mitra (India)<sup>2</sup>, Rana Kumar Jana (India)<sup>2</sup>, Anand Srivastava (India)<sup>2</sup> (1. BT, 2. IIIT Delhi)

### 9:30am ME1.2 (Invited) - Towards Multi-Band WDM Systems with Hundreds of Terabit/s Transported on a Single-Mode Fiber

» Erwan Pincemin (France)<sup>1</sup> (1. Orange Labs)

### 10am ME1.3 (Invited) - Ultra-Wideband Transmission Systems using SOAs

» Jeremie Renaudier (France)<sup>1</sup>, Maria Ionescu (France)<sup>1</sup>, Hans Bissessur (France)<sup>2</sup> (1. Nokia Bell Labs, 2. Alcatel Submarine Networks)

10:30am Break

10:30am Break

10:30am Break

10:45am Break

### 11am MA2 - MA2: Multimode Fiber

Chaired by: Haoshuo Chen (United States)

### 11am MA2.1 (Invited) - Mode-division multiplexing for microwave signal processing

» Elham Nazemosadat (Spain)<sup>1</sup>, Ivana Gasulla (Spain)<sup>1</sup> (1. Universitat Politecnica de Valencia)

### 11:30am MA2.2 (Tutorial) - Holographic endoscopy: Seeing through multimode fibres

» Ivo Leite (Germany)<sup>1</sup>, Sergey Turtaev (Germany)<sup>2</sup>, Dirk Boonzajer Flaes (Germany)<sup>2</sup>, Yang Du (Germany)<sup>2</sup>, Benjamin Rudolf (Germany)<sup>2</sup>, Beatriz Silveira (Germany)<sup>2</sup>, Andre Gomes (Germany)<sup>2</sup>, Tomas Cizmar (Germany)<sup>2</sup> (1. European Molecular Biology Laboratory, 2. Leibniz Institute of Photonic Technology)

### 11am MB2 - MB2: Programmable Photonics I

Chaired by: Richard Soref (United States) and Francesco Morichetti (Italy)

### 11am MB2.1 (Invited) - Hybrid 2D-3D Integrated Photonics Circuits

» Wolfram Pernice (Germany)<sup>1</sup> (1. University of Muenster)

### 11:30am MB2.2 (Invited) - Vanadium Dioxide Optical Memory and Switching Devices

» Joyce Poon (Canada)<sup>1</sup> (1. University of Toronto)

### 12pm MB2.3 (Invited) - Photonic TPU and RAMs for SWAP-conscious Machine Intelligence

» Volker Sorger (United States)<sup>1</sup> (1. OPTELLIGENCE LLC and GWU)



Continued from **Monday, 19 July**

11am

**MD2 -**

**MD2: SLB Panel II**

Chaired by: Eric Johnson (United States) and Martin P.J. Lavery (United Kingdom)

**MD2.1 (Invited) - Structured Entangled Photons**

» [Ohad Lib](#) (Israel)<sup>1</sup>, Ronen Shekel (Israel)<sup>1</sup>, [Yaron Bromberg](#) (Israel)<sup>1</sup> (1. Racah Institute of Physics, The Hebrew University)

**MD2.2 (Invited) - Robust and Efficient High-Dimensional Quantum State Tomography**

» [Jacquiline Romero](#) (Australia)<sup>1</sup>, Markus Rambach (Australia)<sup>1</sup>, Mahdi Qaryan (Australia)<sup>1</sup>, Michael Kewming (Australia)<sup>1</sup>, Andrew White (Australia)<sup>2</sup>, Christopher Ferrie (Australia)<sup>3</sup> (1. The University of Queensland, 2. The U, 3. University of Technology Sydney)

**MD2.3 (Invited) - Time reversed optical waves by arbitrary vector spatiotemporal field generation**

» [Mickael Mounaix](#) (Australia)<sup>1</sup>, Nick 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>2</sup>, Joel Carpenter (Australia)<sup>1</sup> (1. The University of Queensland, 2. Nokia Bell Labs)

**MD2.4 - Three-dimensional intensity correlations in random fields generated by vortex structured beams**

» [Mahed Batarseh](#) (United States)<sup>1</sup>, Cristian Acevedo Caceres (United States)<sup>2</sup>, Aristide Dogariu (United States)<sup>2</sup> (1. University of Central Florida, 2. CREOL, College of Optics and Photonics, University of Central Florida)

**MD2.5 (Invited) - Distributed sensing with enhanced backscatter fibers**

» [Paul Westbrook](#) (United States)<sup>1</sup>, Ken Feder (United States)<sup>1</sup>, Wing Ko (United States)<sup>1</sup>, Raja Ahmad (United States)<sup>1</sup>, Tristan Kremp (United States)<sup>1</sup> (1. OFS Labs)

**MD2.6 (Invited) - Scattered optical field and non-separability**

» [Yoko Miyamoto](#) (Japan)<sup>1</sup> (1. The University of Electro-Communications)

**MD2.7 (Invited) - Customizing the angular memory effect for scattering media**

» [Hui Cao](#) (United States)<sup>1</sup> (1. Yale University)

**MD2.8 (Invited) - Structuring Light to Rotate Optical Turing Patterns and Solitons**

» [Alison Yao](#) (United Kingdom)<sup>1</sup>, Christopher Gibson (United Kingdom)<sup>1</sup>, Gian-Luca Oppo (United Kingdom)<sup>1</sup> (1. University of Strathclyde)

11am

**ME2 -**

**ME2: Transmission Systems I**

Chaired by: Wladek Forysiak (United Kingdom)

11am

**ME2.1 (Invited) - Perspectives of Optical Transmitters for Multi-Band Transmission Systems**

» [Johannes Fischer](#) (Germany)<sup>1</sup>, Matheus Sena (Germany)<sup>1</sup>, Robert Emmerich (Germany)<sup>1</sup>, Behnam Shariati (Germany)<sup>1</sup>, Colja Schubert (Germany)<sup>1</sup> (1. Fraunhofer HHI)

11:30am

**ME2.2 (Invited) - Challenges and Solutions to Ultrawideband Amplified Transmission Systems**

» [Lidia Galdino](#) (United Kingdom)<sup>1</sup> (1. University College London)

12pm

**ME2.3 (Invited) - Real-time measurements of 200-600Gbit/s digital coherent signals in UWB systems**

» [Donald Govan](#) (United Kingdom)<sup>1</sup> (1. Lumentum LLC)

11:15am

**MC2 -**

**MC2: Materials I**

Chaired by: Oussama Moutanabbir (Canada)

11:15am

**MC2.1 (Invited) - Magneto-optical investigation of the dynamics of spin-polarized carriers in GeSn heterostructures**

» [Fabio Pezzoli](#) (Italy)<sup>1</sup> (1. University of Milano-Bicocca)





Continued from Monday, 19 July

11:45am **MC2.2 (Invited) - Ab initio thermodynamics studies of {H,Cl,Ge,Sn} molecular precursors and stability of Si-Ge-Sn alloys**  
» [Andrew Chizmeshya](#) (United States)<sup>1</sup> (1. Arizona State University)

12:15pm **MC2.3 - Momentum (k)-Space Charge Separation Mid-Wave Infrared Photodetectors Using SiGeSn Alloys**  
» [Tyler McCarthy](#) (United States)<sup>1</sup>, [Zheng Ju](#) (United States)<sup>1</sup>, [Shui-Qing \(Fisher\) Yu](#) (United States)<sup>2</sup>, [Yong Zhang](#) (United States)<sup>1</sup> (1. Arizona State University, 2. University of arkansas)

12:30pm **MC2.4 - Analysis of temperature-dependent and time-resolved ellipsometry spectra of Ge**  
» [Carola Emminger](#) (United States)<sup>1</sup>, [Farzin Abadizaman](#) (Czech Republic)<sup>2</sup>, [Nuwanjula S. Samarasingha](#) (United States)<sup>1</sup>, [José Menéndez](#) (United States)<sup>3</sup>, [Shirly Espinoza](#) (Czech Republic)<sup>4</sup>, [Steffen Richter](#) (Czech Republic)<sup>4</sup>, [Mateusz Rebarz](#) (Czech Republic)<sup>4</sup>, [Oliver Herrfurth](#) (Germany)<sup>5</sup>, [Martin Zahradník](#) (Czech Republic)<sup>4</sup>, [Rüdiger Schmidt-Grund](#) (Germany)<sup>6</sup>, [Jakob Andreasson](#) (Czech Republic)<sup>4</sup>, [Stefan Zollner](#) (United States)<sup>1</sup> (1. New Mexico State University, 2. Masaryk University, 3. Arizona State University, 4. ELI Beamlines, 5. Active Fiber Systems GmbH, 6. Technische Universität Ilmenau)

6pm **MA3 - MA3: Photonic Computing**  
Chaired by: [George Valley](#) (United States)

6pm **MA3.1 (Invited) - Neuromorphic processing at 11 Tera-OPs with soliton crystal Kerr microcombs**  
» [Mengxi Tan](#) (Australia)<sup>1</sup>, [Xingyuan Xu](#) (Australia)<sup>2</sup>, [jiayang Wu](#) (Australia)<sup>1</sup>, [Roberto Morandotti](#) (Canada)<sup>3</sup>, [Arnan Mitchell](#) (Australia)<sup>4</sup>, [David Moss](#) (Australia)<sup>1</sup> (1. Optical Sciences Centre, Swinburne University of Technology, 2. Monash University, 3. INRS-EMT, 4. RMIT)

6:30pm **MA3.2 (Invited) - Integrated metasystem for image recognition**  
» [Tingyi Gu](#) (United States)<sup>1</sup> (1. University of Delaware)

7pm **MA3.3 - Benchmarking the Poor Man's Ising Machine**  
» [Gautham Umasankar](#) (India)<sup>1</sup>, [Parth Shah](#) (India)<sup>1</sup>, [Nitin Chandrachoodan](#) (India)<sup>1</sup>, [Anil Prabhakar](#) (India)<sup>1</sup> (1. Indian Institute of Technology Madras)

7:15pm **MA3.4 - Solving the two-way Number-Partitioning Problem using a Spatial-Photonic Ising Machine**  
» [Vikram Ramesh](#) (India)<sup>1</sup>, [Vighnesh Natarajan](#) (India)<sup>1</sup>, [Anil Prabhakar](#) (India)<sup>1</sup> (1. Indian Institute of Technology Madras)

6pm **MB3 - MB3: Reconfigurable Meta-Optics I**  
Chaired by: [Tian Gu](#) (United States) and [JueJun \(JJ\) Hu](#) (United States)

6pm **MB3.1 (Plenary) - Dynamic and tunable flat optics: The next frontier**  
» [Harry Atwater](#) (United States)<sup>1</sup> (1. California Institute of Technology)

6:45pm **MB3.2 (Invited) - Reconfigurable Nanophotonics with Classical and Quantum Metal-Insulator Transitions**  
» [Jon Schuller](#) (United States)<sup>1</sup> (1. UC Santa Barbara)

7:15pm **MB3.3 (Invited) - Multifunctional Meta-Devices Enabled by Reconfigurable Material Systems**  
» [Sawyer Campbell](#) (United States)<sup>1</sup>, [Yuhao Wu](#) (United States)<sup>1</sup>, [Eric B. Whiting](#) (United States)<sup>1</sup>, [Lei Kang](#) (United States)<sup>1</sup>, [Pingjuan L. Werner](#) (United States)<sup>1</sup>, [Douglas H. Werner](#) (United States)<sup>1</sup> (1. The Pennsylvania State University)

6pm **MC3 - MC3: Devices I**  
Chaired by: [Anuradha Agarwal](#) (United States) and [Shui-Qing \(Fisher\) Yu](#) (United States)

6pm **MC3.1 (Invited) - Development of GeSn-based optical modulators for mid-infrared integrated photonics**  
» [Guo-En Chang](#) (Taiwan)<sup>1</sup> (1. National Chung Cheng Univ.)



Continued from Monday, 19 July

6:30pm **MC3.2 (Invited) - GeSn electronic devices and spin-orbit coupling in GeSn/Ge heterostructures**  
» Chia-You Liu (Taiwan)<sup>1</sup>, Yen Chuang (Taiwan)<sup>1</sup>, Chia-Tse Tai (Taiwan)<sup>1</sup>, Hsiang-Shun Kao (Taiwan)<sup>1</sup>, Kai-Ying Tien (Taiwan)<sup>1</sup>, Jiun-Yun Li (Taiwan)<sup>1</sup> (1. National Taiwan University)

6pm **ME3 -  
ME3: Fibres, Amplifier, and Devices I**  
Chaired by: Wladek Forysiak (United Kingdom)

6pm **ME3.1 (Invited) - Designs and Physical Characteristics of Optical Fibers for Ultra-wideband Transmission Systems**  
» Ming-Jun Li (United States)<sup>1</sup> (1. Corning Incorporated)

6:30pm **ME3.3 (Invited) - E-Band Amplification in Nd-doped fibers**  
» Leily Kiani (United States)<sup>1</sup>, Paul Pax (United States)<sup>1</sup>, Victor Khitrov (United States)<sup>1</sup>, Cody Mart (United States)<sup>1</sup>, Charles Yu (United States)<sup>1</sup>, Nick Schenkel (United States)<sup>1</sup>, Michael Runkel (United States)<sup>1</sup>, Michael Messerly (United States)<sup>1</sup> (1. Lawrence Livermore National Lab)

7pm **ME3.2 (Invited) - Wideband Wavelength Selective Switches**  
» Nick Fontaine (United States)<sup>1</sup> (1. Nokia Bell)

7:30pm **Break**

7:30pm **Break**

7:45pm **Break**

8pm **MA4 -  
MA4: Imaging**  
Chaired by: Haoshuo Chen (United States)

8pm **MA4.1 (Invited) - Multidimensional incoherent digital holography with phase-shifting interferometry**  
» Tatsuki Tahara (Japan)<sup>1</sup>, Yuichi Kozawa (Japan)<sup>2</sup>, Takako Koujin (Japan)<sup>3</sup>, Atsushi Matsuda (Japan)<sup>3</sup>, Ryutaro Oi (Japan)<sup>1</sup> (1. Radio Research Institute, National Institute of Information Communications Technology, 2. Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, 3. Advanced ICT Research Institute Kobe, National Institute of Information Communications Technology)

8:30pm **MA4.2 (Invited) - High-speed Structured Light Illumination and Multiple-pixel Detection for Compressed Sensing**  
» Ken-ichi Kitayama (Japan)<sup>1</sup>, Munenori Takumi (Japan)<sup>1</sup>, Keisuke Uchida (Japan)<sup>1</sup>, Naoaki Kato (Japan)<sup>1</sup>, Katsuhiko Ishii (Japan)<sup>2</sup> (1. Hamamatsu Photonics K.K., 2. Graduate School for the Creation of New Photonics Industries)

9pm **MA4.3 (Invited) - Photonic Spiking Convolutional Neural Networks for High-Speed Image Processing**  
» Charis Mesaritis (Greece)<sup>1</sup>, Menelaos Skontranis (Greece)<sup>1</sup>, George Sarantoglou (Greece)<sup>1</sup>, Adonis Bogris (Greece)<sup>2</sup> (1. University of the Aegean, 2. University of West Attica)

8pm **MB4 -  
MB4: Reconfigurable Meta-Optics II**  
Chaired by: JueJun (JJ) Hu (United States) and Tian Gu (United States)

8pm **MB4.1 (Invited) - Dynamically Reconfigurable Metasurfaces enabled by Phase-change Materials**  
» Ali Adibi (United States)<sup>1</sup> (1. Georgia Institute of Technology)

8:30pm **MB4.2 (Invited) - Dynamic Optical Metasurfaces Based on Phase Change Media**  
» Jason Valentine (United States)<sup>1</sup>, Janna Eaves (United States)<sup>1</sup>, Elena Kovalik (United States)<sup>1</sup>, Austin Howes (United States)<sup>1</sup>, Richard Haglund (United States)<sup>1</sup>, Cary Pint (United States)<sup>2</sup> (1. Vanderbilt University, 2. Iowa State University)

9pm **MB4.3 (Invited) - Control over emissivity with phase changing materials**  
» Li Qiang (China)<sup>1</sup> (1. Zhejiang University)



Continued from Monday, 19 July	
8pm	<b>MC4 -</b> <b>MC4: Optics &amp; Photonics I</b> Chaired by: Donguk Nam (Singapore) and JueJun (JJ) Hu (United States)
8pm	<b>MC4.1 (Invited) - Key Building Block and Platform Development for Silicon-Based WDM Optical Interconnects</b> » <a href="#">Di Liang</a> (United States) <sup>1</sup> , Geza Kurczveil (United States) <sup>1</sup> , Sudharsanan Srinivasan (United States) <sup>1</sup> , Yuan Yuan (United States) <sup>1</sup> , Bassem Tossoun (United States) <sup>1</sup> , Zhihong Huang (United States) <sup>1</sup> , Yingtao Hu (United States) <sup>1</sup> , Raymond Beausoleil (United States) <sup>1</sup> (1. Hewlett Packard Enterprise)
8:30pm	<b>MC4.2 (Invited) - Nonlinear photonics in ultra-silicon-rich nitride devices</b> » <a href="#">Dawn Tan</a> (Singapore) <sup>1</sup> , Ju Won Choi (Singapore) <sup>1</sup> , Ezgi Sahin (Singapore) <sup>1</sup> , Yanmei Cao (Singapore) <sup>1</sup> , Byoung Uk Sohn (Singapore) <sup>1</sup> , Peng Xing (Singapore) <sup>1</sup> , George Chen (Singapore) <sup>1</sup> , Hongwei Gao (Singapore) <sup>1</sup> , Xavier Xujie Chia (Singapore) <sup>1</sup> , Doris Ng (Singapore) <sup>2</sup> (1. Singapore University of Technology and Design, 2. A*STAR Institute of Microelectronics)
9pm	<b>MC4.3 - Si substrate based GaAs/AlGaAs quantum well infrared photodetector with Ge buffer</b> » <a href="#">Etienne Rodriguez</a> (Singapore) <sup>1</sup> , Kian Hua Tan (Singapore) <sup>2</sup> , Chongwu Wang (Singapore) <sup>1</sup> , Kwang Hong Lee (Singapore) <sup>1</sup> , Satrio Wicaksono (Singapore) <sup>2</sup> , Carlo Sirtori (Singapore) <sup>1</sup> , Soon Fatt Yoon (Singapore) <sup>2</sup> , Qijie Wang (Singapore) <sup>1</sup> (1. Nanyang Technological University, 2. National University of Singapore)

Tuesday, 20 July	
9am	<b>TuA1 -</b> <b>TuA1: Advanced Computing</b> Chaired by: Ripalta Stabile (Netherlands)

9am	<b>TuA1.1 (Invited) - Coherent and Scalable Photonics for Machine Learning</b> » <a href="#">Ryan Hamerly</a> (Japan) <sup>1</sup> (1. MIT)
9:30am	<b>TuA1.2 (Invited) - Temporal Optical Neurons For Serial Deep Learning</b> » <a href="#">Ming Li</a> (China) <sup>1</sup> , Zhixing Lin (United States) <sup>2</sup> , Xiangyan Meng (China) <sup>1</sup> (1. State Key Laboratory on Integrated Optoelectronics, Institute of Semiconductors, Chinese Academy of Sciences; School of Electronic, Electrical and Communication Engineering, University of Chinese Academy of Sciences, 2. Department of Electrical and Computer Engineering, University of California)
9am	<b>TuB1 -</b> <b>TuB1: Joint Session SIMP-ROP II</b> Chaired by: Richard Soref (United States) and Oussama Moutanabbir (Canada)
9am	<b>TuB1.1 (Tutorial) - Silicon photonics for artificial intelligence and neuromorphic computing</b> » <a href="#">Bhavin Shastri</a> (Canada) <sup>1</sup> , Thomas Ferreira de Lima (United States) <sup>2</sup> , Chaoran Huang (United States) <sup>2</sup> , Bicky Marquez (Canada) <sup>1</sup> , Sudip Shekhar (Canada) <sup>3</sup> , Lukas Chrostowski (Canada) <sup>3</sup> , Paul Prucnal (United States) <sup>2</sup> (1. Queen's University, 2. Princeton University, 3. The University of British Columbia)
9:45am	<b>TuB1.2 (Invited) - Programmable silicon photonics circuits via ion implantation of germanium into silicon</b> » <a href="#">Milan Milosevic</a> (United Kingdom) <sup>1</sup> , Xia Chen (United Kingdom) <sup>1</sup> , Xingshi Yu (United Kingdom) <sup>1</sup> , David Thomson (United Kingdom) <sup>1</sup> , Graham Reed (United Kingdom) <sup>1</sup> (1. University of Southampton, Optoelectronics Research Centre)
10:15am	<b>TuB1.3 (Invited) - Integrated photonic neural networks using phase-change materials</b> » <a href="#">Mo Li</a> (United States) <sup>1</sup> , Changming Wu (United States) <sup>1</sup> , Heshan Yu (United States) <sup>2</sup> , Ichiro Takeuchi (United States) <sup>2</sup> , Xiaoxuan Yang (United States) <sup>3</sup> , Yiran Chen (United States) <sup>3</sup> (1. University of Washington, 2. University of Maryland, College Park, 3. Duke University)





Continued from Tuesday, 20 July

9am

**TuD1 -**

**TuD1: SLB Panel III**

Chaired by: Nick Fontaine (United States) and Takashige Omatsu (Japan)

**TuD1.1 (Invited) - Low-loss Conjoined-Tube Hollow-Core Fiber for Optical Communications**

» Wei Ding (China)<sup>1</sup>, Yingying Wang (China)<sup>1</sup>, Shoufei Gao (China)<sup>1</sup>, Yifeng Hong (China)<sup>1</sup>, Xinyu Chen (China)<sup>2</sup>, Lijian Zhang (China)<sup>2</sup> (1. Jinan University, 2. Nanjing University)

**TuD1.2 (Invited) - Hollow Core Fibres: when less (glass) is more (optical performance)**

» Francesco Poletti (United Kingdom)<sup>1</sup>, Thomas D. Bradley (United Kingdom)<sup>2</sup>, Hesham Sakr (United Kingdom)<sup>1</sup>, Gregory Jasion (United Kingdom)<sup>1</sup>, John Hayes (United Kingdom)<sup>1</sup>, Eric Numkam Fokoua (United Kingdom)<sup>1</sup>, Mohammad Abokhamis Mousavi (United Kingdom)<sup>1</sup>, Austin Taranta (United Kingdom)<sup>1</sup>, Ian Davidson (United Kingdom)<sup>1</sup>, Hans Christian Mulvad (United Kingdom)<sup>1</sup>, Kerrianne Harrington (United Kingdom)<sup>1</sup>, David Richardson (United Kingdom)<sup>2</sup> (1. University of Southampton, 2. University of Southampton, Optoelectronics Research Centre)

**TuD1.3 (Invited) - Interconnecting hollow-core fibers**

» Matej Komanec (Czech Republic)<sup>1</sup>, Dmytro Suslov (Czech Republic)<sup>1</sup>, Daniel Dousek (Czech Republic)<sup>1</sup>, Stanislav Zvanovec (Czech Republic)<sup>1</sup>, Ailing Zhong (Czech Republic)<sup>1</sup>, Thomas D. Bradley (United Kingdom)<sup>2</sup>, Francesco Poletti (United Kingdom)<sup>2</sup>, David Richardson (United Kingdom)<sup>2</sup>, Radan Slavik (United Kingdom)<sup>2</sup> (1. Czech Technical University in Prague, 2. University of Southampton, Optoelectronics Research Centre)

**TuD1.4 (Invited) - Learning and avoiding disorder in multimode fibers**

» Maxime Matthès (France)<sup>1</sup>, Yaron Bromberg (Israel)<sup>2</sup>, Julien de Rosny (France)<sup>1</sup>, Sébastien Popoff (France)<sup>1</sup> (1. ESPCI Paris, PSL University, CNRS, Institut Langevin, 2. Racah Institute of Physics, The Hebrew University of Jerusalem)

**TuD1.5 - Beyond Two-Octave OAM Supercontinuum Generation in Ring-Core Fiber**

» Yang Yue (China)<sup>1</sup>, Jian Yang (China)<sup>1</sup>, Yingning Wang (China)<sup>1</sup>, Yuxi Fang (China)<sup>1</sup>, Wenpu Geng (China)<sup>1</sup>, Wenqian Zhao (China)<sup>1</sup>, Zhi Wang (China)<sup>1</sup>, Yan-ge Liu (China)<sup>1</sup>, Changjing Bao (United States)<sup>2</sup>, Yongxiong Ren (United States)<sup>2</sup>, Zhongqi Pan (United States)<sup>3</sup> (1. Nankai University, 2. University of Southern California, 3. University of Louisiana at Lafayette)

**TuD1.6 (Invited) - Astrophotonic interferometers for next generation exoplanet detection and characterization**

» Nemanja Iovanovic (United States)<sup>1</sup> (1. California Institute of Technology)

**TuD1.7 (Invited) - Astrophotonic spectrographs for next generation of exoplanet instrumentation**

» Robert Harris (Germany)<sup>1</sup> (1. The Max Planck Institute for Astronomy)

**TuD1.8 (Invited) - Laguerre-Gaussian Coronagraph**

» Joel Carpenter (Australia)<sup>1</sup>, Nick Fontaine (United States)<sup>2</sup>, Barnaby Norris (Australia)<sup>3</sup>, Sergio Leon-Saval (Australia)<sup>3</sup> (1. The University of Queensland, 2. Nokia Bell, 3. University of Sydney)

**TuD1.9 (Invited) - High-precision laser metrology with speckle generated by integrating spheres**

» Graham Bruce (United Kingdom)<sup>1</sup>, Morgan Facchin (United Kingdom)<sup>1</sup>, Kishan Dholakia (United Kingdom)<sup>1</sup> (1. University of St Andrews)

9am

**TuE1 -**

**TuE1: System Modelling and Networking I**

Chaired by: Maria Ionescu (France)

9am

**TuE1.1 (Invited) - Challenges in transmission modeling for multi-band optical networking**

» Vittorio Curri (Italy)<sup>1</sup> (1. politecnico di Torino)



Continued from Tuesday, 20 July

9:30am **TuE1.2 (invited) - Modeling aspects when designing wideband transmission systems**  
 » Andre Richter (Germany)<sup>1</sup>, Gabriele di Rosa (Germany)<sup>1</sup>, Abdelkerim Amari (Germany)<sup>1</sup>, Ilias Giakoumidis (Germany)<sup>1</sup>, Pawel Kaminski (Germany)<sup>1</sup>, Igor Koltchanov (Germany)<sup>1</sup> (1. VPIphotonics)

10am **TuE1.3 (Invited) - Applications and Design of Arbitrary Gain-Profile Raman Amplifiers**  
 » Andrea Carena (Italy)<sup>1</sup>, Ann Margareth Rosa Brusin (Italy)<sup>2</sup>, Uiana Celine de Moura (Denmark)<sup>3</sup>, Francesco Da Ros (Denmark)<sup>3</sup>, Darko Zibar (Denmark)<sup>3</sup> (1. Politecnico di Torino, 2. politecnico di Torino, 3. Danmarks Tekniske Universitet)

10:30am **Break**

10:30am **Break**

10:30am **Break**

10:45am **Break**

11am **TuA2 - TuA2: Neuromorphic Photonics**  
 Chaired by: Ripalta Stabile (Netherlands)

11am **TuA2.1 (Invited) - Towards Brain-inspired Photonic Computing**  
 » Wolfram Pernice (Germany)<sup>1</sup> (1. University of Muenster)

11:30am **TuA2.2 (Invited) - Training Light and Letting Photons Decide**  
 » Nikos Pleros (Greece)<sup>1</sup>, Tasos Tefas (Greece)<sup>2</sup> (1. Aristotle University of Thessaloniki, 2. Aristotle Univ. of Thessaloniki)

12pm

**TuA2.3 (Invited) - Photonic reservoir computing for high-speed neuromorphic computing applications**

» Alessio Lugnan (Belgium)<sup>1</sup>, Stijn Sackesyn (Belgium)<sup>1</sup>, Chonghui Ma (Belgium)<sup>1</sup>, Emmanuel Gooskens (Belgium)<sup>1</sup>, Muhammed Gouda (Belgium)<sup>1</sup>, Sarah Masaad (Belgium)<sup>1</sup>, Joni Dambre (Belgium)<sup>2</sup>, Peter Bienstman (Belgium)<sup>1</sup> (1. Department of Information Technology, Ghent University/imec, Technologiepark-Zwijnaarde 126, 9052 Gent-Zwijnaarde, 2. IDLab, Ghent University/imec, Technologiepark-Zwijnaarde 126, 9052 Gent-Zwijnaarde)

12:30pm

**TuA2.4 - Considerations for brain-scale artificial neural systems in semiconducting and superconducting optoelectronic hardware**

» Bryce Primavera (United States)<sup>1</sup>, Jeffrey Shainline (United States)<sup>1</sup> (1. National Institute of Standards and Technology)

12:45pm

**TuA2.5 - Simplified Synaptic Receptor for Coherent Optical Neural Networks**

» Bernhard Schrenk (Austria)<sup>1</sup> (1. AIT Austrian Institute of Technology)

11am

**TuB2 - TuB2: Programmable Photonics II**

Chaired by: Francesco Morichetti (Italy) and Richard Soref (United States)

11am

**TuB2.1 (Tutorial) - Programmable Integrated Photonics: principles and applications to signal processing and computing**

» José Capmany (Spain)<sup>1</sup>, Daniel Perez (Spain)<sup>2</sup>, Andres Macho (Spain)<sup>2</sup> (1. Universidad Politecnica de Valencia, 2. Universitat Politecnica de Valencia)



Continued from Tuesday, 20 July

11:45am **TuB2.2 (Invited) - Establishing free-space optical communication channels through a reconfigurable silicon mesh**  
 » [Maziyar Milanizadeh](#) (Italy)<sup>1</sup>, [seyedmohammad seyedinnavadeh](#) (Italy)<sup>1</sup>, [Charalambos Klitis](#) (United Kingdom)<sup>2</sup>, [Marc Sorel](#) (United Kingdom)<sup>2</sup>, [Fabio Toso](#) (Italy)<sup>1</sup>, [Giorgio Ferrari](#) (Italy)<sup>1</sup>, [David A.B. Miller](#) (United States)<sup>3</sup>, [Andrea Melloni](#) (Italy)<sup>1</sup>, [Francesco Morichetti](#) (Italy)<sup>1</sup> (1. Politecnico di Milano, 2. School of Engineering University of Glasgow, Glasgow, G12 8QQ, U.K, 3. Ginzton Laboratory, Stanford University, Spilker Building, Stanford, CA 94305, USA)

12:15pm **TuB2.3 - A Data-Driven Approach to Autonomous Management of Photonic Switching System**  
 » [Ihtesham Khan](#) (Italy)<sup>1</sup>, [Muhammad Umar Masood](#) (Italy)<sup>1</sup>, [lorenzo tunesi](#) (Italy)<sup>1</sup>, [enrico ghilino](#) (United States)<sup>2</sup>, [paolo bardella](#) (Italy)<sup>1</sup>, [Andrea Carena](#) (Italy)<sup>1</sup>, [VITTORIO CURRI](#) (Italy)<sup>1</sup> (1. Politecnico di Torino, 2. Synopsys, Inc.)

11am **TuC2 -  
TuC2: Sensing I**  
 Chaired by: [Anuradha Agarwal](#) (United States) and [Oussama Moutanabbir](#) (Canada)

11am **TuC2.1 (Invited) - Ge on Si Photonics Platform for Mid-Infrared Sensors**  
 » [Douglas Paul](#) (United Kingdom)<sup>1</sup>, [Kevin Gallacher](#) (United Kingdom)<sup>1</sup>, [Ugne Griskeviciute](#) (United Kingdom)<sup>1</sup>, [Ross Millar](#) (United Kingdom)<sup>1</sup> (1. James Watt School of Engineering, University of Glasgow, Glasgow, G12 8QQ, U.K)

11:30am **TuC2.3 - Monolithic Mid-IR Methane Gas Sensor with Waveguide-Integrated Detector**  
 » [Peter Su](#) (United States)<sup>1</sup>, [Katherine Stoll](#) (United States)<sup>1</sup>, [Piotr Becla](#) (United States)<sup>2</sup>, [Skylar Deckoff-Jones](#) (United States)<sup>1</sup>, [Lionel Kimerling](#) (United States)<sup>1</sup>, [Anuradha Agarwal](#) (United States)<sup>1</sup>, [JueJun \(JJ\) Hu](#) (United States)<sup>1</sup> (1. Massachusetts Institute of Technology, 2. CapeSym)

11am **TuD2 -  
TuD2: SLB Panel IV**  
 Chaired by: [Radan Slavik](#) (United Kingdom)

**TuD2.1 (Invited) - Light Twists Materials**  
 » [Takashige Omatsu](#) (Japan)<sup>1</sup> (1. Graduate School of Engineering, Molecular Chirality Research Center Chiba University)

**TuD2.2 (Invited) - Maritime Applications of Higher Order Bessel Beams Integrated with Time (HOBbit)**  
 » [Eric Johnson](#) (United States)<sup>1</sup> (1. CLEMSON UNIVERSITY)

**TuD2.3 (Invited) - Topological Uses of Spiral Beams**  
 » [Daryl Preece](#) (United States)<sup>1</sup>, [Nicholas Mann](#) (United States)<sup>2</sup> (1. University of California Irvine, 2. UC Irvine)

**TuD2.4 (Invited) - Shaping Light Upon Propagation**  
 » [Eileen Otte](#) (Germany)<sup>1</sup>, [Ramon Droop](#) (Germany)<sup>1</sup>, [Eric Asché](#) (Germany)<sup>1</sup>, [Cornelia Denz](#) (Germany)<sup>1</sup> (1. Institute of Applied Physics, University of Muenster)

**TuD2.5 (Invited) - Optical Computing with Multimode Fiber Nonlinearities**  
 » [Tegin Ugur](#) (Switzerland)<sup>1</sup>, [Mustafa Yildirim](#) (Switzerland)<sup>1</sup>, [Ilker Oguz](#) (Switzerland)<sup>1</sup>, [Christophe Moser](#) (Switzerland)<sup>1</sup>, [Demetri Psaltis](#) (Switzerland)<sup>1</sup> (1. Ecole Polytechnique Federale de Lausanne)

**TuD2.6 (Invited) - Diverse spatial modes in fiber for communications, sensing and tweezers**  
 » [Jian Wang](#) (China)<sup>1</sup> (1. Huazhong University of Science and Technology)



Continued from Tuesday, 20 July

### TuD2.7 (Invited) - Time-frequency measurements using shaped quantum light

» [Benjamin Brecht](#) (Germany)<sup>1</sup>, Jano Gil-Lopez (Germany)<sup>1</sup>, Vahid Ansari (United States)<sup>2</sup>, Kai-Hong Luo (Germany)<sup>1</sup>, Franz Roeder (Germany)<sup>1</sup>, Michael Stefszky (Germany)<sup>1</sup>, Matteo Santandrea (Germany)<sup>1</sup>, Harald Herrmann (Germany)<sup>1</sup>, Christine Silberhorn (Germany)<sup>1</sup> (1. Integrated Quantum Optics, Institute for Photonic Quantum Systems (PhoQS), Paderborn University, Warburger Str. 100, 33098 Paderborn, 2. E. L. Ginzton Laboratory, Stanford University, 348 Via Pueblo Mall, Stanford, California 94305)

### TuD2.8 - Continuous Fabrication of Microstructured Waveguides for THz Communications Using Infinite 3D Printing

» Guofu Xu (Canada)<sup>1</sup>, Kathirvel Nallappan (Canada)<sup>2</sup>, Yang Cao (Canada)<sup>1</sup>, Maksim Skorobogatiy (Canada)<sup>1</sup> (1. Polytechnique Montreal, 2. Polytechnique Montreal)

11am

### TuE2 -

#### TuE2: Fibres, Amplifiers, and Devices II

Chaired by: Maria Ionescu (France)

11am

### TuE2.1 (Invited) - Distance and spectral power profile shaping using machine learning enabled Raman amplifiers

» Mehran Soltani (Denmark)<sup>1</sup>, Francesco Da Ros (Denmark)<sup>1</sup>, Andrea Carena (Italy)<sup>2</sup>, [Darko Zibar](#) (Denmark)<sup>1</sup> (1. Danmarks Tekniske Universitet, 2. Politecnico di Torino)

11:30am

### TuE2.2 (Invited) - Optimization of Raman amplifiers using machine learning

» [Ujara Celine de Moura](#) (Denmark)<sup>1</sup>, Francesco Da Ros (Denmark)<sup>1</sup>, Ann Margareth Rosa Brusin (Italy)<sup>2</sup>, Andrea Carena (Italy)<sup>3</sup>, Darko Zibar (Denmark)<sup>1</sup> (1. Danmarks Tekniske Universitet, 2. politecnico di Torino, 3. Politecnico di Torino)

12pm

### TuE2.3 (Invited) - Photonic integrated WDM switches and filters for ultra-wideband (O to L) optical networks

» [Nicola Calabretta](#) (Netherlands)<sup>1</sup>, Rafael Kraemer (Netherlands)<sup>1</sup>, Yu Wang (Netherlands)<sup>1</sup>, Antonio Napoli (Germany)<sup>2</sup>, Fumio Nakamura (Japan)<sup>3</sup>, Hiroyuki Tsuda (Japan)<sup>3</sup>, Kristif Prifti (Netherlands)<sup>1</sup>, Srivathsa Bhat (Finland)<sup>4</sup>, Giovanni Delrosso (Finland)<sup>4</sup>, Timo Aalto (Finland)<sup>4</sup>, HyunDo Jung (Korea, Republic of)<sup>5</sup>, Jang-Uk Shin (Korea, Republic of)<sup>5</sup>, Netsanet Tessema (Netherlands)<sup>1</sup> (1. Eindhoven University of Technology, 2. Infinera Munich, 3. Keio University, 4. VTT, 5. Etri)

6pm

### TuA3 -

#### TuA3: Pulses/Broadband

Chaired by: Jose Azana (Canada)

6pm

### TuA3.1 (Invited) - Asynchronous recovery of broadband signals corrupted by in-band noise

» [Benjamin Crockett](#) (Canada)<sup>1</sup>, Saikrishna Reddy Konatham (Canada)<sup>1</sup>, Jose Azana (Canada)<sup>1</sup> (1. INRS-EMT)

6:30pm

### TuA3.2 - Picosecond optical pulse shaping in strongly injection-locked semiconductor microring lasers

» Gennady Smolyakov (United States)<sup>1</sup>, [Marek Osinski](#) (United States)<sup>1</sup> (1. University of New Mexico)

6pm

### TuB3 -

#### TuB3: Reconfigurable Meta-Optics III

Chaired by: Juejun (JJ) Hu (United States) and Tian Gu (United States)

6pm

### TuB3.1 (Invited) - Flat Optics for Dynamic Wavefront Manipulation

» [Mark Brongersma](#) (United States)<sup>1</sup> (1. Stanford University)

6:30pm

### TuB3.2 (Invited) - Tunable micro- and nano-electro-mechanical optical metasurface devices

» [Andrei Faraon](#) (United States)<sup>1</sup>, Hyoungnan Kwon (United States)<sup>1</sup>, Tianzhe Zheng (United States)<sup>1</sup> (1. California Institute of Technology)



Continued from Tuesday, 20 July	
7pm	<b>TuB3.3 - Array-level inverse design for optimized beam directivity of active metasurfaces</b> » Prachi Thureja (United States) <sup>1</sup> , Ghazaleh Kafaie Shirmanesh (United States) <sup>1</sup> , Katherine Fountaine (United States) <sup>2</sup> , Ruzan Sokhoyan (United States) <sup>1</sup> , Meir Grajower (United States) <sup>1</sup> , Harry Atwater (United States) <sup>1</sup> (1. California Institute of Technology, 2. Northrop Grumman Corporation)
6pm	<b>TuC3 -</b> <b>TuC3: Sensing II</b> Chaired by: Shui-Qing (Fisher) Yu (United States) and JueJun (JJ) Hu (United States)
6pm	<b>TuC3.1 (Invited) - Quantum Cascade Lasers: An Enabling Technology For IR Spectroscopy</b> » Christian Pfluegl (United States) <sup>1</sup> (1. Pendar Technologies)
6:30pm	<b>TuC3.2 (Invited) - Materials Integration with Mid-Infrared Photonic Circuits for Sensing Enhancement</b> » Pao Lin (United States) <sup>1</sup> , Svetlana Sukhishvili (United States) <sup>1</sup> , Gerard Cote (United States) <sup>1</sup> , Ricardo Gutierrez-Osuna (United States) <sup>1</sup> , Diana Al Hussein (United States) <sup>1</sup> , Junchao Zhou (United States) <sup>1</sup> , Junyan Li (United States) <sup>1</sup> (1. Texas A&M University)
7pm	<b>TuC3.3 (Invited) - Semiconductor nanomembranes and their 3D assembly for sensitive photo-detectors</b> » Yongfeng Mei (China) <sup>1</sup> (1. Department of Materials Science, Fudan University)
6pm	<b>TuE3 -</b> <b>TuE3: Fibres, Amplifiers, and Devices III</b> Chaired by: Leily Kiani (United States)
6pm	<b>TuE3.1 (Invited) - Impact of stimulated Raman scattering on ultrawideband systems</b> » Gabriel Saavedra (Chile) <sup>1</sup> , Esteban Paz (Chile) <sup>1</sup> (1. Universidad de Concepción)

6:30pm	<b>TuE3.2 (Invited) - The Delayed Nonlinear Fiber Response and Its Impact on Nonlinear Distortions</b> » Daniel Semrau (United States) <sup>1</sup> (1. Infinera Corp.)
7:30pm	Break
7:30pm	Break
7:30pm	Break
7:30pm	Break
8pm	<b>TuA4 -</b> <b>TuA4: Photonic Sensors</b> Chaired by: George Valley (United States)
8pm	<b>TuA4.1 (Invited) - Multimode fiber <math>\Phi</math>-OTDR using a high-speed camera</b> » Brandon Redding (United States) <sup>1</sup> , Matthew Murray (United States) <sup>1</sup> (1. Naval Research Laboratory)
8:30pm	<b>TuA4.2 (Invited) - High Resolution Optical Fiber Grating Sensors</b> » Qingwen Liu (China) <sup>1</sup> , Shuangxiang Zhao (China) <sup>1</sup> , Zuyuan He (China) <sup>1</sup> (1. Shanghai Jiao Tong University)
8pm	<b>TuB4 -</b> <b>TuB4: Programmable Photonics III</b> Chaired by: Min Qiu (China) and Tian Gu (United States)
8pm	<b>TuB4.3 - Robustness Analysis of Generalized Optical Unitary Converter</b> » Ryota Tanomura (Japan) <sup>1</sup> , Rui Tang (Japan) <sup>1</sup> , Takuo Tanemura (Japan) <sup>1</sup> , Yoshiaki Nakano (Japan) <sup>1</sup> (1. Electrical Engineering and Information Systems, The University of Tokyo)
8:15pm	<b>TuB4.2 (Invited) - In-waveguide silicon photoconductive heater-detectors for tuning photonic circuits</b> » Lukas Chrostowski (Canada) <sup>1</sup> (1. The University of British Columbia)





Continued from Tuesday, 20 July

8pm **TuC4 -  
TuC4: Materials II**  
Chaired by: Donguk Nam (Singapore) and Oussama Moutanabbir (Canada)

8pm **TuC4.1 (Invited) - Nanostructured Group IV Semiconductors for Advanced Optoelectronics**  
» Shu An (Singapore)<sup>1</sup>, Munho Kim (Singapore)<sup>1</sup> (1. Nanyang Technological University)

8:30pm **TuC4.3 (Invited) - Topological Phase Engineering in  $\alpha$ -Sn Thin Films: Exploiting Strain, Orientation, Quantum Confinement and Valence Band Offset**  
» George de Coster (United States)<sup>1</sup>, Patrick Taylor (United States)<sup>1</sup>, Owen Vail (United States)<sup>1</sup>, Patrick Folkes (United States)<sup>1</sup> (1. US Army Research Laboratory)

8pm **TuE4 -  
TuE4: Transmission Systems II**  
Chaired by: Leily Kiani (United States)

8pm **TuE4.1 (Invited) - Ultra-Wideband WDM Optical Transmission Technologies for Beyond 100-Tb/s Systems**  
» Fukutaro Hamaoka (Japan)<sup>1</sup>, Kyo Minoguchi (Japan)<sup>1</sup>, Takayuki Kobayashi (Japan)<sup>1</sup>, Yutaka Miyamoto (Japan)<sup>1</sup>, Yoshiaki Kisaka (Japan)<sup>1</sup> (1. NTT Network Innovation Laboratories)

8:30pm **TuE4.2 (Invited) - Realization of Multi-Band WDM Transmission Systems for S+C+L Bands Using Wavelength Conversion**  
» Tomoyuki Kato (Japan)<sup>1</sup>, Shigeki Watanabe (Japan)<sup>1</sup>, Tomohiro Yamauchi (Japan)<sup>1</sup>, Goji Nakagawa (Japan)<sup>1</sup>, Hidenobu Muranaka (Japan)<sup>1</sup>, Yu Tanaka (Japan)<sup>1</sup>, Yuichi Akiyama (Japan)<sup>1</sup>, Takeshi Hoshida (Japan)<sup>1</sup> (1. Fujitsu Ltd.)

9pm

**TuE4.3 (Invited) - Multi-band transmission in low-core count, weakly-coupled, multi-core fibers**  
» Ben Puttnam (Japan)<sup>1</sup>, Ruben Luis (Japan)<sup>1</sup>, Georg Rademacher (Japan)<sup>1</sup>, Yoshinari Awaji (Japan)<sup>1</sup>, Hideaki Furukawa (Japan)<sup>1</sup> (1. NICT)

## Wednesday, 21 July

9am **WA1 -  
WA1: Optical Communications**  
Chaired by: Yuki Yoshida (Japan)

9am **WA1.1 (Invited) - Low complexity coherent detection using Fr-FT based intensive interference among neighborhood OFDM subcarriers**  
» Tsuyoshi Konishi (Japan)<sup>1</sup>, Ryohei Kamikawa (Japan)<sup>1</sup>, Yu Yamasaki (Japan)<sup>1</sup>, Gabriella Cincotti (Italy)<sup>2</sup> (1. Osaka University, 2. Roma Tre University)

9:30am **WA1.2 (Invited) - Carrier-assisted differential detection using generalized transfer functions**  
» William Shieh (Australia)<sup>1</sup>, Honglin Ji (Australia)<sup>2</sup> (1. The University of Melbourne, 2. Department of Electrical and Electronic Engineering - The University of Melbourne)

10am **WA1.3 (Invited) - Field reconstruction of optical OFDM signals using temporal transport-of-intensity equation**  
» Masayuki Matsumoto (Japan)<sup>1</sup> (1. Wakayama University)

9am **WB1 -  
WB1: Programmable Metamaterials**  
Chaired by: Juejun (JJ) Hu (United States) and Tian Gu (United States)

9am **WB1.1 (Plenary) - Light-driven Nanomachine Metamaterials**  
» Nikolay Zheludev (United Kingdom)<sup>1</sup> (1. University of Southampton, UK and Nanyang Technological University, Singapore)



Continued from Wednesday, 21 July

9:45am	<b>WB1.2 (Invited) - Programmable and reconfigurable silicon photonic circuits using the low-loss phase change material Sb<sub>2</sub>Se<sub>3</sub></b> » <a href="#">Otto Muskens</a> (United Kingdom) <sup>1</sup> , Matthew Delaney (United Kingdom) <sup>1</sup> , Ioannis Zeimpekis (United Kingdom) <sup>1</sup> , David Thomson (United Kingdom) <sup>2</sup> , Dan Hewak (United Kingdom) <sup>1</sup> (1. University of Southampton, 2. University of Southampton, Optoelectronics Research Centre)
10:15am	<b>WB1.3 (Invited) - Infrared Programmable Nanophotonics using the plasmonic Phase-Change Material In<sub>3</sub>SbTe<sub>2</sub></b> » Andreas Heßler (Germany) <sup>1</sup> , <a href="#">Thomas Taubner</a> (Germany) <sup>1</sup> (1. RWTH Aachen University)
9am	<b>WC1 - WC1: Sensing III</b> Chaired by: Oussama Moutanabbir (Canada) and Donguk Nam (Singapore)
9am	<b>WC1.1 (Invited) - SiGe heteroepitaxy for near and mid infrared photonics</b> » <a href="#">Giovanni Isella</a> (Italy) <sup>1</sup> (1. Politecnico di Milano)
9:30am	<b>WC1.2 (Invited) - Prospects for integrated circuits targeting sensing and communications in the SWIR range</b> » <a href="#">Brian Corbett</a> (Ireland) <sup>1</sup> , Fatih Atar (Ireland) <sup>1</sup> , Hemalatha Muthuganesan (Ireland) <sup>1</sup> , Agnieszka Gocalinska (Ireland) <sup>1</sup> , Emanuele Pelucchi (Ireland) <sup>1</sup> , Fatima Gunning (Ireland) <sup>1</sup> , John Justice (Ireland) <sup>1</sup> (1. Tyndall National Institute)
10am	<b>WC1.3 (Invited) - Synthesis, Processing, and Structure-Property Relationships of Inorganic Sheets for Infrared and THz waves</b> » <a href="#">Francesca Cavallo</a> (United States) <sup>1</sup> (1. University of New)
9am	<b>WD1 - WD1: SLB Panel V</b> Chaired by: Eric Numkam Fokoua (United Kingdom) and Jian Wang (China)

#### WD1.1 (Invited) - Novel Fibers for Optically-Switched Data Center Networks

» [Zhixin Liu](#) (United Kingdom)<sup>1</sup> (1. University College London)

#### WD1.2 (Invited) - Brillouin-based lasers, nonreciprocity, and cooling in silicon

» [Peter Rakich](#) (United States)<sup>1</sup> (1. Yale University)

#### WD1.3 (Invited) - Optical timing distribution and synchronization with ultrafast femtosecond lasers

» [Kemal Shafak](#) (Germany)<sup>1</sup>, Anan Dai (Germany)<sup>1</sup>, Ming Xin (China)<sup>2</sup>, Franz X. Kärtner (Germany)<sup>3</sup> (1. Cycle GmbH, 2. Tianjin University, 3. Center for Free-Electron Laser Science)

#### WD1.4 (Invited) - Hollow Core Fibres for Spatial Control of Light

» [Seongwoo Yoo](#) (Singapore)<sup>1</sup>, Charu Goel (Singapore)<sup>1</sup>, Jichao Zang (Singapore)<sup>1</sup>, Guillaume Raynal (Singapore)<sup>1</sup>, Matyas Parrot (Singapore)<sup>1</sup> (1. Nanyang Technological University)

#### WD1.5 - First-order phase statistics in Laguerre-Gauss speckles

» [Pedro Alvarez Fernandez](#) (United States)<sup>1</sup>, Cristian Acevedo Caceres (United States)<sup>1</sup>, Aristide Dogariu (United States)<sup>1</sup> (1. CREOL, College of Optics and Photonics, University of Central Florida)

#### WD1.6 - Phase Memory of Optical Vortex Beam Scattered by Random Phase Screens

» [Mahdi Eshaghi](#) (United States)<sup>1</sup>, Aristide Dogariu (United States)<sup>1</sup> (1. CREOL, College of Optics and Photonics, University of Central Florida)

#### WD1.7 - 37-Air-Core Chalcogenide Ring Fiber with >4000 Radially Fundamental OAM Modes Across C+L Bands

» [Yingning Wang](#) (China)<sup>1</sup>, Zhi Wang (China)<sup>1</sup>, Yuxi Fang (China)<sup>1</sup>, Wenpu Geng (China)<sup>1</sup>, Yan-ge Liu (China)<sup>1</sup>, Changjing Bao (United States)<sup>2</sup>, Yongxiong Ren (United States)<sup>2</sup>, Zhongqi Pan (United States)<sup>3</sup>, Yang Yue (China)<sup>1</sup> (1. Nankai University, 2. University of Southern California, 3. University of Louisiana at Lafayette)


Continued from **Wednesday, 21 July**
**WD1.8 - Space-Time Wave Packets Interacting With Photonic Structures**

» [Abbas Shiri](#) (United States)<sup>1</sup>, Kenneth Schepler (United States)<sup>1</sup>, Ayman F. Abouraddy (United States)<sup>1</sup> (1. CREOL, College of Optics and Photonics, University of Central Florida)

**WD1.9 - Space-time wave packets: A new class of spatio-temporally structured light waves**

» [Murat Yessenov](#) (United States)<sup>1</sup>, Ayman F. Abouraddy (United States)<sup>1</sup> (1. CREOL, College of Optics and Photonics, University of Central Florida)

**WD1.10 - Experimental Demonstration for a Power Scalable Coherent Vector Beam in a Turbulent Environment**

» Eric Johnson (United States)<sup>1</sup>, [Justin Free](#) (United States)<sup>1</sup>, Keith Miller (United States)<sup>1</sup>, Richard Watkins (United States)<sup>1</sup> (1. CLEMSON UNIVERSITY)

9am **WE1 -  
WE1: Fibres, Amplifiers, and Devices IV**  
Chaired by: Antonio Napoli (Germany)

9am **WE1.1 (Invited) - Ultra-Wideband Amplification Strategies**  
» [Lutz Rapp](#) (Germany)<sup>1</sup>, Michael Eiselt (Germany)<sup>1</sup> (1. ADVA)

9:30am **WE1.2 (Invited) - Bi-doped fiber amplifiers for ultra-wideband optical communication systems**  
» [Yu Wang](#) (United Kingdom)<sup>1</sup>, Naresh Thipparapu (United Kingdom)<sup>1</sup>, David Richardson (United Kingdom)<sup>1</sup>, Jayanta Sahu (United Kingdom)<sup>1</sup> (1. Optoelectronics Research Centre, University of Southampton)

10:30am **Break**

10:30am **Break**

10:30am **Break**

10:45am **Break**

11am **WA2 -  
WA2: Solitons**  
Chaired by: Jose Azana (Canada)

11am **WA2.1 (Invited) - Exploiting soliton states in SiN microresonator for reconfigurable radiofrequency filters**  
» [Camille-Sophie Bres](#) (Switzerland)<sup>1</sup> (1. Ecole Polytechnique Federale de Lausanne)

11:30am **WA2.2 (Invited) - Integrated Microwave Photonics**  
» [Jianping Yao](#) (Canada)<sup>1</sup> (1. University of Ottawa)

12pm **WA2.3 (Invited) - Photonic implementation of device-independent quantum randomness expansion**  
» [Xingjian Zhang](#) (China)<sup>1</sup>, Ming-Han Li (China)<sup>2</sup>, Xiongfeng Ma (China)<sup>1</sup>, Qiang Zhang (China)<sup>2</sup>, Jingyun Fan (China)<sup>3</sup>, Jian-Wei Pan (China)<sup>2</sup> (1. Tsinghua University, 2. University of Science and Technology of China, 3. Southern University of Science and Technology)

11am **WB2 -  
WB2: Programmable Photonics IV**  
Chaired by: Tian Gu (United States)

11am **WB2.1 (Plenary) - General-Purpose Programmable Photonic Chips**  
» [Wim Bogaerts](#) (Belgium)<sup>1</sup>, Mi Wang (Belgium)<sup>1</sup>, Xiangfeng Chen (Belgium)<sup>1</sup>, Hong Deng (Belgium)<sup>1</sup>, Iman Zand (Belgium)<sup>1</sup>, Lukas Van Iseghem (Belgium)<sup>1</sup>, Nagarjun kp (Belgium)<sup>1</sup>, Umar Khan (Belgium)<sup>1</sup> (1. Department of Information Technology, Ghent University/imec, Technologiepark-Zwijnaarde 126, 9052 Gent-Zwijnaarde)

11:45am **WB2.2 - Reconfigurable FSR-free microring resonator filter with wide hitless tunability**  
» [Matteo Petrini](#) (Italy)<sup>1</sup>, Mazyar Milanizadeh (Italy)<sup>1</sup>, Francesco Zanetto (Italy)<sup>1</sup>, Giorgio Ferrari (Italy)<sup>1</sup>, Marco Sampietro (Italy)<sup>1</sup>, Francesco Morichetti (Italy)<sup>1</sup>, Andrea Melloni (Italy)<sup>1</sup> (1. Politecnico di Milano)



Continued from Wednesday, 21 July

12pm **WB2.3 - Enhanced Generalized Mach-Zehnder Interferometer for Tunable Channel Routing**  
» Niklas Hoppe (Germany)<sup>1</sup>, Christian Schweikert (Germany)<sup>1</sup>, Wolfgang Vogel (Germany)<sup>1</sup>, Raik Elster (Germany)<sup>1</sup>, Pirmin Adam (Germany)<sup>1</sup>, Manfred Berroth (Germany)<sup>1</sup> (1. University of Stuttgart)

11am **WC2 - WC2: Materials III**  
Chaired by: Shui-Qing (Fisher) Yu (United States) and JueJun (JJ) Hu (United States)

11am **WC2.1 (Invited) - InAs/GaAs Quantum-Dot Lasers Monolithically Grown on on-axis Silicon (001)**  
» Huiyun Liu (United Kingdom)<sup>1</sup>, Manyu Dang (United Kingdom)<sup>1</sup>, Siming Chen (United Kingdom)<sup>1</sup>, Alwyn Seeds (United Kingdom)<sup>1</sup>, Junjie Yang (United Kingdom)<sup>1</sup>, Mingchu Tang (United Kingdom)<sup>1</sup> (1. UCL)

11:30am **WC2.2 (Invited) - Mid-infrared III-V semiconductor lasers grown on (001)Silicon substrates**  
» Eric Tournié (France)<sup>1</sup>, Laura Monge-Bartolomé (France)<sup>1</sup>, Marta Rio Calvo (France)<sup>1</sup>, Daniel Diaz-Thomas (France)<sup>1</sup>, Zeineb Loghmari (France)<sup>1</sup>, Roland Teissier (France)<sup>1</sup>, Alexei N. Baranov (France)<sup>1</sup>, Jean-Baptiste Rodriguez (France)<sup>1</sup>, Laurent Cerutti (France)<sup>1</sup> (1. IES, University of Montpellier, CNRS)

12pm **WC2.3 (Invited) - Subwavelength engineering of silicon photonics for applications in nonlinear light generation**  
» Carlos Alonso-Ramos (France)<sup>1</sup> (1. C2N Paris-Saclay University)

11am **WE2 - WE2: System Modelling and Networking II**  
Chaired by: Antonio Napoli (Germany)

11am **WE2.1 (Invited) - Comparison of Cost-effective Solutions to Increase the Capacity of Regional Optical Transport Networks**  
» Nelson Costa (Portugal)<sup>1</sup>, João Pedro (Portugal)<sup>1</sup> (1. Infinera Lisboa)

11:30am **WE2.2 (Invited) - Multi-band Optical Networking**  
» Nicola Sambo (Italy)<sup>1</sup> (1. Scuola Superiore Sant'Anna Pisa)

12pm **WE2.3 - Multiband Power Control Impact on the Transmission Capacity of Optical Line Systems**  
» Bruno Correia (Italy)<sup>1</sup>, Rasoul Sadeghi (Italy)<sup>1</sup>, Emanuele Virgillito (Italy)<sup>1</sup>, Antonio Napoli (Germany)<sup>2</sup>, Nelson Costa (Portugal)<sup>3</sup>, João Pedro (Portugal)<sup>3</sup>, Vittorio Curri (Italy)<sup>1</sup> (1. politecnico di Torino, 2. Infinera Munich, 3. Infinera Lisboa)

12:15pm **WE2.4 - C+L-band Network Upgrade: Capacity and Energy Analyses with Different Transceivers**  
» Rasoul Sadeghi (Italy)<sup>1</sup>, Bruno Correia (Italy)<sup>2</sup>, Emanuele Virgillito (Italy)<sup>3</sup>, Antonio Napoli (Germany)<sup>4</sup>, Nelson Costa (Portugal)<sup>5</sup>, João Pedro (Portugal)<sup>5</sup>, Vittorio Curri (Italy)<sup>3</sup> (1. Politec, 2. Po, 3. politecnico di Torino, 4. Infinera Munich, 5. Infinera Lisboa)

12:30pm **WE2.5 - Routing and Spectrum Allocation Heuristic for Sliced Elastic Optical Network System**  
» Shahzad Alam (Pakistan)<sup>1</sup>, Ihtesham Khan (Italy)<sup>2</sup>, Muhammad Umar Masood (Italy)<sup>3</sup>, Arsalan Ahmad (Pakistan)<sup>1</sup>, Salman Ghafoor (Pakistan)<sup>1</sup>, Vittorio Curri (Italy)<sup>2</sup> (1. NUST, 2. politecnico di Torino, 3. Politecnico di Torino)

12:45pm **WE2.6 - Comparison of Wired and Wireless Channel for Short Range Frequency Hopping Terahertz System**  
» Kathirvel Nallappan (Canada)<sup>1</sup>, Maksim Skorobogatyi (Canada)<sup>2</sup> (1. Polytechnique Montreal, 2. Polytechnique Montreal)

6pm **WB3 - WB3: Applications**  
Chaired by: Tian Gu (United States) and JueJun (JJ) Hu (United States)

6pm **WB3.1 (Invited) - CWDM and DWDM Silicon Photonics Transceivers on 300mm Wafers for Co-Packaged Optics**  
» Erman Timurdogan (United States)<sup>1</sup> (1. Analog Photonics)



Continued from Wednesday, 21 July

6:30pm **WB3.2 - High efficiency end-fire 3-D optical phased array based on multi-layers SiN/SiO platform**  
» [Dachuan Wu](#) (United States)<sup>1</sup>, Yasha Yi (United States)<sup>2</sup> (1. University of Michigan-Dearborn, 2. University of Michigan)

6:45pm **WB3.3 - Additive manufacturing of reconfigurable two-wire plasmonic circuits for terahertz communications**  
» Yang Cao (Canada)<sup>1</sup>, [Kathirvel Nallappan](#) (Canada)<sup>1</sup>, Hichem Guerboukha (Canada)<sup>1</sup>, Guofu Xu (Canada)<sup>1</sup>, Maksim Skorobogatyi (Canada)<sup>1</sup> (1. Polytechnique Montreal)

6pm **WC3 - WC3: Optics & Photonics II**  
Chaired by: Anuradha Agarwal (United States) and Oussama Moutanabbir (Canada)

6pm **WC3.2 (Invited) - Elements of an integrated photonic circuit for fault tolerant quantum computing based on donor spin qubits in silicon**  
» [Jeff Young](#) (Canada)<sup>1</sup>, Xiruo Yan (Canada)<sup>2</sup>, Andreas Pfenning (Canada)<sup>2</sup>, Sebastian Gitt (Canada)<sup>2</sup>, Becky Lin (Canada)<sup>2</sup>, Donald Witt (Canada)<sup>2</sup>, Mahssa Abdolahi (Canada)<sup>2</sup>, Abdelrahman Afifi (Canada)<sup>2</sup>, Adan Azem (Canada)<sup>2</sup>, Adam Darcie (Canada)<sup>2</sup>, Jingda Wu (Canada)<sup>2</sup>, Kashif Awan (Canada)<sup>2</sup>, Matthew Mitchell (Canada)<sup>2</sup>, Lukas Chrostowski (Canada)<sup>1</sup> (1. The University of British Columbia, 2. University of British Columbia)

6:30pm **WC3.3 - Electronic Properties of Group-IV SnGe alloy topological quantum materials**  
» Rabindra Basnet (United States)<sup>1</sup>, Tyler McCarthy (United States)<sup>2</sup>, Zheng Ju (United States)<sup>2</sup>, Yong Zhang (United States)<sup>2</sup>, Shui-Qing (Fisher) Yu (United States)<sup>1</sup>, [Jin Hu](#) (United States)<sup>1</sup> (1. University of Arkansas, 2. Arizona State University)

6pm **WE3 - WE3: Transmission Systems III**  
Chaired by: Leily Kiani (United States)

6pm **WE3.1 (Invited) - SDM approach for power and cost efficiency in submarine transmission**  
» [Oleg Sinkin](#) (United States)<sup>1</sup> (1. SubCom)

6:30pm **WE3.2 (Invited) - Power constraints in ultra-high capacity submarine cables: Solutions using neural networks**  
» [Junho Cho](#) (United States)<sup>1</sup> (1. Nokia Bell Labs)

7:30pm **Break**

7:30pm **Break**

8pm **WB4 - WB4: Reconfigurable Meta-Optics IV**  
Chaired by: Min Qiu (China) and Tian Gu (United States)

8pm **WB4.1 (Invited) - Intersubband Polaritonics and Extreme Optical Nonlinearities in All-Dielectric Metasurfaces**  
» [Raktim Sarma](#) (United States)<sup>1</sup> (1. Sandia National Laboratories)

8:30pm **WB4.2 (Invited) - Spatial light modulators based on tunable dielectric metasurfaces**  
» [Arseniy Kuznetsov](#) (Singapore)<sup>1</sup> (1. Institute of Materials Research and Engineering, A\*STAR)

9pm **WB4.3 (Invited) - Gyromagnetic Topological Photonic Crystals**  
» [Baile Zhang](#) (Singapore)<sup>1</sup> (1. Nanyang Technological University)

8pm **WC4 - WC4: Materials IV**  
Chaired by: Donguk Nam (Singapore) and Oussama Moutanabbir (Canada)





Continued from **Wednesday, 21 July**

- 8pm **WC4.1 (Invited) - Enhancing mid-IR LED performance with monolithically-integrated epitaxial plasmonics**  
» [Seth Bank](#) (United States)<sup>1</sup>, Andrew Briggs (United States)<sup>1</sup>, Leland Nordin (United States)<sup>1</sup>, Aaron Muhowski (United States)<sup>1</sup>, Evan Simmons (United States)<sup>2</sup>, Pankul Dhingra (United States)<sup>3</sup>, Minjoo Lee (United States)<sup>3</sup>, Viktor Podolskiy (United States)<sup>2</sup>, Daniel Wasserman (United States)<sup>1</sup> (1. Electrical and Computer Engineering Dept., University of Texas at Austin, Austin, Texas, 2. Dept. of Physics and Applied Physics, UMass Lowell, Lowell, Massachusetts, 3. Holonyak Micro and Nanotechnology Lab and ECE Dept., University of Illinois at Urbana-Champaign, Urbana, Illinois)
- 8:30pm **WC4.2 - Mid-IR Gain of Tensile Germanium Waveguide Lasers with SiNx Stress Liners**  
» [Md. Shamim Reza](#) (United States)<sup>1</sup>, Istvan Gulyas (United States)<sup>1</sup>, Mark Wistey (United States)<sup>1</sup> (1. Texas State University)
- 8:45pm **WC4.3 (Invited) - Mid-infrared Photonics and Optoelectronics in 2D Materials**  
» [Qijie Wang](#) (Singapore)<sup>1</sup> (1. Nanyang Technological University)