

The Annual Conference of the
IEEE Photonics Society

IPC

13-17 November 2022 • Vancouver, Canada
www.ieee-ipc.org



General Chair:

Weidong Zhou

University of Texas at Arlington, USA

Program Chair:

Dominique Dagenais

National Science Foundation, USA

Program Vice-Chair:

Di Liang

Alibaba Group, USA

Member-at-Large:

Gabriella Bosco

Politecnico di Torino, Italy



IPC 2022 Welcome Message

On behalf of the 2022 IEEE Photonics Conference (IPC) organizing committee, it is my pleasure to welcome you to the IEEE Photonics Society flagship conference taking place 13-17 November 2022 in Vancouver, Canada. This year marks the return of the in-person conference. This year's program brings together the most recent advances in the areas of photonic sciences, technologies, and applications. The conference includes twelve topic areas including photonic materials, devices, integrated photonics, systems, as well as biophotonics, quantum photonics, optical AI, etc. Additionally, we have numerous workshops, events, and forums to offer. We hope that you will be inspired and find this year's IPC a rewarding one.

It is our honor to have 4 distinguished speakers for our Plenary Sessions that will take place on Tuesday and Wednesday. The first Plenary Session will start with Prof. Dirk Englund from MIT with a presentation on "Machine Learning with In-Physics Computing". Followed by Dr. Ray Beausoleil from Hewlett Packard Enterprise who will present on "Large-Scale Integrated Photonics for Accelerated Communication and Computing". In the second Plenary Session we have Prof. Shanhui Fan from Stanford University with a presentation on "Explorations of Topological Physics and Optical Computing in Synthetic Dimensions" and Prof. Roel Baets from Ghent University, Belgium. Prof. Belgium will present on the topic of "Heterogeneous Integration in Silicon Photonics".

This year's IPC 2022 technical program offers over 380 oral and poster presentations of which over 100 are Invited and Tutorial presentations by some of the most respected researchers in our community. We include three Special Symposia to complement the regular technical sessions targeting special topics on "neuromeritics", "opto excitonic devices", and "photonics for climate change mitigation adaptation". As part of the technical program, there will be special talks given by this year's IEEE Photonics Society Awards recipients.

We continue to offer our popular Industry Day with invited presentations by outstanding speakers, panel, and roundtable discussions on various topics. This forum strives to increase engagement between industry and the photonics community, provides opportunities for future collaborations and showcases the photonic technologies transfer to the market. This year we are excited to offer a hands-on workshop on photonic inverse design again in collaboration with Lumerical/Ansys. This workshop will be offered as part of the Sunday Program. Students and professionals of all levels are welcome to participate in this workshop.

In addition to the Inverse Design workshop, we have put together a full-day Sunday program highlighting photonics activities in our hosting country, on "Canadian Photonics Research, Past, Present, and Future". Finally, the conference will end on Thursday morning with a Post-Deadline Session and Closing Ceremony, where the Best Student Paper and Best Student Poster selection results will also be announced. We hope you can plan your travel accordingly to attend all these excellent programs.

We believe we have an exciting program line-up for IPC 2022! This comprehensive program is a result of the teamwork of many dedicated volunteers constituting the conference's organizing, technical and industry committees, and the amazing IEEE Photonics Society staff. I extend my most sincere thanks to all.

On behalf of the entire team, I appreciate your participation and sincerely hope you have a rewarding conference experience. Look forward to meeting you all in Vancouver IN PERSON!

Weidong Zhou
General Chair, 2022 IEEE Photonics Conference
University of Texas at Arlington, USA

**2022 IEEE Photonics Conference (IPC)
Technical Program Committee**

General Chair:

Weidong Zhou, *University of Texas at Arlington*, USA

Program Chair:

Dominique Dagenais, *National Science Foundation*, USA

Program Vice-Chair:

Di Liang, *Alibaba Group*, USA

Member-at-Large:

Gabriella Bosco, *Politecnico di Torino*, Italy

Biophotonics and Medical Optics

Topic Chair:

Peter Munro, *University College London*, United Kingdom

Vice Chair:

Srivallesha Mallidi, *Tufts University*, USA

Committee Members:

Balpreet Sing Ahluwalia, *University of Tromsø (UiT)*, Norway

Brian Applegate, *University of Southern California*, USA

Alexandre Aubry, *Institut Langevin*, France

Liang Gao, *University of California*, Los Angeles, USA

Jamie Guggenheim, *University of Birmingham*, United Kingdom

Myeong Jin Ju, *University of British Columbia*, Canada

Jung-Hoon Park, *Ulsan National Institute of Science and Technology*, Korea

Francisco (Paco) Robles, *Georgia Institute of Technology*, USA

Marinko Sarunik, *Moorfields Eye Hospital*, United Kingdom

Judy Su, *University of Arizona*, USA

Lei Tian, *Boston University*, USA

Detection, Sensing, and Energy

Topic Chair:

Ganesh Balakrishnan, *University of New Mexico*, USA

Vice Chair:

Nicola D'Ascenzo, *Huazhong University of Science and Technology*, China

Committee Members:

Andreas Beling, *University of Virginia*, USA

Majeed Hayat, *Marquette University*, USA

Jun Tatebayashi, *University of Osaka*, Japan

Priyantha Weerasinghe, *Amethyst Research*, USA

Light Sources

Topic Chair:

Nelson Tansu, *The University of Adelaide*, Australia

Vice Chair:

Luke J. Mawst, *University of Wisconsin-Madison*, USA

Committee Members:

Mikhail Belkin, *Technical University of Munich*, Germany

Andreas Boes, *RMIT*, Australia

John Bowers, *University of California at Santa Barbara*, USA

Jerome Faist, *ETH Zurich*, Switzerland

Johann Reithmaier, *University of Kassel*, Germany
Tetsuya Takeuchi, *Meijo University*, Japan
Chee-Keong Tan, *Hong Kong University of Science and Technology*, Hong Kong
Eric Tournie, *University of Montpellier*, France
Miriam Vitiello, *Consiglio Nazionale delle Ricerche*, Italy
Jing Zhang, *Rochester Institute of Technology*, USA
Hongping Zhao, *Ohio State University*, USA
Hagen Zimer, *TRUMPF Photonics*, USA

Materials, Foundries and Fabrication

Topic Chair:

Shamsul Arafin, *The Ohio State University*, USA

Vice Chair:

Bhavin Shastri, *Queen's University*, Canada

Committee Members:

Sarvagya Dwivedi, *IMEC*, Belgium
Robert Halir, *Universidad de Malaga*, Spain
Boon S. Ooi, *King Abdullah University of Science and Technology*, Saudi Arabia
Molly Piels, *OpenLight Photonics*, USA
Sudharsanan Srinivasan, *IIT Madras*, India
Koji Takeda, *NTT Device Technology Laboratories*, Japan
Winnie Ye, *Carleton University*, Canada
Linjie Zhou, *Shanghai Jiao Tong University*, China

Microwave Photonics and Vehicular Optics

Topic Chair:

Charles Middleton, *Critical Frequency*, USA

Vice Chair:

David Moilanen, *EOSPACE*, USA

Committee Members:

Ivana Gasulla, *Universitat Politecnica de Valencia*, Spain
Jean Kalkavage, *General Dynamics*, USA
Atsushi Kanno, *National Institute of Information and Communications Technology*, Japan
Yang Liu, *EPFL*, Switzerland
David Marpaung, *University of Twente*, Netherlands
James Nagel, *L3 Harris*, USA
Siva Yegnanarayanan, *MIT Lincoln Lab*, USA

Nano Photonics, Plasmonics, and Metamaterials

Topic Chair:

Jennifer Choy, *University of Wisconsin, Madison*, USA

Committee Members:

Parag Deotare, *University of Michigan*, USA
Noel Christophe Giebink, *Penn State University*, USA
Rajesh Menon, *University of Utah*, USA
Elke Neu, *University of Kaiserslautern*, Germany
Thomas Searles, *University of Illinois at Chicago*, USA

Nonlinear Photonics and Novel Optical Phenomena

Topic Chair:

Alireza Marandi, *California Institute of Technology*, USA

Vice Chair:

Hanieh Fattahi, *Max-Planck Institute for Science of Light (MPL)*, Germany

Committee Members:

Andrea Blanco-Redondo, *Nokia Bell Laboratories*, USA

Wenshan Cai, *Georgia Institute of Technology*, USA

Avik Dutt, *University of Maryland*, USA

Rachel Grange, *ETH Zurich*, Switzerland

Mohammed Hassan, *University of Arizona*, USA

Kirk Ingold, *USMA at West Point*, USA

Kambiz Jamshidi, *Technische Universität Dresden*, Germany

Matthias Kling, *Stanford University*, USA

Francois Leo, *Universite Libre de Bruxelles*, Belgium

Mohammad-Ali Miri, *City University of New York*, USA

Yoshitomo Okawachi, *Columbia University*, USA

Mohsen Rahmani, *Nottingham Trent University*, United Kingdom

Peter Schunemann, *BAE Systems*, USA

Kartik Srinivasan, *NIST*, USA

Kenta Takata, *NTT Basic Research Laboratories*, Japan

Logan Wright, *Cornell University*, USA

Optical AI and Computational Photonics

Topic Co-Chairs:

Volker Sorger, *George Washington University*, USA

Daniel Brunner, *Femto-St*, France

Bhavin Shastri, *Queen's University*, Canada

Thomas Van Vaerenbergh, *Hewlett Packard Enterprise*, Belgium

Optical Communication: Devices, Interconnects and Subsystems

Topic Chair:

Giovanni Milione, *NEC Labs America*, USA

Vice Chair:

Tingyi Gu, *University of Delaware*, USA

Committee Members:

Haoshuo Chen, *Nokia Bell Labs*, USA

Daoxin Dai, *Zhejiang University*, China

Joaquin Faneca, *CNM-IMB*, Spain

Daniel Kuchta, *IBM*, USA

Odile Liboiron-Ladouceur, *McGill University*, Canada

Periklis Petropoulos, *University of Southampton*, United Kingdom

Joyce Poon, *University of Toronto*, Canada

Optical Communication and Networks

Topic Chair:

Fatima Gunning, *Tyndall National Institute & University College Cork*, Ireland

Vice Chair:

Deepa Venkitesh, *IIT Madras*, India

Committee Members:

Youchi Akasaka, *Fujitsu*, USA

Georgios Ellinas, *University of Cyprus*, Cyprus
Xun Guan, *Laval University*, Canada
Xin Jiang, *The City University of New York*, USA
Volker Jungnickel, *HHI Fraunhofer*, Germany
Fotini Karinou, *Microsoft*, United Kingdom
Hai-Han Lu, *National Taipei University of Technology*, Taiwan
Darli Mello, *Unicamp*, Brazil
Dominic O'Brien, *University of Oxford*, United Kingdom
Chathurika Ranaweera, *Deakin University*, Australia
Takehiro Tsuritani, *KDDI*, Japan
Dora Van Veen, *Nokia Bell Labs*, USA

Propagation, Spectroscopy, and Imaging

Topic Chair:

Kevin Cossel, *NIST*, USA

Vice Chair:

Takuro Ideguchi, *University of Tokyo*, Japan

Committee Members:

Shima Fardad, *University of Kansas*, USA
Frans Harren, *Radboud University*, Netherlands
Matz Liebel, *Institute of Photonic Sciences*, Spain
Zhaowei Liu, *University of California San Diego*, USA
Daniel Mittleman, *Brown University*, USA
Dario Polli, *Politecnico di Milano*, Italy
Michelle Sander, *Boston University*, USA
Kevin Tsia, *University of Hong Kong*, China

Quantum Photonics

Topic Chair:

Michael Brodsky, *U.S. Military Academy*, USA

Vice Chair:

William Munro, *NTT Basic Research Lab.*, Japan

Committee Members:

Vladimir Aksyuk, *NIST*, USA
Boulat Bash, *University of Arizona*, USA
Michael Fanto, *Air Force Research Laboratory*, USA
Mahdi Hosseini, *Purdue University*, USA
Daniel Jones, *Air Force Research Laboratory*, USA
Joseph Lukens, *Oak Ridge National Laboratory*, USA
Xiongfeng Ma, *Tsinghua University*, China
Sergey Polyakov, *Joint Quantum Institute, UMD*, USA

Special Symposium on Advances in Neurophotonics

Topic Co-Chairs:

Nisan Ozana, *Harvard Medical School*, USA
Zeev Zalevsky, *Bar Ilan University*, Israel

Special Symposium on Opto Excitonic Devices

Topic Chair:

Parag Deotare, *University of Michigan*, USA

Vice Chair:

Vinod Menon, *City University of New York*, USA

Special Symposium on Photonics for Climate Change Mitigation Adaptation

Topic Chair:

John Muth, *North Carolina State University*, USA

Vice Chair:

Can Bayram, *University of Illinois Urbana-Champaign*, USA

Committee Members:

Jon Wierer, *North Carolina State University*, USA

Harlad Ade, *North Carolina State University*, USA

Sean Sheenan, *University of Colorado Boulder*, USA

Greg Reiker, *University of Colorado Boulder*, USA

Industry Day

Topic Co-Chairs:

Dalma Novak, *Octane Wireless*, USA

Daniel Renner, *Freedom Photonics*, USA

Committee Members:

Barbara Buades, *Meet Optics*, Spain

Aref Chowdhury, *Nokia*, USA

Matthew Posner, *Excelitas Technologies*, Canada

Cibby Pulikkaseril, *Baraja*, Australia

Patryk Urban, *Wave General*, Poland

Erin Young, *Apple*, USA

Sunday Program | Regency B

Canadian Photonics Research, Past, Present, and Future

8:30 am-10:00 am

Su1: Perspectives on Photonic Research

Speakers:

Robert Boyd, University of Ottawa | Jens Schmid, National Research Council | Joyce Poon, Max Planck Institute of Microstructure Physics and University of Toronto

10:00 am-10:30 am | Coffee Break | Regency Foyer

10:30 am-12:30 pm

Su2: Centers of Photonics Research

Speakers:

Leslie Rusch, COPL – Laval University | Lukas Chrostowski, University of British Columbia | David Plant, McGill University | Jacques Albert, Carleton University

12:30 pm-1:30 pm | LUNCH (ON OWN)

1:30 pm-3:00 pm

Su3: Quantum Research

Speakers:

Roberto Morandotti, Institut National De Recherche Scientifique | Paul Barclay, University Calgary | Michael Reimer, University of Waterloo, Institute for Quantum Computing

3:00 pm-3:15 pm | Coffee Break | Regency Foyer

3:15 pm-6:15 pm

Su4: Inverse Design

Speakers:

Yuri Grinberg, National Research Council

Live Workshop: Create Optimized Components with Photonic Inverse Design

Join us for a hands-on workshop focused on photonic inverse design (PID) – a design process where, given desired target performance, computational methods are employed to automatically find the optimal device geometry. Learn about the adjoint method and how it can be used to accelerate the optimization of shape-based and topology-based design problems. Gain valuable experience using PID tools to optimize for variable manufacturing and operating conditions in typical structures encountered by components engineered for integrated photonics.

6:15 pm-6:30 pm | BREAK

Sunday Evening Social

6:30 pm-8:30 pm | Regency Foyer

8:00 am - 4:00 pm IEEE Member Appreciation Lounge Balmoral							
Georgia A	Plaza B	Plaza A	Regency F	Regency E	Plaza C	Regency B	Regency A INDUSTRY DAY
8:30 am-10:00 am MA1: Free Space Communications and Sensing	8:30 am-10:00 am MB1: Quantum Networks	8:30 am-9:15 am MC1: Components for Integrated Photonic Circuits	8:30 am-10:00 am MD1: Engineering Excitonic Properties	8:30 am-9:15 am ME1: Photonics and Climate Change	8:30 am-10:00 am MF1: Access and Short Reach Communications	8:30 am-10:00 am MG1: Technology Platforms and Foundries for Silicon Photonics	8:30 am-10:00 am MH1: Panel on Photonics Startup Opportunities and Challenges - A Canadian Perspective
10:00 am-10:30 am Coffee Break & Exhibits Regency Foyer							
10:30 am-11:45 am MA2: QD Materials and Devices	10:30 am-11:45 am MB2: Neuromorphic Computing	10:30 am-11:30 am MC2: Microwave and Terahertz Integrated Photonics	10:30 am-12:00 pm MD2: Developments in OCT	10:30 am-11:45am ME2: Filters and Switches	10:30 am-11:45 am MF2: Optical Transmission Optimization	10:30 am-11:30 am MG2: Excitonic Devices and Material Systems	10:30 am-12:00 pm MH2: Panel on Promoting a Diverse and Inclusive Photonics Industry
12:00 pm-1:30 pm LUNCH BREAK (ON OWN)							
1:30 pm-2:30 pm MA3: Detectors for Photonic Integrated Circuits	1:30 pm-2:45 pm MB3: Quantum Sensing	1:30 pm-2:30 pm MC3: Hybrid Photonics with Low-dimensional Materials	1:30 pm-2:45pm MD3: Extending Resolution and Field of View	1:30 pm-3:30 pm ME3: High Speed Direct Detection Transmission	1:30 pm-3:00 pm MF3: Advances in Neurophotonics	1:30 pm-3:00 pm MG3: Novel Materials and Advanced Fabrication	1:30 pm-3:00 pm MH3: Hot Topics in Industry
3:00 pm-3:30 pm Coffee Break & Exhibits Regency Foyer							
3:30 pm-4:30 pm MA4: Detectors Based on Novel Materials and Systems	3:30 pm-5:00 pm MB4: Ultrafast and Programmable Optical Processing	3:30 pm-5:00 pm MC4: Fabrication and Materials Engineering for Nanophotonics	3:30 pm-5:00 pm MD4: Nonlinear Photonic Systems	3:30 pm-5:00 pm ME4: Couplers	3:30 pm-4:45 pm MF4: Signal Processing for Optical Communications	3:30 pm-4:30 pm MG4: Propagation	3:30 pm-5:00 pm MH4: Roundtable on Topics in Entrepreneurship
Welcome Awards Banquet 7:00 pm-9:00 pm Regency CD							

Prof. Joyce Poon, *Max Planck Institute of Microstructure Physics, Germany & University of Toronto, Canada*
 Dr. Ray Beausoleil, *Senior Fellow & Senior Vice President Director, Large-Scale Integrated Photonics Lab, HPE, USA*

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Balmoral	Regency E	Plaza C	Regency F	Plaza B	Plaza A	Regency B	Regency A
8:30 am-10:00 am ThA1: Photonic Crystal Lasers and VCSELs	8:30 am-9:00 am ThB1: Novel Phenamena	8:30 am-10:00 am ThC1: Advanced Fabrication for Silicon Photonics	8:30 am-10:00 am ThD1: Microwave Photonics 2	8:30 am-10:00 am ThE1: Specialty Optical Fibers for Communication and Sensing	8:30 am-10:00 am ThF1: Emerging Photonic Technologies for Quantum Applications	8:30 am-9:45 am ThG1: Imaging and Microscopy	8:30 am-10:00 am ThH1: Advances in IR Detectors
10:00 am-10:30 am Coffee Break & Exhibits Regency Foyer							
IPC 2022 Post-Deadline Session and Closing Ceremony 10:30 am-12:00 pm Regency C							
Best Student Paper & Best Student Poster Awards will be announced.							



Sunday, 13 November

8:30am Su1: Perspectives on Photonic Research

Regency B

Chaired by: Di Liang (United States)

8:30am Su1.1- The Promise of Quantum Nonlinear Optics

» Robert Boyd (Canada)¹ (1. University of Ottawa)

9am Su1.2 - Metamaterial-inspired integrated photonics

» Pavel Cheben (Canada)¹, Jens H. Schmid (Canada)¹ (1. National Research Council of Canada)

9:30am Su1.3 - Integrated photonics on silicon for the visible spectrum

» Joyce Poon (Germany)¹ (1. Max Planck Institute of Microstructure Physics)

10am Coffee Break

Regency Foyer

10:30am Su2: Centers of Photonics Research

Regency B

Chaired by: Gabriella Bosco (Italy)

10:30am Su2.1 - COPL - the Québec optic-photonic strategic network

» Leslie Rusch (Canada)¹, Sophie LaRochelle (Canada)¹ (1. Centre d'optique, photonique et laser (COPL), Université Laval)

11am Su2.2 - Silicon Photonic Electronic Integrated Circuits, SiEPIC, program in Canada

» Lukas Chrostowski (Canada)¹ (1. Department of Electrical and Computer Engineering, University of British Columbia)

11:30am

Su2.3 - Research Activities in the McGill University Photonic Systems Group

» Lawrence Chen (Canada)¹, Andrew Kirk (Canada)¹, Odile Liboiron-Ladouceur (Canada)¹, David V. Plant (Canada)¹, Martin Rochette (Canada)¹ (1. McGill University)

12pm

Su2.4 - Multiresonant fiber gratings

» Jacques Albert (Canada)¹ (1. Carleton University)

12:30pm

Lunch (on own)

1:30pm

Su3: Quantum Research

Regency B

Chaired by: Dominique Dagenais (United States)

1:30pm

Su3.1 - Telecom-compatible, affordable and scalable quantum technologies

» Nicola Montaut (Canada)¹, Piotr Roztock (Canada)¹, Hao Yu (Canada)¹, Mario Chemnitz (Canada)¹, Stefania Sciarra (Canada)¹, Benjamin MacLellan (Canada)¹, Bennet Fischer (Canada)¹, Yoann Jestin (Canada)¹, Luis Romero Cortes (Canada)¹, Yanbing Zhang (Canada)¹, Jose Azana (Canada)¹, Christian Reimer (United States)², Lucia Caspani (United Kingdom)³, William Munro (Japan)⁴, Sai Chu (Hong Kong)⁵, David Moss (Australia)⁶, Michael Kues (Germany)⁷, Sebastian Loranger (Canada)⁸, Raman Kashyap (Canada)⁸, Alfonso Cino (Italy)⁹, Roberto Morandotti (Canada)¹ (1. Institut national de la recherche scientifique (INRS), 2. HyperLight Corporation, 3. University of Strathclyde, 4. NTT Basic Research Laboratories, 5. University of Hong Kong, 6. Swinburne University of Technology, 7. Leibniz University of Hannover, 8. polytechnique montreal, 9. University of Palermo)

2pm

Su3.2 - Spin-optomechanics: using vibrations talk to quantum systems

» Paul E. Barclay (Canada)¹ (1. University of Calgary)

2:30pm

Su3.3 - Quantum nanophotonic devices for quantum computing, communication, and sensing

» Michael Reimer (Canada)¹ (1. University of Waterloo)



Continued from **Sunday, 13 November**

- 3pm **Coffee Break**
Regency Foyer
- 3:15pm **Su4: Inverse Design**
Regency B
Chaired by: Jens Niegemann (Canada) and Taylor Robertson (Canada)
- 6:30pm **Sunday Evening Social**
Regency Foyer

Monday, 14 November

- 8:30am **Light Sources I -**
MA1: Free Space Communications and Sensing
Georgia A
Chaired by: Shinji Matsuo (Japan)
- 8:30am **MA1.1 - (Invited) Free-space laser communications with quantum cascade devices in the thermal-infrared atmospheric window**
» Frederic Grillot (France)¹ (1. Institut Polytechnique de Paris)
- 9am **MA1.2 - (Best Student Paper Finalist) High-Power Mid-Infrared Quantum Cascade Lasers for Free-Space Communications**
» Morgan Turville-Heitz (United States)¹, Jae Ha Ryu (United States)¹, Jeremy Kirch (United States)¹, Steve Jacobs (United States)², Rob Marsland (United States)², Tom Earles (United States)³, Steven Ruder (United States)³, Kevin Oresick (United States)³, Dan Botez (United States)¹, Luke Mawst (United States)¹ (1. University of Wisconsin-Madison, 2. Intraband LLC, 3. DRS Daylight Solutions)

- 9:15am **MA1.3 - 940 nm VCSEL arrays for optical wireless**
» Nasibeh Haghighi (Germany)¹, Weronika Głowadzka (Poland)², Tomasz Czystanowski (Poland)², Martin Zorn (Germany)³, James Lott (Germany)¹ (1. Technical University Berlin, 2. Lodz University of Technology, 3. JENOPTIK Optical Systems GmbH)
- 9:30am **MA1.4 - High-Power and High-Speed Multi-Junction VCSEL Arrays for Automotive LiDAR**
» Suning Xie (United States)¹, Guowei Zhao (United States)¹, Jun Yang (United States)¹, Hemashilpa Kalagara (United States)¹, Yuefa Li (United States)¹, Maxwell Lassise (United States)¹, Steven Chai (United States)¹, Matthew Peters (United States)¹, Jay Skidmore (United States)¹ (1. Lumentum)
- 9:45am **MA1.5 - 850nm dual-metal VCSEL arrays for indoor 3D sensing applications**
» Hemashilpa Kalagara (United States)¹, Guowei Zhao (United States)¹, Jun Yang (United States)¹, Benjamin Kesler (United States)¹, Matthew Peters (United States)¹ (1. Lumentum operations LLC)
- 8:30am **Quantum Photonics I -**
MB1: Quantum Networks
Plaza B
Chaired by: Michael Brodsky (United States) and Michael Fanto (United States)
- 8:30am **MB1.1 - (Invited) Entanglement distillation with two-photon states**
» Sebastian Ecker (Austria)¹, Philipp Sohr (Austria)¹, Lukas Bulla (Austria)¹, Marcus Huber (Austria)¹, Martin Bohmann (Austria)², Rupert Ursin (Austria)¹ (1. IQOQI Vienna, 2. IQOQI)
- 9am **MB1.2 - Simulation of Quantum Key Distribution Using Entangled Photon Pairs Over Free-Space Channels**
» Daniel Jones (United States)¹, Dashiell Vitullo (United States)¹, Trevor Cook (United States)¹, Lisa Scott (United States)¹, Andrew Toth (United States)¹, Brian Kirby (United States)¹ (1. DEVCOM Army Research Laboratory)



Continued from Monday, 14 November

9:15am **MB1.3 - Optimizing resource allocation in flex-grid entanglement distribution networks**
 » Jude Alnas (United States)¹, Muneer Alshowkan (United States)², Nageswara Rao (United States)², Nicholas Peters (United States)², Joseph Lukens (United States)³ (1. University of Alabama, 2. Oak Ridge National Laboratory, 3. Arizona State University)

9:30am **MB1.4 - (Invited) Scalable and secure architecture for quantum networks**
 » Muneer Alshowkan (United States)¹, Philip Evans (United States)¹, Brian Williams (United States)¹, Nageswara Rao (United States)¹, Claire Marvinney (United States)¹, Yun-Yi Pai (United States)¹, Benjamin Lawrie (United States)¹, Nicholas Peters (United States)¹, Joseph Lukens (United States)² (1. Oak Ridge National Laboratory, 2. Arizona State University)

8:30am **Nano Photonics, Plasmonics, and Metamaterials I - MC1: Components for Integrated Photonic Circuits**
Plaza A
 Chaired by: Jennifer Choy (United States) and Mario Dagenais (United States)

8:30am **MC1.1 - Broadband telecom to short-wave infrared spanning reconfigurable MZI filter**
 » Neetesh Singh (Germany)¹, Milan Sinobad (Germany)¹, Sarvagya Dwivedi (Belgium)², Prof. Franz Kärtner (Germany)¹ (1. Deutsches Elektronen-Synchrotron DESY, 2. IMEC)

8:45am **MC1.2 - Broadband Mach-Zehnder interferometer modulator on indium tin oxide (ITO) platform operating at 100 GHz with asymmetric power splitting**
 » Yaliang Gui (United States)¹, Hao Wang (United States)¹, Behrouz Movahhed Nouri (United States)¹, Hamed Dalir (United States)¹, Volker Sorger (United States)² (1. The George Washington university, 2. George Washington University)

9am **MC1.3 - In-situ optical characterisation of integrated photonic devices during transfer printing**
 » Sean Bommer (United Kingdom)¹, Changyu Hu (United Kingdom)¹, Benoit Guilhabert (United Kingdom)², Michael Strain (United Kingdom)³ (1. Institute of Photonics, 2. University of Strathclyde, Institute of Photonics, 3. University of Strathclyde)

8:30am **Special Symposia on Opto Excitonic Devices I - MD1: Engineering Excitonic Properties**
Regency F
 Chaired by: Vinod Menon (United States) and Parag Deotare (United States)

8:30am **MD1.1 - (Invited) Tunable Exciton-Magnon Coupling in a layered semiconductor**
 » Xiaodong Xu (United States)¹ (1. University of Washington)

9am **MD1.2 - (Invited) Exciton Transport in Two-Dimensional Heterostructures**
 » Libai Huang (United States)¹ (1. Purdue University)

9:30am **MD1.3 - (Invited) Strain engineering of 2D Materials and straintronic optoelectronic devices**
 » Andres Castellanos-Gomez (Spain)¹ (1. Spanish National Research Council)

8:30am **Special Symposia on Photonics for Climate Change Mitigation Adaptation - ME1: Photonics and Climate Change**
Regency E
 Chaired by: John Muth (United States)

8:30am **ME1.2 - Diffuse LiDAR and laser reflectometry for measuring snow and ice properties**
 » Markus Allgaier (United States)¹, Jonathan Ryan (United States)¹ (1. University of Oregon)



Continued from Monday, 14 November

8:30am	Optical Communication and Networks I - MF1: Access and Short Reach Communications <i>Plaza C</i> Chaired by: Fatima Gunning (Ireland)
8:30am	MF1.1 - (Invited) High Speed Optical Access Networks For This Decade And The Next » Vincent Houtsuma (United States) ¹ , Dora Van Veen (United States) ¹ (1. Nokia, Bell-labs)
9am	MF1.2 - Samples vs. Symbols-based Feedforward Neural Network equalization for Short Reach Transmission » Yevhenii Osadchuk (Denmark) ¹ , Stenio M. Ranzini (Denmark) ¹ , Roman Dischler (Germany) ² , Vahid Aref (Germany) ² , Darko Zibar (Denmark) ¹ , Francesco Da Ros (Denmark) ¹ (1. Technical University of Denmark, 2. Nokia Bell Labs)
9:15am	MF1.3 - On the Feasibility of using DML-based Transmitter for Quasicoherent Receiver » Kh Arif Shahriar (Canada) ¹ , Md Samiul Alam (Canada) ¹ , Reza Maram (Canada) ² , Ali Bayat (Canada) ² , Jose Altabas (Denmark) ³ , Jesper Jensen (Denmark) ³ , Pasquale Ricciardi (Canada) ² , David V. Plant (Canada) ¹ (1. McGill University, 2. Fonex Data Systems, 3. Bifrost Communications)
9:30am	MF1.4 - High-speed Optical Camera Communication Using CMOS-driven Micro-LED Projector » Yingjie Shao (United Kingdom) ¹ , Jonathan McKendry (United Kingdom) ² , Fahimeh Dehkhoda (United Kingdom) ³ , Enyuan Xie (United Kingdom) ² , Johannes Herrnsdorf (United Kingdom) ² , Michael Strain (United Kingdom) ² , Robert Henderson (United Kingdom) ³ , Martin Dawson (United Kingdom) ² (1. Centre for Applied Photonics, Fraunhofer UK Research Ltd, 2. University of Strathclyde, 3. University of Edinburgh)
9:45am	MF1.5 - Optical camera communication using plastic fiber array for spatial multiplexing » Liqiong Liu (Hong Kong) ¹ , Shuyan Chen (Hong Kong) ¹ , Lian-Kuan Chen (Hong Kong) ¹ (1. The Chinese University of Hong Kong)

8:30am	Materials, Foundries and Fabrication I - MG1: Technology Platforms and Foundries for Silicon Photonics <i>Regency B</i> Chaired by: Boon S. Ooi (Saudi Arabia) and Tatsuro Hiraki (Japan)
8:30am	MG1.1 - (Tutorial) The road ahead for integrated photonics » Martijn Heck (Netherlands) ¹ (1. Eindhoven University of Technology)
9:30am	MG1.2 - (Invited) Open Market Silicon Photonics PDK with Integrated Lasers » Erik Norberg (United States) ¹ (1. OpenLight)
8:30am	Industry Day I - INDUSTRY DAY: MH1: Panel on Photonics Startup Opportunities and Challenges - A Canadian Perspective <i>Regency A</i> Chaired by: Dalma Novak (United States)
	INDUSTRY DAY
10am	Coffee Break & Exhibits <i>Regency Foyer</i>
10:30am	Light Sources II - MA2: QD Materials and Devices <i>Georgia A</i> Chaired by: Luke Mawst (United States)
10:30am	MA2.1 - (Invited) Si-based 1.3 μm InAs/GaAs QD Lasers » Huiyun Liu (United Kingdom) ¹ , Huiwen Deng (United Kingdom) ¹ , Junjie Yang (United Kingdom) ¹ , Hui Jia (United Kingdom) ¹ , Mingchu Tang (United Kingdom) ¹ , Benjamin Maglio (United Kingdom) ² , Lydia Jarvis (United Kingdom) ² , Samuel Shutts (United Kingdom) ² , Peter Smowton (United Kingdom) ² , Siming Chen (United Kingdom) ¹ , Alwyn Seeds (United Kingdom) ¹ (1. UCL, 2. Cardiff University)



Continued from Monday, 14 November

- 11am **MA2.2 - C- and L-band InAs/InP quantum dot lasers**
 » Zhongming Cao (United Kingdom)¹, Maryam Alsayyad (United Kingdom)¹, Ben Salmond (United Kingdom)¹, Harry Gordon-Moys (United Kingdom)¹, Bogdan-Petrin Ratiu (United Kingdom)¹, Oumaima Abouzaïd (United Kingdom)¹, Craig Allford (United Kingdom)¹, Josie Nabialek (United Kingdom)¹, Richard Forrest (United Kingdom)¹, Sara-Jayne Gillgrass (United Kingdom)¹, Qiang Li (United Kingdom)¹, Samuel Shutts (United Kingdom)¹, Peter Smowton (United Kingdom)¹ (1. Cardiff University)
- 11:15am **MA2.3 - Co-doped 1.3µm InAs Quantum Dot Lasers with high gain and low threshold current**
 » Peter Smowton (United Kingdom)¹, Benjamin Maglio (United Kingdom)¹, Lydia Jarvis (United Kingdom)¹, Craig Allford (United Kingdom)¹, Sara-Jayne Gillgrass (United Kingdom)¹, Abigail Enderson (United Kingdom)¹, Samuel Shutts (United Kingdom)¹, Huiwen Deng (United Kingdom)², Mingchu Tang (United Kingdom)², Huiyun Liu (United Kingdom)² (1. Cardiff University, 2. UCL)
- 10:30am **Optical AI and Computational Photonics I - MB2: Neuromorphic Computing**
 Plaza B
 Chaired by: Volker Sorger (United States)
- 10:30am **MB2.1 - (Invited) Brain-Derived 3D NanoPhotonic-NanoElectronic Neuromorphic Computing**
 » S. J. Ben Yoo (United States)¹ (1. University of California, Davis)
- 11am **MB2.2 - GHz-Rate Neuromorphic Photonic Spiking Neural Network with a Vertical-Cavity Surface-Emitting Laser**
 » Dafydd Owen-Newns (United Kingdom)¹, Joshua Robertson (United Kingdom)², Matej Hejda (United Kingdom)², Antonio Hurtado (United Kingdom)¹ (1. Institute of Photonics, Department of Physics, University of Strathclyde, 2. University of Strathclyde)

- 11:15am **MB2.3 - Artificial optoelectronic spiking neurons with laser-coupled resonant tunnelling diode systems**
 » Matej Hejda (United Kingdom)¹, Ekaterina Malysheva (Netherlands)², Weikang Zhang (United Kingdom)¹, Qusay Raghieb Ali Al-Taai (United Kingdom)³, Edward Wasige (United Kingdom)³, Victor Dolores-Calzadilla (Netherlands)², José Figueiredo (Portugal)⁴, Bruno Romeira (Portugal)⁵, Antonio Hurtado (United Kingdom)¹ (1. Institute of Photonics, Department of Physics, University of Strathclyde, 2. Eindhoven Hendrik Casimir Institute, Eindhoven University of Technology, 3. University of Glasgow, 4. University of Lisbon, 5. International Iberian Nanotechnology Laboratory)
- 11:30am **MB2.4 - Interconnected VCSEL-based Photonic Synapses for Neuromorphic Processing Architectures**
 » Joshua Robertson (United Kingdom)¹, Juan Arturo Alanis (United Kingdom)¹, Matej Hejda (United Kingdom)¹, Dafydd Owen-Newns (United Kingdom)¹, Antonio Hurtado (United Kingdom)¹ (1. Institute of Photonics, Department of Physics, University of Strathclyde)
- 10:30am **Nano Photonics, Plasmonics, and Metamaterials II - MC2: Microwave and Terahertz Integrated Photonics**
 Plaza A
 Chaired by: Jennifer Choy (United States) and Christina Joerg (United States)
- 10:30am **MC2.1 - Graphene-Dielectric based Tunable Terahertz Polarization Insensitive Modulator**
 » Bhagwat Singh Chouhan (India)¹, KM Dhriti maurya (India)¹, Bhairav Kumar Bhowmik (India)¹, Angana Bhattacharya (India)¹, Gagan Kumar (India)¹ (1. Indian Institute of Technology, Guwahati)
- 10:45am **MC2.2 - Actively controlled two bit Binary Coding in Graphene assisted Terahertz Metasurface**
 » KM Dhriti Maurya (India)¹, Gagan Kumar (India)¹ (1. Indian Institute of Technology, Guwahati)
- 11am **MC2.3 - Thin-Wire Array based Resonator for Targeted Clinical 1.5T Magnetic Resonance Imaging**
 » Jegvasu Gupta (India)¹, Priyanka Das (India)¹, Ashish Kumar Chowdhary (India)¹, Ratnajit Bhattacharjee (India)¹, Debabrata Sikdar (India)¹ (1. Indian Institute of Technology, Guwahati)



Continued from Monday, 14 November

- 11:15am **MC2.4 - Design and Analysis of a Thin Metamaterial for Magnetic Field Enhancement in 1.5T MRI**
» Priyanka Das (India)¹, Jegyasu Gupta (India)¹, Debabrata Sikdar (India)¹, Ratnajit Bhattacharjee (India)¹ (1. Indian Institute of Technology, Guwahati)
- 10:30am **Biophotonics and Medical Optics I - MD2: Developments in OCT**
Regency F
Chaired by: Marinko Sarunic (United Kingdom) and Peter Munro (United Kingdom)
- 10:30am **MD2.1 - Ocular melanoma imaging study using polarization-diversity optical coherence tomography**
» Destiny Hsu (Canada)¹, Yusi Miao (Canada)², Jun Song (Canada)³, Hoyoung Jung (Canada)³, Katherine Paton (Canada)², Zaid Mammo (Canada)², Myeong Jin Ju (Canada)² (1. School of Engineering Science, Simon Fraser University, 2. Dept. of Ophthalmology and Visual Sciences, University of British Columbia, 3. School of Biomedical Engineering, University of British Columbia)
- 10:45am **MD2.2 - Multimodal optical elastography measures the stiffness of the cornea in a Collagen XII deficient murine model**
» Achuth Nair (United States)¹, Yogeshwari Ambekar (United States)¹, Christian Zevallos-Delgado (United States)¹, Manmohan Singh (United States)¹, Fernando Zvietcovich (United States)¹, Taye Mekonnen (United States)¹, Salavat Aglyamov (Germany)², Edgar Espana (United States)³, Kirill klarin@uh.edu (United States)¹ (1. University of Houston, 2. University of Cologne, 3. Morsani College of Medicine)
- 11am **MD2.3 - Automated counting method to assess cerebral penetrating vessels in perfusion using optical coherence tomography**
» Woo June Choi (Korea, Republic of)¹, Jun Ki Kim (Korea, Republic of)² (1. School of Electrical and Electronics Engineering, Chung-Ang University, 2. Asan Institute for Life Sciences, Asan Medical Center)

- 11:15am **MD2.4 - Correlation matrix-based cross-calibration of multiple spectrometer-based optical coherence tomography**
» Yusi Miao (Canada)¹, Jun Song (Canada)², Myeong Jin Ju (Canada)¹ (1. University of British Columbia, 2. School of biomedical engineering University of British Columbia)
- 11:30am **MD2.5 - Investigating the modal contents of multi-clad fibers to improve multimodal optical imaging**
» Adrian Tanskanen (Canada)¹, Jeanie Malone (Canada)¹, Geoffrey Hohert (Canada)¹, Pierre Lane (Canada)² (1. BC Cancer Research Institute, 2. Simon Fraser University)
- 11:45am **MD2.6 - System-agnostic 3D volume registration for motion-free contrast-enhanced optical coherence tomography retinal images.**
» Mahsa Siadat (Canada)¹, Yusi Miao (Canada)¹, Arman Athwal (Canada)², Da Ma (Canada)³, Myeong Jin Ju (Canada)¹ (1. University of British Columbia, 2. Simon Fraser University, 3. Wake Forest University)
- 10:30am **Optical Communication: Devices, Interconnects and Subsystems I - ME2: Filters and Switches**
Regency E
Chaired by: Giovanni Milione (United States) and Philip Ji (United States)
- 10:30am **ME2.1 - (Invited) Energy Efficient Wavelength-Selective Silicon Photonic Switch in the O-Band**
» Viviana Arrunategui Norvick (United States)¹, Evan Chansky (United States)², Takako Hirokawa (United States)³, Yujie Xia (United States)³, Adel Saleh (United States)³, Clint Schow (United States)¹ (1. University of California Santa Barbara, 2. University of California at Santa Barbara, 3. UCSB)
- 11am **ME2.2 - Random Subwavelength Grating Waveguide Bragg Gratings**
» Bruno Taglietti (Canada)¹, Hao Sun (Canada)¹, Sehr Moosabhoy (Canada)¹, Lawrence Chen (Canada)¹ (1. McGill University)
- 11:15am **ME2.3 - Subwavelength Grating Waveguide-Based 1310/1550 nm Diplexer**
» Bruno Taglietti (Canada)¹, Lawrence Chen (Canada)¹ (1. McGill University)



Continued from Monday, 14 November

11:30am **ME2.4 - Low-loss, high finesse, add-drop resonators from a commercial silicon photonics foundry**
 » Lucas Cohen (United States)¹, Saleha Fatema (United States)¹, Karthik Myilswamy (United States)¹, Scott Kenning (United States)¹, Navin Lingaraju (United States)², Andrew Weiner (United States)¹ (1. Purdue University, 2. navin.lingaraju@sri.com)

10:30am **Optical Communication and Networks II - MF2: Optical Transmission Optimization**
Plaza C
 Chaired by: Filipe Marques Ferreira (United Kingdom)

10:30am **MF2.1 - (Invited) Performance Optimization in Subsea Systems**
 » Siddharth Varughese (United States)¹, Sumudu Edirisinghe (United States)¹, Pierre Mertz (United States)¹ (1. Infinera Corporation)

11am **MF2.2 - Relative impact of impairments in subsea fiber optic transmission systems**
 » Viacheslav Ivanov (Russian Federation)¹, John Downie (United States)¹, Sergejs Makovejs (United Kingdom)¹, Ming-lun Li (United States)² (1. Corning, 2. Corning Optical Communications)

11:15am **MF2.3 - Real-Time Span-Wise Launch Power Optimization for Coherent Optical Systems**
 » Tianyu Zhao (Canada)¹, Xiang Lin (Canada)¹, Zhiping Jiang (Canada)² (1. Huawei Technologies Canada Co., Ltd, 2. Huawei Technologies Canada Co. Ltd.)

11:30am **MF2.4 - SLA-Differentiated Protection in Multi-Band Elastic Optical Networks**
 » Soheil Hosseini (Spain)¹, Ramón J. Durán Barroso (Spain)¹, Ignacio de Miguel (Spain)¹, Óscar González de Dios (Spain)², Noemí Merayo (Spain)¹, Juan Carlos Aguado (Spain)¹, Edward Echeverry (Spain)³, Patricia Fernández (Spain)¹, Rubén M. Lorenzo (Spain)¹, Evaristo J. Abril (Spain)¹ (1. Universidad de Valladolid, 2. Telefónica I+D, 3. Telefónica SA)

10:30am **Special Symposia on Opto Excitonic Devices II - MG2: Excitonic Devices and Material Systems**
Regency B
 Chaired by: Parag Deotare (United States) and Vinod Menon (United States)

10:30am **MG2.1 - (Invited) Monolayer III-nitride Heterostructures and Emerging Device Applications**
 » Zetian Mi (United States)¹ (1. University of Michigan)

11am **MG2.2 - (Invited) Electromechanical control of excitonic quantum emission in 2D materials**
 » Adina Ripin (United States)¹, Ruoming Peng (United States)¹, Xiaowei Zhang (United States)¹, Srivatsa Chakravarthi (United States)¹, Minhao He (United States)¹, Xiaodong Xu (United States)¹, Kai-Mei Fu (United States)¹, Ting Cao (United States)¹, Mo Li (United States)¹ (1. University of Washington, Seattle)

10:30am **Industry Day II - INDUSTRY DAY: MH2: Panel on Promoting a Diverse and Inclusive Photonics Industry**
Regency A
 Chaired by: Matthew Posner (Canada)

INDUSTRY DAY

12pm **Lunch (on own)**

1:30pm **Detection, Sensing, and Energy I - MA3: Detectors for Photonic Integrated Circuits**
Georgia A
 Chaired by: Joe Campbell (United States) and CARMEN MENONI (United States)

1:30pm **MA3.1 - (Invited) Integrated Photonics for Space Scientific Instruments**
 » Siamak Forouhar (United States)¹, Simone Bianconi (United States)¹ (1. JPL)



Continued from Monday, 14 November

2pm **MA3.2 - Analytical Modeling of Silicon Microring Photodetectors**
 » Yiwei Peng (United States)¹, Yuan Yuan (United States)¹, Wayne Sorin (United States)¹, Stanley Cheung (United States)¹, zhihong huang (United States)¹, Marco Fiorentino (United States)¹, Dr. Raymond Beausoleil (United States)¹ (1. Hewlett Packard Enterprise)

2:15pm **MA3.3 - Self-Powered Photodetector Based on Mos2/Sb2Te3 Heterojunctions**
 » hao wang (United States)¹, Yaliang Gui (United States)¹, Chaobo Dong (United States)¹, Hamed Dalir (United States)¹, Volker Sorger (United States)² (1. The George Washington university, 2. George Washington University)

1:30pm **Quantum Photonics II - MB3: Quantum Sensing**
Plaza B
 Chaired by: Michael Brodsky (United States)

1:30pm **MB3.1 - (Invited) Expanding single-photon detector (SPD) technology to a wider infrared spectrum using Josephson junction**
 » Kin Chung Fong (United States)¹ (1. Raytheon BBN Technologies, 10 Moulton Street, Cambridge, Massachusetts 02138, USA)

2pm **MB3.2 - Electro-optic Fourier Transform Chronometry of Single Photon Pulses**
 » Ali Golestani (Poland)¹, Alexander Davis (United Kingdom)², Filip Sośnicki (Poland)¹, Michał Mikołajczyk (Poland)¹, Nicolas Treps (France)³, Michał Karpiński (Poland)¹ (1. Faculty of Physics, University of Warsaw, 2. Centre for Photonics and Photonic Materials, Department of Physics, University of Bath, 3. Laboratoire Kastler Brossel, Sorbonne Université, ENS-Université PSL, CNRS, Collège de France)

2:15pm **MB3.3 - (Invited) From Quantum Processing to sensing with Ultrafast Systems**
 » Ben Sussman (Canada)¹ (1. national research council of canada)

1:30pm **Nano Photonics, Plasmonics, and Metamaterials III - MC3: Hybrid Photonics with Low-dimensional Materials**
Plaza A
 Chaired by: Jennifer Choy (United States)

1:30pm **MC3.1 - (Young Investigator Award) Strong Light-Matter Interactions in Low-Dimensional, Hybrid and Excitonic Semiconductors**
 » Prof. Deep Jariwala (United States)¹ (1. University of Pennsylvania)

2pm **MC3.2 - High Quality Fano Resonance in Graphene-based Terahertz Metamaterial**
 » Chandan Bagri (India)¹, Sukhvinder Kaur (India)¹, Ravendra Kumar Varshney (India)¹ (1. Indian Institute of Technology Delhi)

2:15pm **MC3.3 - Graphene-based metamaterial for in-situ spectral absorption tailoring in the mid-infrared**
 » Romil Audhkhasi (United States)¹, Mashnoon Sakib (United States)¹, Michelle Povinelli (United States)¹ (1. University of Southern California)

1:30pm **Biophotonics and Medical Optics II - MD3: Extending Resolution and Field of View**
Regency F
 Chaired by: Myeong Jin Ju (Canada) and Brian Applegate (United States)

1:30pm **MD3.1 - (Invited) Optical ptychography: novel approaches and recent developments**
 » Roarke Horstmeyer (United States)¹, Kevin Zhou (United States)¹, Kyung Chul Lee (Korea, Republic of)² (1. Duke University, 2. Yonsei University)

2pm **MD3.2 - Panoramic Retinal Optical Coherence Tomography**
 » Yifan Jiao (United States)¹, Shuibin Ni (United States)¹, Thanh-Tin Nguyen (United States)¹, Alison Skalet (United States)¹, Pete Campbell (United States)¹ (1. Oregon Health & Science University)



Continued from Monday, 14 November

- 2:15pm **MD3.3 - (Invited) Fourier Ptychography using Display Screen for Programmable Illumination**
» [Seung Ah Lee](#) (Korea, Republic of)¹, Kyungwon Lee (Korea, Republic of)¹, Kyung Chul Lee (Korea, Republic of)¹, Jaewoo Jung (Korea, Republic of)¹ (1. Yonsei University)
- 1:30pm **Optical Communication: Devices, Interconnects and Subsystems II - ME3: High Speed Direct Detection Transmission**
Regency E
Chaired by: Philip Ji (United States) and Giovanni Milione (United States)
- 1:30pm **ME3.1 - (Tutorial) Multimode fibers for high-speed short-reach transmission**
» [Ming-lun Li](#) (United States)¹ (1. Corning Incorporated)
- 2:15pm **ME3.2 - Improvement in High-Speed Data Transmission of Coupled Cavity VCSEL Arrays at 850 nm using Separated Electrodes**
» ZUHAIB KHAN (Taiwan)¹, Min-Long Wu (Taiwan)¹, Yaung-Cheng Zhao (Taiwan)¹, Cheng-Chun Chen (Taiwan)², Chia-Jui Chang (Taiwan)², Tien-Chang Lu (Taiwan)², [Jin-Wei Shi](#) (Taiwan)¹ (1. National Central University, 2. National Yang Ming Chiao Tung University)
- 2:30pm **ME3.3 - (Invited) 550-km Amplified Direct-Detection Transmission at 1.3μm**
» Yang Hong (United Kingdom)¹, Natsupa Taengnoi (United Kingdom)¹, [Kyle Bottrill](#) (United Kingdom)¹, Yu Wang (United Kingdom)¹, Jayanta Sahu (United Kingdom)¹, Periklis Petropoulos (United Kingdom)¹, David Richardson (United Kingdom)¹ (1. Optoelectronics Research Centre (ORC), University of Southampton)
- 3pm **ME3.4 - (Invited) Integrated direct direction receiver approaching coherent reception performance**
» [Yikai Su](#) (China)¹ (1. Shanghai Jiao Tong University)

- 1:30pm **Special Symposia on Advances in Neurophotonics I - MF3: Advances in Neurophotonics**
Plaza C
Chaired by: Nisan Ozana (United States)
- 1:30pm **MF3.1 - (Invited) Quantitative birefringence microscopy images myelin loss and degradation in neurodegenerative diseases**
» [Irving Bigio](#) (United States)¹ (1. Boston University)
- 2pm **MF3.2 - (Invited) In vivo measurements of oxygenation and blood flow using optical microscopy during healthy and diseased conditions in mouse**
» [Ikbal Sencan-Egilmez](#) (United States)¹ (1. Washington University School of Medicine in Saint Louis)
- 2:30pm **MF3.3 - In-Vivo Mouse Brain Imaging using Three-Photon Fluorescence Adaptive Optics**
» [david sinefeld](#) (Israel)¹, Fei Xia (United States)², Mengran Wang (United States)², Tianyu Wang (United States)², Chunyan Wu (United States)², Hari Paudel (United States)³, Dimitre Ouzounov (United States)², Thomas Bifano (United States)³, Chris Xu (United States)² (1. Jerusalem College of Technology, 2. Cornell University, 3. Boston University)
- 1:30pm **Materials, Foundries and Fabrication II - MG3: Novel Materials and Advanced Fabrication**
Regency B
Chaired by: Brian Corbett (Ireland) and Tatsurou Hiraki (Japan)
- 1:30pm **MG3.1 - Enhancement of nonlinear interaction for efficient graphene-based mode-locked lasers**
» [Bowon Ryu](#) (Korea, Republic of)¹, Sungjae Lee (Korea, Republic of)², Jin Tae Kim (Korea, Republic of)³, Yong-Won Song (Korea, Republic of)⁴ (1. Nanomaterials Science and Engineering, KIST school, Korea University of Science and Technology, 2. Division of Nano & Information Technology, KIST School, Korea University of Science and Technology, 3. Creative Future Research Laboratory, Electronics and Telecommunications Research Institute, 4. Center for Opto-electronic Materials and Devices, Korea Institute of Science and Technology)



Continued from Monday, 14 November

1:45pm **MG3.2 - 2.5D+ etching of silicon dioxide and nitride for optical and photonic structures**
» [Arne Behrens](#) (Germany)¹, [Stefan Sinzinger](#) (Germany)¹ (1. Technische Universität Ilmenau)

2pm **MG3.3 - Metal Ion Implanted Waveguides in Thin Film Barium Titanate-on-Insulator**
» [Yu Cao](#) (Singapore)¹, [Hong-Lin Lin](#) (Singapore)¹, [Elhadj Dogheche](#) (France)², [Aaron Danner](#) (Singapore)¹ (1. National University of Singapore, 2. Université Polytechnique Hauts-de-France)

2:15pm **MG3.4 - Visualization of environment-dependent carrier dynamics on 2D transition metal dichalcogenides using ultrafast pump-probe microscopy**
» [Chih-Wei Luo](#) (Taiwan)¹ (1. Department of Electrophysics, National Yang Ming Chiao Tung University)

1:30pm **Industry Day III -**
INDUSTRY DAY: MH3: Hot Topics in Industry
Regency A
Chaired by: Rod Waterhouse (United States)

INDUSTRY DAY

3pm **Coffee Break & Exhibits**
Regency Foyer

3:30pm **Detection, Sensing, and Energy II -**
MA4: Detectors Based on Novel Materials and Systems
Georgia A
Chaired by: Frederic Grillot (France) and Joe Campbell (United States)

3:30pm

MA4.1 - Photodetection from SWIR to MWIR with Ge/GeSn core/shell nanowires
» [Lu Luo](#) (Canada)¹, [Simone Assali](#) (Canada)¹, [Mahmoud Atalla](#) (Canada)¹, [Anis Attiaoui](#) (Canada)¹, [Sebastian Koelling](#) (Canada)¹, [Oussama Moutanabbir](#) (Canada)¹ (1. Ecole Polytechnique de Montreal)

3:45pm

MA4.2 - Solution-Processed PbS Quantum Dots Infrared Photodetector with Ultra-High Responsivity
» [Ching-Fang Wei](#) (Taiwan)¹, [Yen -Tzu Liu](#) (Taiwan)¹, [Chia-Ming Hsu](#) (Taiwan)¹, [Ching-Yu Hsu](#) (Taiwan)², [Zingway Pei](#) (Taiwan)¹ (1. National Chung Hsing University, 2. National Yang Ming Chiao Tung University)

4pm

MA4.3 - Focus-Induced Photoresponse in Amorphous Silicon Photodetectors for low-light and sub-mm resolution 3D Imaging Applications
» [Maurice Müller](#) (Germany)¹, [Andreas Bablich](#) (Germany)¹, [Rainer Bornemann](#) (Germany)¹, [Peter Haring Bolívar](#) (Germany)¹ (1. University of Siegen)

4:15pm

MA4.4 - Plasmonic Slot Waveguide - Integrated MoTe2 Photodetector with 30-GHz Bandwidth at Telecom Wavelength
» [hao wang](#) (United States)¹, [Hamed Dalir](#) (United States)¹, [Volker Sorger](#) (United States)² (1. The George Washington university, 2. George Washington University)

3:30pm

Optical AI and Computational Photonics II -
MB4: Ultrafast and Programmable Optical Processing
Plaza B
Chaired by: Volker Sorger (United States)

3:30pm

MB4.1 - (Invited) Ultrafast precision measurements in laser frequency microcombs: romance in the precision of time
» [Chee Wei Wong](#) (United States)¹ (1. University of California, Los Angeles)



Continued from Monday, 14 November

4pm

MB4.2 - Autoencoder-Based Four Dimensional Constellation for Phase Noise Channels

» Amir Omidj (Canada)¹, Ming Zeng (Canada)², Leslie Rusch (Canada)² (1. Department of Electrical and Computer Engineering, Center for Optics, Photonics and Lasers (COPL), Université Laval, Quebec, 2. Centre d'optique, photonique et laser (COPL), Université Laval)

4:15pm

MB4.3 - Automatic Realization of Light Processing Functions for Programmable Photonics

» Zhengqi Gao (United States)¹, Xiangfeng Chen (Belgium)², Zhengxing Zhang (United States)¹, Uttara Chakraborty (United States)¹, Wim Bogaerts (Belgium)², Duane Boning (United States)¹ (1. Massachusetts Institute of Technology, 2. Ghent University)

4:30pm

MB4.4 - A 64×64 integrated photonic accelerator

» Bo Peng (United States)¹, Shiyue Hua (China)¹, Zhan Su (United States)¹, Yelong Xu (United States)¹, Yichen Shen (United States)¹ (1. Lightelligence Inc)

4:45pm

MB4.5 - Automatic self-calibration of programmable photonic processors

» Aitor López Hernández (Spain)¹, Mikel Gutiérrez (Spain)², Daniel Pérez (Spain)² (1. Universitat Politècnica de Valencia, 2. iPrionics, Programmable Photonics S.L.)

3:30pm

Nano Photonics, Plasmonics, and Metamaterials IV - MC4: Fabrication and Materials Engineering for Nanophotonics

Plaza A

Chaired by: Jennifer Choy (United States) and Jennifer Choy (United States)

3:30pm

MC4.1 - Post-fabrication trimming of high Q/V silicon photonic slot-bridge nanobeam cavities

» Joshua Fabian (Canada)¹, Wesley Cassidy (Canada)², Lesley Hill (Canada)², Kassandra Hawes (Canada)², David Neilson (Canada)², Adan Azem (Canada)¹, Xiruo Yan (Canada)³, Donald Witt (Canada)¹, Matthew Mitchell (Canada)⁴, Andreas Pfenning (Canada)⁴, Lukas Chrostowski (Canada)¹, Jeff F. Young (Canada)³ (1. Department of Electrical and Computer Engineering, University of British Columbia, 2. Department of Engineering Physics, University of British Columbia, 3. Department of Physics and Astronomy, University of British Columbia, 4. Stewart Blusson Quantum Matter Institute, University of British Columbia)

3:45pm

MC4.2 - Improving Minimum Feature Sizes of Subwavelength Grating Slot Waveguide Optical Sensors

» Can Ozcan (Canada)¹, J. Stewart Aitchison (Canada)¹, Mo Mojahedi (Canada)¹ (1. University of Toronto)

4pm

MC4.3 - Free carriers in silicon sub-micron rib waveguides

» Mohammad Ahmadi (Canada)¹, Jacques Lefebvre (Canada)¹, Wei Shi (Canada)¹, Sophie LaRochelle (Canada)¹ (1. Centre d'optique, photonique et laser (COPL), Université Laval)

4:15pm

MC4.4 - Compact metamaterial grating antenna in a 300-nm silicon-on-insulator waveguide

» Shahrzad Khajavi (Canada)¹, Daniele Melati (France)², Pavel Cheben (Canada)³, Jens H. Schmid (Canada)³, Dan Xia Xu (Canada)³, Winnie N. Ye (Canada)¹ (1. Carleton University, 2. université paris saclay, 3. national research council of canada)

4:30pm

MC4.5 - All-Optical Biophotonic and Microfluidic Circuits for Photo-thermal Applications

» Carlo Santini (Italy)¹, Luciano De Sio (Italy)², Francesca Petronella (Italy)³, Antonio d'Alessandro (Italy)⁴ (1. Dipartimento di Ingegneria dell'Informazione, Elettronica e Telecomunicazioni, Sapienza Università di Roma, 2. Department of Medico-Surgical Sciences and Biotechnologies Center for Biophotonics Sapienza University Rome, Italy, 3. Institute of Crystallography National Research Council Monterodondo, Italy, 4. Department of Information Engineering, Electronics and Telecommunications Sapienza University)



Continued from Monday, 14 November

- 4:45pm **MC4.6 - Enhanced Diffraction Efficiency using Metal Nanoparticle based Grating on Flexible Substrate**
» [AGNIMITRA SUTRADHAR](#) (India)¹, Joel Cherian Sam (India)¹, Shilpi Gupta (India)¹ (1. Department of Electrical Engineering, Indian Institute of Technology Kanpur)
- 3:30pm **Nonlinear Photonics and Novel Optical Phenomena I - MD4: Nonlinear Photonic Systems**
Regency F
Chaired by: Alireza Marandi (United States) and William Loh (United States)
- 3:30pm **MD4.1 - (Invited) Scaling up Optical Neural Networks: Pitfalls and Possibilities**
» [Ryan Hamerly](#) (United States)¹ (1. MIT / NTT Research)
- 4pm **MD4.2 - (Invited) Liquid Light Computing: from logic to analogue simulation**
» Pavlos Lagoudakis (United Kingdom)¹, [Helgi Sigurdsson](#) (United Kingdom)¹ (1. University of Southampton)
- 4:30pm **MD4.3 - Experimental Study of In-line Nonlinearity Mitigation for a 400 Gb/s Dual-Carrier Superchannel with Joint Reception Using a Waveband-Shift-Free OPC**
» [Isaac Sackey](#) (Germany)¹, Robert Elschner (Germany)¹, Carsten Schmidt-Langhorst (Germany)¹, Gregor Ronniger (Germany)¹, Tomoyuki Kato (Japan)², Takeshi Hoshida (Japan)³, Colja Schubert (Germany)¹, Ronald Freund (Germany)¹ (1. Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, 2. Fujitsu Limited, 3. hoshida@fujitsu.com)
- 4:45pm **MD4.4 - Detection of Noisy Narrowband Optical Signals by All-Fiber Sampling and Lossless Decimation**
» [Manuel Fernandez](#) (Canada)¹, Saket Kaushal (Canada)¹, Benjamin Crockett (Canada)¹, Laureano Bulus (Argentina)², Pablo Costanzo-Caso (Argentina)², Jose Azana (Canada)¹ (1. Institut national de la recherche scientifique (INRS), 2. Instituto Balseiro)

- 3:30pm **Optical Communication: Devices, Interconnects and Subsystems III - ME4: Couplers**
Regency E
Chaired by: Ming-Jun Li (United States) and Giovanni Milione (United States)
- 3:30pm **ME4.1 - Misalignment-Tolerant Multi-Tip Inverse Tapered Silicon Nitride Edge Couplers**
» Essam Berikaa (Canada)¹, Santiago Bernal (Canada)², Mustafa Hammood (Canada)³, Lukas Chrostowski (Canada)³, David V. Plant (Canada)², [Md Samiul Alam](#) (Canada)² (1. McGill, 2. McGill University, 3. Dream Photonics Inc)
- 3:45pm **ME4.2 - Nb2O5 horizontal slot waveguides with side-wall grating structures**
» [Takumi Hinata](#) (Japan)¹, Yoshiki Hayama (Japan)¹, Naoya Katsumata (Japan)¹, Katsumi Nakatsuhara (Japan)¹, Masayuki Takeda (Japan)¹, Takeshi Nishizawa (Japan)¹ (1. Kanagawa Institute of Technology)
- 4pm **ME4.3 - Low-loss, Single-shot Fiber-Array to Chip Attach Using Laser Fusion Splicing**
» [Juniali Nauriyal](#) (United States)¹, Meiting Song (United States)¹, Yi Zhang (United States)¹, Jaime Cardenas (United States)¹ (1. University of Rochester)
- 4:15pm **ME4.4 - Normal incidence single- and dual-polarization grating couplers for multi-core fiber enabled by inverse-design**
» [Michael Probst](#) (United States)¹, Alec Hammond (United States)², Joel Slaby (United States)³, Stephen Ralph (United States)² (1. Georgia Institute of Technology, 2. Georgia Institute of Technology, 3. PhD candidate)
- 4:30pm **ME4.5 - 2D Electrothermal MEMS Waveguide Positioner**
» [Almur RABIH](#) (Canada)¹, Suraj Sharma (Canada)¹, Michaël Ménard (Canada)², Frederic Nabki (Canada)² (1. PhD candidate, Departement of Electrical Engineering École de Technologie Supérieure Montreal, QC H3C 13K Canada, 2. Professor, Departement of Electrical Engineering École de Technologie Supérieure Montreal, QC H3C 13K Canada)



Continued from Monday, 14 November

- 4:45pm **ME4.6 - Statistical analysis of silicon-nitride arrayed waveguide gratings**
» [Qi Han](#) (Canada)¹, Daniel Robin (Canada)¹, Antoine Gervais (Canada)¹, Michaël Ménard (Canada)², Wei Shi (Canada)¹ (1. Centre d'optique, photonique et laser (COPL), Université Laval, 2. Department of Electrical Engineering, École de technologie supérieure)
- 3:30pm **Optical Communication and Networks III - MF4: Signal Processing for Optical Communications**
Plaza C
Chaired by: Gabriella Bosco (Italy)
- 3:30pm **MF4.1 - A Data-driven Optimization of First-order Regular Perturbation Coefficients for Fiber Nonlinearities**
» [Astrid Barreiro](#) (Netherlands)¹, Gabriele Liga (Netherlands)¹, Alex Alvarado (Netherlands)¹ (1. Electrical Engineering Department, Eindhoven University of Technology)
- 3:45pm **MF4.2 - Low Complexity Blind Baud Rate Estimation in the Presence of Hidden Interference**
» [Alex Kaylor](#) (United States)¹, Daniel Lippiatt (United States)¹, Varghese Thomas (United States)¹, David Patterson (United States)², Richard DeSalvo (United States)², Stephen Ralph (United States)¹ (1. Georgia Institute of Technology, 2. L3 Harris)
- 4pm **MF4.3 - Kalman Filter Based Impairment Mitigation in Nonlinear Optical Systems with Equalization Enhanced Phase Noise**
» [Cengin Jin](#) (United Kingdom)¹, Mingming Tan (United Kingdom)², Yunfei Chen (United Kingdom)¹, Tianhua Xu (United Kingdom)¹ (1. School of Engineering, University of Warwick, 2. Aston Institute of Photonic Technologies, Aston University)
- 4:15pm **MF4.4 - Optimizing Geometric Constellations for Phase Noise Channels Using Deep Learning**
» [Amir Omid](#) (Canada)¹, Xun Guan (Canada)¹, Ming Zeng (Canada)¹, Leslie Rusch (Canada)¹ (1. Centre d'optique, photonique et laser (COPL), Université Laval)

- 4:30pm **MF4.5 - Blind Polarization Demultiplexing of Probabilistically Shaped Signals**
» [Vinod Bajaj](#) (Netherlands)¹, Raf Van de Plas (Netherlands)¹, Vahid Aref (Germany)², Sander Wahls (Netherlands)¹ (1. Delft Center for Systems and Control, Delft University of Technology, 2. Nokia Solutions and Networks GmbH und Co KG, Stuttgart)
- 3:30pm **Propagation I - MG4: Propagation**
Regency B
Chaired by: Takuro Ideguchi (Japan)
- 3:30pm **MG4.1 - Theory for the CROWS Method for Measurement of the Directional Speed of Light**
» [Doug Baney](#) (United States)¹ (1. Keysight Technologies)
- 3:45pm **MG4.2 - Diffractive analysis of a chiral Fresnel zone plate with controllable on-axis foci and dual imaging**
» [nagi Buaossa](#) (United States)¹, [Monish Chatterjee](#) (United States)¹ (1. university of dayton)
- 4pm **MG4.3 - Sub-dB/m loss integrated 103 and 90 million Q resonators for laser stabilization at rubidium and strontium wavelengths**
» Nitesh Chauhan (United States)¹, [Andrei Isichenko](#) (United States)², Jiawei Wang (United States)², Daniel Blumenthal (United States)² (1. University of California at Santa Barbara, 2. University of California Santa Barbara)
- 4:15pm **MG4.4 - Highly-efficient apodized grating coupler in visible spectrum for backward coupling**
» [Rajat Kumar Sinha](#) (Canada)¹, Can Ozcan (Canada)², Mo Mojahedi (Canada)¹ (1. University of Toronto, 2. University of Toronto)
- 3:30pm **Industry Day IV - INDUSTRY DAY: MH4: Roundtable on Topics in Entrepreneurship**
Regency A
Chaired by: Milan Mashanovitch (United States)

INDUSTRY DAY



Continued from **Monday, 14 November**

7pm **Welcome Awards Banquet**
Regency CD

Tuesday, 15 November

8:30am **Light Sources III -
TuA1: Microlasers**
Georgia A
Chaired by: Kent Choquette (United States)

8:30am **TuA1.1 - (Invited) High-speed, Low-power Consumption Directly
Modulated Membrane Lasers**
» Shinji Matsuo (Japan)¹ (1. NTT Device Technology Labs, NTT Corporation)

9am **TuA1.2 - Selective Area Epitaxy of InAsP/InP Multi-Quantum Well
Micro-Ring Lasers**
» Wei Wen Wong (Australia)¹, Naiyin Wang (Australia)¹, Bryan Esser (Australia)², Stephen Church (United Kingdom)³, Igor Aharonovich (Australia)⁴, Patrick Parkinson (United Kingdom)³, Joanne Etheridge (Australia)², Chennupati Jagadish (Australia)⁵, Hark Hoe Tan (Australia)⁵ (1. Department of Electronic Materials Engineering, Research School of Physics, The Australian National University, 2. Monash Centre for Electron Microscopy, 3. Photon Science Institute and Department of Physics and Astronomy, School of Natural Sciences, The University of Manchester, 4. University of Technology Sydney, 5. ARC Centre of Excellence for Transformative Meta-Optical System and Department of Electronic Materials Engineering, Research School of Physics, The Australian National University)

9:15am **TuA1.3 - Self-assembled semiconductor microlaser based on
colloidal nanoplatelets**

» Pedro Alves (United Kingdom)¹, Manoj Sharma (Australia)², Emek Durmusoglu (Singapore)³, Merve İzmir (Singapore)³, Martin Dawson (United Kingdom)⁴, Hilmi Volkan Demir (Singapore)³, Nicolas Laurand (United Kingdom)¹ (1. Institute of Photonics, Department of Physics, University of Strathclyde, 2. Exciton Science, Chemistry Building, University of Monash, 3. Luminous!, School of Electrical and Electronic Engineering, Nanyang Technological University, 4. University of Strathclyde)

9:30am **TuA1.4 - Dispersive self-Q-switching in a microscopic laser**

» Kristian Seegert (Denmark)¹, Yi Yu (Denmark)¹, Mikkel Heuck (Denmark)¹, Jesper Mørk (Denmark)¹ (1. Technical University of Denmark)

8:30am **Microwave Photonics and Vehicular Optics I -
TuB1: Photonic LiDARs 1**

Plaza B
Chaired by: Jean Kalkavage (United States) and Charles Middleton (United States)

8:30am **TuB1.1 - (Invited) Silicon Photonic Integrated Circuits for LiDAR**

» John Bowers (United States)¹, Lin Chang (United States)², Mingxiao Li (United States)², Qiang Lin (United States)³, Weiqiang Xie (United States)², Xingjun Wang (China)⁴, Haowen Shu (China)⁴, Kerry Vahala (United States)⁵, Paolo Pintus (United States)² (1. University of California at Santa Barbara, 2. University of California Santa Barbara, 3. University of Rochester, 4. Peking University, 5. California Institute of Technology)

9am **TuB1.2 - All-Silicon Low Noise Photonic Frontend For LIDAR Applications**

» Ranjan Das (Canada)¹, Yanran Xie (Canada)¹, Andrew Knights (Canada)¹ (1. McMaster University)

9:15am **TuB1.3 - Discretized Multi-Annular Ring Beamforming**

» Aroutin Khachaturian (United States)¹, Artsroun Darbinian (United States)², Reza Fatemi (United States)², Ali Hajimiri (United States)² (1. Caltech, 2. California Institute of Technology)



Continued from Tuesday, 15 November

- 9:30am **TuB1.4 - (Invited) Lasers and frequency combs for massively parallel photonic integrated LiDARs**
» [Johann Riemensberger](#) (Switzerland)¹ (1. Swiss Federal Institute of Technology Lausanne)
- 8:30am **Nano Photonics, Plasmonics, and Metamaterials V - TuC1: Light-matter Interactions in Quantum Materials**
Plaza A
Chaired by: Thomas A. Searles (United States) and Jennifer Choy (United States)
- 8:30am **TuC1.1 - (Invited) Ultrafast quantum optics with hBN single photon emitters**
» Steffen Michaelis de Vasconcellos (Germany)¹, [Robert Schmidt](#) (Germany)¹ (1. University of Münster)
- 9am **TuC1.2 - (Invited) Control of Nanoscale Heat Generation for Spectrally-Selective Thermal Photodetectors**
» Maiken Mikkelsen (United States)¹, [Nathan Wilson](#) (United States)¹ (1. Duke University)
- 9:30am **TuC1.3 - Inverse Design of Solid-state Quantum Emitter Single-photon Sources**
» Emerson G. Melo (Brazil)¹, William Eshbaugh (United States)², Edward B. Flagg (United States)², [Marcelo Davanco](#) (United States)³ (1. University of São Paulo, 2. West Virginia University, 3. National Institute of Standards and Technology)
- 9:45am **TuC1.4 - Multimode Diamond Cavity Optomechanics**
» [Parisa Behjat khatouni](#) (Canada)¹, Praseem Kumar Shandilya (Canada)¹, Bishnupada Behera (Canada)¹, Natalia do Carmo Carvalho (Canada)¹, Paul E. Barclay (Canada)¹ (1. University of Calgary)
- 8:30am **Nonlinear Photonics and Novel Optical Phenomena II - TuD1: Laser Dynamics**
Regency F
Chaired by: Kambiz Jamshidi (Germany) and Alireza Marandi (United States)

- 8:30am **TuD1.1 - Thermal Stabilization of a Brillouin Laser**
» [William Loh](#) (United States)¹, Dave Kharas (United States)¹, Ryan Maxson (United States)¹, Gavin West (United States)², Alex Medeiros (United States)¹, Danielle Braje (United States)¹, Paul Juodawlkis (United States)¹, Robert McConnell (United States)¹ (1. MIT Lincoln Lab, 2. Massachusetts Institute of Technology)
- 8:45am **TuD1.2 - Intensity noise and nonlinear properties of a hybrid plasmonic distributed feedback laser**
» [Di Cui](#) (France)¹ (1. Institut Polytechnique de Paris)
- 9am **TuD1.3 - Gain and cross-saturation effect on injection locking in dual-wavelength lasers**
» Shahab Abdollahi (Belgium)¹, Pablo Marin-Palomo (Belgium)¹, [Martin Virte](#) (Belgium)¹ (1. Brussels Photonics (B-PHOT), Vrije Universiteit Brussel)
- 9:15am **TuD1.4 - Phase-tuned optical feedback for multi-wavelength laser control**
» Mathieu Ladouce (Belgium)¹, Pablo Marin-Palomo (Belgium)¹, [Martin Virte](#) (Belgium)¹ (1. Brussels Photonics (B-PHOT), Vrije Universiteit Brussel)
- 9:30am **TuD1.5 - Time Delay Signature Suppression in Semiconductor Laser with Double Optical Feedback**
» [Robbe de Mey](#) (Belgium)¹, Spencer W. Jolly (Belgium)², Alexandre Locquet (France)³, Martin Virte (Belgium)¹ (1. Brussels Photonics (B-PHOT), Vrije Universiteit Brussel, 2. Service OPERA-Photonique, Université Libre de Bruxelles (ULB), 3. IRL 2958 Georgia Tech-CNRS, Georgia Tech Lorraine)
- 9:45am **TuD1.6 - Properties of FBG feedback and laser dynamics**
» Martin Skënderas (Belgium)¹, Spencer W. Jolly (Belgium)², Martin Virte (Belgium)¹, [Robbe de Mey](#) (Belgium)¹ (1. Brussels Photonics (B-PHOT), Vrije Universiteit Brussel, 2. Service OPERA-Photonique, Université Libre de Bruxelles)



Continued from Tuesday, 15 November

8:30am Optical Communication: Devices, Interconnects and Subsystems IV - TuE1: Modulators

Regency E

Chaired by: Giovanni Milione (United States) and Philip Ji (United States)

8:30am TuE1.1 - (Invited) Strategies for thick waveguide interfacing on SOI

» Frederic Gardes (United Kingdom)¹, Ilias Skandalos (United Kingdom)², Thalia Dominguez Bucio (United Kingdom)¹, Teerapat Rutirawut (United Kingdom)¹, Lorenzo Mastronardi (United Kingdom)¹ (1. Optoelectronics Research Centre (ORC), University of Southampton, 2. Optoelectronics Research Centre (ORC),)

9am TuE1.2 - 30 Gb/s NRZ Transmission with Lumped-Element Silicon Photonic Mach-Zehnder Modulator

» Simone Cammarata (Italy)¹, Philippe Velha (Italy)², Fabrizio Palla (Italy)³, Fabrizio Di Pasquale (Italy)⁴, Sergio Saponara (Italy)¹, Stefano Faralli (Italy)⁴ (1. Dipartimento di Ingegneria dell'Informazione - Università di Pisa, 2. Dipartimento di Ingegneria e Scienza dell'Informazione - Università di Trento, 3. Istituto Nazionale di Fisica Nucleare - Sezione di Pisa, 4. Istituto di Intelligenza Meccanica - Scuola Superiore Sant'Anna)

9:15am TuE1.3 - Current-Driven Magneto-Optic Modulator for Low-Impedance Superconducting Circuits

» Paolo Pintus (United States)¹, Leonardo Ranzani (United States)², Sergio Pinna (United States)¹, Duanni Huang (United States)¹, Martin V. Gustafsson (United States)², Fotini Karinou (United Kingdom)³, Giovanni Andrea Casula (Italy)⁴, Yuya Shoji (Japan)⁵, Yota Takamura (Japan)⁶, Tetsuya Mizumoto (Japan)⁵, Mohammad Soltani (United States)², John E. Bowers (United States)¹ (1. University of California Santa Barbara, 2. Raytheon BBN Technologies, 3. Microsoft Research Ltd, 4. University of Cagliari, 5. Tokyo Institute of Technology, 6. Tokyo)

9:30am TuE1.4 - Highly Oriented PZT Films on MgO (002) Platform for Electro-Optic Modulation

» Suraj Suraj (India)¹, Shankar Kumar Selvaraja (India)¹ (1. Indian Institute of Science, Bengaluru)

9:45am TuE1.5 - A High-Speed EML on Sub-mount for 200G PAM4

» mizuki shirao (Japan)¹, Hiroshi Miura (Japan)¹, Takuma Fujita (Japan)¹, Shinya Okuda (Japan)², Asami Uchiyama (Japan)², Nobuo Ohata (Japan)¹ (1. Information Technology Research and Development Center, Mitsubishi Electric Corporation, 2. High Frequency and Optical Devices Works, Mitsubishi Electric Corporation)

8:30am Optical Communication and Networks IV - TuF1: Modulation and Detection Systems

Plaza C

Chaired by: Vincent Houtsma (United States)

8:30am TuF1.1 - (Invited) Ultrahigh-symbol-rate intensity modulation and direct detection systems

» Qian Hu (United States)¹ (1. Nokia Bell Labs)

9am TuF1.2 - Iterative Field Reconstruction in Direct-Detection Receiver Using the Fienup Input-Output Algorithm

» Masayuki Matsumoto (Japan)¹ (1. Wakayama University)

9:15am TuF1.3 - Mode Vector Modulation Direct-Detection Receivers with Linear Hardware Complexity

» Jaroslaw Kwapisz (United States)¹, Ioannis Roudas (United States)¹, Eric Fink (United States)¹, Aishik Biswas (United States)¹ (1. Montana State University)

9:30am TuF1.4 - Multi-Dimensional Optical Transmission based on QAM-PIRFSK-DPSK Optical Modulation

» Inho Ha (Korea, Republic of)¹, Jounghoon Lee (Korea, Republic of)², Jinwoo Park (Korea, Republic of)², Sang-Kook Han (Korea, Republic of)² (1. Yonsei, 2. Yonsei University)

9:45am TuF1.5 - Experimental Demonstration of an Optical Half-Adder of Two 4-PSK, 10-Gbit/s Channels using Nonlinear Wave Mixing

» Hao Song (United States)¹, Kaiheng Zou (United States)¹, Narek Karapetyan (United States)¹, Amir Minoofar (United States)¹, Huibin Zhou (United States)¹, Xinzhou Su (United States)¹, Ahmed Almainan (Saudi Arabia)², Jonathan Habif (United States)¹, Moshe Tur (Israel)³, Alan Willner (United States)¹ (1. University of Southern California, 2. King Saud University, 3. Tel Aviv University)



Continued from Tuesday, 15 November			
8:30am	Materials, Foundries and Fabrication III - TuG1: Emerging Material Platforms <i>Regency B</i> Chaired by: Wei Shi (Canada) and Molly Piels (United States)	8:30am	TuH1.1 - (Invited) 3D phase imaging for multiple scattering samples » Shwetadwip Chowdhury (United States) ¹ (1. UT Austin)
8:30am	TuG1.1 - Ferroelectric ScAlN: Epitaxy, Properties, and Emerging Photonic Device Applications » Jiangnan Liu (United States) ¹ , Walter Shin (United States) ¹ , Ping Wang (United States) ¹ , Ding Wang (United States) ¹ , Mohammad Soltani (United States) ² , Zetian Mi (United States) ¹ (1. University of Michigan, 2. Raytheon BBN Technologies)	9am	TuH1.2 - (Invited) Holographic light field synthesis for 3D image synthesis and optogenetic neuromodulation » Nicolas Pegard (United States) ¹ (1. the University of North Carolina at Chapel Hill)
8:45am	TuG1.2 - Elastic properties of amorphous thin film oxides » CARMEN MENONI (United States) ¹ , Mariana Fazio (United States) ² , Le Yang (United States) ¹ , Alena Ananyeva (United States) ³ , Gabriele Vagente (United States) ³ (1. COLORADO STATE UNIVERSITY, 2. Colorado State Univer, 3. LIGO Lab, Caltech)	9:30am	TuH1.3 - Microfabricated Low-Profile High Tunable LC Fresnel Lens for Smart Contacts » Aishwaryadev Banerjee (United States) ¹ , Chayanjit Ghosh (United States) ¹ , Mohit Karkhanis (United States) ¹ , Adwait Deshpande (United States) ¹ , Erfan Pourshaban (United States) ¹ , Hanseup Kim (United States) ¹ , Carlos Mastrangelo (United States) ¹ (1. University of Utah)
9am	TuG1.3 - (Invited) Optical phase-change materials for neuromorphic photonic processes » Shankar Kumar Selvaraja (India) ¹ , Rakshitha Kallega (India) ¹ , Roopali Shekhawat (India) ¹ , Ramesh Karuppannan (India) ¹ (1. Indian Institute of Science, Bengaluru)	10am	Coffee Break & Exhibits <i>Regency Foyer</i>
9:30am	TuG1.4 - MoOx: A transparent phase change material for integrated photonics applications? » Sandeep Seema Saseendran (Belgium) ¹ , Tangla David Kongnyuy (Belgium) ¹ , Bruno Figeys (Belgium) ¹ , Kamal John Sundar (Belgium) ¹ , Jean Philippe Soulie (Belgium) ¹ , Danny Goossens (Belgium) ¹ , Shreya Kundu (Belgium) ¹ , Roelof Jansen (Belgium) ¹ , Xavier Rottenberg (Belgium) ¹ , Philippe Soussan (Belgium) ¹ (1. IMEC)	10:30am	Detection, Sensing, and Energy III - TuA2: Avalanche Photodetectors <i>Georgia A</i> Chaired by: Siamak Forouhar (United States) and Prof. Deep Jariwala (United States)
8:30am	Biophotonics and Medical Optics III - TuH1: Light in Three-dimensions <i>Regency A</i> Chaired by: Brian Applegate (United States) and Marinko Sarunic (United Kingdom)	10:30am	TuA2.1 - (Invited) Recent Advances in Low-Noise Avalanche Photodiodes » Joe Campbell (United States) ¹ , Seth Bank (United States) ² (1. University of Virginia, 2. University of Texas at Austin)
		11am	TuA2.2 - (Best Student Paper Finalist) High-Speed Waveguide Integrated Avalanche Photodiode on InP » Tobias Beckerwerth (Germany) ¹ , Hendrik Boerma (Germany) ¹ , Trung Thanh Tran (Germany) ¹ , Felix Ganzer (Germany) ¹ , Patrick Runge (Germany) ¹ , Martin Schell (Germany) ¹ (1. HHI Fraunhofer)
		11:15am	TuA2.3 - Temperature-compensated Biasing for Single-photon Avalanche Diode Sensors » Wei Jiang (Canada) ¹ , M. Jamal Deen (Canada) ¹ (1. McMaster University)



Continued from Tuesday, 15 November

- 11:30am **TuA2.4 - InGaAs/InP single photon avalanche diodes for quantum communication and sensing**
» [Pascal Rustige](#) (Germany)¹, Lorenz Eckoldt (Germany)¹, Alwaleed Fleeahan (Germany)¹, Felix Ganzer (Germany)¹, Patrick Runge (Germany)¹, Martin Schell (Germany)¹ (1. Fraunhofer Heinrich Hertz Institute)
- 11:45am **TuA2.5 - Junction Design Guideline of Silicon Single-Photon Avalanche Diodes for Edge Breakdown Suppression**
» [Haewon Lee](#) (Korea, Republic of)¹, Dongseok Shin (Korea, Republic of)¹, Hyejeong Choi (Korea, Republic of)¹, Ilgu Yun (Korea, Republic of)¹ (1. Yonsei University)
- 12pm **TuA2.6 - Power handling capability of all-silicon avalanche photodetector operating at 1550 nm**
» [Yanran Xie](#) (Canada)¹, Ranjan Das (Canada)¹, Andrew Knights (Canada)¹ (1. McMaster University)
- 10:30am **Microwave Photonics and Vehicular Optics II - TuB2: Photonic LiDARs 2**
Plaza B
Chaired by: Jean Kalkavage (United States) and Charles Middleton (United States)
- 10:30am **TuB2.1 - (Invited) Microwave photonic beamformers in a hybrid InP-SiN integrated PIC**
» [Chris Roeloffzen](#) (Netherlands)¹ (1. LioniX International)
- 11am **TuB2.2 - High-Resolution Wide-Angle Lidar Using Counter-Propagating Beams with Orthogonal Polarizations**
» [He Yuxuan](#) (China)¹, Qiang Wang (China)², Zhongqi Pan (United States)³, Yang Yue (China)⁴ (1. Institute of Modern Optics, Nankai University, 2. Angle AI (Tianjin) Technology Company Ltd, 3. Department of Electrical & Computer Engineering, University of Louisiana at Lafayette, 4. School of Information and Communications Engineering, Xi'an Jiaotong University)

- 11:15am **TuB2.3 - Integrated Optical Beam Scanning and FMCW Ranging using Multiplexed Tunable Lasers**
» [Wim Bogaerts](#) (Belgium)¹, Mennatallah Kandil (Belgium)², Marcus S. Dahlem (Belgium)³ (1. Ghent University - IMEC, 2. IMEC vzw, 3. IMEC vzw)
- 11:30am **TuB2.4 - Highly linear FMCW signal using an InP integrated tunable laser**
» [Limeng Zhang](#) (Netherlands)¹, Florian Lemaitre (Netherlands)¹, Marco Gagino (Netherlands)¹, Sylwester Latkowski (Netherlands)¹, Kevin Williams (Netherlands)¹, Victor Dolores-Calzadilla (Netherlands)¹ (1. Eindhoven Hendrik Casimir Institute, Technical University Eindhoven)
- 11:45am **TuB2.5 - (Best Student Paper Finalist) Coherent Doppler LiDAR using Novel MEMS-based Optical Phased Array Scanner**
» Sean Wolfe (Japan)¹, [Naoki Yamaguchi](#) (Japan)¹, Yuki Ashida (Japan)², Sze Yun Set (Japan)¹, Shinji Yamashita (Japan)¹ (1. University of Tokyo, 2. SCREEN Holdings Co., Ltd.)
- 10:30am **Nano Photonics, Plasmonics, and Metamaterials VI - TuC2: Light-matter Interactions in Resonant Structures**
Plaza A
Chaired by: Parag Deotare (United States) and Jennifer Choy (United States)
- 10:30am **TuC2.1 - (Invited) Strong light-matter coupling with resonant nanophotonic structures**
» [Jaime Gomez Rivas](#) (Netherlands)¹ (1. Eindhoven University of Technology)
- 11am **TuC2.2 - High-Throughput Fabrication of Plasmonic Nanogap Arrays for Surface-Enhanced Raman Spectroscopy**
» [Sihai Luo](#) (Norway)¹, Andrea Mancini (Germany)², Stefan Maier (Germany)², John de Mello (Norway)¹ (1. NTNU, 2. University of Munich)
- 11:15am **TuC2.3 - Carrier dynamics in nonlinear photonic nanocavities with extreme dielectric confinement**
» [Marco Saldutti](#) (Denmark)¹, Yi Yu (Denmark)¹, Philip Trøst Kristensen (Denmark)¹, George Kountouris (Denmark)¹, Jesper Mørk (Denmark)¹ (1. Technical University of Denmark)



Continued from Tuesday, 15 November

- 11:30am **TuC2.4 - Double Strong Coupling in Perovskite and WS₂ Monolayer Based on High-Q Mode**
» [Ibrahim Al-Ani](#) (Australia)¹, Nusrat Alim (Australia)¹, Khalil As'Ham (Australia)¹, Mohammed Alaloul (Australia)¹, Lujun Huang (Australia)¹, Andrey Miroshnichenko (Australia)¹, Haroldo Hattori (Australia)¹ (1. UNSW CANBERRA)
- 11:45am **TuC2.5 - Design and fabrication of a subwavelength perforated infrared absorber with reduced thermal mass**
» Avijit Das (United States)¹, Merlin Mah (United States)¹, [Joseph Talghader](#) (United States)¹ (1. University of Minnesota Twin Cities)
- 10:30am **Nonlinear Photonics and Novel Optical Phenomena III - TuD2: Nonlinear Resonators**
Regency F
Chaired by: Ryan Hamerly (United States) and Alireza Marandi (United States)
- 10:30am **TuD2.1 - Suppression of intrinsic backscattering in integrated optical resonators via acoustic pumping**
» [Ogulcan Orsel](#) (United States)¹, Jiho Noh (United States)¹, Gaurav Bahl (United States)¹ (1. University of Illinois Urbana-Champaign)
- 10:45am **TuD2.2 - Conditions for Dual-pumped Optical Parametric Oscillation in Silicon Nitride Ring Cavities**
» Menglong He (Germany)¹, [Kambiz Jamshidi](#) (Germany)¹ (1. Technische Universität Dresden)
- 11am **TuD2.3 - Determining the Transverse Mode that Produces Frequency Combs in Microresonators**
» [Logan Courtright](#) (United States)¹, Zhen Qi (United States)¹, Thomas F. Carruthers (United States)¹, Curtis Menyuk (United States)¹, Tanvir Mahmood (United States)², Sang-Yeon Cho (United States)³, James Cahill (United States)², Weimin Zhou (United States)² (1. University of Maryland, Baltimore County, 2. Army Research Laboratory, 3. DEVCOM)

- 10:30am **Optical Communication: Devices, Interconnects and Subsystems V - TuE2: Signal Processing**
Regency E
Chaired by: Giovanni Milione (United States)
- 10:30am **TuE2.1 - (Invited) Ultrahigh-Q on-chip SiGe microresonators for microwave-optical quantum transduction**
» [Chi Xiong](#) (United States)¹, Ryan Schilling (Switzerland)¹, Swetha Kamapurkar (United States)¹, Abram Falk (United States)¹, Nathan Marchack (United States)¹, Stephen Bedell (United States)², Richard Haight (United States)¹, Christopher Scerbo (United States)¹, Hanhee Paik (United States)¹, Jason Orcutt (United States)¹ (1. IBM Quantum, 2. IBM)
- 11am **TuE2.2 - Group-velocity Dispersion Compensation over a 70.56-km Fibre-optic Telecom Link using a cm-long In-fibre Device**
» Saket Kaushal (Canada)¹, Anthony Roberge (Canada)², Raman Kashyap (Canada)², [Jose Azana](#) (Canada)¹ (1. Institut national de la recherche scientifique (INRS), 2. polytechnique montreal)
- 11:15am **TuE2.3 - Optical Heterodyning with FP Laser based Comb Source for 65 GHz MMW Generation**
» [Rangana Banerjee Chaudhuri](#) (Ireland)¹, Haixuan Xu (China)², Lakshmi Narayanan Venkatasubramani (Ireland)¹, Amol Delmade (Ireland)¹, Colm Browning (Ireland)¹, Yonglin Yu (China)², Liam Barry (Ireland)¹ (1. Dublin City University, 2. Huazhong University of Science and Technology)
- 11:30am **TuE2.4 - Gated Recurrent Neural Networks based Pre-Distortion for Digital-to-Analog Converter**
» [Hamza Imtiaz](#) (Canada)¹, Zibo Zheng (Canada)², Rizan Homayoun Nejad (Canada)³, Ming Zeng (Canada)⁴, Leslie Rusch (Canada)¹ (1. Center for Optics, Photonics and Lasers (COPL), ECE Department, Université Laval, 2. laval, 3. Université Laval, 4. Centre d'optique, photonique et laser (COPL), Université Laval)



Continued from Tuesday, 15 November

- 11:45am **TuE2.5 - Linear and Nonlinear Compensation for High Baud Rate QAM Transmission with Silicon Modulator**
» [Zibo Zheng](#) (Canada)¹, Abdolkhalegh Mohammadi (Canada)¹, Xiaoguang Zhang (China)², Wei Shi (Canada)¹, Leslie Rusch (Canada)³ (1. Centre d'optique, photonique et laser (COPL), Université Laval, 2. Beijing University of Posts and Telecommunications, 3. Center for Optics, Photonics and Lasers (COPL), ECE Department, Université Laval)
- 10:30am **Optical Communication and Networks V - TuF2: RoF and Free Space Optical Systems**
Plaza C
Chaired by: Stephen Ralph (United States)
- 10:30am **TuF2.1 - Gb/s Optical Wireless Communications up to 17 metres using a UV-C Micro-Light-Emitting Diode**
» [Daniel Maclure](#) (United Kingdom)¹, Jonathan McKendry (United Kingdom)¹, Cheng Chen (United Kingdom)¹, Enyuan Xie (United Kingdom)¹, Jordan Hill (United Kingdom)¹, Erdan Gu (United Kingdom)¹, Johannes Herrnsdorf (United Kingdom)¹, Harald Haas (United Kingdom)¹, Martin Dawson (United Kingdom)¹ (1. University of Strathclyde)
- 10:45am **TuF2.2 - Investigation of wavy surface impact on non-line-of-sight underwater optical wireless communication**
» [Chengwei Fang](#) (Australia)¹, Shuo Li (Australia)¹, Ke Wang (Australia)¹ (1. RMIT)
- 11am **TuF2.3 - Detection of Non-Line-of-Sight Contributions for Visible Light Positioning by Polarization**
» Jorik De Bruycker (Belgium)¹, Willem Raes (Belgium)¹, Stanislav Zvánovec (Czech Republic)², [Nobby Stevens](#) (Belgium)¹ (1. KU Leuven, WaveCore, ESAT, 2. Department of Electromagnetic Field, Czech Technical University)

- 11:15am **TuF2.4 - Constant-Envelope Modulation of Orbital Angular Momentum Modes with 25 Gbit/s Underwater Optical Communication through Turbidity**
» Eric Johnson (United States)¹, [Evan Robertson](#) (United States)¹, Kunjian Dai (United States)¹, Jaxon Wiley (United States)¹, Justin Free (United States)¹, Keith Miller (United States)¹ (1. Clemson University)
- 10:30am **Quantum Photonics III - TuG2: Quantum Photonic Computation**
Regency B
Chaired by: Michael Brodsky (United States)
- 10:30am **TuG2.1 - Modeling integrated quantum frequency processors**
» Benjamin Nussbaum (United States)¹, Andrew Pizzimenti (United States)², Navin Lingaraju (United States)³, [Hsuan-Hao Lu](#) (Taiwan)⁴, Joseph Lukens (United States)⁴ (1. University of Illinois Urbana-Champaign, 2. University of Arizona, 3. navin.lingaraju@sri.com, 4. Oak Ridge National Laboratory)
- 10:45am **TuG2.2 - (Invited) Fault-tolerant photonic quantum computing**
» [Zachary Vernon](#) (Canada)¹ (1. Xanadu)
- 11:15am **TuG2.3 - Quantum Photonic Chip for Binary Classification of Financial Data**
» [LIN HEXIANG](#) (Singapore)¹, Hui Zhang (Singapore)¹, Lingxiao Wan (Singapore)¹, Muhammad Faeyz Karim (Singapore)¹, Hong Cai (Singapore)², Kwek Leong Chuan (Singapore)³, Aiqun Liu (Singapore)⁴ (1. School of Electrical and Electronic Engineering, Nanyang Technological University, 2. Institute of Microelectronics, 3. National University of Singapore, 4. Nanyang Technological University)
- 10:30am **Biophotonics and Medical Optics IV - TuH2: Novel Techniques**
Regency A
Chaired by: Peter Munro (United Kingdom) and Francisco (Paco) Robles (United States)



Continued from Tuesday, 15 November

10:30am **TuH2.1 - (Invited) Single-shot Photoluminescence Lifetime Imaging Thermometry (SPLIT)**

» [Jinyang Liang](#) (Canada)¹ (1. Institut national de la recherche scientifique (INRS))

11am **TuH2.2 - VCSEL Arrays as Chip Scale Sources for Ultra-High Density Diffuse Optical Tomography**

» [Ning Zhang](#) (United States)¹, [Quan Zhang](#) (United States)², [Kent Choquette](#) (United States)³, [Arto Nurmikko](#) (United States)¹ (1. Brown University, 2. Massachusetts General Hospital, Harvard Medical School, 3. University of Illinois)

11:15am **TuH2.3 - On-chip structured illumination microscopy (cSIM) with large imaging area**

» [Firehun Tsige Dullo](#) (Norway)¹, [Nikhil Jayakumar](#) (Norway)², [Karolina Milenko](#) (Norway)³, [Balpreet Singh Ahluwalia](#) (Norway)⁴ (1. SINTEF Digital, 2. dept. of Physics and Technology, UiT-The Arctic University of Norway, Tromsø 9037, 3. dept. of Smart Sensors and Microsystems, SINTEF Digital, Oslo 0373, 4. University of Tromsø (UiT))

11:30am **TuH2.4 - Photonic chip for high-contrast and high-resolution label-free optical microscopy of nano-particles**

» [Nikhil Jayakumar](#) (Norway)¹, [Balpreet Singh Ahluwalia](#) (Norway)¹, [Firehun Tsige Dullo](#) (Norway)² (1. University of Tromsø (UiT), 2. SINTEF Digital)

12pm **STEM Outreach Luncheon (Pre-registration required. Space is limited.)**

Georgia B

1:30pm **Light Sources IV - TuA3: Laser Spectral Control**

Georgia A

Chaired by: Frederic Grillot (France)

1:30pm

TuA3.1 - (Invited) Dual-wavelength laser in the C-band with narrow-linewidth reduced by optical feedback

» [Mónica Far Brusatori](#) (Denmark)¹, [Holger Klein](#) (United States)², [Nicolas Volet](#) (Denmark)¹ (1. Aarhus University, 2. OE Solutions America)

2pm

TuA3.2 - Flat Comb Convolution on Deeply Phase Modulated Light for Broader Spectral Enhancement of Comb Generation

» [Tatsuki Ishijima](#) (Japan)¹, [Takahide Sakamoto](#) (Japan)² (1. Tokyo Metropolitan University, 2. TMU)

2:15pm

TuA3.3 - Wavelength stabilization of Fabry-Perot tunable filter based wavelength-swept laser for dynamic fiber-optic sensors

» [Byeong Kwon Choi](#) (Korea, Republic of)¹, [Soyeon Ahn](#) (Korea, Republic of)¹, [Ji Su Kim](#) (Korea, Republic of)¹, [Srinivas Pagidi](#) (Korea, Republic of)¹, [Min Yong Jeon](#) (Korea, Republic of)¹ (1. Chungnam National University)

1:30pm

Microwave Photonics and Vehicular Optics III - TuB3: Optical Frequency Combs

Plaza B

Chaired by: David Moilanen (United States) and Charles Middleton (United States)

1:30pm

TuB3.1 - (Laser Instrumentation Award) Breaking the Electronic Jitter Wall with Femtosecond Technology

» [Prof. Franz Kärtner](#) (Germany)¹ (1. Deutsches Elektronen-Synchrotron DESY and Universität Hamburg, and Cycle GmbH)

2pm

TuB3.2 - (Invited) Silicon photonic subwavelength grating waveguide Bragg gratings for microwave photonic signal processing

» [Lawrence Chen](#) (Canada)¹, [Hao Sun](#) (Canada)¹, [Bruno Taglietti](#) (Canada)¹, [Yue Wang](#) (China)², [Xi Wang](#) (Canada)¹, [Sehr Moosabhoy](#) (Canada)¹ (1. McGill University, 2. China University of Mining and Technology)

2:30pm

TuB3.3 - (Invited) Hybrid ultralow-loss integrated silicon nitride nonlinear photonics

» [Jungqiu Liu](#) (China)¹ (1. University of Science and Technology of China (USTC))



Continued from Tuesday, 15 November

1:30pm **Nano Photonics, Plasmonics, and Metamaterials VII - TuC3: Topological Photonics**
Plaza A
Chaired by: Jennifer Choy (United States) and Thomas A. Searles (United States)

1:30pm **TuC3.1 - (Invited) Topological photonics in 3D micro-printed systems**
» [Christina Joerg](#) (United States)¹ (1. Penn State University)

2pm **TuC3.2 - Single-mode emission from a monolithically integrated III-V/Si topological lattice**
» [Markus Scherrer](#) (Switzerland)¹, Seonyeong Kim (Korea, Republic of)², Balz Hedinger (Switzerland)¹, Hee Jin Choi (Korea, Republic of)², Heinz Schmid (Switzerland)¹, Chang-Won Lee (Korea, Republic of)², Kirsten Moselund (Switzerland)³ (1. IBM Research Europe - Zurich, 2. Hanbat National University, 3. Paul Scherrer Institute)

2:15pm **TuC3.3 - Robust programmable PIC platform based on topological photonic insulator lattice**
» [Hanfa Song](#) (Canada)¹, Vien Van (Canada)¹ (1. University of Alberta)

1:30pm **Special Symposia on Advances in Neurophotonics II - TuD3: Advances in Neurophotonics II**
Regency F
Chaired by: Nisan Ozana (United States)

1:30pm **TuD3.1 - (Invited) Two-person multimodal imaging using functional near infrared spectroscopy reveals neural mechanisms for emotional contagion**
» [Joy Hirsch](#) (United States)¹ (1. Yale University)

2pm **TuD3.2 - (Invited) Advances in non-invasive tissue perfusion monitoring with diffuse correlation spectroscopy**
» [Stefan Carp](#) (United States)¹ (1. Optics at Martinos Research Group, Massachusetts General Hospital, Harvard Medical School)

2:30pm **TuD3.3 - (Invited) Illuminating Biomarkers of Stroke with Diffuse Optical Spectroscopies**
» [Rowan Brothers](#) (United States)¹ (1. Emory University)

1:30pm **Optical AI and Computational Photonics III - TuE3: Integrated Photonics in Artificial Intelligence**
Regency E
Chaired by: Bassem Tossoun (United States)

1:30pm **TuE3.1 - (Invited) High-density Integrated Photonic Tensor Processing Unit with a Matrix Multiply Compile**
» [Hamed Dalir](#) (United States)¹, Behrouz Movahhed Nouri (United States)¹, Xiaoxuan Ma (United States)¹, Nicola Peserico (United States)², Bhavin Shastri (Canada)³, Volker Sorger (United States)² (1. Optelligence LLC, 2. The George Washington university, 3. Queen's University)

2pm **TuE3.2 - AnalogVNN: A Fully Modular Framework for Photonic Analog Neural Networks**
» [Vivswan Shah](#) (United States)¹, Nathan Youngblood (United States)¹ (1. University of Pittsburgh)

2:15pm **TuE3.3 - A High-Speed Photonic Tensor Accelerator**
» [Alireza Fardoost](#) (United States)¹, Fatemeh Ghaedi Vanani (United States)¹, Zheyuan Zhu (United States)¹, Christopher Doerr (United States)², Shuo Pang (United States)¹, Guifang Li (United States)¹ (1. CREOL, University of Central Florida (UCF), 2. Aloe Semiconductor, Inc)

2:30pm **TuE3.4 - Spectral emissivity prediction in multi-resonant systems**
» Romil Audhkhasi (United States)¹, [Michelle Povinelli](#) (United States)¹ (1. University of Southern California)

2:45pm **TuE3.5 - FFT-based Convolution Neural Network on Silicon Photonics Platform**
» Nicola Peserico (United States)¹, Hangbo Yang (United States)², Xiaoxuan Ma (United States)¹, Mostafa Hosseini (United States)², Puneet Gupta (United States)², Volker Sorger (United States)¹, [Hamed Dalir](#) (Colombia)³ (1. George Washington University, 2. University of California, Los Angeles, 3. Optelligence LLC)



Continued from Tuesday, 15 November

1:30pm **Optical Communication and Networks VI -
TuF3: Novel Technologies for Computing & High Capacity
Transmission**

Plaza C

Chaired by: Fatima Gunning (Ireland)

1:30pm **TuF3.1 - (Tutorial) Scaling capacity of fiber-optic transmission
systems with silicon photonics**

» Wei Shi (Canada)¹ (1. Centre d'optique, photonique et laser (COPL), Université Laval)

2:15pm **TuF3.2 - (Best Student Paper Finalist) EDFA-Free Net 500 Gbps
Transmission over 2 km Using a Thin-Film Lithium Niobate IQM**

» Essam Berikaa (Canada)¹, Md Samiul Alam (Canada)¹, David V. Plant (Canada)¹ (1. McGill University)

2:30pm **TuF3.3 - High Bandwidth Thin-Film Lithium Niobate MZM for Net
300 Gbps/λ IM/DD Transmission**

» Md Samiul Alam (Canada)¹, Essam Berikaa (Canada)¹, David V. Plant (Canada)¹ (1. McGill University)

2:45pm **TuF3.4 - (Invited) Optical Computing Fundamentals and
Applications**

» Chris Cole (United States)¹ (1. II-VI Incorporated)

1:30pm **Materials, Foundries and Fabrication IV -
TuG3: Components, Subsystems and Integration Technologies**

Regency B

Chaired by: Dr. Frederick Kish (United States) and Molly Piels (United States)

1:30pm **TuG3.1 - Si₃N₄ Waveguide Polarization Components for Atomic
Systems**

» Kevin Gallacher (United Kingdom)¹, Paul Griffin (United Kingdom)², Erling Riis (United Kingdom)², Marc Sorel (United Kingdom)¹, Douglas Paul (United Kingdom)¹ (1. University of Glasgow, 2. University of Strathclyde)

1:45pm

**TuG3.2 - Silicon Photonics Optical Mode Division Multiplexer
integrated with internal modulators**

» Yi-jen Chiu (Taiwan)¹, Rih-You Chen (Taiwan)¹, Zhen-feng Huang (Taiwan)¹ (1. National Sun Yat-sen University)

2pm

**TuG3.3 - Synthesis of Narrowband Spectral Filters in Active
Photonic Multi-Project Wafer Runs**

» Saleha Fatema (United States)¹, Lucas Cohen (United States)¹, Navin Lingaraju (United States)², Andrew Weiner (United States)¹ (1. Purdue University, 2. navin.lingaraju@sri.com)

2:15pm

**TuG3.4 - Compact Inverse Designed Integrated 1 x 3 Silicon Nitride
Balanced Optical Power Splitter**

» Joel Slaby (United States)¹, Alec Hammond (United States)¹, Stephen Ralph (United States)¹ (1. Georgia Institute of Technology)

2:30pm

**TuG3.5 - (Invited) Membrane InP-based Optical Modulators on Si
Platform**

» Tatsuro Hiraki (Japan)¹, Takuma Aihara (Japan)¹, Yoshiho Maeda (Japan)¹, Takuro Fujii (Japan)¹, Koji Takeda (Japan)¹, Tomonari Sato (Japan)¹, Tai Tsuchizawa (Japan)¹, Kiyoto Takahata (Japan)², Takaaki Kakitsuka (Japan)², Shinji Matsuo (Japan)¹ (1. NTT Device Technology Labs, NTT Corporation, 2. Graduate School of Information, Production and Systems, Waseda University)

1:30pm

**Biophotonics and Medical Optics V -
TuH3: Computation and Machine Learning**

Regency A

Chaired by: Shwetadwip Chowdhury (United States) and Peter Munro (United Kingdom)

1:30pm

**TuH3.1 - (Tutorial) Quantitative oblique back illumination
microscopy**

» Francisco (Paco) Robles (United States)¹ (1. Georgia Institute of Technology)



Continued from Tuesday, 15 November

- 2:15pm **TuH3.2 - Label-Free Hyperspectral Imaging and Deep-Learning Prediction of Retinal Amyloid β -Protein and Phosphorylated Tau**
 » [Xiaoxi Du](#) (United States)¹, Yosef Koronyo (United States)², Chengshuai Yang (United States)¹, Maya Koronyo (United States)², Liang Gao (United States)¹ (1. University of California, Los Angeles, 2. Cedars-Sinai Medical Center)
- 2:30pm **TuH3.3 - Laser speckle image analysis and classification of atherosclerotic plaques from carotid artery phantoms**
 » [Anoosha Venkatraman Hegde](#) (India)¹, Sujatha Narayanan Unni (India)² (1. Dept of Applied mechanics, Indian Institute of Technology Madras, 2. Department of Applied mechanics, Indian Institute of Technology Madras)
- 3pm **Coffee Break & Exhibits**
Regency Foyer
- 3:30pm **TuI4: Plenary Session I**
Regency CD
 Chaired by: Weidong Zhou (United States)
- 3:30pm **TuI4.1 (Plenary) Lighting Up the Brain: Implantable Neural Probes Using Wafer-scale Integrated Photonics**
 » [Prof. Joyce Poon](#) (Canada)¹ (1. Max Planck Institute of Microstructure Physics, Germany and the University of Toronto, Canada)
- 4:15pm **TuI4.2 (Plenary) Large-Scale Integrated Photonics for Accelerated Communication and Computing**
 » [Dr. Raymond Beausoleil](#) (United States)¹ (1. Senior Fellow & Senior Vice President Director, Large-Scale Integrated Photonics Lab, Hewlett Packard Enterprise (HPE))
- 5pm **Symposium on Globalization in Photonics Research & Development**
Georgia B
 Chaired by: Paul Crump (Germany) and Fatima Gunning (Ireland)

Wednesday, 16 November

- 8:30am **Nonlinear Photonics and Novel Optical Phenomena IV - WA1: Ultrashort Pulses**
Balmoral
 Chaired by: Scott Papp (United States) and Alireza Marandi (United States)
- 8:30am **WA1.1 - (Invited) Stochastic and quantum phenomena in microcombs**
 » Fengyu Liu (United States)¹, [Yanne Chembo](#) (United States)¹ (1. University of Maryland)
- 9am **WA1.1 - Q-switched and Mode-locked fiber laser Based on Uracil doped DNA thin solid film saturable absorber**
 » [Marjan Ghasemi](#) (Korea, Republic of)¹, Pulak Debnath (Korea, Republic of)², Byungjoo Kim (Korea, Republic of)³, Dong Il Yeom (Korea, Republic of)⁴, Kyunghwan Oh (Korea, Republic of)¹ (1. Department of Physics, Yonsei University, 2. Department of Physics, Ajou University, 3. Center of quantum information, KIST, 4. Department of physics)
- 9:15am **WA1.3 - (Invited) Attosecond X-ray free-electron lasers**
 » [Agostino Marinelli](#) (United States)¹ (1. SLAC, Stanford University)
- 9:45am **WA1.4 - Noise Suppression in a 10 GHz Octave-Spanning Frequency Comb**
 » [Pooja Sekhar](#) (United States)¹, Connor Fredrick (United States)¹, Tsung-Han Wu (United States)¹, Stephanie Swartz (United States)², Scott A. Diddams (United States)¹ (1. National Institute of Standards and Technology Boulder, University of Colorado Boulder, 2. National Institute of Standards and Technology Boulder)



Continued from Wednesday, 16 November			
8:30am	Optical AI and Computational Photonics IV - WB1: Machine Learning <i>Plaza B</i> Chaired by: Hamed Dalir (United States)		
8:30am	WB1.1 - (Invited) Ultrafast statistical sampling and machine learning using opto-electronic Ising machines » <u>Guy Van der Sande</u> (Belgium) ¹ , Fabian Böhm (Belgium) ¹ , Guy Verschaffelt (Belgium) ¹ (1. Applied Physics Research Group, Vrije Universiteit Brussel)		
9am	WB1.2 - Enhanced photonic time-stretch reservoir computing using all-optical input masks » <u>Yuanli Yue</u> (United Kingdom) ¹ , Shouju Liu (United Kingdom) ¹ , Yanrong Zhai (United Kingdom) ¹ , Chao Wang (United Kingdom) ¹ (1. University of Kent)	9am	WC1.2 - High performance 300mm silicon photonics platform for R&D and product prototyping » <u>bertrand szelag</u> (France) ¹ , Stephanie Garcia (France) ¹ , Laetitia Adelmini (France) ¹ , Munique Kazarmendes (France) ¹ , Sylvain Guerber (France) ¹ , Sara Congia (France) ¹ , Andre Myko (France) ¹ , Philippe Grosse (France) ¹ , Leopold Viot (France) ² , Quentin Wilmart (France) ¹ (1. CEA-LETI, 2. CEA)
9:15am	WB1.3 - Modeling of Optical Matrix Multipliers Using Transposed Convolutional Neural Networks » <u>Ali Cem</u> (Denmark) ¹ , Siqi Yan (China) ² , Uiana Celine de Moura (Denmark) ¹ , Yunhong Ding (Denmark) ¹ , Darko Zibar (Denmark) ¹ , Francesco Da Ros (Denmark) ¹ (1. Technical University of Denmark, 2. Huazhong University of Science and Technology)	9:15am	WC1.3 - Hardware-correlated photonic design on silicon monolithic technology using process-enabled simulation workflow » <u>Seyed Milad Mahpeykar</u> (Canada) ¹ , Jignesh Patel (United States) ² , Xu Wang (Canada) ¹ , Frank Pavlik (United States) ² (1. Ansys Inc., 2. GLOBALFOUNDRIES Inc)
8:30am	Materials, Foundries, and Fabrication V - WC1: PIC Technologies for Emerging Applications <i>Plaza A</i> Chaired by: Martijn Heck (Netherlands) and Erik Norberg (United States)	8:30am	WD1: Microwave Photonics 1 <i>Regency F</i> Chaired by: David Moilanen (United States) and Charles Middleton (United States)
8:30am	WC1.1 - (Quantum Electronics Award) System-on-Chip (SoC) InP-Based Photonic ICs for Optical Communications » <u>Dr. Frederick Kish</u> (United States) ¹ (1. North Carolina State University)	8:30am	WD1.1 - (Tutorial) Microwave Photonics: Opportunities and Challenges » <u>Shilong Pan</u> (China) ¹ , Yamei Zhang (China) ¹ (1. Nanjing University of Aeronautics and Astronautics)
		9:30am	WD1.2 - (Invited) Low-noise Photonic Signal Synthesis for mm-wave Radar » <u>Eric Kittlaus</u> (United States) ¹ , Peter Rakich (United States) ² , Ken Cooper (United States) ¹ (1. Jet Propulsion Laboratory, California Institute of Technology, 2. Yale University)
		8:30am	Optical Communication: Devices, Interconnects and Subsystems VI - WE1: Detectors <i>Regency E</i> Chaired by: Giovanni Milione (United States) and Philip Ji (United States)
		8:30am	WE1.1 - Low Crosstalk InP-Based Arrayed Waveguide Grating PIC » <u>Alexander Schindler</u> (Germany) ¹ , Anna-Belle Garten (Germany) ¹ , Hendrik Boerma (Germany) ¹ , Felix Ganzer (Germany) ¹ , Patrick Runge (Germany) ¹ , Martin Schell (Germany) ¹ (1. HHI Fraunhofer)



Continued from Wednesday, 16 November

8:45am **WE1.2 - High speed Si-waveguide coupled III-V photodetectors selectively grown on SOI by lateral MOCVD**
 » Ying XUE (Hong Kong)¹, Yu Han (Hong Kong)¹, Yi Wang (Hong Kong)², JIE LI (Hong Kong)¹, Jingyi Wang (China)³, Zunyue Zhang (Hong Kong)², Xinlun Cai (China)³, Hon Ki Tsang (Hong Kong)², Kei May Lau (Hong Kong)¹ (1. HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY, 2. The Chinese University of Hong Kong, 3. Sun Yat-sen University)

9am **WE1.3 - High-Speed Avalanche Photodiodes with Composite Charge Layer and Flip-Chip Bonding Package for 106 Gbit/sec Transmission**
 » Naseem Naseem (Taiwan)¹, Syed Hasan Parvez (Taiwan)¹, Zohauddin Ahmad (Taiwan)¹, Jin-Wei Shi (Taiwan)¹ (1. National Central University)

9:15am **WE1.4 - Influences of Charge Layer Doping Density in Avalanche Photodiode with Multiple M-Layers Facilitating Higher Saturation Current and Responsivity for FMCW Lidar Applications**
 » Zohauddin Ahmad (Taiwan)¹, Po-Shun Wang (Taiwan)¹, Naseem Naseem (Taiwan)¹, You-Chia Chang (Taiwan)², Jin-Wei Shi (Taiwan)¹ (1. National Central University, 2. National Yang Ming Chiao Tung University)

8:30am **Optical Communication and Networks VII - WF1: Spatial Division Multiplexing**
Plaza C
 Chaired by: Fatima Gunning (Ireland)

8:30am **WF1.1 - (Invited) Scaling up SDM transmission capacity**
 » Filipe Ferreira (United Kingdom)¹, Fabio Aparecido Barbosa (United Kingdom)¹, Alfonso Ruocco (United Kingdom)¹, Mu-Chieh Lo (United Kingdom)¹ (1. University College London)

9am **WF1.2 - 109.3-Tb/s Transmission over a 3,120 km Uncoupled 4-Core Fiber Using Probabilistic Shaping Techniques**
 » Shohei Beppu (Japan)¹, Daiki Soma (Japan)¹, Noboru Yoshikane (Japan)¹, Takehiro Tsuritani (Japan)¹ (1. KDDI Research, Inc.)

9:15am **WF1.3 - Scaling Spatial Multiplexing with Principal Modes**
 » Fabio Aparecido Barbosa (United Kingdom)¹, Filipe Marques Ferreira (United Kingdom)¹ (1. University College London)

9:30am **WF1.4 - Equalizer Complexity in OAM Transmission Systems using a Standard PDM Coherent Receiver**
 » Mai Banawan (Canada)¹, Satyendra K. Mishra (Canada)¹, Ariane Gouin (Canada)¹, Nathalie Bacon (Canada)¹, Xun Guan (Canada)¹, Lixian Wang (Canada)², Sophie LaRochelle (Canada)¹, Leslie Rusch (Canada)¹ (1. Center for Optics, Photonics and Lasers (COPL), ECE Department, Université Laval, 2. Canada Research Center, Huawei Technologies Canada)

9:45am **WF1.5 - Crosstalk analysis in a standard 3-ring core 40-OAM mode fiber for data center application**
 » Rizhan Homayoun Nejad (Canada)¹, Mai Banawan (Canada)², Leslie Rusch (Canada)¹ (1. Université Laval, 2. Center for Optics, Photonics and Lasers (COPL), ECE Department, Université Laval)

8:30am **Detection, Sensing, and Energy IV - WG1: Integrated Photodetection Systems**
Regency B
 Chaired by: Thomas Rotter (United States)

8:30am **WG1.1 - New generation of embedded planar optics for in-situ, through-thickness and real-time strain measurements in carbon fiber reinforced polymer composites during the cure process**
 » Shahrazad Zahertar (United Kingdom)¹, Michael Godfrey (United Kingdom)¹, Martynas Beresna (United Kingdom)¹, Timothy Lee (United Kingdom)¹, Charlie Godfrey (United Kingdom)², Bruno Moog (United Kingdom)¹, Richard Day (United Kingdom)³, Janice Dulieu-Barton (United Kingdom)⁴, Christopher Holmes (United Kingdom)¹ (1. University of Southampton, 2. University of Warwick, 3. Wrexham Glyndwr University, 4. University of Bristol)

8:45am **WG1.2 - Suppression of External Vibrations using an Electrowetting Lens**
 » Eduardo Miscles (United States)¹, Wei Lim (United States)¹, Omkar Supekar (United States)¹, Mo Zohrabi (United States)¹, Juliet Gopinath (United States)¹, Victor Bright (United States)¹, Samuel Gilinsky (United States)¹ (1. University of Colorado Boulder)



Continued from Wednesday, 16 November

9am **WG1.3 - Directional Bending Sensor Using Negative Curvature Fibers with Asymmetric Nested Cladding Tubes**
 » [Chengli Wei](#) (United States)¹, Curtis Menyuk (United States)², Jonathan Hu (United States)³ (1. University of Maryland, Baltimore County, 2. University of Maryland, Baltimore County, 3. Baylor University)

9:15am **WG1.4 - Folding Boundary Reduction in Self-Reset Image Sensor by Double Readout Technique**
 » [Kiyotaka Sasagawa](#) (Japan)¹, Pakpuwadon Thanet (Japan)¹, Makito Haruta (Japan)¹, Hironari Takehara (Japan)¹, Hiroyuki Tashiro (Japan)¹, Jun Ohta (Japan)¹ (1. Nara Institute of Science and Technology)

9:30am **WG1.5 - Exceeding Hardware Limited Bandwidth in Incoherent Optical Frequency Domain Reflectometry**
 » [Lisa-Sophie Haerteis](#) (Germany)¹, Esther Renner (Germany)¹, Bernhard Schmauss (Germany)¹ (1. Friedrich-Alexander-Universität Erlangen-Nürnberg)

9:45am **WG1.6 - Double Slot Micro Ring Resonators with Inner Wall Angular Gratings as Ultra Highly Sensitive Biochemical Sensors**
 » [Weiqing Cheng](#) (United Kingdom)¹, Shengwei Ye (United Kingdom)¹, Xiao Sun (United Kingdom)¹, Bocheng Yuan (United Kingdom)¹, John Marsh (United Kingdom)¹, Lianping Hou (United Kingdom)¹ (1. University of Glasgow)

8:30am **Biophotonics and Medical Optics VI - WH1: Progress in Microscopy I**
Regency A
 Chaired by: Myeong Jin Ju (Canada)

8:30am **WH1.1 - (Invited) Super-resolution imaging of chromatin ultrastructure to improve precision medicine**
 » [Yang Liu](#) (United States)¹, Hongqiang Ma (United States)¹, Jianquan Xu (United States)¹ (1. University of Pittsburgh)

9am **WH1.2 - Full-wave modelling of two-photon microscopy with spatiotemporal focussing**
 » Philip Wijesinghe (United Kingdom)¹, Kishan Dholakia (United Kingdom)¹, [Peter Munro](#) (United Kingdom)² (1. SUPA, School of Physics and Astronomy, University of St Andrews, UK, 2. p.munro@ucl.ac.uk)

9:15am **WH1.3 - Tunable depth illumination with multi-angle TIRF and epi-fluorescence implemented on selective regions in the field-of-view**
 » [Yundon Jeong](#) (Korea, Republic of)¹, Taeseong Woo (Korea, Republic of)², Jung-Hoon Park (Korea, Republic of)¹ (1. Department of Biomedical Engineering, Ulsan National Institute of Science and Technology (UNIST), 2. Department of Biomedical Engineering Ulsan National Institute of Science and Technology (UNIST))

9:30am **WH1.4 - High-speed drift tracking for high-throughput localization microscopy**
 » [Hongqiang Ma](#) (United States)¹, Maomao Chen (United States)¹, Yang Liu (United States)¹ (1. University of Pittsburgh)

10am **Coffee Break & Exhibits**
Regency Foyer

10:30am **Light Sources V - WA2: High Power Emitters and Fiber Lasers**
Balmoral
 Chaired by: Huiyun Liu (United Kingdom)

10:30am **WA2.1 - (Invited) Capture Time as a Limit to Pulsed Power in 940 nm Broad Area Diode Lasers**
 » [Anisuzzaman Boni](#) (Germany)¹, Hans Wenzel (Germany)², Paul Crump (Germany)² (1. Ferdinand Braun Institute gGmbH, Leibniz-Institut für Höchstfrequenztechnik, Gustav-Kirchhoff-Str. 4, D-12489 Berlin, Germany, 2. Ferdinand-Braun-Institut gGmbH, Leibniz-Institut für Höchstfrequenztechnik, Gustav-Kirchhoff-Str. 4, D-12489 Berlin, Germany)



Continued from Wednesday, 16 November

11am **WA2.2 - Stability Analysis of Diode Pumped Actively Mode-Locked Thulium Doped Fiber Laser**

» [Anjali Prabhakaran Sheela](#) (India)¹, Balaji Srinivasan (India)¹, Deepa Venkitesh (India)¹ (1. IIT Madras)

11:15am **WA2.3 - Dual wavelength continuous-wave E-band bismuth-doped fiber laser**

» [Corentin BOTZUNG](#) (Canada)¹, Kaboko Jean-Jacques Monga (Canada)¹, Nelson Landry (Canada)², Sophie LaRoche (Canada)¹ (1. Centre d'optique, photonique et laser (COPL), Université Laval, 2. Centre d'optique, photonique et laser (COPL) Université Laval,)

11:30am **WA2.4 - Analysis and Reduction of Relative Intensity Noise in Thulium Doped Fiber Ring Laser**

» [Arijun Kurur](#) (India)¹, Anjali Prabhakaran Sheela (India)², Balaji Srinivasan (India)³, Deepa Venkitesh (India)³ (1. Indian Institute of Technology, Madras, 2. Indian Institute of Technology Madras, 3. IIT Madras)

10:30am **Optical AI and Computational Photonics V - WB2: Photonics Computing**

Plaza B

Chaired by: Bassem Tossoun (United States)

10:30am **WB2.1 - (Invited) Photonic crossbar arrays for scalable photonic computing**

» [Nathan Youngblood](#) (United States)¹, Vivswan Shah (United States)¹, Sadra Rahimi Kari (United States)¹, Nicholas Nobile (United States)² (1. University of Pittsburgh, 2. pi)

11am **WB2.2 - (Invited) Diffractive Optical Networks & Computational Imaging Without a Computer**

» [Aydogan Ozcan](#) (United States)¹ (1. UCLA)

11:30am **WB2.3 - Inverse Design of Mid-IR Quantum Cascade Lasers**

» [Yunhan Hu](#) (United States)¹, SURAJ SURI (United States)¹, Jeremy Kirch (United States)¹, Benjamin Knipfer (United States)², Zongfu Yu (United States)¹, Dan Botez (United States)¹, Luke Mawst (United States)¹ (1. University of Wisconsin-Madison, 2. Intraband LLC)

11:45am **WB2.4 - Optical Linear Operator with Optimal Fidelity**

» [Apostolos Tsakyridis](#) (Greece)¹, George Giamougiannis (Greece)¹, Angelina Totovic (Greece)¹, Miltiadis Moralis-Pegios (Greece)¹, David Lazovsky (United States)², Nikos Pleros (Greece)¹ (1. Aristotle University of Thessaloniki, 2. Celestial AI)

10:30am **Nano Photonics, Plasmonics, and Metamaterials VIII - WC2: Nanophotonics for Spectroscopy and Sensing**

Plaza A

Chaired by: Jaime Gomez Rivas (Netherlands) and Jennifer Choy (United States)

10:30am **WC2.1 - (Invited) DiffuserSpec: Simple, low-cost computational spectroscopy**

» [Audrey Bowden](#) (United States)¹, Joseph Malone (United States)², Neerja Aggarwal (United States)³, Laura Waller (United States)³ (1. Vanderbilt University, 2. Vanderrbilt University, 3. UC Berkeley)

11am **WC2.2 - Arrayed Waveguide Grating with Reusable Delay Lines (RDL-AWG) for High Resolving Power, Highly Compact, Photonic Spectrographs**

» Yang Zhang (United States)¹, Jiahao Zhan (United States)¹, Sylvain Veilleux (United States)¹, [Mario Dagenais](#) (United States)¹ (1. University of Maryland)

11:15am **WC2.3 - Silica Coated Colloidal Semiconductor Quantum Dot Supracrystal Microlasers**

» [Charlotte J. Eling](#) (United Kingdom)¹, Naresh-Kumar Gunasekar (United Kingdom)², Paul R. Edwards (United Kingdom)², Robert W. Martin (United Kingdom)², Nicolas Laurant (United Kingdom)¹ (1. Institute of Photonics, Department of Physics, University of Strathclyde, 2. University of Strathclyde)



Continued from Wednesday, 16 November

11:30am WC2.4 - Multi-Objective Optimization of all-Dielectric Metasurfaces Using 2D RCWA Algorithm For Sensing Applications

» [Abdullah Bin Shams](#) (Canada)¹, Rajat Kumar Sinha (Canada)¹, Mo Mojahedi (Canada)¹, J. Stewart Aitchison (Canada)¹ (1. University of Toronto)

11:45am WC2.5 - Large-period Sinusoidal Plasmonic Grating for High Sensitivity in Refractive Index Sensing

» [Vaswati Biswas](#) (India)¹, Vijaya Ramarao (India)¹ (1. Indian Institute of Technology Kanpur)

10:30am Nonlinear Photonics and Novel Optical Phenomena V - WD2: Nonlinear Photonic Devices

Regency F

Chaired by: Kambiz Jamshidi (Germany) and Alireza Marandi (United States)

10:30am WD2.1 - (Invited) Nonlinear Photonics in Sputtered Oxide Waveguides

» [Amy Foster](#) (United States)¹ (1. Johns Hopkins University)

11am WD2.2 - (Invited) Versatile laser sources by design of integrated nonlinear photonics

» [Scott Papp](#) (United States)¹ (1. National Institute of Standards and Technology)

11:30am WD2.3 - Critical Coupling-based ITO Integrated Photonics High Speed and Energy Efficient Modulator

» Chandraman Patil (United States)¹, [Hamed Dalir](#) (United States)¹, Behrouz Movahhed Nouri (United States)², Mohammad-Ali Miri (United States)³, Volker Sorger (United States)² (1. The George Washington university, 2. George Washington University, 3. City University of New York)

11:45am

WD2.4 - Efficient and Accurate Calculation of Photodetector RF Output Power

» Ergun Simsek (United States)¹, [Ishraq Md Anjum](#) (United States)¹, Thomas F. Carruthers (United States)¹, Curtis Menyuk (United States)¹, David Tulchinsky (United States)², Keith Williams (United States)², Joe Campbell (United States)³ (1. University of Maryland, Baltimore County, 2. U.S. Naval Research Laboratory, 3. University of Virginia)

10:30am

Optical Communication: Devices, Interconnects and Subsystems VII

WE2: Distributed Feedback Lasers

Regency E

Chaired by: Giovanni Milione (United States)

10:30am

WE2.1 - AlGaInAs/InP EML with Sidewall Grating Distributed Feedback Laser and Quantum Well Intermixing Technology

» [Xiao Sun](#) (United Kingdom)¹, Weiqing Cheng (United Kingdom)¹, Shengwei Ye (United Kingdom)¹, Yiming Sun (United Kingdom)¹, John Marsh (United Kingdom)¹, Lianping Hou (United Kingdom)¹ (1. University of Glasgow)

10:45am

WE2.2 - DFB Laser Array Based on Four Phase-Shifted Sampled Bragg Gratings

» [Yiming Sun](#) (United Kingdom)¹, Xiao Sun (United Kingdom)¹, Bocheng Yuan (United Kingdom)¹, Yizhe Fan (United Kingdom)¹, John Marsh (United Kingdom)¹, Lianping Hou (United Kingdom)¹ (1. University of Glasgow)

11am

WE2.3 - Dual-Wavelength DFB Laser with 640 GHz Frequency Spacing Based on Sidewall Grating and Reconstruction Equivalent-Chirp Technology

» [Bocheng Yuan](#) (United Kingdom)¹, Shengwei Ye (United Kingdom)¹, Yunshan Zhang (China)², Xiangfei Chen (China)³, John Marsh (United Kingdom)¹, Lianping Hou (United Kingdom)¹ (1. University of Glasgow, 2. Nanjing University of Posts and Telecommunications, 3. Nanjing University)



Continued from Wednesday, 16 November

- 11:15am **WE2.4 - Dual-Wavelength DFB Laser with 1.28 THz Frequency Spacing Based on Four Phase Shifted Sampling Gratings**
» Yizhe Fan (United Kingdom)¹, Bocheng Yuan (United Kingdom)¹, Shengwei Ye (United Kingdom)¹, John Marsh (United Kingdom)¹, Yongguang Huang (China)², Lianping Hou (United Kingdom)¹ (1. University of Glasgow, 2. Institute of Semiconductors, Chinese Academy of Sciences)
- 11:30am **WE2.5 - Asymmetric Twin-Waveguide 1.55- μ m DFB Lasers for an Optical Beam Forming Network**
» Shengwei Ye (United Kingdom)¹, Xiao Sun (United Kingdom)¹, Peter Read (United Kingdom)¹, Anthony Kelly (United Kingdom)¹, Lianping Hou (United Kingdom)¹, John Marsh (United Kingdom)¹ (1. University of Glasgow)
- 10:30am **Optical Communication and Networks VIII - WF2: Secure Communications & Fibre Transmission**
Plaza C
Chaired by: Paul Crump (Germany)
- 10:30am **WF2.1 - Time-Gated Circuit for SPAD-based OWC**
» Junzhi Liu (Canada)¹, Wei Jiang (Canada)¹, M. Jamal Deen (Canada)¹ (1. McMaster University)
- 10:45am **WF2.2 - Eavesdropping Against Bidirectional Physical Layer Secret Key Generation in Fiber Communications**
» Wenxiu Hu (United Kingdom)¹, Zhuangkun Wei (United Kingdom)², Mark Leeson (United Kingdom)¹, Tianhua Xu (United Kingdom)¹ (1. The University of Warwick, 2. Cranfield University)
- 11am **WF2.3 - Security Performance of Physical-Layer Encryption Based on Randomized Phase Space in Optical Fiber Communication**
» Kh Arif Shahriar (Canada)¹, Mostafa Khalil (Canada)¹, Adrian Chan (Canada)², Lawrence Chen (Canada)¹, Randy Kuang (Canada)², David V. Plant (Canada)¹ (1. McGill University, 2. Quantropi Inc.)

- 11:15am **WF2.4 - Site-To-Site Tunnels Authenticated by Quantum Keys**
» Nageswara Rao (United States)¹, Muneer Alshowkan (United States)¹, Anees Al-Najjar (United States)¹, Susan Hicks (United States)¹, Philip Evans (United States)¹, Joseph Lukens (United States)¹, Nicholas Peters (United States)¹ (1. Oak Ridge National Laboratory)
- 10:30am **Propagation, Spectroscopy, and Imaging II - WG2: Hyperspectral Imaging and Sensing**
Regency B
Chaired by: Sebastian Karpf (Germany) and Takuro Ideguchi (Japan)
- 10:30am **WG2.1 - (Invited) High-speed mid-infrared imaging with wide-bandgap cameras**
» Dmitry Fishman (United States)¹, David Knez (United States)¹, Eric Potma (United States)¹ (1. University of California, Irvine)
- 11am **WG2.2 - (Invited) Ultrafast lightwave-driven scanning tunneling spectroscopy of atomically precise nanostructures**
» Spencer Ammerman (United States)¹, Vedran Jelic (United States)¹, Yajing Wei (United States)¹, Vivian Breslin (United States)¹, Mohamed Hassan (United States)¹, Nathan Everett (United States)¹, Sheng Lee (United States)¹, Qiang Sun (Switzerland)², Carlo Pignedoli (Switzerland)², Pascal Ruffieux (Switzerland)², Roman Fasel (Switzerland)³, Tyler Cocker (United States)¹ (1. Michigan State University, 2. Empa, 3. Empa and University of Bern)
- 11:30am **WG2.3 - (Invited) Novel dual-comb spectroscopy with arbitrary stepping and scanning of temporal pulse offset**
» Esther Baumann (United States)¹, Simon Potvin (Canada)², Jean-Daniel Deschenes (Canada)², Ian Coddington (United States)³, Nathan Newbury (United States)³, Fabrizio Giorgetta (United States)¹ (1. NIST, University of Colorado Boulder, 2. Octosig Consulting, 3. NIST)
- 10:30am **Detection, Sensing, and Energy V - WH2: Sensors and Power Generation**
Regency A
Chaired by: Akhil Kalapala (United States) and Kent Choquette (United States)



Continued from Wednesday, 16 November

- 10:30am **WH2.1 - Nighttime Electric Power Generation at a Density of 50 mW/m² via Radiative Cooling of a Photovoltaic Cell**
» [Sid Assawaworrarit](#) (United States)¹, Zunaïd Omair (United States)¹, Prof. Shanhui Fan (United States)¹ (1. Stanford University)
- 10:45am **WH2.2 - Enhanced Sensitivity Photonic Molecule Sensor based on Embedded Tapered Microring Resonators**
» André Luís Moras (Brazil)¹, Valnir Da Silva (Brazil)², Gabriel Rezende (Brazil)², Marcus Amaral (Brazil)², [Newton Frateschi](#) (Brazil)¹, Luís Barea (Brazil)² (1. State University of Campinas, 2. Federal University of São Carlos)
- 11am **WH2.3 - Developing a Gold coated Fiber Brag Grating (FBG) sensor to monitor chlorine levels in water**
» [Summer Dalgamouni](#) (United States)¹, Driss Benhaddou (United States)², Stanko Brankovic (United States)³ (1. Department of Electrical and Engineering, University of Houston, 2. Engineering Technology, University of Houston, 3. Faculty in Electrical Engineering University of Houston)
- 11:15am **WH2.4 - An implantable multimodal sensor for optical and electrophysiological recording of mouse brain activity**
» [Kenji Sugie](#) (Japan)¹, Ryoma Okada (Japan)¹, Yasumi Ohata (Japan)¹, Hironari Takehara (Japan)¹, Makito Haruta (Japan)¹, Hiroyuki Tashiro (Japan)¹, Kiyotaka Sasagawa (Japan)¹, Jun Ohta (Japan)¹ (1. Nara Institute of Science and Technology)
- 11:30am **WH2.5 - Real-time Detection of Anthropoc Events by 10G Channels in Metro Network Segments**
» Stefano Straulli (Italy)¹, Francesco Aquilino (Italy)¹, Rudi Bratovich (Italy)², Francisco Martinez Rodriguez (Italy)², [Andrea D'Amico](#) (Italy)³, Emanuele Virgillito (Italy)³, Rosanna Pastorelli (Italy)², Vittorio Curri (Italy)³ (1. LINKS Foundation, 2. SM-Optics, 3. Politecnico di Torino)
- 12pm **IEEE Women in Photonics Luncheon (Pre-registration required. Space is limited.)**
Georgia B
Chaired by: Hani Nejadriahi (United States) and Deepa Venkitesh (India)

1:30pm **Light Sources VI -**
WA3: Integrated Photonics
Balmoral
Chaired by: Peter Smowton (United Kingdom)

1:30pm **WA3.1 - (Invited) Visible Light Generation in Integrated Photonics**
» Lin Chang (China)¹, Mingxiao Li (United States)², Kerry Vahala (United States)³, Qiang Lin (United States)⁴, John E. Bowers (United States)², [Andy Boes](#) (Australia)⁵ (1. Peking University, 2. University of California Santa Barbara, 3. California Institute of Technology, 4. University of Rochester, 5. The University of Adelaide)

2pm **WA3.2 - Performance and control strategy of a monolithically integrated laser with an intra-cavity AMZI filter**
» Martin Skänderas (Belgium)¹, Spencer W. Jolly (Belgium)², [Martin Virte](#) (Belgium)³ (1. Vrije Universiteit Brussel, 2. Service OPERA-Photonique, Université Libre de Bruxelles, 3. Brussels Photonics (B-PHOT), Vrije Universiteit Brussel)

2:15pm **WA3.3 - Extending on-chip silicon Raman lasers to 2.2 µm**
» Mohammad Ahmadi (Canada)¹, [Jacques Lefebvre](#) (Canada)¹, Simon Levasseur (Canada)², Nelson Landry (Canada)³, Wei Shi (Canada)¹, Sophie LaRoche (Canada)¹ (1. Centre d'optique, photonique et laser (COPL), Université Laval, 2. Centre d'optique, photonique et laser (COPL) Université Laval, 3. Centre d'optique, photonique et laser (COPL) Université Laval,)

2:30pm **WA3.4 - Coherent and robust supercontinuum generation based on electro-optic optical frequency comb generator**
» [Minie Song](#) (Korea, Republic of)¹, Seungyoung Lim (Korea, Republic of)¹, Hyunjong Choi (Korea, Republic of)², Taehyun Lee (Korea, Republic of)¹, Gyudong Choi (Korea, Republic of)¹, Youngjin Jung (Korea, Republic of)¹, Joon Tae Ahn (Korea, Republic of)¹, Minhyup Song (Korea, Republic of)¹ (1. Electronics and Telecommunications Research Institute, 2. School of Computer & information Technology, Korea University)



Continued from Wednesday, 16 November

- 1:30pm **Nano Photonics, Plasmonics, and Metamaterials IX - WC3: Optical Phased Arrays**
Plaza A
Chaired by: Audrey Bowden (United States) and Jennifer Choy (United States)
- 1:30pm **WC3.1 - Design and Implementation of a Flat-Focal-Field Arrayed Waveguide Grating on a Si3N4 Platform**
» Jiahao Zhan (United States)¹, Yang Zhang (United States)², Sylvain Veilleux (United States)², Mario Dagenais (United States)² (1. University of Maryland, College Park, 2. University of Maryland)
- 1:45pm **WC3.2 - Optical Phased Array with Radial Optical Antennas in a Circular Configuration**
» Daniel Benedikovic (Slovakia)¹, Qiankun Liu (Canada)², Ahmad Atieh (Canada)³, Tom Smy (Canada)², Pavel Cheben (Canada)⁴, Winnie N. Ye (Canada)² (1. University Science Park, University of Zilina, 2. Carleton University, 3. Optiwave Systems, Inc., 4. national research council of canada)
- 2pm **WC3.3 - Brewster effect in plasmonic random metasurfaces**
» Isabel Y. Rojas-Martinez (Mexico)¹, Alma K. González-Alcalde (United States)², Alejandro Reyes Coronado (Mexico)¹ (1. Facultad de Ciencias, Universidad Nacional Autónoma de México, 2. University of California Riverside)
- 2:15pm **WC3.4 - High-resolution Radiation Characterization for an Uniformly Emitted SiNx Nanophotonic Phased Array**
» Caiming Sun (China)¹, Binghui Li (China)¹, Aidong Zhang (China)¹ (1. The Chinese University of Hong Kong, Shenzhen)
- 2:30pm **WC3.5 - Phase-Combining Unit for Aliasing Suppression in Optical Phased Array**
» Dachuan Wu (United States)¹, Bowen Yu (United States)¹, Yasha Yi (United States)¹ (1. University of Michigan-Dearborn)

- 1:30pm **Microwave Photonics and Vehicular Optics V - WD3: Quantum and Nonlinear Photonic Techniques and Applications**
Regency F
Chaired by: Charles Middleton (United States) and David Moilanen (United States)
- 1:30pm **WD3.1 - Entanglement Assisted Multistatic Radars**
» Ivan B Djordjevic (United States)¹ (1. University of Arizona, ECE Dept.)
- 1:45pm **WD3.2 - Ultrafast Spectrogram with Sub-THz Bandwidth**
» Benjamin Crockett (Canada)¹, Connor Rowe (Canada)¹, Jose Azana (Canada)¹ (1. Institut national de la recherche scientifique (INRS))
- 2pm **WD3.3 - High-Resolution Line-by-Line Pulse Shaper for Optically Driving Cryogenic Josephson Junctions**
» Dahyeon Lee (United States)¹, Takmua Nakamura (United States)¹, Andrew Metcalf (United States)², Franklyn Quinlan (United States)³ (1. University of Colorado Boulder, 2. Air Force Research Laboratory, 3. National Institute of Standards and Technology)
- 1:30pm **Optical Communication: Devices, Interconnects and Subsystems VIII - WE3: Modulators, Mode Division Multiplexing and Free Space Optical Communication**
Regency E
Chaired by: Giovanni Milione (United States)
- 1:30pm **WE3.1 - (Invited) High-Speed SiGe EAMs Operating at Cryogenic Temperatures**
» Evan Chansky (United States)¹, Thomas Dorch (United States)², Aaron Maharry (United States)¹, Roshanak Shafiiha (United States)³, Guomin Yu (United States)³, Aaron Zilkie (United States)³, Steven Estrella (United States)², Larry Coldren (United States)¹, Clint Schow (United States)¹ (1. University of California Santa Barbara, 2. Freedom Photonics LLC, 3. Rockley Photonics Inc.)



Continued from Wednesday, 16 November

2pm **WE3.2 - Circularly Polarized OAM Multiplexing Using an Integrated Phased Array**

» [Yuxuan Chen](#) (Canada)¹, Simon Levasseur (Canada)¹, Leslie Rusch (Canada)², Wei Shi (Canada)² (1. Centre d'optique, photonique et laser (COPL) Université Laval, 2. Centre d'optique, photonique et laser (COPL), Université Laval)

2:15pm **WE3.3 - Feature Correction of a Topologically Optimized Mode Demultiplexer Using Deep Neural Networks**

» [Md Mahadi Masnad](#) (Canada)¹, Dusan Gostimirovic (Canada)¹, Yuri Grinberg (Canada)², Dan Xia Xu (Canada)³, Odile Liboiron-Ladouceur (Canada)¹ (1. McGill University, 2. National Research Council Canada, 3. national research council of canada)

2:30pm **WE3.4 - Lead-free Perovskite for Ultraviolet micro-LEDs based White-Light Communication**

» [Hang Lu](#) (Saudi Arabia)¹, Bashir Hasanov (Saudi Arabia)¹, Omar Alkhazragi (Saudi Arabia)¹, Rounak Naphade (Saudi Arabia)¹, Tien Khee Ng (Saudi Arabia)¹, Omar F. Mohammed (Saudi Arabia)¹, Osman Bakr (Saudi Arabia)¹, Boon S. Ooi (Saudi Arabia)¹ (1. King Abdullah University of Science and Technology)

2:45pm **WE3.5 - A Polarization Sensitive Thin Film Optical Wireless Concentrator**

» [Atchutananda Surampudi](#) (United Kingdom)¹, Ravinder Singh (United Kingdom)¹, Guanxiong Zhang (United Kingdom)¹, Grahame Faulkner (United Kingdom)¹, Martin J Booth (United Kingdom)¹, Steve J Elston (United Kingdom)¹, Dominic O'Brien (United Kingdom)¹, Stephen M Morris (United Kingdom)¹ (1. Department of Engineering Science, University of Oxford)

1:30pm **Quantum Photonics IV - WF3: Handling and Manipulating Light**

Plaza C

Chaired by: Michael Brodsky (United States)

1:30pm

WF3.1 - (Invited) Quantifying High Dimensional Photonic Entanglement

» [Gregory Howland](#) (United States)¹ (1. Rochester Institute of Technology)

2pm

WF3.2 - (Invited) Light-matter interfaces for quantum networks

» [Daniel Oblak](#) (Canada)¹ (1. University of Calgary)

2:30pm

WF3.3 - (Invited) NonLocal LiDAR at 1550 nm

» [Amr Helmy](#) (Canada)¹, Phillip Blakey (Canada)¹, Han Liu (Canada)¹, Zacharie Leger (Canada)¹ (1. University of Toronto)

1:30pm

Propagation, Spectroscopy, and Imaging III -

WG3: Spectroscopy

Regency B

Chaired by: Esther Baumann (United States) and Kevin Cossel (United States)

1:30pm

WG3.1 - (Invited) Detection-sensitivity-optimized field-resolved spectroscopy

» [Christina Hofer](#) (Germany)¹, Daniel Gerz (Germany)², Lukas Fürst (Germany)², Maximilian Högner (Germany)¹, Thomas P. Butler (Germany)¹, Martin Gebhardt (Germany)³, Tobias Heuermann (Germany)³, Christian Gaida (Germany)⁴, Kiran S. Maiti (Germany)¹, Marinus Huber (Germany)², Ernst Fill (Germany)¹, Jens Limpert (Germany)³, Ferenc Krausz (Germany)¹, Joachim Pupeza (Germany)¹ (1. Max Planck Institute of Quantum Optics, 2. LMU, 3. Institute of Applied Physics, Abbe Centre of Photonics, Friedrich Schiller University Jena, 4. Active Fibre Systems GmbH)

2pm

WG3.2 - (Invited) 1-GHz MIR dual-comb spectrometer for high-speed chemical kinetics studies

» [Nazanin Hoghooghi](#) (United States)¹, Peter Chang (United States)¹, Matt Burch (United States)², Scott Egbert (United States)¹, Scott Diddams (United States)³, Patrick Lynch (United States)², Greg Reiker (United States)¹ (1. University of Colorado Boulder, 2. University of Illinois at Chicago, 3. NIST, University of Colorado Boulder)



Continued from Wednesday, 16 November

- 2:30pm **WG3.3 - Subwavelength Focusing by way of Terahertz Microjets**
» [Alexis N. Guidi](#) (Canada)¹, Michael E. Mitchell (Canada)¹, Mark H. Bergen (Canada)¹, Jason Reich (Canada)¹, Jonathan F. Holzman (Canada)¹ (1. University of British Columbia)
- 2:45pm **WG3.4 - Frequency Comb-Calibrated Laser Heterodyne Radiometry for Greenhouse Gas Monitoring**
» [Ryan Cole](#) (United States)¹, Connor Fredrick (United States)², Scott A. Diddams (United States)² (1. National Institute of Standards and Technology Boulder, 2. National Institute of Standards and Technology Boulder, University of Colorado Boulder)
- 1:30pm **Biophotonics and Medical Optics VII - WH3: Progress in Microscopy II**
Regency A
Chaired by: Yang Liu (United States)
- 1:30pm **WH3.1 - Continuous-wave nonlinear microscopy using rare-earth doped upconverting nanoparticles**
» [Jeongmo Kim](#) (Korea, Republic of)¹, Seunghun Lee (Korea, Republic of)¹, Yundon Jeong (Korea, Republic of)¹, Kyunghwan Kim (Korea, Republic of)², Kibum Nam (Korea, Republic of)¹, Heungjin Ryu (Korea, Republic of)¹, Jinmyoung Joo (Korea, Republic of)¹, Jung-Hoon Park (Korea, Republic of)¹ (1. Department of Biomedical Engineering, Ulsan National Institute of Science and Technology (UNIST), 2. Department of Chemistry, Ulsan National Institute of Science and Technology (UNIST))
- 1:45pm **WH3.2 - Unsupervised analysis of FLIM-FRET data**
» [Francesco Masia](#) (United Kingdom)¹, Walter Dewitte (United Kingdom)¹, Paola Borri (United Kingdom)¹, Wolfgang Langbein (United Kingdom)¹ (1. Cardiff University)
- 2pm **WH3.3 - Dual-Polarization Bimodal Waveguide Interferometer**
» [Christian Schweikert](#) (Germany)¹, Shengyuan Zhao (Germany)¹, Niklas Hoppe (Germany)¹, Wolfgang Vogel (Germany)¹, Manfred Berroth (Germany)² (1. University of Stuttgart, 2. University of Stuttgart)

- 3pm **Coffee Break & Exhibits**
Regency Foyer
- 3:30pm **WI4: Plenary Session II**
Regency CD
Chaired by: Dominique Dagenais (United States)
- 3:30pm **WI4.1 - (Plenary) Explorations of topological physics and optical computing in synthetic dimensions**
» [Prof. Shanhui Fan](#) (United States)¹ (1. Stanford University)
- 4:15pm **WI4.2 - (Plenary) Heterogeneous Integration in Silicon Photonics**
» [Prof. Roel Baets](#) (Belgium)¹ (1. Ghent University)
- 6pm **Welcome Reception & Student Poster Competition**
Georgia AB
- WP3 - Flat-top supercontinuum generation based on electro-optic optical frequency combs with programmable repetition rate up to 50 GHz**
» Seungyoung Lim (Korea, Republic of)¹, Minje Song (Korea, Republic of)¹, Hyunjong Choi (Korea, Republic of)², Taehyun Lee (Korea, Republic of)¹, Gyudong Choi (Korea, Republic of)¹, Youngjin Jung (Korea, Republic of)¹, Joon Tae Ahn (Korea, Republic of)¹, [Minhyup Song](#) (Korea, Republic of)¹ (1. Electronics and Telecommunications Research Institute, 2. School of Computer & information Technology, Korea University)
- WP4 - Designing a Wideband Silicon Nitride Interleaver**
» [Farshid Shateri](#) (Canada)¹, Alireza Geravand (Canada)¹, Wei Shi (Canada)¹ (1. Centre d'optique, photonique et laser (COPL), Université Laval)
- WP5 - Using Surrogate Models to Reduce the Design Complexity of Fiber Amplifiers with Heterogenous Doping**
» [Hamed Rabbani](#) (Canada)¹, Sophie LaRoche (Canada)², Leslie Rusch (Canada)² (1. Centre d'optique, photonique et laser (COPL) Université Laval,, 2. Centre d'optique, photonique et laser (COPL), Université Laval)



Continued from Wednesday, 16 November

WP6 - Chirped solitons and wavetrain solutions for Kerr-frequency combs

» [Sanjana Bhatia](#) (India)¹, C N Kumar (India)¹ (1. Department of Physics, Panjab University, Chandigarh)

WP7 - Phase-Predistortion of Optical On-Off-Keying with Direct Detection to Counteract Fiber Chromatic Dispersion

» [Ulrike Höfler](#) (Germany)¹, Norbert Hanik (Germany)¹ (1. Technical University of Munich)

WP8 - White light propagation through a dispersive thick lens and selective pn junction placement in RGB planes for optimal conversion efficiency

» SALAHEDDEEN BUGOFFA (United States)¹, [Monish Chatterjee](#) (United States)² (1. The university of Dayton, 2. university of dayton)

WP9 - Network Traffic Analysis of Modular Multiband Integrated WSS based ROADMs

» Muhammad Umar Masood (Italy)¹, Ihtesham Khan (Italy)¹, Lorenzo Tunesi (Italy)¹, Bruno Correia (Italy)¹, Enrico Ghillino (United States)², Paolo Bardella (Italy)¹, Andrea Carena (Italy)¹, Vittorio Curri (Italy)¹, [Andrea D'Amico](#) (Italy)¹ (1. Politecnico di Torino, 2. synopsis)

WP10 - Stabilization of Laser-induced Plasma on Turbulent Flame Boundaries with Electron Seeding

» [Seonwoong Kim](#) (Korea, Republic of)¹, Jongwun Choi (Korea, Republic of)¹, Hosung Byun (Korea, Republic of)¹, Taekeun Yoon (Korea, Republic of)¹, Hyungrok Do (Korea, Republic of)¹ (1. Seoul National University)

WP11 - Reducing Latency in Sensing for Optical Convolutional Neural Networks

» [Russell Schwartz](#) (United States)¹, Zibo Hu (United States)¹, Shurui Li (United States)², Maria Solyanik-Gorgone (United States)¹, Puneet Gupta (United States)², Volker Sorger (United States)¹ (1. George Washington University, 2. University of California, Los Angeles)

WP12 - White-light emission from a novel niobate-based dysprosium doped phosphor

» [Kanishk Poria](#) (India)¹, Nisha Deopa (India)², Jangvir Singh Shahi (India)¹ (1. Department of Physics, Panjab University, Chandigarh, 2. Department of Physics, Chaudhary Ranbir Singh University, Jind)

WP13 - Performance Mapping of InP QDs Passively Monolithic Mode-Locked Lasers

» [Reem Alharbi](#) (United Kingdom)¹, Craig Allford (United Kingdom)¹, Zhibo Li (United Kingdom)¹, Samuel Shutts (United Kingdom)¹, Andrey Krysa (United Kingdom)², Peter Smowton (United Kingdom)¹ (1. Cardiff University, 2. EPSRC National Centre for III-V Technologies, University of Sheffield, Sheffield)

WP14 - Visible Colors Realized by TiO2 Nanostructure

» [Nusrat Alim](#) (Australia)¹, Ibrahim A M Al-Ani (Australia)¹, Reza Masoudian Saadabad (Australia)¹, Lujun Huang (Australia)¹, Haroldo Hattori (Australia)¹, Andrey Miroshnichenko (Australia)¹ (1. UNSW CANBERRA)

WP15 - Photonic Crystal Slab Metalens

» [Zhonghe Liu](#) (United States)¹, Mingsen Pan (United States)¹, Aaron Liu (United States)², George Kelly (United States)³, Matthew Sampsel (United States)³, Jian Liu (United States)³, Weidong Zhou (United States)¹ (1. University of Texas at Arlington, 2. St. Mark's School of Texas, 3. AMS Sensors USA)

WP16 - Phase Modulation of the Input Signal Improves Performance of Reservoir Computing

» Ian Bauwens (Belgium)¹, Krishan Harkhoe (Belgium)¹, Peter Bienstman (Belgium)², Guy Verschaffelt (Belgium)¹, [Guy Van der Sande](#) (Belgium)¹ (1. Applied Physics Research Group, Vrije Universiteit Brussel, 2. Photonics Research Group, Department of Information Technology, Ghent University-IMEC)

WP17 - Effect of N-type Doped Layer on Side-illuminated Photoconductive Semiconductor Switch

» [Pyeunghwi Choi](#) (Korea, Republic of)¹, Yongpyo Kim (Korea, Republic of)¹, Sung-Min Hong (Korea, Republic of)¹, Sungbae Lee (Korea, Republic of)¹, Jae Hyung Jang (Korea, Republic of)² (1. GIST(Gwangju Institute of Science and Technology), 2. KENTECH(Korea Institute of Energy Technology))



Continued from Wednesday, 16 November

WP18 - Low-Profile Stacked Digitally Tunable LC Fresnel Lens for Smart Contact Lens System

» Chayanjit Ghosh (United States)¹, Carlos Mastrangelo (United States)¹ (1. University of Utah)

WP19 - Accurate Generation Of Eigenvalue Spectra For Lumped Laser Models Using Numerical Linearization

» Pradyoth Shandilya (United States)¹, Shaokang Wang (United States)¹, Curtis Menyuk (United States)¹ (1. University of Maryland, Baltimore County)

WP20 - Analysis of the optical coupling between 2.3 μm GaSb diode lasers and passive waveguides for monolithic integration on Si platforms

» Michele Paparella (France)¹, Laura Monge Bartolome (France)¹, Jean Baptiste Rodriguez (France)¹, Laurent Cerutti (France)¹, Marco Grande (Italy)², Liam O'Faolain (Ireland)³, Eric Tournie (France)¹ (1. University of Montpellier, 2. Polytechnic University of Bari, 3. Munster Technological University)

WP21 - Optimum power for incoherent beam combination in atmospheric turbulence

» Mukesh Kumar (India)¹, Arpit Khandelwal (India)², Azeemuddin Syed (India)¹, Jagannath Nayak (India)³ (1. International Institute of Information Technology, Hyderabad, 2. Indian Institute of Technology, Jodhpur, 3. Defence Research and Development Organization, Hyderabad)

WP22 - Simultaneous multiple-view, multi-fluorophore fluorescent endoscopy via spectral multiplexing

» Saeed Bohlooli Darian (Korea, Republic of)¹, Youngkyu Kim (Korea, Republic of)¹, Kwanhee Lee (Korea, Republic of)¹, Bjorn Paulson (Korea, Republic of)², Jun Ki Kim (Korea, Republic of)² (1. Department of Convergence Medicine, University of Ulsan College of Medicine, 2. Asan Institute for Life Sciences, Asan Medical Center)

WP23 - Optical Interferometer with On-Chip Amorphous Silicon Photodiode for Biosensing Applications

» Badrul Alam (Italy)¹, Simone Cammarata (Italy)², Alessio Buzzin (Italy)¹, Francesca Grossi (Italy)¹, Domenico Caputo (Italy)¹, Giampiero de Cesare (Italy)¹, Rita Asquini (Italy)¹ (1. Sapienza University of Rome, 2. Dipartimento di Ingegneria dell'Informazione - Università di Pisa)

WP24 - Asynchronous Time-Delay Reservoir Computing Based on Laser Dynamics

» Jia-Yan Tang (China)¹, Bao-De Lin (China)¹, Jingyi Yu (China)¹, Xuming He (China)¹, Cheng Wang (China)¹ (1. ShanghaiTech University)

WP25 - Machine learning compact device models applied to optoelectronic memristor

» Albert Lin (Taiwan)¹, Tejender Rawat (Taiwan)¹, Ming Hsien Hsu (Taiwan)¹, Chung Yuan Chang (Taiwan)¹, Han-Chun Tung (Taiwan)¹, Tseung Yuen Tseng (Taiwan)¹ (1. National Yang Ming Chiao Tung University)

WP26 - Scalable Bandwidth and High-Precision Spectral Measurement by Frequency Chirped Comb

» Mu-Chieh Lo (United Kingdom)¹, Ronit Sohanpal (United Kingdom)¹, Zichuan Zhou (United Kingdom)¹, Zhixin Liu (United Kingdom)¹ (1. University College London)

WP27 - Design of Silicon Photonic Mode-Sensitive Thermo-Optic Phase Shifter based on Subwavelength Grating Structures

» Kaveh (Hassan) Rahbardar Mojaver (Canada)¹, Guowu Zhang (Canada)¹, Odile Liboiron-Ladouceur (Canada)¹ (1. McGill University)

WP28 - Ultra-broadband Silicon Polarization Independent 3- dB Coupler using Multi-parameter Adiabaticity Engineering

» Hung-Ching Chung (Taiwan)¹, Shuo-Yen Tseng (Taiwan)¹ (1. Dept. of Photonics, National Cheng Kung University)

WP29 - Availability Analysis for Reliable Distributed Fiber Optic Sensors Placement

» Zilong Ye (United States)¹, Philip Ji (United States)², Ting Wang (United States)² (1. California State University Los Angeles, 2. NEC Labs America)



Continued from Wednesday, 16 November

WP30 - Limit of Bandwidth, Output Power and Noise Figure of Bismuth Doped Fiber Amplifier for E and S Band

» Lixian Wang (Canada)¹, Zhiping Jiang (Canada)¹ (1. Huawei Technologies Canada Co. Ltd.)

WP31 - Modeling of Evanescently Coupled Waveguide MUTC Photodiodes with High Bandwidth

» Yegao Xiao (Canada)¹, Zhiqiang Li (Canada)¹, Zhanming Li (Canada)¹ (1. Crosslight Software Inc)

WP32 - Design of a Lab-on-chip optical biosensor for multiplexed detection of biomarkers

» Francesco Masia (United Kingdom)¹, Nadhia Monim (United Kingdom)², Wolfgang Langbein (United Kingdom)¹ (1. Cardiff University, 2. Cardiff)

WP33 - Remote photoplethysmography unmasks glabrous skin temporal lead over non-glabrous

» Timothy Burton (Canada)¹, Gennadi Saiko (Canada)¹, Meiyun Cao (Canada)¹, Alexandre Douplik (Canada)¹ (1. Toronto Metropolitan University)

Thursday, 17 November

8:30am

Light Sources VII -

ThA1: Photonic Crystal Lasers and VCSELs

Balmoral

Chaired by: Andy Boes (Australia)

8:30am

ThA1.1 - (Invited) Analysis of Supermode Dynamics of Coherent Dual-Element Photonic Crystal VCSEL Arrays

» Nusrat Jahan (United States)¹, William North (United States)¹, Pawel Strzebonski (United States)¹, Kent Choquette (United States)¹ (1. University of Illinois)

9am

ThA1.2 - Impact of Cavity Resonance Detuning on Watt-Level PCSELS

» Akhil Raj Kumar Kalapala (United States)¹, Kevin Reilly (United States)², Thomas Rotter (United States)², Chhabindra Gautam (United States)¹, Mingsen Pan (United States)¹, Zhonghe Liu (United States)¹, Yudong Chen (United States)¹, Ming Zhou (United States)³, Ricky Gibson (United States)⁴, Robert Bedford (United States)⁴, Luke Overman (United States)⁵, Prof. Shanhui Fan (United States)³, Ganesh Balakrishnan (United States)², Weidong Zhou (United States)¹ (1. University of Texas at Arlington, 2. University of New Mexico, 3. Stanford University, 4. Air Force Research Laboratory, Wright-Patterson AFB, 5. Semergytech Inc.)

9:15am

ThA1.3 - Comparative Study of 940 nm VCSELs Grown on Ge and GaAs Substrates

» Jack Baker (United Kingdom)¹, Craig Allford (United Kingdom)¹, Sara-Jayne Gillgrass (United Kingdom)¹, Tomas Peach (United Kingdom)², Andrew D Johnson (United Kingdom)³, Andrew M Joel (United Kingdom)⁴, Sung Wook Lim (United Kingdom)³, Matthew D Geen (United Kingdom)³, J Iwan Davies (United Kingdom)³, Samuel Shutts (United Kingdom)¹, Peter Smowton (United Kingdom)¹ (1. Cardiff University, 2. Institute for Compound Semiconductors, Cardiff University, 3. IQE plc, 4. IQE)

9:30am

ThA1.4 - Frozen Mode Regime and Stationary Inflection Points in a Coupled Three Waveguides Model

» Kessem Zamir (Israel)¹, Jacob Scheuer (Israel)¹ (1. School of EE, Tel-Aviv University, Israel and Center for Light-Matter Interactions, Tel-Aviv University, Israel)

9:45am

ThA1.5 - Machine Learning Assisted Extraction of Vertical Cavity Surface Emitting Lasers Parameters

» Ihtesham Khan (Italy)¹, Lorenzo Tunesi (Italy)¹, Muhammad Umar Masood (Italy)¹, Enrico Ghillino (United States)², Andrea Carena (Italy)¹, Vittorio Curri (Italy)¹, Paolo Bardella (Italy)¹ (1. Politecnico di Torino, 2. synopsis)

8:30am

Nonlinear Photonics and Novel Optical Phenomena VI - ThB1: Novel Phenomena

Regency E

Chaired by: Amy Foster (United States) and Alireza Marandi (United States)



Continued from Thursday, 17 November

8:30am

ThB1.1 - (Best Student Paper Finalist) On-Chip Quasi-Light Storage for Long Optical Delays

» [Lachlan Goulden](#) (Australia)¹, Max Kiewiet (Australia)¹, Yang Liu (Switzerland)¹, Choon Kong Lai (Australia)¹, Duk-Yong Choi (Australia)², Stephen Madden (Australia)², Benjamin Eggleton (Australia)³, Moritz Merklein (Australia)¹ (1. The University of Sydney Nano Institute (Sydney Nano) and Institute of Photonics and Optical Science (IPOS), The University of Sydney, Sydney, NSW, Australia, 2. Laser Physics Centre, The Australian National University, Canberra, ACT, Australia, 3. The University of Sydney Nano Institute (Sydney Nano) and Institute of Photonics and Optical Science (IPOS), The University of Sydney, Sydney, NSW)

8:45am

ThB1.2 - Saturable absorption of a double layer graphene modulator on a slot waveguide

» [Tom Reep](#) (Belgium)¹, Cheng-Han Wu (Belgium)¹, Zheng Wang (Belgium)¹, Steven Brems (Belgium)², Stephane Clemmen (Belgium)¹, Joris Van Campenhout (Belgium)², Cedric Huyghebaert (Belgium)², Marianna Pantouvaki (Belgium)², Dries Van Thourhout (Belgium)¹, Bart Kuyken (Belgium)¹ (1. Photonics Research Group, Department of Information Technology, Ghent University-IMEC, 2. IMEC)

8:30am

Materials, Foundries and Fabrication VI - ThC1: Advanced Fabrication for Silicon Photonics

Plaza C

Chaired by: Shankar Kumar Selvaraja (India) and Martijn Heck (Netherlands)

8:30am

ThC1.1 - Selective regrowth of InGaAs/InP MQWs on SOI for telecom band emission

» [JIE LI](#) (Hong Kong)¹, Ying XUE (Hong Kong)¹, Zhao Yan (Hong Kong)¹, Yu Han (Hong Kong)¹, Kei May Lau (Hong Kong)¹ (1. HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY)

8:45am

ThC1.2 - Continuous roller transfer-printing of QVGA semiconductor micro-pixel arrays

» [Eleni Margariti](#) (United Kingdom)¹, Benoit Guilhabert (United Kingdom)¹, Gemma Quinn (United Kingdom)², Dimitars Jevtics (United Kingdom)¹, Martin Dawson (United Kingdom)², Michael Strain (United Kingdom)² (1. University of Strathclyde, Institute of Photonics, 2. University of Strathclyde)

9am

ThC1.3 - (Invited) Strategies for active photonic integrated circuits through transfer printing

» [Brian Corbett](#) (Ireland)¹, Ali Uzun (Ireland)², Fatih Atar (Ireland)³, James O'Callaghan (Ireland)⁴, Simone Iadanza (Ireland)⁵, Liam O'Faolain (Ireland)⁵, Samir Ghosh (Ireland)⁴ (1. Tyndall National Institute & University College Cork, 2. Tynd, 3. Tyndall National Institute; University College Cork, 4. Tyndall National Institute, University College Cork, 5. Munster Technological University)

9:30am

ThC1.4 - Manufacturing of nanostructures in silicon carbide using UV-nanoimprint lithography in combination with fluorine-based plasma etching

» [Thomas Handte](#) (Germany)¹, Martin Hofmann (Germany)², Arne Behrens (Germany)¹, Stefan Sinzinger (Germany)¹ (1. Technische Universität Ilmenau, 2. Fraunhofer Institute for Integrated Systems and Device Technology IISB)

9:45am

ThC1.5 - Two-dimensional Individually Addressable Electrowetting Micro-Lens Array

» [Samuel Gilinsky](#) (United States)¹, Mo Zohrabi (United States)¹, Omkar Supekar (United States)¹, Wei Lim (United States)¹, Victor Bright (United States)¹, Juliet Gopinath (United States)¹ (1. University of Colorado Boulder)

8:30am

Microwave Photonics and Vehicular Optics VI - ThD1: Microwave Photonics 2

Regency F

Chaired by: Charles Middleton (United States) and David Moilanen (United States)

8:30am

ThD1.1 - (Invited) Integrated Lithium Niobate Photonics and Applications

» [Marko Loncar](#) (United States)¹ (1. Harvard University)



Continued from Thursday, 17 November

- 9am **ThD1.2 - 10-GHz Imaging by an Electro-Optic Imaging System Based on Polarization CMOS Image Sensor**
» [Ryoma Okada](#) (Japan)¹, Kiyotaka Sasagawa (Japan)¹, Maya Mizuno (Japan)², Hironari Takehara (Japan)¹, Makito Haruta (Japan)¹, Hiroyuki Tashiro (Japan)³, Jun Ohta (Japan)¹ (1. Nara Institute of Science and Technology, 2. National Institute of Information and Communications Technology, 3. Nara Institute of Science and Technology / Kyushu University)
- 9:15am **ThD1.3 - Fiber-Nonlinearity Cancellation of 8-PSK Radio-on-Fiber Signals by Conjugated RoF based on Photonic Dual-Sideband Upconversion and Asymmetric Heterodyne Downconversion**
» [Takahide Sakamoto](#) (Japan)¹, Shuhei Otsuka (Japan)¹, Tatsuki Ishijima (Japan)¹, Hideto Takayasu (Japan)¹ (1. Tokyo Metropolitan University)
- 9:30am **ThD1.4 - (Invited) Towards 6G: The Evolution of Passive Optical Networks**
» [Elaine Wong](#) (Australia)¹ (1. University of Melbourne)
- 8:30am **Optical Communication: Devices, Interconnects and Subsystems IX - ThE1: Specialty Optical Fibers for Communication and Sensing**
Plaza B
Chaired by: Giovanni Milione (United States) and Philip Ji (United States)
- 8:30am **ThE1.1 - (Invited) Distributed Optical Fiber Sensing Using Specialty Optical Fibers**
» [Philip Ji](#) (United States)¹, Giovanni Milione (United States)¹, Yue-Kai Huang (United States)¹, Jian Fang (United States)¹, Ezra Ip (United States)¹, Yaowen Li (United States)¹, Ming-Fang Huang (United States)¹, Shuji Murakami (United States)¹, Yuheng Chen (United States)¹, Ting Wang (United States)¹ (1. NEC Labs America)
- 9am **ThE1.2 - (William Streifer Scientific Achievement Award) Semiconductor optical fiber: on-chip optoelectronics in fiber form**
» [John Ballato](#) (United States)¹ (1. Clemson University)

- 8:30am **Quantum Photonics V - ThF1: Emerging Photonic Technologies for Quantum Applications**
Plaza A
Chaired by: Daniel Jones (United States)
- 8:30am **ThF1.1 - (Invited) Open Source Tools for Quantum Integrated Photonics**
» [Ryan Camacho](#) (United States)¹ (1. Brigham Young University)
- 9am **ThF1.2 - Single-mode Distributed Feedback Lasers for 87Rb Two-Photon Quantum Technology Systems**
» [Eugenio Di Gaetano](#) (United Kingdom)¹, Brendan Keliehor (United Kingdom)², Paul Griffin (United Kingdom)², Marc Sorel (Italy)³, Erling Riis (United Kingdom)², Douglas Paul (United Kingdom)¹ (1. University of Glasgow, 2. University of Strathclyde, 3. Sant'Anna School of Advanced Studies)
- 9:15am **ThF1.3 - Compact and Robust Bent Axis Waveguide Coupler with a Sign Flip of the Phase Mismatch**
» Bing-Cong Wu (Taiwan)¹, [Hung-Ching Chung](#) (Taiwan)¹, Shuo-Yen Tseng (Taiwan)¹ (1. Dept. of Photonics, National Cheng Kung University)
- 9:30am **ThF1.4 - Optomechanical Crystal Nanobeam Cavities in Single Crystal Diamond**
» [Elham Zohari](#) (Canada)¹, Joseph E. Losby (Canada)², Waleed El-Sayed (Canada)², Parisa Behjat khatouni (Canada)², Gustavo de Oliveira Luiz (Canada)¹, John P. Davis (Canada)¹, Paul E. Barclay (Canada)² (1. University of Alberta, 2. University of Calgary)
- 9:45am **ThF1.5 - Photon-number Resolving Detection Based on High Efficiency InGaAs/InAlAs Single Photon Avalanche Diode**
» [Chi-En Chen](#) (Taiwan)¹, Qi-Xian Wu (Taiwan)², Wei-Hong Kan (Taiwan)², Yujie Teng (Taiwan)³, Yi-Shan Lee (Taiwan)³, Jin-Wei Shi (Taiwan)² (1. National Taiwan University, 2. National Central University, 3. National Tsing Hua University)



Continued from Thursday, 17 November

8:30am **Propagation, Spectroscopy, and Imaging IV - ThG1: Imaging and Microscopy**
Regency B
Chaired by: Nazanin Hoghooghi (United States) and Kevin Cossel (United States)

8:30am **ThG1.1 - (Invited) High-speed Two-Photon Microscopy with spectro-temporal Laser Imaging by diffractive excitation (SLIDE)**
» [Sebastian Karpf](#) (Germany)¹ (1. University of Lübeck)

9am **ThG1.2 - (Invited) Developing quantitative optical imaging platforms for diagnostics**
» [Jaime Ortega Arroyo](#) (Switzerland)¹ (1. ETH Zurich)

9:30am **ThG1.3 - Time-Resolved Complex Optical-Field Imaging of Laser Ablation Dynamics**
» [Shotaro Kawano](#) (Japan)¹, Keiichiro Toda (Japan)¹, Haruyuki Sakurai (Japan)¹, Kuniaki Konishi (Japan)¹, Takuro Ideguchi (Japan)¹ (1. The University of Tokyo)

8:30am **Detection, Sensing, and Energy VI - ThH1: Advances in IR Detectors**
Regency A
Chaired by: Thomas Rotter (United States)

8:30am **ThH1.1 - (Invited) Imaging with Metasurfaces**
» [Willie Padilla](#) (United States)¹ (1. Duke University)

9am **ThH1.2 - Separate Absorption, Charge, and Multiplication Avalanche Photodiode with a Digital Alloy Al_{0.05}In_{0.95}As_{0.93}Sb_{0.07} Absorber for Mid-IR Detection**
» [Adam Dadey](#) (United States)¹, J. Andrew McArthur (United States)², Seth Bank (United States)², Joe Campbell (United States)¹ (1. University of Virginia, 2. University of Texas at Austin)

9:15am

ThH1.3 - Bias-Free Operation of Type-II GaInAsSb/InP High Speed Uni-Traveling Carrier Photodiodes

» [Rimihim Chaudhary](#) (Switzerland)¹, Akshay Arabhavi (Switzerland)¹, Olivier Ostinelli (Switzerland)¹, Colombo Bolognesi (Switzerland)¹ (1. ETH Zurich)

9:30am

ThH1.4 - Proton Irradiation Effects on Mid-Wave Infrared InGaAs/InAsSb Superlattice nBn Photodetectors

» [Alexander Newell](#) (United States)¹, Preston Webster (United States)², Julie Logan (United States)², Zinah Alsaad (United States)², Rigo Carrasco (United States)², Christian Morath (United States)², Christopher Hains (United States)², Gamini Ariyawansa (United States)², Diana Maestas (United States)², Marko Milosavljevic (United States)³, Joshua Duran (United States)⁴, Shane Johnson (United States)⁵, Ganesh Balakrishnan (United States)¹ (1. University of New Mexico, 2. Air Force Research Laboratory, Space Vehicles Directorate Kirtland AFB, NM, 3. Center for Photonics Innovation & Electrical, Computer, and Energy Engineering Arizona State University, Tempe, AZ, 4. Air Force Research Laboratory, Sensors Directorate Wright-Patterson AFB, OH, 5. Center for Photonics Innovation & Electrical, Computer, and Energy Engineering, Arizona State University, Tempe, AZ)

9:45am

ThH1.5 - MMWIR InAs/InAsSb type-II Superlattice Photodetector for High-Speed Operation

» [Zhecheng Dai](#) (China)¹, Jian Huang (China)¹, Baile Chen (China)¹ (1. ShanghaiTech University)

10am

Coffee Break & Exhibits
Regency Foyer

10:30am

IPC 2022 Post-Deadline Session and Closing Ceremony
Regency C
Chaired by: Dominique Dagenais (United States)



Continued from Thursday, 17 November

10:30am

PD1 - Quantum Key Distribution using True On-demand Single Photons over a Field-Installed Fiber Link

» Mujtaba Zahidy (Denmark)¹, Mikkel T. Mikkelsen (Denmark)², Ronny Mueller (Denmark)¹, Beatrice Da Lio (Denmark)², Martin Krehbiel (Denmark)², Ying Wang (Denmark)², Michael Galili (Denmark)¹, Søren Forchhammer (Denmark)¹, Peter Lodahl (Denmark)², Leif Oxenløwe (Denmark)¹, Davide Bacco (Denmark)¹, Leonardo Midolo (Denmark)² (1. Department of Electrical and Photonics Engineering, Technical University of Denmark, 2. Niels Bohr Institute, University of Copenhagen)

10:45am

PD2 - Compact All-Fiber Quantum-Inspired LiDAR with > 100dB Noise Rejection and Single Photon Sensitivity

» Han Liu (Canada)¹, Yutian Zhang (Canada)¹, Georgios Papangelakis (Canada)¹, Amr Helmy (Canada)¹ (1. University of Toronto)

11am

PD3 - On-Chip Reconfigurable Phase Locking by Asymmetric Coupling in Two-Dimensional Laser Arrays

» Zihe Gao (United States)¹, Xingdu Qiao (United States)¹, Mingsen Pan (United States)², Shuang Wu (United States)¹, Bikashkali Midya (India)³, Li Ge (United States)⁴, Feng Liang (United States)¹ (1. University of Pennsylvania, 2. University of Texas at Arlington, 3. Indian institute of science education and research, 4. City University of New York)

11:15am

PD4 - Heterogeneous III-V/Si (De-)Interleaver Filters with Non-Volatile Memristive Behavior

» Stanley Cheung (United States)¹, Bassem Tossoun (United States)¹, Roger Fang (United States)¹, Yuan Yuan (United States)¹, Yingtao Hu (United States)¹, Geza Kurczveil (United States)¹, Yiwei Peng (United States)¹, Di Liang (United States)², Dr. Raymond Beausoleil (United States)¹ (1. Hewlett Packard Enterprise, 2. Alibaba Group)

11:30am

PD5 - Heterogeneous integration of Brillouin devices with active silicon photonic circuits

» Matt Garrett (Australia)¹, Moritz Merklein (Australia)¹, Yang Liu (Australia)², Cong Tinh Bui (Australia)², Choon Kong Lai (Australia)¹, Duk-Yong Choi (Australia)³, Stephen Madden (Australia)³, Alvaro Casas-Bedoya (Australia)², Benjamin Eggleton (Australia)² (1. The University of Sydney Nano Institute (Sydney Nano) and Institute of Photonics and Optical Science (IPOS), The University of Sydney, Sydney, NSW, Australia, 2. The University of Sydney Nano Institute (Sydney Nano) and Institute of Photonics and Optical Science (IPOS), The University of Sydney, Sydney, NSW, 3. Laser Physics Centre, The Australian National University, Canberra, ACT, Australia)

11:45am

PD6 - InGaN/GaN Short-Period Superlattices in Nanowires for Developing Efficient Red Submicron LEDs

» Ayush Pandey (United States)¹, Jungwook Min (United States)¹, Yakshita Malhotra (United States)¹, Maddaka Reddeppa (United States)¹, Yixin Xiao (United States)¹, Yuanpeng Wu (United States)¹, Zetian Mi (United States)¹, Jiangnan Liu (United States)¹ (1. University of Michigan)