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2018 IEEE Photonics Society 15th International Conference on Group IV Photonics (GFP 2018)

Welcome to the 2018 IEEE Photonics Society 15th International Conference on Group IV Photonics (GFP 2018)

29 - 31 August 2018
InterContinental Presidente Cancun Resort
Cancun, Mexico

WA - Lasers — 8:00am–10:00am — Tulum A, B & C

WA1: Investigation of GeSn Lasers towards Group IV Photonics Applications (Page NA)
Shui-Qing Yu *(University of Arkansas)*
Wei Du *(Wilkes University)*
Joe Margetis *(ASM)*
John Tolle *(ASM)*
Seyed Ghetmiri *(University of Arkansas at Pine Bluff)*
Aboozer Mosleh *(University of Arkansas at Pine Bluff)*
Jifeng Liu *(Dartmouth College)*
Greg Sun *(University of Massachusetts Boston)*
Richard Soref *(University of Massachusetts Boston)*
Baohua Li *(Arktonics, LLC)*

WA2: Low Pumping Threshold GeSn/SiGeSn Multiple Quatum Well Lasers (Page 1)
Detlev Grützmacher *(Forschungszentrum Jülich)*
Nils von den Driesch *(Forschungszentrum Jülich)*
Daniela Stange *(Forschungszentrum Jülich)*
Denis Rainko *(Forschungszentrum Jülich)*
Zoran Ikonic *(University of Leeds)*
Jean-Michel Hartmann *(CEA-LETI)*
Dan Buca *(Forschungszentrum Jülich)*

WA3: Microscopic Gain Analysis of Modulation-Doped GeSn Quantum Well: Epitaxial Design toward High-Temperature Lasing (Page 3)
Takeshi Fujisawa *(Hokkairo University)*
Masakazu Arai *(University of Miyazaki)*
Kunimasa Saitoh *(Hokkaido University)*

WA4: InAs Quantum Dot Lasers Grown on Si (Page NA)
Justin Norman *(University of California Santa Barbara)*
Yating Wan *(University of California Santa Barbara)*
Robert Herrick *(Intel Corporation)*
Arthur Gossard *(University of California Santa Barbara)*
John E. Bowers *(University of California Santa Barbara)*
Daehwan Jung *(University of California Santa Barbara)*

WA5: Ultra-Low Threshold InAs QD Microcavity Laser on U-shape Si (100) and SOI Platform by Epitaxial Growth (Page 5)
Ting Wang *(Chinese Acadamy of Sciences)*
Wen-Qi Wei *(Chinese Acadamy of Sciences and Wuhan University)*
Bin Zhang *(Chinese Acadamy of Sciences)*
Qi Feng *(Chinese Acadamy of Sciences)*
Hui Cong *(Chinese Acadamy of Sciences)*
Jian-Jun Zhang *(Chinese Acadamy of Sciences)*

WA6: Demonstration of an On-Chip III-V/Si Hybrid Semiconductor Optical Amplifier for Photonics Integration (Page 7)
Ranjeet Kumar *(Intel Corporation)*
Jonathan Doylend *(Intel Corporation)*
Meer Sakib *(Intel Corporation)*
Jie Sun *(Intel Corporation)*
Haisheng Rong *(Intel Corporation)*

WB - Optical Modulators & Applications — 10:30am–12:00pm — Tulum A, B & C

WB1: 20-Gb/s Silicon Optical Modulators for the 2 μm Wavelength Band (Page 9)
Wei Cao *(University of Southampton)*
David J. Thomson *(University of Southampton)*
Milos Nedeljkovic *(University of Southampton)*
Shaif-Ul Alam *(University of Southampton)*
Junjia Wang *(University of Southampton)*
Frederic Gardes *(University of Southampton)*
Graham T. Reed *(University of Southampton)*
Goran Z. Mashanovich *(University of Southampton)*
Callum G. Littlejohns *(Nanyang Technological University)*
Mohamed Said Rouifed *(Nanyang Technological University)*

WB2: Estimation of Optical Modulator Efficiency from Electrical Characteristics (Page 11)
Hiroshi Fukuda *(NTT Corporation)*
Yoshiho Maeda *(NTT Corporation)*
Toru Miura *(NTT Corporation)*

Tatsuou Hiraki *(NTT Corporation)*
Shinji Matsuo *(NTT Corporation)*

WB3: Silicon Based High-Speed Micro-Ring Modulators and Detectors for Low-Cost Photonic Integration (Page NA)

Haisheng Rong *(Intel Corporation)*
Ranjeet Kumar *(Intel Corporation)*
Haisheng Rong *(Intel Corporation)*
Jie Sun *(Intel Corporation)*
Meer Sakib *(Intel Corporation)*
Jeffrey Driscoll *(Intel Corporation)*
Hasitha Jayatilleka *(Intel Corporation)*

WB4: 3D Fin Waveguide on 10 nm Gate Oxide Bonded Double-SOI for Low VπL Accumulation Modulator (Page 13)

J. Byers *(University of Southampton)*
K. Debnath *(University of Southampton and Indian Institute of Technology)*
H. Arimoto *(University of Southampton)*
M. K. Husain *(University of Southampton)*
M. Sotto *(University of Southampton)*
Z. Li *(University of Southampton)*
F. Liu *(University of Southampton)*
A. Khokhar *(University of Southampton)*
K. Kiang *(University of Southampton)*
S. A. Boden *(University of Southampton)*
D. J. Thomson *(University of Southampton)*
G. T. Reed *(University of Southampton)*
S. Saito *(University of Southampton)*

WB5: 320 Gbps Physical Random Bit Generation from a Chaotic Oscillator with Silicon Microring Resonator Modulator (Page 15)

Wenjing Tian *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lei Zhang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Jianfeng Ding *(Chinese Academy of Sciences)*
Xin Fu *(Chinese Academy of Sciences)*
Lin Yang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*

WP - Poster Session — 1:30pm–3:30pm — Tulum Foyer

WP1: Four-Port Mode-Selective Optical Router for Optical Interconnect (Page 17)

Hao Jia *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Ting Zhou *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Xin Fu *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lei Zhang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lin Yang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*

WP2: Realizing Room Temperature Single-Photon Sources with Integrated Nanoplasmonic Quantum Interfaces (Page 19)
Frédéric Peyskens *(Massachusetts Institute of Technology)*
Darrick Chang *(Barcelona Institute of Science and Technology)*
Dirk Englund *(Massachusetts Institute of Technology)*

WP3: A Time-Division Demultiplexer Using Differential Microring Samplers (Page 21)
Ming Gong *(University of Rochester)*
Hui Wu *(University of Rochester)*

WP4: Accelerating Passive and Active Silicon Photonics Design Using Multiple Numerical Techniques (Page 23)
Mayank Bahl *(Synopsys, Inc)*
Ying Zhou *(Synopsys, Inc)*
Robert Scarmozzino *(Synopsys, Inc)*
Evan Heller *(Synopsys, Inc)*
Chenglin Xu *(Synopsys, Inc)*
Daniel Herrmann *(Synopsys, Inc)*
Gergoe Letay *(Synopsys, LCC)*

WP5: Cascaded Mach-Zehnder Wavelength (De-)Multiplexer for Low-Loss Flat-Top DWDM Applications (Page 25)
Xin Fu *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Hao Jia *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Xiongfeng Fang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Jianfeng Ding *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lei Zhang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lin Yang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*

WP6: Enhanced Tensile Strain in Ge Epitaxitial Layers Grown on Si-on-Quartz Wafers (Page 27)
Michiharu Nishimura *(University of Tokyo)*
Yoshiyuki Tsusaka *(University of Hyogo)*
Junji Matsui *(University of Hyogo)*
Yasuhiko Ishikawa *(Toyohashi University of Technology)*

WP7: Lasing Effect in GeSn Photonic Crystal (Page 29)
Q. M. Thai *(University Grenoble Alpes)*
N. Pauc *(University Grenoble Alpes)*
J. Aubin *(University Grenoble Alpes)*
M. Bertrand *(University Grenoble Alpes)*
J. Chrétien *(University Grenoble Alpes)*
R. Khazaka *(University Grenoble Alpes)*

A. Chelnokov *(University Grenoble Alpes)*
J. M. Hartmann *(University Grenoble Alpes)*
V. Reboud *(University Grenoble Alpes)*
V. Calvo *(University Grenoble Alpes)*

WP8: $LiNbO_3$/Si-Hybrid Slot-Waveguide Electro-Optic Modulators (Page 31)
I. Tomita *(University of Southampton and Gifu College)*
K. Debnath *(University of Southampton and Indian Institute of Technology)*
K. Ibukuro *(University of Southampton)*
M. K. Husain *(University of Southampton)*
J. Byers *(University of Southampton)*
Z. Zhang *(University of Southampton)*
S. Saito *(University of Southampton)*

WP9: Noise Modeling of GeSn Heterojunction Phototransistors: Group IV Material based Alternative Photodetector (Page 33)
Harshvardhan Kumar *(National Institute of Technology Delhi)*
Rikmantra Basu *(National Institute of Technology Delhi)*

WP10: Silicon Nitride Photonic Platform for LIDAR Applications (Page 35)
S. Malhouitre *(University Grenoble Alpes)*
D. J. Fowler *(University Grenoble Alpes)*
S. Garcia *(University Grenoble Alpes)*
O. Lemonnier *(University Grenoble Alpes)*
N. Tyler *(University Grenoble Alpes)*
W. Rabaud *(University Grenoble Alpes)*

WP11: Design of Efficient Phase Shifter Using InGaAs-InAs/Ge SIS Capacitor for Mid-IR Photonics Application (Page 37)
Jae-Hoon Han *(Korea Institute of Science and Technology (KIST))*
Hyung-jun Kim *(Korea Institute of Science and Technology (KIST) & University of Science and Technology)*
Won Jun Choi *(Korea Institute of Science and Technology (KIST))*
Jindong Song *(Korea Institute of Science and Technology (KIST) & University of Science and Technology)*
SangHyeon Kim *(Korea Institute of Science and Technology (KIST) & University of Science and Technology)*

WP12: Feasibility Study on Negative Capacitance SIS Phase Shifter for Low-Power Optical Phase Modulation (Page 39)
Jae-Hoon Han *(Korea Institute of Science and Technology (KIST))*
Pavlo Bidenko *(Korea Institute of Science and Technology (KIST) & University of Science and Technology)*
Jindong Song *(Korea Institute of Science and*

Technology (KIST) & University of Science and Technology)
SangHyeon Kim *(Korea Institute of Science and Technology (KIST) & University of Science and Technology)*

WP13: Comparison Among the Methods to Generate the PAM-4 Optical Signal with the Silicon Mach-Zehnder Optical Modulator (Page 41)
SIzhu Shao *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Jianfeng Ding *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lingchen Zheng *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lei Zhang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Xin Fu *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lin Yang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*

WP14: Tunable Optical Filter with Variable Bandwidth Based on Vernier-Cascade Second-Order Microring Resonators (Page 43)
Haoyan Wang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lei Zhang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Xin Fu *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Hao Jia *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lin Yang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*

WP15: Optoelectrical Characterizations of GeSn Heterojunction Photodiodes with 6% to 16% of Sn (Page 45)
M. Bertrand *(University Grenoble Alpes)*
Q. M. Thai *(University Grenoble Alpes)*
J. Chrétien *(University Grenoble Alpes)*
N. Pauc *(University Grenoble Alpes)*
R. Khazaka *(University Grenoble Alpes)*
J. Aubin *(University Grenoble Alpes)*
O. Lemonnier *(University Grenoble Alpes)*
A. Chelnokov *(University Grenoble Alpes)*
J. M. Hartmann *(University Grenoble Alpes)*
V. Calvo *(University Grenoble Alpes)*
V. Reboud *(University Grenoble Alpes)*

WP16: Tunable Silicon Photonic Grating Couplers with Low Power Consumption (Page 47)
Shengqian Gao *(Sun Yat-sen University)*
Xinlun Cai *(Sun Yat-Sen University)*

WP17: Phase-Shifted Multimode Bragg Gratings in Silicon-on-Insulator for

Sensing Applications (Page 49)
Manuel Mendez-Astudillo *(Waseda University)*
Hideaki Okayama *(Oki Electric Industry Co., Ltd.)*
Tomohiro Kita *(Waseda University & Tohoku University)*
Hirochika Nakajima *(Waseda University)*

WP18: 2×8 Silicon Multicast Switch for On-Chip Optical Interconnect (Page 51)
Shanglin Yang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Ting Zhou *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Shanglin Yang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Hao Jia *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lin Yang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*

WP19: Germanium Photodetector with Enhanced Photo-Response at the L-Band and Beyond for Integrated Photonic Applications (Page 53)
Yiding Lin *(Nanyang Technological University & Singapore-MIT Alliance for Research and Technology)*
Danhao Ma *(Massachusetts Institute of Technology)*
Kwang Hong Lee *(Singapore-MIT Alliance for Research and Technology)*
Jin Zhou *(Nanyang Technological University)*
Xin Guo *(Nanyang Technological University)*
Hong Wang *(Nanyang Technological University)*
Chuan Seng Tan *(Nanyang Technological University & Singapore-MIT Alliance for Research and Technology)*
Jurgen Michel *(Singapore-MIT Alliance for Research and Technology & Massachusetts Institute of Technology)*

WP20: Enhanced Self-Phase Modulation in Graphene-Integrated Silicon Waveguides (Page 55)
Qi Feng *(Chinese Academy of Sciences)*
Hui Cong *(Chinese Academy of Sciences)*
Wenqi Wei *(Chinese Academy of Sciences & Wuhan University)*
Bin Zhang *(Chinese Academy of Sciences)*
Jianhuan Wang *(Chinese Academy of Sciences)*
Jieyin Zhang *(Chinese Academy of Sciences)*
Ting Wang *(Chinese Academy of Sciences)*
Jianjun Zhang *(Chinese Academy of Sciences)*

WP21: Silicon Broadband Thermo-Optic 2×2 Four-Mode Optical Switch for On-Chip Optical Space and Local Mode Switching (Page 57)
Ting Zhou *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Hao Jia *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*

Jianfeng Ding *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lei Zhang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Xin Fu *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Lin Yang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*

WP22: Direct Frequency Modulated Photonic Crystal Laser (Page 59)
P. K. J. Singaravelu *(Cork Institute of Technology & Tyndall National Institute)*
Sharon M. Butler *(Cork Institute of Technology & Tyndall National Institute)*
Andrei P. Bakoz *(Cork Institute of Technology & Tyndall National Institute)*
Alexandros A. Liles *(School of Physics and Astronomy)*
Stephen P. Hegarty *(Cork Institute of Technology & Tyndall National Institute)*
Liam O'Faolain *(Cork Institute of Technology & Tyndall National Institute & School of Physics and Astronomy)*

WP23: The Research of InSb on Si Avalanche Photodiode (Page 61)
Ling Hong Peng *(Chinese Academy of Sciences)*
Qiang Ying Xu *(Chinese Academy of Sciences)*
Hua Wan Zheng *(Chinese Academy of Sciences)*

WP24: Low Loss and Compact Silicon TE-Pass Waveguide Polarizer (Page 63)
J. Jiang *(Huawei Technologies Canada Co., Ltd.)*
D. J. Goodwill *(Huawei Technologies Canada Co., Ltd.)*
C. Zhang *(Huawei Technologies Canada Co., Ltd.)*
P. Dumais *(Huawei Technologies Canada Co., Ltd.)*
D. Celo *(Huawei Technologies Canada Co., Ltd.)*
M. Li *(Huawei Technologies Co., Ltd.)*
F. Zhao *(Huawei Technologies Co., Ltd.)*
X. Tu *(Huawei Technologies Co., Ltd.)*
D. Geng *(Huawei Technologies Co., Ltd.)*
E. Bernier *(Huawei Technologies Canada Co., Ltd.)*

WP25: Photonic Phased Array Design by Synthesis (Page 65)
Francis Smith *(University of Rochester)*
Hui Wu *(University of Rochester)*

WP26: Distributed Feedback Lasers Operating at 780 nm Wavelength Integrated on Si Substrates for Chip-Scale Atomic Systems (Page 67)
Kevin Gallacher *(University of Glasgow)*
Ross W. Millar *(University of Glasgow)*
Douglas J. Paul *(University of Glasgow)*
Francesco Mirando *(Kelvin Nanotechnology)*
Gary Ternent *(Kelvin Nanotechnology)*
Gordon Mills *(Kelvin Nanotechnology)*
Brendan Casey *(Kelvin Nanotechnology)*

WP27: Ultra Low Loss Asymmetric

Multimode Interference Power Splitters (Page 69)
Ruixuan Chen *(Peking University)*
Qingzhong Deng *(Peking University)*
Zhiping Zhou *(Peking University)*

WP28: Automating Photonic Design with Machine Learning (Page 71)
Dusan Gostimirovic *(Carleton University)*
Winnie N. Ye *(Carleton University)*

WP29: FSR-Free Microring-Based Modulator (Page 73)
Ajay Mistry *(University of British Columbia)*
Mustafa Hammood *(University of British Columbia)*
Hossam Shoman *(University of British Columbia)*
Lukas Chrostowski *(University of British Columbia)*
Nicolas A. F. Jaeger *(University of British Columbia)*

WP30: Optimization of a Polarization Beam Splitter for Broadband Operation Using a Genetic Algorithm (Page 75)
Po-Han Fu *(National Taiwan University)*
Ding-Wei Huang *(National Taiwan University)*

WP31: Demonstration of >48 *GHz* Single-Drive Push-Pull Silicon Mach-Zehnder Modulator with Low $V_{\pi}L$ (Page 77)
Giovanni B. de Farias *(CPqD Foundation)*
Yesica R. Bustamante *(CPqD Foundation)*
Hening A. de Andrade *(CPqD Foundation)*
Uiara C. Moura *(CPqD Foundation)*
Alexandre P. Freitas *(University of Campinas)*
Diogo de A. Motta *(University of Campinas)*

WP32: Silicon Photonic Modulator Using Mode Conversion with Asymmetric Sidewall Bragg Gratings (Page 79)
Omid Jafari *(Université Laval)*
Wei Shi *(Université Laval)*
Sophie LaRochelle *(Université Laval)*

WC - Optical Sensors — 4:00pm–5:00pm — Tulum A, B & C

WC1: Novel Fiber Alignment Method for On-Wafer Testing of Silicon Photonic Devices with PN Junction Embedded Grating Couplers (Page 81)
Yoshiho Maeda *(NTT Corporation)*
Toru Miura *(NTT Corporation)*
Hiroshi Fukuda *(NTT Corporation)*
Shinji Matsuo *(NTT Corporation)*

WC2: System-Level Integrated Active Silicon Photonic Biosensor for Detecting Small Molecule Interactions (Page 83)

Enxiao Luan *(University of British Columbia)*
Loic Laplatine *(University of British Columbia)*
Jonas Flueckiger *(SiDx, Inc.)*
Osama Al'Mrayat *(University of British Columbia)*
Daniel M. Ratner *(University of Washington)*
Karen Cheung *(University of British Columbia)*
Lukas Chrostowski *(University of British Columbia)*

WC3: Optical Phased Arrays for Integrated Beam Steering (Page NA)
Christopher V. Poulton *(Analog Photonics)*

WD - Components and Electronic-Photonic Design Automation — 5:00pm –6:30pm — Tulum A, B & C

WD1: Widely Tunable Ce:YIG on Si Microring Isolators for TE Mode Operation (Page 85)
Duanni Huang *(University of California Santa Barbara)*
Paolo Pintus *(University of California Santa Barbara)*
Jonathan Peters *(University of California Santa Barbara)*
Paul A. Morton *(Morton Photonics)*
Yuya Shoji *(Tokyo Institute of Technology)*
Tetsuya Mizumoto *(Tokyo Institute of Technology)*
John E. Bowers *(University of California Santa Barbara)*

WD2: Broadband Polarization Splitter-Rotator Using Sub-Wavelength Grating Assisted Adiabatic Waveguides (Page 87)
Minglei Ma *(University of British Columbia)*
Yun Wang *(McGill University)*
Anthony Park *(University of British Columbia)*
Han Yun *(University of British Columbia)*
Nicolas A. F. Jaeger *(University of British Columbia)*
Lukas Chrostowski *(University of British Columbia)*

WD3: Electric Field Tuning of $BaTiO_3$-on-Silicon Multi-Ring Resonators via the Pockels Effect (Page 89)
J. Elliott Ortmann *(University of Texas)*
Felix Eltes *(IBM Research - Zurich)*
Daniele Caimi *(IBM Research - Zurich)*
Stefan Abel *(IBM Research - Zurich)*

WD4: Hierarchical Model for Spatial Variations of Integrated Photonics (Page 91)
Yufei Xing *(Ghent University - IMEC & Center of Nano and Biophotonics)*
Jiaxing Dong *(Ghent University - IMEC & Center of Nano and Biophotonics)*
Umar Khan *(Ghent University - IMEC & Center of Nano and Biophotonics)*
Wim Bogaerts *(Ghent University - IMEC & Center of Nano and Biophotonics)*

WD5: Layout-Aware Yield Prediction of

Photonic Circuits (Page 93)
Wim Bogaerts *(Ghent University - IMEC & Center of Nano and Biophotonics)*
Umar Khan *(Ghent University - IMEC & Center of Nano and Biophotonics)*
Yufei Xing *(Ghent University - IMEC & Center of Nano and Biophotonics)*

WD6: Novel Quick and Precise Method for Evaluating Optical Characteristics (Page 95)
Toru Miura *(NTT Corporation)*
Yoshiho Maeda *(NTT Corporation)*
Hiroshi Fukuda *(NTT Corporation)*
Shinji Matsuo *(NTT Corporation)*

ThA - Plenary — 8:00am–9:30am — Tulum A, B & C

ThA1: Electronics-Photonics Integration (Page NA)
Vladimir Stojanovic *(University of California, Berkeley)*

ThA2: On Neurophotonics - A Report From a Journey of a Photonics Engineer into Neuromorphic Computing and Neurobiology (Page NA)
Yurii Vlasov *(University of Illinois at Urbana-Champaign)*

ThB - Integrated Components and Subsystems — 10:00am–12:00pm — Tulum A, B & C

ThB1: First 400G 8-Channel CWDM Silicon Photonic Integrated Transmitter (Page NA)
Jeffrey Driscoll *(Intel Corporation)*
Pierre Doussiere *(Intel Corporation)*
Syed Islam *(Intel Corporation)*
Raghuram Narayan *(Intel Corporation)*
Wenhua Lin *(Intel Corporation)*
Hari Mahalingam *(Intel Corporation)*
Jung Park *(Intel Corporation)*
Yiching Lin *(Intel Corporation)*
Kimchau Nguyen *(Intel Corporation)*
Katherine Roelofs *(Intel Corporation)*
Avsar Dahal *(Intel Corporation)*
Ranju Venables *(Intel Corporation)*
Ling Liao *(Intel Corporation)*
Richard Jones *(Intel Corporation)*
Daniel Zhu *(Intel Corporation)*
Sunil Priyadarshi *(Intel Corporation)*
Bharadwaj Parthasarathy *(Intel Corporation)*
Yuliya Akulova *(Intel Corporation)*

ThB2: Subwavelength-Grating-Based

4-Channel Add-Drop Multiplexers in Silicon Photonics (Page 97)
Behnam Naghdi *(McGill University)*
Lawrence R. Chen *(McGill University)*

ThB3: Silicon Photonics Wavelength Converter Based on Inter-Modal Four Wave Mixing Bragg Scattering (Page 99)
C. Lacava *(University of Southampton)*
M. A. Ettabib *(University of Southampton)*
G. Sharp *(University of Glasgow)*
Y. Jung *(University of Southampton)*
P. Petropoulos *(University of Southampton)*
D. J. Richardson *(University of Southampton)*
M. Sorel *(University of Glasgow)*
F. Parmigiani *(University of Southampton)*

ThB4: High Performance, Low Noise-Figure Brillouin-Based Integrated Microwave Photonic Filters (Page NA)
Benjamin J. Eggleton *(University of Sydney)*

ThB5: A Packaged Silicon Photonic Circuit Integrating a Hybrid Tunable Laser, a Modulator and an Amplifier (Page 101)
Alexandre Shen *(Thales & CEA)*
Guy Aubin *(Univ. Paris-Saclay)*
Antonin Gallet *(Thales & CEA)*
Théo Verolet *(Thales & CEA)*
Xavier Pommarède *()*
Dalila Make *(Thales & CEA)*
Stéphane Malhouitre *(CEA LETI)*
Ségolène Olivier *(CEA LETI)*
Peter O'Brien *(Tyndall National Institute)*
Guanghua Duan *(3SP Technologies)*

ThB6: On the Transfer of Quantum-Optic Pair Sources Realized on SOI Photonics to Electronic Wafers (Page 103)
Bernhard Schrenk *(AIT Austrian Institute of Technology)*
Fabian Laudenbach *(AIT Austrian Institute of Technology)*
Paul Müllner *(AIT Austrian Institute of Technology)*
Stefan Jessenig *(ams AG)*
Jochen Kraft *(ams AG)*
Moritz Eggeling *(AIT Austrian Institute of Technology)*
Daivid Fowler *(CEA LETI)*
Rainer Hainberger *(AIT Austrian Institute of Technology)*
Hannes Hübel *(AIT Austrian Institute of Technology)*

ThC - Electronics-Photonics Integration — 1:30pm–3:30pm — Tulum A, B & C

ThC1: Short Reach Optical Transceiver

(PIC/EIC Integration) (Page NA)
Stefan Meister *(Sicoya)*

ThC2: Electronic ICs for Silicon Photonic Transceivers (Page 105)
P. Ossieur *(Ghent University - IMEC)*
H. Ramon *(Ghent University - IMEC)*
J. Lambrecht *(Ghent University - IMEC)*
M. Vanhoecke *(Ghent University - IMEC)*
L. Breyne *(Ghent University - IMEC)*
S. Zhou *(Tyndall National Institute and University College Cork & S3 Group)*
S. Facchin *(Tyndall National Institute and University College Cork)*
P. D. Townsend *(Tyndall National Institute and University College Cork)*
G. Torfs *(Ghent University - IMEC)*
X. Yin *(Ghent University - IMEC)*
J. Bauwelinck *(Ghent University - IMEC)*

ThC3: Electronic-Photonic Systems for Multi-TBPS Optical I/O (Page NA)
Mark Wade *(Ayar Labs, Inc.)*

ThC4: A High Performance Ge PIN Photodiode Compatible with High Volume Silicon Photonics Production Processes (Page 107)
Difeng Zhu *(Towerjazz Semiconductor Ltd.)*
Jie Zheng *(Towerjazz Semiconductor Ltd.)*
Yasir Qamar *(Towerjazz Semiconductor Ltd.)*
Oleg Martynov *(Towerjazz Semiconductor Ltd.)*
Edward Preisler *(Towerjazz Semiconductor Ltd.)*

ThC5: A Compact Model for Si–Ge Avalanche Photodiodes (Page 109)
Binhao Wang *(Hewlett Packard Enterprise)*
Zhihong Huang *(Hewlett Packard Enterprise)*
Xiaoge Zeng *(Hewlett Packard Enterprise)*
Rui Wu *(Hewlett Packard Enterprise)*
Wayne V. Sorin *(Hewlett Packard Enterprise)*
Di Liang *(Hewlett Packard Enterprise)*
Raymond G. Beausoleil *(Hewlett Packard Enterprise)*

ThD - Panel Discussion: Electronics-Photonics Integration I — 4:00pm–5:30pm — Tulum A, B & C

FA - Neuromorphic Photonics and Components — 8:15am–10:00am — Tulum A, B & C

FA1: Programmable Nanophotonics for Computation (Page 111)
Darius Bunandar *(Lightmatter, Inc.)*
Tomo Lazovich *(Lightmatter, Inc.)*
Michael Gould *(Lightmatter, Inc.)*
Ryan Braid *(Lightmatter, Inc.)*
Carl Ramey *(Lightmatter, Inc.)*
Nicholas C. Harris *(Lightmatter, Inc.)*

FA2: Multiplanar Dielectric Waveguides for Neural Communication (Page 113)
Jeffrey Chiles *(National Institute of Standards and Technology)*
Sonia M. Buckley *(National Institute of Standards and Technology)*
Sae Woo Nam *(National Institute of Standards and Technology)*
Richard P. Mirin *(National Institute of Standards and Technology)*
Jeffrey M. Shainline *(National Institute of Standards and Technology)*

FA3: Method to Generate Sigmoid-Like Function in Silicon Photonic Devices towards Applications in Photonic Neutral Network (Page 115)
Guangwei Cong *(National Institute of Advanced Industrial Science and Technology (AIST))*
Makoto Okano *(National Institute of Advanced Industrial Science and Technology (AIST))*
Yuriko Maegami *(National Institute of Advanced Industrial Science and Technology (AIST))*
Morifumi Ohno *(National Institute of Advanced Industrial Science and Technology (AIST))*
Noritsugu Yamamoto *(National Institute of Advanced Industrial Science and Technology (AIST))*
Koji Yamada *(National Institute of Advanced Industrial Science and Technology (AIST))*

FA4: Ferroelectric Barium Titanate Embedded in Silicon Photonics – New Opportunities for Photonic Circuits (Page NA)
Stefan Abel *(IBM Research - ZURICH)*

FB - Panel Discussion: Neuromorphic Computing & Photonics K — 10:30am–12:00pm — Tulum A, B & C

FC - Silicon Nitride Devices — 1:30pm–2:30pm — Tulum A, B & C

FC1: Si-SiN Photonic Platform for CWDM Applications (Page 117)
Q. Wilmart *(Université Grenoble Alpes)*
C. Sciancalepore *(Université Grenoble Alpes)*
D. Fowler *(Université Grenoble Alpes)*
H. El Dirani *(Université Grenoble Alpes)*
K. Hassan *(Université Grenoble Alpes)*
S. Garcia *(Université Grenoble Alpes)*
S. Malhouitre *(Université Grenoble Alpes)*
S. Olivier *(Université Grenoble Alpes)*

FC2: Low-Temperature NH3-Free Silicon Nitride Platforms for Integrated Photonics (Page 119)
T. Dominguez Bucio *(University of Southampton)*
S. L. Scholl *(University of Southampton)*

S. T. Ilie *(University of Southampton)*
C. Lacava *(University of Southampton)*
K. Debnath *(Indian Institute of Technology)*
A. Z. Khokhar *(University of Southampton)*
M. Banakar *(University of Southampton)*
M. Sotto *(University of Southampton)*
K. M. Grabska *(University of Southampton)*
M. Clementi *(Universita di Pavia)*
D. Bajoni *(Universita di Pavia)*
M. Galli *(Universita di Pavia)*
S. Saito *(University of Southampton)*
P. Petropoulos *(University of Southampton)*
F. Y. Gardes *(University of Southampton)*

FC3: Influence of UV Light on PECVD Silicon Nitride Waveguide Propagation Loss (Page 121)
Pieter Neutens *(IMEC)*
Monika Rutowska *(IMEC)*
Willem Van Roy *(IMEC)*
Roelof Jansen *(IMEC)*
Federico Buja *(IMEC)*
Pol Van Dorpe *(IMEC & KU Leuven)*

FC4: Widely Tunable Si_3N_4Triple-Ring and Quad-Ring Resonator Laser Reflectors and Filters (Page 123)
Chao Xiang *(University of California)*
Paul A. Morton *(Morton Photonics)*
Jacob Khurgin *(Johns Hopkins University)*
Christopher Morton *(Morton Photonics)*
John E. Bowers *(University of California)*

FD - Switches, Resonators and Waveguides — 2:30pm–3:30pm — Tulum A, B & C

FD1: Liquid Crystal Loaded Silicon Mach-Zehnder Optical Switch Incorporating Groove Array Based Initial Alignement Technique (Page 125)
Yuki Atsumi *(National Instutute of Advanced Industrial Science and Technology (AIST))*
Kazuhiro Watabe *(National Instutute of Advanced Industrial Science and Technology (AIST) & Meiji University)*
Narutaka Uda *(National Instutute of Advanced Industrial Science and Technology (AIST) & Meiji University)*
Noboru Miura *(Meiji University)*
Youichi Sakakibara *(National Instutute of Advanced Industrial Science and Technology (AIST) & Meiji University)*

FD2: Real-Time Phase Trimming of Mach-Zehnder Interferometers by Femtosecond Laser Annealing of Germanium Implanted Waveguides (Page 127)
X. Yu *(University of Southampton)*

B. Chen *(University of Southampton)*
X. Chen *(University of Southampton)*
M. M. Milosevic *(University of Southampton)*
S. Saito *(University of Southampton)*
G. T. Reed *(University of Southampton)*
O. L. Muskens *(University of Southampton)*

FD3: Compact Contra-Directional-Coupler-Based Filters for CWDM Applications (Page 129)
Mustafa Hammood *(University of British Columbia)*
Ajay Mistry *(University of British Columbia)*
Minglei Ma *(University of British Columbia)*
Lukas Chrostowski *(University of British Columbia)*
Nicolas A. F. Jaeger *(University of British Columbia)*

FD4: Photonic Bonding Modes with Circular Polarization at Zero-Group-Velocity Points (Page 131)
Moïse Sotto *(University of Southampton)*
Kapil Debnath *(University of Southampton & Indian Institute of Technology Kharagpur)*
Ali Z. Khokhar *(University of Southampton)*
Isao Tomita *(Gifu College)*
David Thomson *(University of Southampton)*
Shinichi Saito *(University of Southampton)*

FE - Mid-IR Integrated Photonics — 4:00pm–5:30pm — Tulum A, B & C

FE1: III-V/Si Photonic Integrated Circuits for the Mid-Infrared (Page 133)
Gunther Roelkens *(Ghent University - IMEC)*
Ruijun Wang *(Ghent University - IMEC)*
Anton Vasiliev *(Ghent University - IMEC)*
Sanja Radosavljevic *(Ghent University - IMEC)*
Xiaoning Jia *(Ghent University - IMEC)*
Nuria Teigell Beneitez *(Ghent University - IMEC)*
Bahawal Haq *(Ghent University - IMEC)*
Fabio Pavanello *(Ghent University - IMEC)*
Muhammad Muneeb *(Ghent University - IMEC)*
Guy Lepage *(IMEC & Technische Universität München)*
Peter Verheyen *(IMEC & Technische Universität München)*
Joris Van Campenhout *(IMEC & Technische Universität München)*
Stephan Sprengel *(IMEC & Technische Universität München)*
Gerhard Boehm *(IMEC & Technische Universität München)*
Markus-Christian Amann *(IMEC & Technische Universität München)*
Ieva Šimonytė *(Brolis Semiconductors UAB)*
Kristijonas Vizbaras *(Brolis Semiconductors UAB)*
Augustinas Vizbaras *(Brolis Semiconductors UAB)*
Roel Baets *(Ghent University - IMEC)*

FE2: Mid-Infrared Platforms for Chemical Sensing (Page 135)
J-M. Fedeli *(CEA-LETI)*
P. Labeye *(CEA-LETI)*

A. Marchant *(CEA-LETI)*
O. Lartigue *(CEA-LETI)*
M. Fournier *(CEA-LETI)*
J-M. Hartmann *(CEA-LETI)*

FE3: Ge-on-Si Mid-Infrared Waveguides Operating Up to 11 µm Wavelength (Page 137)
R. W. Millar *(University of Glasgow)*
K. Gallacher *(University of Glasgow)*
U. Griskeviciute *(University of Glasgow)*
D. J. Paul *(University of Glasgow)*
L. Baldassarre *(Università di Roma "La Sapienza")*
M. Ortolani *(Università di Roma "La Sapienza")*

FE4: $Ge_{0.9}Sn_{0.1}$ p-i-n Photodiode with Record-High Responsivity at Two-Micron-Wavelength (Page 139)
Shengqiang Xu *(National University of Singapore)*
Yi-Chiau Huang *(Applied Materials Inc.)*
Wei Wang *(National University of Singapore)*
Yuan Dong *(National University of Singapore)*
Saeid Masudy-Panah *(National University of Singapore)*
Xin Guo *(Nanyang Technological University)*
Hong Wang *(Nanyang Technological University)*
Xiao Gong *(National University of Singapore)*
Yee-Chia Yeo *(National University of Singapore)*

FE5: On-Chip 2 µm Wavelength Silicon-on-Insulator Optical Interconnect (Page 141)
David E. Hagan *(McMaster University)*
Andrew P. Knights *(McMaster University)*