Welcome to the 2021 IEEE Group IV Photonics Conference!

Dear Participants,

We warmly welcome you to the 17th edition of the IEEE International Conference on Group IV Photonics. Originally planned to take place in the beautiful Mediterranean city of Málaga in southern Spain, due to the ongoing COVID-19 pandemic this year’s edition will be held online. While we regret not being able to share with you the freshly grilled fish or the views from the Moorish fortress overlooking the city, we definitely encourage you to personally visit the city when you have chance.

Of course, nothing can fully replace the person-to-person interaction the conference is known for, but we strive to provide an engaging experience. This year, GFP will span four days (instead of the traditional three), with a schedule that can be comfortably followed from the US and Europe, and at least in part from Asia. The program is packed with high quality contributed presentations, both in the conventional oral presentation format, and in a shorter pitch-talk format. There are selected invited talks covering outstanding advances in modulation, lasing, neuromorphic computing and more, as well as two plenary talks by Prof. Roel Baets and Prof. Alexander Gaeta. We are furthermore delighted to offer a best student papers award – the winners will be announced in the closing session.

We would like to thank all of you for your participation and look forward to meeting you during the conference!

With warm regards,
José and Robert
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<td>Chao Peng (China)</td>
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<td>9:30am</td>
<td>TuB</td>
<td>TuB - TuB: Mid-Infrared Photonics</td>
<td>J. Gonzalo Wanguemert Pérez (Spain) and Frederic Gardes (United Kingdom)</td>
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<td>9:30am</td>
<td>TuB1</td>
<td>TuB1 - Photodetection at 3.8μm Using Intrinsic Monolithic Germanium Photodiodes</td>
<td>Lauren Reid (United Kingdom), Milos Nedeljkovic (United Kingdom), Wei Cao (United Kingdom), Lorenzo Mastronardi (United Kingdom), Radan Slavik (United Kingdom), Goran Mashanovich (United Kingdom) (1. Optoelectronics Research Centre, Zepler Institute for Photonics and Nanoelectronics, Faculty of Engineering and Physical Sciences University of Southampton)</td>
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<td>9:45am</td>
<td>TuB2</td>
<td>TuB2 - Mid-infrared second harmonic generation with Ge quantum wells</td>
<td>Jacopo Frigerio (Italy), Chiara Ciano (Italy), Andrea Ballabio (Italy), Daniel Chrustina (Italy), Jonas Allerbeck (Germany), Joel Kuttruff (Germany), Junjie Zheng (Sweden), Eva Olsson (Sweden), Virginia Falcone (Italy), Monica De Seta (Italy), Daniele Brida (Luxembourg), Michele Virgilio (Italy), Michele Ortolani (Italy) (1. Politecnico di Milano, 2. Università Roma Tre, 3. University of Konstanz, 4. Chalmers University, 5. University of Luxembourg, 6. Università di Pisa, 7. Università La Sapienza)</td>
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<td>10am</td>
<td>TuB3</td>
<td>TuB3 - Suspended germanium waveguides with metamaterial lateral cladding for mid-infrared integrated photonics</td>
<td>Alejandro Sánchez-Postigo (Spain), Alejandro Ortega-Moñux (Spain), Jordi Soler Penades (Spain), Daniel Pereira-Martín (Spain), Ahmed Osman (United Kingdom), Milos Nedeljkovic (United Kingdom), Zhibo Qu (United Kingdom), Yangbo Wu (United Kingdom), Robert Halir (Spain), Íñigo Molina-Fernández (Spain), Pavel Cheben (Canada), Goran Mashanovich (United Kingdom), J. Gonzalo Wanguemert Pérez (Spain) (1. Telecommunication Research Institute (TELMA), Universidad de Málaga, CEI Andalucia TECH, 2. VLC Photonics S.L., Valencia, 3. Optoelectronics Research Centre, University of Southampton, 4. Optoelectronics Research Centre, Zepler Institute for Photonics and Nanoelectronics, Faculty of Engineering and Physical Sciences University of Southampton, 5. Uni Málaga, 6. National Research Council Canada)</td>
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10:15am

TuB4 - Mid-infrared supercontinuum generation in suspended silicon rib waveguides
» Thi Thuy Duong Dinh (France), Xavier Le Roux (France), Miguel Montesinos-Ballester (France), Eric Cassan (France), Delphine Marris-Morini (France), Laurent Vivien (France), CARLOS RAMOS (France) (1. Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Saclay, 2. Centre de Nanosciences et de Nanotechnologies, Universite Paris-Saclay, CNRS, 3. C2N, Univ. Paris-Saclay, CNRS)

10:30am Break

10:45am TuC - TuC: Optoacoustics
Chaired by: Frederic Gardes (United Kingdom) and Robert Halir (Spain)

TuC1 - Generating X-band phonons in a nanostructured silicon optomechanical cavity
» Jianhao ZHANG (France), Xavier Le Roux (France), Paula Nuño Ruano (France), Daniele Melati (France), Miguel Montesinos-Ballester (France), Eric Cassan (France), Delphine Marris-Morini (France), Laurent Vivien (France), CARLOS RAMOS (France) (1. Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Saclay, 2. Centre de Nanosciences et de Nanotechnologies, Universite Paris-Saclay, CNRS, 3. C2N, Univ. Paris-Saclay, CNRS)

11am

TuC2 - Acousto-optic modulation in a Si-waveguide
» Irfan Ansari (Belgium), Gilles F. Feutmba (Belgium), John P. George (Belgium), Jeroen Beeckman (Belgium), Dries Van Thourhout (Belgium) (1. Photonics Research Group, Ghent University - IMEC, 2. Liquid Crystal & Photonics Group, Ghent University)

11:15am

TuC3 - Thermo-mechanical Noise Measurement of Sealed Nanobeams on a Silicon Photonics-MEMS Platform
» Khannan Rajendran (Belgium), Awanish Pandey (Belgium), Pierre Edinger (Sweden), Gaeun Jo (Sweden), Alain Yuji Takabayashi (Switzerland), Umar Khan (Belgium), Peter Verheyen (Belgium), Niels Quack (Switzerland), Frank Niklaus (Sweden), Wim Bogaerts (Belgium), Kristinn B. Gyfason (Sweden), Dries Van Thourhout (Belgium) (1. Photonics Research Group, Ghent University - IMEC, 2. KTH - Royal Institute of Technology, 3. Ecole Polytechnique Fédérale de Lausanne (EPFL), 4. Interuniversity Microelectronics Centre, 3DSIP department)

11:30am Break

12pm TuD1 - TuD1: Pitch Talks I
Chaired by: Daniel Benedikovic (France) and Robert Halir (Spain)

TuD1.1 - Novel Thermo-Optical Dynamics of Silicon µ-Cavities and Demonstration of On-Chip Thermo-Optically Induced Transparency
» Simone Iadanza (Ireland), Marco Clementi (Italy), Sebastian Schulz (United Kingdom), Giulia Urbanini (Italy), Changyu Hu (Ireland), Dario Gerace (Italy), Matteo Galli (Italy), Liam O’Faolain (Ireland) (1. Munster Technological University, 2. University of St. Andrews, 4. University College Cork, 5. Università di Pavia)

12:05pm TuD1.2 - Dynamical Modeling of Silicon Ring Resonators in Thermo-optic Oscillation Regime
» Sourav Dev (Germany), Mircea Catuneanu (Germany), Kambiz Jamshidi (Germany) (1. Technische Universität Dresden)

12:10pm TuD1.3 - Modelling of thermal effects in InP-on-Si nanocavity lasers
» Pengyan Wen (Switzerland), Preksha Tiwari (Switzerland), Bernd Gotsmann (Switzerland), Kirsten Moselund (Switzerland) (1. IBM Research Europe -Zurich)
TuD1.4 - Optimized hourglass-shaped resonators for efficient thermal tuning of CROW filters with reduced crosstalk

» Juliana Müller (Germany), Andrea Zazzi (Germany), Gayatri Vasudevan Rajeswari (Germany), Alvaro Moscoso Mártil (Germany), Alireza Tabatabaei Mashayekh (Germany), Arka Dipta Das (Germany), Florian Merget (Germany), Jeremy Witzens (Germany) (1. RWTH Aachen University)

TuD1.5 - Simultaneous Measurements of the Fabricated Width and Thickness of Silicon Nitride Waveguides with Microring Resonators

» MohammadReza Jalali Azizpour (Canada), Duy-Thach Phan (Canada), Abubaker Tareki (Canada), Boris LeDrogoff (Canada), Mohamed Chaker (Canada), Michaël Ménard (Canada) (1. Institut National de la Recherche Scientifique Centre—Énergie Matériaux Télécommunications, 2. Institut National de la Recherche Scientifique Centre—Énergie Matériaux Télécommunications, 3. Department of Computer Science, Université du Québec à Montréal)

TuD1.6 - Compact Silicon Nitride Circular Grating Reflectors

» Fahimeh Armin (Canada), Frederic Nabki (Canada), Michaël Ménard (Canada) (1. Department of Computer Science, Université du Québec à Montréal, 2. Department of Electrical Engineering, Ecole de Technologie Supérieure)

TuD1.7 - Sensitivity increase of silicon nitride ring resonator biosensor operated in the TM mode at 1310 nm

» Lucía Castelló Pedero (Spain), Maria I. Gómez Gómez (Spain), Jaime García Rupérez (Spain), Amadeu Grióli (Spain), Alejandro Martínez (Spain) (1. Nanophotonics Technology Center)

TuD1.8 - Basic building blocks development for a SiN platform in the visible range

» Joaquín Faneca (Spain), Jad Sabek (Spain), Thalía Domínguez Bucio (United Kingdom), Frederic Gardes (United Kingdom), Carlos Domínguez Horna (Spain) (1. CNM-IMB, 2. Optoelectronics Research Centre)

TuD1.9 - Compact amorphous-silicon visible-light monitor integrated in silicon nitride waveguides

» Christian De Vita (Italy), Charalambos Klitis (United Kingdom), Nina Codreanu (Netherlands), Giorgio Ferrari (Italy), Marc Sorel (United Kingdom), Andrea Melloni (Italy), Francesco Morichetti (Italy) (1. Politecnico di Milano, 2. University of Glasgow, 3. Delft University of Technology)

TuD2 - Pitch Talks II

Chaired by: Alejandro Sánchez-Postigo (Spain) and Alejandro Ortega-Moñux (Spain)

TuD2.1 - ZnS antireflection coating for Silicon for MIR-LWIR applications

» Christian De Vita (Italy), Marco Asa (Italy), Mikel Azpeitia (Italy), Maria Eloisa Castagna (Italy), Claudio Somaschini (Italy), Francesco Morichetti (Italy), Andrea Melloni (Italy) (1. Politecnico di Milano, 2. STMicroelectronics)

TuD2.2 - Low-loss reactive sputter deposited titanium oxide waveguides

» Alvaro Aguirre (Netherlands), Ivo Hegeman (Netherlands), Ward Hendriks (Netherlands), Meindert Dijkstra (Netherlands), Sonia Garcia Blanco (Netherlands) (1. Integrated Optical Systems University of Twente Enschede, 2. Integrated Optical Systems University of Twente Enschede)

TuD2.3 - Fabrication of Perovskite/Si periodic microwire arrays via micro-pump fluidic strategy for optoelectronics applications

» Bin Xin (Saudi Arabia), Iman Roqan (Saudi Arabia) (1. KAUST)

TuD2.4 - Ge-on-Si camera for NIR detection

» Michael Oehme (Germany), Mathias Kaschel (Germany), Maurice Wanitzek (Germany), Steffen Epple (Germany), Xin Zhou (Germany), Zili Yu (Germany), Daniel Schwarz (Germany), Joachim Burghartz (Germany), Jörg Schulze (Germany) (1. Institute of Semiconductor Engineering, University of Stuttgart, 2. Institut für Mikroelektronik Stuttgart (IMS CHIPS))
Continued from Tuesday, 7 December

12:20pm  **TuD2.5 - Ge micro-crystals photodetectors with enhanced infrared responsivity**  
  » Virginia Falcone (Italy), Giovanni Isella (Italy), Andrea Ballabio (Italy), Jacopo Frigerio (Italy), Andrea Barzaghi (Italy), Carlo Zucchetti (Italy), Federico Bottegoni (Italy), Paolo Biagioni (Italy), Luca Anzi (Italy) (1. Politecnico di Milano)

12:25pm  **TuD2.6 - Deep-learning algorithms for imperfection-resilient Fourier-transform spectroscopy in silicon**  
  » Zindine Mokeddem (France), Daniele Melati (France), David Gonzalez-Andrade (France), Thi-Thuy-Duong Dinh (France), Miguel Montesinos-Ballester (France), Eric Cassan (France), Delphine Marris-Morini (France), Yuri Grinberg (Canada), Pavel Cheben (Canada), Dan-Xia Xu (Canada), Jens H. Schmid (Canada), Laurent Vivien (France), Aitor V. Velasco (Spain), CARLOS RAMOS (France) (1. Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Saclay, 2. Centre de Nanosciences et de Nanotechnologies, Université Paris-Saclay, CNRS, 3. C2N, 4. National Research Council Canada, Ottawa, K1A 0R6, Canada, 6. C2N, Univ. Paris-Saclay, CNRS, 7. CSIC)

12:30pm  **TuD2.7 - Circuit modeling for neuromorphic photonics in Verilog-A as a scalable simulation platform**  
  » Jagmeet Singh (Canada), Hugh Morison (Canada), Zhimu Guo (Canada), Bicky Marquez (Canada), Omid Esmaeeli (Canada), Paul Prucnal (United States), Lukas Chrostowski (Canada), Bhavin Shastri (Canada) (1. Queen's University, 2. University of British Columbia, 3. Princeton University)

12:35pm  **TuD2.8 - Measuring the complex Joint Spectral Amplitude of photon pairs with a compact silicon chip**  
  » Massimo Borghi (Italy) (1. University of Trento)

12:40pm  **TuD2.9 - Ultrafast all-optical phase switch based on a CdO/Si waveguide**  
  » Juan Navarro (Spain), Miguel Ribera Vicent (Spain), Jorge Parra (Spain), Pablo Sanchis (Spain) (1. Nanophotonics Technology Center - Universitat Politècnica de València)

12:45pm  **TuD2.10 - A Compact, Low-Drive-Voltage Mach-Zehnder Modulator Using Serially-Coupled Rings**  
  » Aroutin Khachaturian (United States), Parham Porsandeh Khial (United States), Ali Hajimiri (United States) (1. California Institute of Technology)

1pm  **Break**

1:15pm  **TuE - TuE: Self-configuring Devices**  
  Chaired by: Haisheng Rong (United States) and Robert Halir (Spain)

1:15pm  **TuE1 (Invited) - Self-configuring complex photonic circuits**  
  » David A.B. Miller (United States) (1. Stanford University)

1:45pm  **TuE2 - Self-Configuring Silicon-Photonic Receiver for Multimode Free Space Channels**  
  » SeyedMohammad SevedinNavadeh (Italy), Maziyar Milanizadeh (Italy), Giorgia Benci (Italy), Christian De Vita (Italy), Charalambos Klitis (United Kingdom), Marc Sorel (United Kingdom), Francesco Zanetto (Italy), Vittorio Grimaldi (Italy), Giorgio Ferrari (Italy), David A.B. Miller (United States), Andrea Melloni (Italy), Francesco Morichetti (Italy) (1. Politecnico di Milano, 2. University of Glasgow, 3. Stanford University)

2pm  **TuE3 - Self-Stabilized Silicon Mach-Zehnder Interferometers by Integrated CMOS Controller**  
  » Fabio Toso (Italy), Maziyar Milanizadeh (Italy), Francesco Zanetto (Italy), Vittorio Grimaldi (Italy), Andrea Melloni (Italy), Marco Sampietro (Italy), Francesco Morichetti (Italy), Giorgio Ferrari (Italy) (1. Politecnico di Milano)

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Wednesday, 8 December

7am  **WA - WA: Modulators I**  
  Chaired by: David Thomson (United Kingdom) and Laurent Vivien (France)
WA1 - 60-GHz-bandwidth O-band Membrane InGaAlAs Electro-Absorption Modulator on Si Platform
» Takuma Aihara (Japan)\(^1\), Tatsuru Hiraki (Japan)\(^2\), Yoshiho Maeda (Japan)\(^3\), Takuro Fujii (Japan)\(^1\), Tai Tsuchizawa (Japan)\(^1\), Kiyoto Takahata (Japan)\(^1\), Takaaki Kakitsuka (Japan)\(^1\), Shinji Matsuo (Japan)\(^1\) (1. NTT Device Technology Labs, NTT Corporation, 2. NTT Device Technology Labs, 3. Waseda University)

7:15am
WA2 (Invited) - Membrane InP-based Modulator and Laser on Si
» Tatsuru Hiraki (Japan)\(^1\), Takuma Aihara (Japan)\(^1\), Takuro Fujii (Japan)\(^1\), Koji Takeda (Japan)\(^1\), Yoshiho Maeda (Japan)\(^3\), Tai Tsuchizawa (Japan)\(^1\), Takaaki Kakitsuka (Japan)\(^1\), Kiyoto Takahata (Japan)\(^1\), Shinji Matsuo (Japan)\(^1\) (1. NTT Device Technology Labs, NTT Corporation, 2. NTT Device Technology Labs, 3. Waseda University)

7:45am
WA3 (Invited) - High-performance hybrid silicon and lithium niobate modulators
» Xinlun Cai (China)\(^1\) (1. Sun Yat-sen University)

8:15am
Break

8:30am
WB - WB: Modulators II
Chaired by: Laurent Vivien (France) and David Thomson (United Kingdom)

8:30am
WB1 - Configurable Phase/Amplitude Modulator Circuit based on Silicon Plasma Dispersion
» Hong Deng (Belgium)\(^1\), Wim Bogaerts (Belgium)\(^1\) (1. Gent University)

8:45am
WB2 - Fast volatile response in GST/Si waveguides for all-optical modulation
» Jorge Parra (Spain)\(^1\), Alejandro Santomé (Spain)\(^1\), Juan Navarro (Spain)\(^1\), Pablo Sanchís (Spain)\(^1\) (1. Nanophotonics Technology Center - Universitat Politècnica de València)

9am
WB3 - Silicon Photonic Modulators for Data Center Interconnects
» David Plant (Canada)\(^1\) (1. McGill University)

9:15am
WB4 (Invited) - Plamonic on Silicon Photonics – Terabit Modulation on the Micrometer Scale
» Benedikt Baueuerle (Switzerland)\(^1\) (1. Polariton Technologies Ltd.)

9:45am
Break

10:15am
WC - WC: Lasing and Detection
Chaired by: Jurgen Michel (United States) and Robert Halir (Spain)

10:15am
WC1 - Steady state lasing in strained germanium microbridges as fundamental measure for the crossover to direct band gap
» Hans Sigg (Switzerland)\(^1\), Francesco Armand Pilon (Switzerland)\(^1\), Yann-Michel Hartmann (France)\(^1\), Nicolas Pauc (France)\(^2\), Vincent Reboud (France)\(^3\), Vincent Calvo (France)\(^2\), Julie Widiez (France)\(^2\), Jean-Michel Hartmann (France)\(^4\), Alexei Tchelnokov (France)\(^5\), Jérôme Faist (Switzerland)\(^6\) (1. Paul Scherrer Institut, 2. Univ. Grenoble Alpes, CEA, 3. Univ. Grenoble Alpes, CEA, LETI, 4. University Grenoble Alpes and CEA, LETI, 5. Univ. Grenoble Alpes, CEA and LETI, 6. Institute for Quantum Electronics, ETH Zürich)

10:30am
WC2 (Invited) - Towards lasing in hexagonal SiGe
» Jos Haverkort (Netherlands)\(^1\) (1. Eindhoven University of Technology)

11am
WC3 - Ge/Si electrically tunable VIS/SWIR photodetector
» Andrea Ballabio (Italy)\(^1\), Andrea De Iacovo (Italy)\(^1\), Jacopo Frigerio (Italy)\(^1\), Andrea Fabbri (Italy)\(^1\), Giovanni Isella (Italy)\(^1\), Lorenzo Colace (Italy)\(^1\) (1. Politecnico di Milano, 2. Università degli Studi Roma Tre)
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Continued from Wednesday, 8 December

11:15am WC4 (Invited) - Silicon-Germanium Heterojunction Photodetectors for On-Chip Optoelectronics and Communications
   » Daniel Benedikovic (France)¹, Leopold Vriot (France)², Guy Aubin (France)¹, Jean-Michel Hartmann (France)³, Farah Amar (France)¹, Xavier Le Roux (France)⁴, Carlos Alonso-Ramos (France)⁴, Eric Cassan (France)⁵, Delphine Marris-Morini (France)⁶, Frederic Boeuf (France)⁶, Jean-Marc Fedeli (France)⁶, Bertrand Szelag (France)⁶, Laurent Vivien (France) (1. Centre de Nanosciences et de Nanotechnologies, Universite Paris-Saclay, 2. University Grenoble Alpes and CEA, LETI, 38054 Grenoble, France, 3. University Grenoble Alpes and CEA, LETI, 4. STMicroelectronics)

11:45am WC5 - A Precision in-situ Waveguide Loss Measurement Technique Using In-line Silicon Photodetectors
   » Chaoxuan Ma (United States)¹, Ranjeet Kumar (United States)¹, Meer Nazmus Sakib (United States)¹, Duanni Huang (United States)¹, Haisheng Rong (United States)¹ (1. Intel Corporation)

12pm Break

12:30pm WD - WD: Industry Session
   Chaired by: Robert Halir (Spain)

12:30pm WD1 (Invited) - Photonic Developments Utilizing Group IV Materials
   » Tracey Vanik (United States)¹ (1. EPIC)

1pm WD2 (Invited) - Si Photonics for Wearable Health Sensors
   » Aaron Zilkie (United States)¹ (1. Rockley Photonics)

1:30pm WD3 (Invited) - Scaling transmission bandwidth with silicon photonic integrated circuits
   » Yuliya Akulova (United States)¹ (1. Intel Corp.)

2pm WD4 (Invited) - The next two decades of Silicon Photonics: Predictions and Challenges
   » Michael Hochberg (United States)¹ (1. Nokia)

Thursday, 9 December

7am ThA - Photonic Systems
   Chaired by: Pablo Sanchís (Spain) and Xianshu Luo (Singapore)

7am ThA1 - High-performance Silicon Photonic Filters based on High-order Adiabatic Elliptical-microrings
   » Dajian Liu (China)¹, Jianghao He (China)¹, Yuluan Xiang (China)¹, Yang Xu (China)¹, Daoxin Dai (China)¹ (1. Zhejiang University)

7:15am ThA2 - Silicon photonics transceiver evaluation for immersion cooled data center and HPC environments
   » Kazuhiko Kurata (Japan)¹, Yasuhiko Hagihara (Japan)¹, Makoto Kuwata (Japan)¹, Takashi Muto (Japan)¹, Šigeru Kobayashi (Japan)¹, Richard Pitwon (United Kingdom)² (1. AIO Core Ltd, 2. Resolute Photonics Ltd)

7:30am ThA3 - Capacitance Matching for a Non-volatile Hybrid SIS Optical Phase Shifter with a Ferroelectric Capacitor
   » Jae-Hoon Han (Korea, Republic of)¹, Seung-Min Han (Korea, Republic of)¹, Dae-Hwan Ahn (Korea, Republic of)¹, Woo-Young Choi (Korea, Republic of)², Jin-Dong Song (Korea, Republic of)² (1. Korea Institute of Science and Technology (KIST), 2. Korea Institute of Science and Technology (KIST), Yonsei University, 3. Yonsei University)

7:45am ThA4 - Secure authentication of 56 physically unclonable silicon photonic integrated circuits
   » Farhan Bin Tarik (United States)¹, Azadeh Famili (United States)¹, Yingjie Lao (United States)¹, Judson Ryckman (United States)¹ (1. Clemson University)

8am ThA5 (Invited) - Fault-tolerant photonic quantum computing
   » Zachary Vernon (Canada)¹ (1. Xanadu Quantum Technologies Inc.)

8:30am Break
ThB1 - Pitch Talks III
Chaired by: Daniel Benedikovic (France) and Robert Halir (Spain)

8:45am
ThB1.1 - Compact low-loss strip to double-slot waveguide coupler for sensing application
» Sushma Gali (India)¹, Varun Raghunathan (India)¹, Shankar Kumar Selvaraja (India)¹ (1. Indian Institute of Science)

8:50am
ThB1.2 - Al2O3 referenced microring resonators for the detection of interleukin-6
» Ward Hendriks (Netherlands)¹, Meindert Dijkstra (Netherlands)², Jeroen Korterik (Netherlands)², Sonia Garcia Blanco (Netherlands)² (1. Integrated Optical Systems University of Twente Enschede, 2. Integrated Optical Systems University of Twente Enschede)

8:55am
ThB1.3 - Multimode mechanical confinement in 1D silicon optomechanical crystal cavities
» Laura Mercađe Morales (Spain)¹, Amadeu Griol (Spain)¹, Alejandro Martínez (Spain)¹ (1. Nanophotonics Technology Center)

9am
ThB1.4 - Bandgap closure in 1D photonic crystals from interplay between Mie resonances
» Evelyn Díaz Escobar (Spain)¹, Angela Barreda (Germany)², Laura Mercađe (Spain)¹, Amadeu Griol (Spain)¹, Alejandro Martínez (Spain)¹ (1. Nanophotonics Technology Center Universitat Politècnica de València, 2. University of Jena)

9:05am
ThB1.5 - External Cavity Laser with Alignment Tolerant III-V Gain Chip to PIC Edge Coupler in Silicon Nitride
» Ibrahim Ghannam (Germany)¹, Bin Shen (Germany)¹, Florian Merget (Germany)¹, Jeremy Witzens (Germany)¹ (1. RWTH Aachen University)

9:10am
ThB1.6 - The above-threshold linewidth enhancement factor of silicon-based quantum dot lasers
» Shihao Ding (France)¹, Bozhong Dong (France)¹, Heming Huang (France)¹, John Bowers (United States)², Frédéric Grillot (France)¹ (1. LTCI, Télécom Paris, Institut Polytechnique de Paris, 2. Institute for Energy Efficiency, University of California, Santa Barbara)

9:15am
ThB1.7 - Narrow linewidth hybrid wavelength-tunable laser with optical negative feedback circuit
» Tatsuki Komatsubara (Japan)¹, Toshiaki Okachi (Japan)¹, Nobuhide Yokota (Japan)¹, Hiroshi Yasaka (Japan)², Tomohiro Kita (Japan)³ (1. School of Advanced Science and Engineering, Waseda University, 2. Research Institute of Electrical Communication Tohoku University)

9:20am
ThB1.8 - Laser sintering of polycrystalline Ge-Sn films
» Md Toriqul Islam (United States)¹, Mool C. Gupta (United States)¹ (1. University of Virginia)

9:25am
ThB1.9 - Crosstalk Suppression in Adiabatic 2x2 Couplers via Device Perturbative Reshaping
» Dominic Siriani (United States)¹, Jean-Luc Tambasco (United States)² (1. Cisco Systems, Inc.)

9:30am
ThB1.10 - Suitability of BPM Simulation for Silicon Photonics
» Chenglin Xu (United States)¹, Evan Heller (United States)¹, Mayan Kahl (United States)¹, Rob Scarmozzino (United States)¹, Kai-Ning Ku (Taiwan)³, Ying Zhou (United States)³, Tungyu Su (Taiwan)³, Po-Chih Chang (Taiwan)³, Chen-Yu Lin (Taiwan)³, Shang-Chun Chen (Taiwan)³, Chih-Lin Wang (Taiwan)³, Chien-Chung Li (Taiwan)³ (1. Synopsys, 2. ITRI)

8:45am
ThB2 - Pitch Talks IV
Chaired by: Alejandro Sánchez-Postigo (Spain) and Alejandro Ortega-Moñux (Spain)
Continued from Thursday, 9 December

8:45am

**ThB2.1 - Beyond 60-Gbit/s Modulation of Impedance Mismatched Silicon MZI Modulator**

» Zih-Yuan Ciou (Taiwan),1 Kuo-Fang Chung (Taiwan),1 Shih-Chun Kao (Taiwan),2 Chih-Hsien Cheng (Japan),3 Ding-Wei Huang (Taiwan),4 Gong-Ru Lin (Taiwan)4 (1. Graduate Institute of Photonics and Optoelectronics, National Taiwan University, 2. Research Center for Advanced Science and Technology, University of Tokyo, 3. Graduate Institute of Photonics and Optoelectronics, and Department of Electrical Engineering, National Taiwan University)

8:50am

**ThB2.2 - Design of an Ultra-compact Star-coupler Based 1×10 Power Splitter with Nano-pixel Structures**

» Rui Huang (China),1 Chao Qiu (China),1 Haiyang Huang (China),1 Yingxuan Zhao (China),1 Xiaojuan She (China),1 Han Liao (China),1 Yang Li (China),1 Junbo Zhu (China),1 Zijian Zhu (China),1 Xiang Liu (China),1 Zhen Sheng (China),1 Fuwan Gan (China)1 (1. Shanghai Institute of Microsystem and Information Technology)

8:55am

**ThB2.3 - Design of Resonant-Characteristics-Monitorable Si Wavelength Filter Using Face-To-Face Loop Mirrors For Heterogeneous Integrated Tunable Lasers**

» Takanori Sato (Japan),1 Takeshi Fujisawa (Japan),1 Takuya Mitarai (Japan),1 Takuo Hiratani (Japan),2 Takuya Okimoto (Japan),2 Tsutomu Ishikawa (Japan),2 Naoya Kono (Japan),2 Naoki Fujiwara (Japan),2 Hideki Yagi (Japan),2 Kunimasu Saitoh (Japan)1 (1. Hokkaido University, 2. Sumitomo Electric Industries)

9am

**ThB2.4 - Compact 8-channel Loop-Back AWG based Integrated Combiner Processor**

» Louw Roel van der Zon (Spain),1 Pascual Muñoz (Spain),1 Daniel Pastor (Spain),1 Marcello Girardi (Sweden),2 Victor Torres Company (Sweden)2 (1. Universitat Politècnica de València, 2. Chalmers University)

9:05am

**ThB2.5 - Low-Cost Solid-State Lidar with Wide Angle of View Using Wavelength Division Multiplexed Laser Array**

» He Yuxuan (China),1 Qiang Wang (China),2 Zhonghan Wang (China),1 Xu Han (China),1 Yuxi Fang (China),1 Wenpu Geng (China),1 Zhongqi Pan (United States),2 Yang Yue (China)1 (1. Nankai University, 2. Angle Al (Tianjin) Technology Company Ltd, 3. University of Louisiana at Lafayette)

9:10am

**ThB2.6 - Fabrication-tolerant Y-junction for high-performance power division using subwavelength silicon metamaterials**


9:15am

**ThB2.7 - Broadband and Compact Polarization Splitter-Rotator Based on Subwavelength-Grating-Slot-Assisted Adiabatic Coupler for the Silicon-on-Insulator Platform**

» Luhua Xu (Canada)1 (1. CMC Microsystems)

9:20am

**ThB2.8 - Parametric Monte-Carlo Characterization of Si Ring Modulators**

» Youngkwan Jo (Korea, Republic of),1 Yongjin Ji (Korea, Republic of),2 Minkyu Kim (Korea, Republic of),2 Stefan Lischke (Germany),2 Christian Mai (Germany),2 Lars Zimmermann (Germany),2 Woo-Young Choi (Korea, Republic of)1 (1. Yonsei University, 2. Formerly at Yonsei University, now at imec, Belgium, 3. IHP – Leibniz-Institut für innovative Mikroelektronik, 4. IHP – Leibniz-Institut für innovative Mikroelektronik, Technische Universität Berlin)

9:25am

**ThB2.9 - High Q, Compact Photonic Crystal Nanobeam Cavity for an Active Device Platform in a CMOS Silicon Photonics Process**

» Kenaish AlQubaisi (United States),1 Miloš Popović (United States)1 (1. Boston University)

9:30am

**ThB2.10 - Multi-level Encoding and Decoding in a Wavelength-Multiplexed Photonic Tensor Processor**

» Zhimu Guo (Canada),1 Bicky Marquez (Canada),1 Matthew Filipovic (Canada),1 Hugh Morison (Canada),1 Paul Prucnal (United States),1 Lukas Chrostowski (Canada),2 Sudip Shekhar (Canada),2 Bhavin Shastri (Canada)1 (1. Queen's University, 2. Princeton University, 3. University of British Columbia)
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<td>Break</td>
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### Friday, 10 December

#### 7am

**FA -**  
**FA: Integrated Solutions for LIDAR**  
Chairied by: Daoxin Dai (China) and Pablo Sanchís (Spain)

#### 7:30am

**FA2 - Silicon nitride CMOS platform for integrated phased arrays applications**  
» Stefan Ilie (United Kingdom), Pablo Ginel-Moreno (Spain), Jaya Sagar (United Kingdom), Thalía Domínguez Bucio (United Kingdom), Alejandro Ortega-Moñux (Spain), Konstantinos Lekkas (United Kingdom), Teerapat Rutirawut (United Kingdom), Lorenzo Mastronardi (United Kingdom), Ilias Skandalos (United Kingdom), Katarzyna Grabska (United Kingdom), Íñigo Molina-Fernández (Spain), George Kanellos (United Kingdom) (1. Optoelectronics Research Centre, Zepler Institute for Photonics and Nanoelectronics, Faculty of Engineering and Physical Sciences University of Southampton, 2. Instituto de Telecomunicación (TELMA), Universidad de Málaga, CEI Andalucía TECH, E.T.S.I de Telecomunicación, 3. University of Bristol, 4. Telecommunication Research Institute (TELMA), Universidad de Málaga, CEI Andalucía TECH, 5. National Research Council Canada)

#### 7:45am

**FA3 - Backside emitting silicon photonic beam steering module for LIDAR application**  
» Xia Chen (United Kingdom), Fan Meng (United Kingdom), Steven Fortune (United States), Andrew Compston (United States), Martin Ebert (United Kingdom), Xingzhao Yan (United Kingdom), Han Du (United Kingdom), Mehdi Banakar (United Kingdom), Ying Tran (United Kingdom), Callum Littlejohns (United Kingdom), David Thomson (United Kingdom), Remus Nicolaescu (United States), Graham Reed (United Kingdom) (1. Univeristy of Southampton, 2. Pointcloud)

#### 8am

**FA4 - Wafer level characterization of high channel count Optical Phased Array**  
» Sylvain Guerber (France), Daivid Fowler (France), Jonathan Faugier-Tovar (France), Philippe Grosse (France), Jerome Meilhan (France), Kim Abdoul-Carime (France), Jean Hue (France), Baptiste Delplanque (France), François Simoens (France), Bertrand Szelag (France) (1. CEA LETI)

#### 8:15am

**FA5 - Integrated metamaterial surface-emitting antenna for beam steering applications**  
» Pablo Ginel-Moreno (Spain), Alejandro Sánchez-Postigo (Spain), José de Oliva-Rubio (Spain), Abdelfettah Hadji-ElHouati (Spain), Winnie N. Ye (Canada), J. Gonzalo Wanguemert Pérez (Spain), Íñigo Molina-Fernández (Spain), Jens H. Schmid (Canada), Pavel Cheben (Canada), Alejandro Ortega-Moñux (Spain) (1. Instituto de Telecomunicación (TELMA), Universidad de Málaga, CEI Andalucía TECH, E.T.S.I de Telecomunicación, 29010 Malaga, Spain, 2. Department of Electronics, Carleton University, 1125 Colonel by Drive, Ottawa, Canada, 3. National Research Council Canada, Ottawa, K1A 0R6, Canada)

#### 8:30am

**FA6 - Silicon-based broadband metalens for wide-angle optical beam steering**  
» Yang LIU (France), Xavier Le Roux (France), Eric Cassan (France), Delphine Marris-Morini (France), Laurent Vivien (France), Carlos Alonso-Ramos (France), Daniele Melati (France) (1. Centre de Nanosciences et de Nanotechnologies, Université Paris-Saclay, CNRS, 2. Centre de Nanosciences et de Nanotechnologies, Université Paris-Saclay)

#### 8:45am

Break

#### 9:15am

FB -  
**FB: Advanced Devices**  
Chairied by: Gunther Roelkens (Belgium) and Alejandro Ortega-Moñux (Spain)
Continued from Friday, 10 December

9:15am
**FB1 - Buried 3D silicon photonics spot-size convertors**
» Weiwei Zhang (United Kingdom), Martin Ebert (United Kingdom), Jamie Dean Reynolds (United Kingdom), Bigeng Chen (United Kingdom), Xingzhao Yan (United Kingdom), Han Du (United Kingdom), Mehdi Banakar (United Kingdom), Ying Tran (United Kingdom), Callum Littlejohns (United Kingdom), Graham Reed (United Kingdom), David Thomson (United Kingdom) (1. Optoelectronics Research Centre, Zepler Institute for Photonics and Nanoelectronics, Faculty of Engineering and Physical Sciences, University of Southampton, 2. Optoelectronics Research Centre, Zepler Institute for Photonics and Nanoelectronics, Faculty of Engineering and Physical Sciences University of Southampton, 3. Optoelectronics Research Centre, Zepler Institute for Photonics and Nanoelectronics, Faculty of Engineering and Physical Sciences University of Southampton Southampton SO17 1BJ, UK)

9:30am
**FB2 - Experimental demonstration of reservoir computing with a silicon resonator and time multiplexing**
» Massimo Borghi (Italy), Stefano Biasi (Italy) (1. University of Trento)

9:45am
**FB3 - Bimodal interferometry in photonic crystal structures for the development of ultra-compact optical devices**
» Luis Torrijos-Morán (Spain), Jaime García-Rupérez (Spain) (1. Nanophotonics Technology Center, Universitat Politècnica de València)

10am
**FB4 - Silicon nitride on-chip spatial heterodyne Fourier-transform spectrometer with high étendue and broadband operation**
» David González-Andrade (France), Thi Thuy Duong Dinh (France), Sylvain Guerber (France), Nathalie Vulliet (France), Sébastien Cremer (France), Stephane Monfray (France), Eric Cassan (France), Delphine Marris-Morini (France), Frederic Boeuf (France), Pavel Cheben (Canada), Laurent Vivien (France), Aitor V. Velasco (Spain), Carlos Alonso-Ramos (France) (1. CN2, 2. CN2, STMicroelectronics, 3. STMicroelectronics, 4. National Research Council Canada, 5. CSIC)

10:15am
**FB5 - Optimization of Tapers and Interlayer Transitions via Adiabatic Loss Limiting**
» Jean-Luc Tambasco (United States), Dominic Siriani (United States) (T. Cisco Systems, Inc.)

10:30am
**FB6 (Invited) - How silicon photonics can continue the cost-per-bit reduction trend for 1.6T fiber-optic transceivers and beyond**
» Christopher Doerr (United States) (1. Doerr Consulting, LLC)

11am
**Break**

11:30am
**FC - FC: Wavelength Filtering Devices**
Chaired by: Alejandro Ortega-Moñux (Spain) and Gunther Roelkens (Belgium)

11:30am
**FC1 - Configuration and Optimization of a Programmable Coupled-Ring Loaded Mach-Zehnder Filter**
» Mi Wang (Belgium), Xiangfeng Chen (Belgium), Umar Khan (Belgium), Wim Bogaerts (Belgium) (1. Gent University)

11:45am
**FC2 - Control of SiP Waveguide-Embedded Electronic Devices by Substrate/Gate Potential Tuning**
» Alessandro Perino (Italy), Francesco Zanetto (Italy), Matteo Petrini (Italy), Fabio Toso (Italy), Francesco Morichetti (Italy), Andrea Melloni (Italy), Giorgio Ferrari (Italy), Marco Sampietro (Italy) (1. Politecnico di Milano, 2. Politecnico di Milano, 3. Politecnico)

12pm
**FC3 - High-Q-factor tellurium oxide clad silicon microring resonators**
» Khadijeh Miarabbas Kiani (Canada), Dawson Bonneville (Canada), Andrew Knights (Canada), Jonathan D. B. Bradley (Canada) (1. McMaster university)

12:15pm
**FC4 - Thermal-Free Tunable Silicon Microring Resonator Driven by High-Mobility Conducting Oxide**
» Wei-Che Hsu (United States), Alan X. Wang (United States) (1. Oregon State University)
Continued from Friday, 10 December

12:30pm  FCS - Ultra-Power Efficient Heterogeneous III-V/Si De-Interleavers for DWDM Optical Links
» Stanley Cheung (United States), Geza Kurczveil (United States), Yingtao Hu (United States), Mingye Fu (United States), Mohammad Jobayer Hossain (United States), Di Liang (United States), Raymond Beausoleil (United States) (1. Hewlett Packard Enterprise)

12:45pm  FC6 - Fabrication-Robust Silicon Photonics Platform in Standard 220 nm Silicon Processes
» Anthony Rizzo (United States), Utsav Dave (United States), Alexandre Freitas (United States), Samantha Roberts (United States), Asher Novick (United States), Michal Lipson (United States), Keren Bergman (United States) (1. Columbia University)

1pm  Break

1:15pm  FD - FD: Post-Deadline Papers
Chaired by: Haisheng Rong (United States)

1:15pm  FD1 - Broadband mid-infrared integrated electro-optic modulator based on a Schottky diode embedded in a graded SiGe waveguide
» Miguel Montesinos-Ballester (France), Lucas Deniel (France), Natnicha Koompal (France), Thi Hao Nhi Nguyen (France), Jacopo Frigerio (Italy), Andrea Ballabio (Italy), Virginia Falcone (Italy), Xavier Le Roux (France), Carlos Alonso-Ramos (France), Laurent Vivien (France), Adel Bousseksou (France), Giovanni Isella (Italy), Delphine Marris-Morini (France) (1. Centre de Nanosciences et de Nanotechnologies, Universite Paris-Saclay, CNRS, 2. Centre de Nanosciences et de Nanotechnologies, Universite Paris-Sud, 3. Politecnico di Milano, 4. C2N, 5. C2N, Univ. Paris-Saclay, CNRS)

1:30pm  FD2 - A multi-wavelength III-V/Si hybrid DFB laser with even wavelength spacing and uniform output power
» Ranjeet Kumar (United States), Duanni Huang (United States), Meer Nazmus Sakib (United States), Guan-Lin Su (United States), Chaoxuan Ma (United States), Xinru Wu (United States), Haisheng Rong (United States) (1. Intel Corporation)

1:45pm  FD3 - Engineering Low Dark Current Density for Ge-on-Si Photodiodes
» Eveline Postelnicu (United States), Stephanie Marzen (United States), Ruitao Wen (China), Danhao Ma (United States), Baoming Wang (United States), Kazumi Wada (United States), Jurgen Michel (United States), Lionel Kimerling (United States) (1. Massachusetts Institute of Technology, 2. Southern University of Science and Technology)

2pm  Closing Remarks
Chaired by: Haisheng Rong (United States)