



POLITECNICO
MILANO 1863

Scientific Program

Wednesday, 4th May 2022

Umanitaria

09:30 to 12:30 REGISTRATION

12:30 to 14:00 LIGHT LUNCH

14:00 to 14:30 OPENING CEREMONY

14:30 to 16:00 PLENARY

Session Chair: Andrea Melloni, Politecnico di Milano

- P.1 Photonic Black-box Modules for Machine Intelligence**
Volker Sorger, George Washington University, USA
- P.2 Prospects and Applications of photonic neural networks**
Paul Prucnal, Princeton University, USA

16:00 to 16:30 COFFEE BREAK

16:30 to 18:00 HIGH SCORE SESSION

Session Chair: Wolfgang Freude, Karlsruhe Institute of Technology

- W.B.1 Monolithically Integrated Electronics in Zero-Change Silicon Photonics**
Francesco Zanetto, Politecnico di Milano, Italy
- W.B.2 Multi-channel optical coherence tomography with a CMOS silicon nitride photonic integrated circuit**
Stefan Nevlacsil, AIT Austrian Institute of Technology GmbH, Austria
- W.B.3 Hybridly Integrated Photonic Integrated Circuit for Wavelength and Polarization Determination**
Axel Schoenau, Fraunhofer-Institut für Nachrichtentechnik, Germany
- W.B.4 Generation of high-frequency phonons in silicon optomechanical crystal**
Jianhao Zhang, Centre de Nanosciences et de Nanotechnologies, France

18:00 to 18:30 What to do, and what not to do, to get published in OPTICA
Thomas Krauss, York University, UK

18:30 to 20:00 POSTER SESSION (The Chiostro)

- W.P.1 A Hybrid Optical Waveguide Platform for High-Performance Integrated Photonic Devices**
Hamed Nikbakht, Bob van Someren, Chunyu Lu, B. Imran Avci

- W.P.2 Thermal and wiring optimizations of dense SOA arrays on an adhesively bonded InP membrane**
Yi Wang, Jorn van Engelen, Victor Dolores-Calzadilla, Kevin Williams, Meint Smit, Yuqing Jiao
- W.P.3 Practical characterization of InP Waveguides and MMI couplers using Mach-Zehnder interferometers**
Amer Bassal, Guillaume Binet, Wouter Diels, Axel Schönau, Oliver Abdeen, Moritz Baier, Martin Schell
- W.P.4 Compact ring resonator at 8 μm wavelength**
Natnicha Koompai, Thi Hao Nhi Nguyen, Jacopo Frigerio, Andrea Ballabio, Virginia Falcone, Xavier Le Roux, Carlos Alonso-Ramos, Laurent Vivien, Adel Bousseksou, Giovanni Isella, Delphine Marris-Morini
- W.P.5 Subwavelength engineered silicon Bragg gratings for on-chip filtering with high optical rejection and narrow bandwidth**
Dorian Oser, David E. Medina Quiroz, Diego Perez Galacho, Xavier Le Roux, Sebastien Tanzilli, Laurent Vivien, Laurent Labonte, Eric Cassan, Carlos Alonso Ramos
- W.P.6 Performance tradeoffs in low-loss Si₃N₄ waveguides for linear and nonlinear applications**
Marcello Girardi, Victor Torres-Company, Anders Larsson
- W.P.7 Mitigating Polarization Rotation Effects in Thin-Film Lithium Niobate Waveguides**
Gabriele Cavicchioli, Maziyar Milanizadeh, Giuseppe Cusmai, Roberto Longone, Francesco Morichetti, Andrea Melloni
- W.P.8 Minimisation of Parasitic Capacitance in Electro-Absorption Modulators for High-Speed Operation**
Jack Mulcahy, Xing Dai, John McCarthy, Frank Peters
- W.P.9 New and efficient sacrificial layer for transfer printing technology**
Hemalatha Muthuganesan, Fatih Bilge Atar, Agnieszka Gocalinska, Emanuele Pelucchi, Brian Corbett
- W.P.10 Fabrication and characterization of symmetric Au-nanostructures with SERS activity**
M. Lafuente, E.J.W. Berenschot, R.M. Tiggelaar, A. Susarrey-Arce, R. Mallada, M.P. Pina, S.M. García-Blanco, N.R. Tas
- W.P.11 Comparison of Gaussian Process Kernels for Surface Roughness Modelling**
Samuel Hörmann, Jakob Wilhelm Hinum-Wagner, Jürgen Sattelkow, Desiree Rist
- W.P.12 Designing a GaN photonic platform for near-IR applications**
Megan O'Brien, Nicola Maraviglia, Vitaly Zubialevich, Brian Corbett
- W.P.13 Micro-Transfer-Printed O-band GaAs QD III-V-on-Si DFB Laser**
Jing Zhang, Igor Krestnikov, Ruggero Loi, Peter Ossieur, Guy Lepage, Peter Verheyen, Joris Van Campenhout, Gunther Roelkens
- W.P.14 Iron Doping for Transfer Printed High Speed EAM**
Shengtai Shi, Jack Mulcahy, Xing Dai, Frank H. Peters
- W.P.15 Monolithic integration of photonic integrated circuits with silicon photodiodes**
Martino Bernard, Fabio Acerbi, Mher Ghulinyan
- W.P.16 Photonic flip-chip assembly of InP on TriPleX with laser soldering**
Wenjing Tian, Lucas Beste, Alexander Khachikyan, Christoph Mittelstädt, Ronald Dekker, Kerstin Wörhoff, Joost van Kerkhof, Rui Santos, Kevin Williams, Xaveer Leijten



W.P.17 Low-stress Si₃N₄ waveguides on sapphire substrate

Kai Wang, E.J.W. Berenschot, M. Dijkstra, R.M. Tiggelaar, S.M. Martinussen, L. Chang, W.A.P.M. Hendriks, B.T.H. Borgelink, R.N. Frentrop, V.V. Tkachuk, N. Tas, S.M. Garcia-Blanco

W.P.18 A thick silicon photonics platform for quantum technologies

Matteo Cherchi, Arijit Bera, Antti Kemppinen, Jaani Nissilä, Kirsi Tappura, Marco Caputo, Lauri Lehtimäki, Janne Lehtinen, Joonas Govenius, Mika Prunnila, Timo Aalto

W.P.19 Low Limit of Detection in Bulk Liquids Using a Fibre-Packaged Waveguide-Enhanced Raman Sensor

Jérôme Michon, Priscille Bonnassies, Derek Kita, Carlos Alonso-Ramos, Laurent Vivien, Juejun Hu

W.P.20 Wideband and large optical throughput Fourier-transform spectrometer implemented on a silicon nitride chip

David González-Andrade, Thi Thuy Duong Dinh, Sylvain Guerber, Nathalie Vulliet, Sébastien Cremer, Stephane Monfray, Eric Cassan, Delphine Marris-Morini, Frédéric Boeuf, Pavel Cheben, Laurent Vivien, Aitor V. Velasco, Carlos Alonso-Ramos

W.P.21 Deep-learning algorithms for resilience to fabrication imperfections in integrated Fourier-transform spectrometer

Zindine Mokeddem, Daniele Melati, David González-Andrade, Thi Thuy Duong Dinh, Eric Cassan, Yuri Grinberg, Pavel Cheben, Dan-Xia Xu, Jens Schmid, Laurent Vivien, Delphine Marris-Morini, Aitor V. Velasco, Carlos Alonso-Ramos

W.P.22 On-chip silicon nitride ring resonator for background suppression in Brillouin spectroscopy

Giuseppe Antonacci, Kareem Elsayad, Dario Polli

W.P.23 Performance comparison of polarization rotator designs on 800 nm thick silicon nitride platform

Georgios Patsamanis, Dimitra Ketzaki, Dimitrios Chatzitheocharis, Konstantinos Vysokinos

W.P.24 Photonic chip based biosensing system with fully automatic alignment and parallel detection capability

L. Chang, W.A.P.M. Hendriks, I. Hegeman, R.N. Frentrop, M. Dijkstra, J.P. Korterik, N.A. Schilder, H.A. Seubers, S.M. García-Blanco

W.P.25 Integrated optical readout layer for ultrafast real-time delay reservoir computing

Tigers Jonuzi, Mirko Goldmann, Apostolos Argyris, Ingo Fischer, Miguel C. Soriano, David Domenéch

W.P.26 Dynamic labelling for enhanced biosensing with microring resonators

Piero Borga, Francesca Milesi, Nicola Peserico, Chiara Groppi, Antonio Fincato, Riccardo Bertacco, Andrea Melloni

W.P.27 Towards an integrated optic-electronic-optic interferometer

Alexander Schindler, Felix Ganzer, Patrick Runge, Md Salek Mahmud, Sebastian Randel, Martin Schell

W.P.28 Enhancing Sensitivity and Reducing Temperature Dependence of Contactless Light Sensors

Vittorio Grimaldi, Francesco Zanetto, Fabio Toso, Francesco Morichetti, Andrea Melloni, Giorgio Ferrari, Marco Sampietro



W.P.29 Photonic time-delay reservoir computing based on an asymmetric Mach-Zehnder interferometer with reconfigurable memory capacity

Mohab Abdalla, Clément Zrounba, Raphael Cardoso, Guanghui Ren, Andreas Boes, Arnan Mitchell, Alberto Bosio, Ian O'Connor, Fabio Pavanello

W.P.30 Experimental Characterization of sub-THz Wireless Communications Building Blocks on a Silicon Platform

Kalliopi Spanidou, Robinson Guzmán, Luis Orbe, Luis González Guerrero, Guillermo Carpintero

W.P.31 Design of a modular and scalable photonic-integrated WSS for multi-band applications

Lorenzo Tunesi, Ihtesham Khan, Muhammad Umar Madood, Enrico Ghillino, Andrea Carena, Vittorio Curri, Paolo Bardella

W.P.32 Programmable Integrated Photonic Circuits: applications for 5G, Computing, Data Center and Sensing

Daniel Pérez López

19:15 WELCOME COCKTAIL & POSTER



POLITECNICO
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Thursday, 5th May 2022

Politecnico di Milano

From 08:30 REGISTRATION

09:00 to 09:30 PLENARY (Room: 3.0.3)

Session Chair: Andrea Melloni, Politecnico di Milano

T.K.1 High-Performance CMOS Photonic Interfaces: From AI to IoT and Everywhere Between

Rajeev Ram, EECS MIT, USA

09:45 to 11:15 PICS FOR QUANTUM OPTICS (Room: 3.0.3)

Session Chair: Roberto Osellame, Politecnico di Milano

T.A.1 Quantum Communications protocols enhanced by Integrated Optics - INVITED

Paolo Villorresi, Università di Padova, Italy

T.A.2 PIC Technologies for Quantum Secure Communications

Taofiq Paraiso, Thomas Roger, Davide Marangon, Innocenzo De Marco, Mirko Sanzarp, Robert Woodward, James Dynes, Zhiliang Yuan, Andrew Shields

T.A.3 Mid-infrared Ghost spectroscopy application using an entangled photons source in silicon

Matteo Sanna, Davide Rizzotti, Stefano Signorini, Lorenzo Pavesi

T.A.4 Quantum photonics based on nonlinear integrated optics - INVITED

Christine Silberhorn, University of Paderborn, Germany

09:45 to 11:15 SENSING AND RANGING (Room: De Donato)

Session Chair: Marc Sorel, University of Glasgow

T.B.1 Rethinking Sensing – Developing Next Generation Camera Technology - INVITED

Peter Banzer, University of Gratz, Austria

T.B.2 Integrated Computer Generated Waveguide Hologram for Versatile Free-Space Beam Projection

David De Vocht, Tianran Liu, Yuqing Jiao, Erwin Bente

T.B.3 Broadband optical beam steering over a wide field of view with a silicon quadratic metalens

Yang Liu, Jianhao Zhang, Xavier Le Roux, Cedric Villebasse, Eric Cassan, Delphine Marris-Morini, Laurent Vivien, Carlos Alonso-Ramos, Daniele Melati

T.B.4 Carbon Dioxide Sensing with a Photonic Integrated Differential Absorption LiDAR Transmitter

Antonio Perez-Serrano, Clara Quevedo-Galan, Victor R. Aguilera-Sanchez, Jose Manuel G. Tijero, Ignacio Esquivias

T.B.5 Low-noise frequency-agile photonic integrated lasers for coherent ranging

Grigory Lihachev, Johann Riemensberger, Wenle Weng, Junqiu Liu, Hao Tian, Anat Siddhart, Viacheslav Snigirev, Vladimir Shadymov, Andrey Voloshin, Rui Ning Wang, Jijun He, Sunil A. Bhave, Tobias J. Kippenberg

11:15 to 11:45 COFFEE BREAK

11:45 to 13:00 COMB AND SUPERCONTINUUM GENERATION (Room: 3.0.3)

Session Chair: Mariangela Gioannini, Politecnico di Torino

- T.C.1 On-chip frequency comb interferometr - INVITED**
Nathalie Picqué, Max-Planck Institute of Quantum Optics, Germany
- T.C.2 Impact of the saturable absorber on the linewidth enhancement factor of hybrid silicon quantum dot comb lasers**
Thibaut Renaud, Heming Huang, Geza Kurczveil, Raymond G. Beausoleil, Frédéric Grillot
- T.C.3 Low Noise 2.6 to 26 GHz Tenfold Frequency Multiplication by an InP Broadly Tunable Optical Comb**
Nicola Andriolli, Eduardo Saia Lima, Evandro Conforti, Giampiero Contestabile, Arismar Cerqueira Sodré Junior
- T.C.4 Heterogeneously integrated low-loss lithium niobate photonic platform**
Mikhail Churaev, Annina Riedhauser, Rui N. Wang, Charles Möhl, Terence Blésin, Miles H. Anderson, Viacheslav Snigirev, Anat Siddharth, Youri Popoff, Ute Drechsler, Danilele Caimi, Simon Hönl, Johann Riemensberger, Junqiu Liu, Paul Seidler, Tobias J. Kippenberg
- T.C.5 Mid-Infrared Supercontinuum Generation in a Tapered SiGe/Si Waveguide for Multi-Species Gas Spectroscopy**
Alberto Della Torre, Rémi Armand, Milan Sinobad, Kokou Firmin-Fiaboe, Barry Luther-Davies, Stephen Madden, Arnan Mitchell, Thach Nguyen, David J. Moss, Jean-Michel Hartmann, Vincent Reboud, Jean-Marc Fedeli, Christelle Monat, Christian Grillet

11:45 to 13:00 PERIODIC STRUCTURES AND META-DEVICES (Room: De Donato)

Session Chair: Gonzalo Wangüemert Perez, Universidad de Málaga

- T.D.1 High performance photonic devices based on photonic crystal bimodal interferometer - INVITED**
Jaime Garcia, Nanophotonics Technology Center - UPV, Spain
- T.D.2 Curved waveguide grating demultiplexer (CWG) with a flattened response via bimodal output waveguides**
Abdelfettah Hadij-ElHouati, Robert Halir, Alejandro Ortega-Moñux, J. Gonzalo Wangüemert-P, Jens H. Schmid, Pavel Cheben, Iñigo Molina-Fernandez
- T.D.3 Subwavelength metamaterials for broadband mode multiplexing and power splitting in silicon waveguides**
Aitor V. Velasco, David González-Andrade, Raquel Fernández de Cabo, Jaime Vilas, Irene Olivares, Antonio Dias, José Manuel Luque-González, J. Gonzalo Wangüemert-Pérez, Alejandro Ortega-Moñux, Iñigo Molina-Fernández, Robert Halir, Pavel Cheben
- T.D.4 Metamaterial-engineered silicon devices fabricated with deep UV immersion lithography**
Daniele Melati, Vladyslav Vakarin, Thi Thuy Duong Dinh, Xavier Le Roux, Warren Kut King Kan, Cécilia Dupré, Bertrand Szelag, Stéphane Monfray, Frédéric Boeuf, Pavel Cheben, Eric Cassan, Delphine Marris-Morini, Laurent Vivien, Carlos Alonso-Ramos
- T.D.5 Design of autocorrective interferometers using the Bloch sphere**
Matteo Cherchi



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13:15 LUNCH

13:45 to 15:45 POSTER SESSION (Garden)

- T.P.1 Topological control of light spectrum using dynamically modulated optical waveguides**
Francesco S. Piccioli, Alexander Szameit, Iacopo Carusotto
- T.P.2 Bound States in the Continuum in LiNbO₃ Waveguides: An Assessment**
Jiří Čtyroký, Jiří Petráček, Vladimír Kuzmiak, Ivan Richter
- T.P.3 Spontaneous polarization reversal induced in α -phase lithium niobate channel waveguides by proton exchange**
Alicia Petronela Rambu, Vasile Tiron, Eugen Oniciuc, Sorin Tascu
- T.P.4 Optimization of Brillouin Gain in Subwavelength Silicon Membrane Waveguides using a Genetic Algorithm**
Paula Nuño Ruano, Jianhao Zhang, Daniele Melati, David González Andrade, Xavier Le Roux, Eric Cassan, Delphine Marris-Morini, Laurent Vivien, Norberto Daniel Lanzillotti-Kimura, Carlos Alonso Ramos
- T.P.5 Nonlocal Fourier modal method**
Pavel Kwiecien, Milan Burda, Ivan Richter
- T.P.6 Nonlocal interactions in planar metal layers**
Milan Burda, Pavel Kwiecien, Ivan Richter
- T.P.7 Comparative performance evaluation of transparent conducting oxides with moderate mobility for all-optical switching in silicon**
Juan Navarro-Arenas, Jorge Parra, Pablo Sanchis
- T.P.8 Supercontinuum generation in ultra-low loss silicon nitride waveguides**
Yijun YANG, Christian Lafforgue, Quentin Wilmart, Thibaut Sylvestre, Sylvain Guerber, Xavier Le Roux, Eric Cassan, Delphine Marris-Morini, Carlos Alonso-Ramos, Bertrand Szelag, Laurent Vivien
- T.P.9 Intersubband Absorption in p-type Ge Multiple Quantum Wells for Mid-IR Sensing Applications**
Andrea Barzaghi, Virginia Falcone, Stefano Calcaterra, Raffaele Giani, Andrea Ballabio, Daniel Chrastina, Giovanni Isella, Jacopo Frigerio
- T.P.10 Static and Dynamic Nonlinear Effects in Silicon Micro-Rings: Impact of Trap Assisted Shockley Read Hall Carrier Recombination**
Marco Novarese, Stefania Cucco, Sebastian Garcia Romero, Jock Bovington, Rongqing Hui, Mariangela Gioannini
- T.P.11 Integrated electro-optical modulator operating in the long-wave infrared spectral range**
Thi Hao Nhi Nguyen, Natnicha Koompai, Miguel Montesinos-Ballester, Lucas Deniel, Jacopo Frigerio, Andrea Ballabio, Virginia Falcone, Xavier Le Roux, Carlos Alonso-Ramos, Laurent Vivien, Adel Bousseksou, Giovanni Isella, Delphine Marris-Morini
- T.P.12 1x5 reconfigurable optical wireless routers for on-chip interconnection**
Loredana Gabriele, Gaetano Bellanca, Jacopo Nanni, Marina Barbiroli, Franco Fuschini, Velio Tralli, Davide Bertozzi, Giovanni Serafino, Vincenzo Petruzzelli, Giovanna Calò

- T.P.13 Compact and Alignment-Tolerant Vertical Coupler for Heterogeneous Photonic Integration**
Chunhui Yao, Qixiang Cheng, Richard V. Penty
- T.P.14 Lithium-niobate-based frequency-agile integrated laser sources**
V. Snigirev, A. Riedhauser, G. Likhachev, J. Riemensberger, R. N. Wang, C. Moehl, M. Churaev, A. Siddharth, G. Huang, Y. Popoff, U. Drechsler, D. Caimi, S. Hoenl, J. Liu, P. Seidler, T. J. Kippenberg
- T.P.15 A Monolithically Integrated Tunable Comb Source and Filter**
John McCarthy, Maryam Shayesteh, Frank H. Peters
- T.P.16 Silicon photonic mode demultiplexer enabled by on-chip beamforming**
David González-Andrade, Xavier Le Roux, Thi Thuy Duong Dinh, Dorian Oser, Diego Pérez-Galacho, Eric Cassan, Delphine Marris-Morini, Laurent Vivien, Carlos Alonso-Ramos
- T.P.17 Plasmonic slot ferroelectric MZIR modulator on Si₃N₄ in the O-band**
Dimitrios Chatzitheocharis, Dimitra Ketzaki, Georgios Patsamanis, Konstantinos Vyrsokinos
- T.P.18 Integrated Wavelength Filter on thin-film Lithium Niobate for a Photonic-enabled Radiometer**
Jessica César Cuello, Robinson C. Guzmán, Alberto Zarzuelo, Jeffrey Holzgrafe, Marko Lončar, Gabriel Santamaria, Luis E. García, Guillermo Carpintero
- T.P.19 Thermally tunable Silicon polarization rotator based on mode hybridization**
Theoni Prousalidi, Giannis Pouloupoulos, Carmelo Scarcella, Harry Zervos, Daisy Bergin, Anthony Bulling, Stéphane Detraz, Milana Lalović, Leonardo Marcon, Lauri Olanterä, Ulrik Sandven, Christophe Sigaud, Csaba Soos, Jan Troska, Hercules Avramopoulos
- T.P.20 Demonstration of self-spiking neuron behavior in a monolithically integrated two-section laser**
Lukas Puts, Kevin Williams, Daan Lenstra and Weiming Yao
- T.P.21 Compact, spatial-mode-interaction-free, ultralow-loss, nonlinear photonic integrated circuits**
Xinru Ji, Junqiu Liu, Jijun He, Rui Ning Wang, Zheru Qiu, Johann Riemensberger, Tobias J. Kippenberg
- T.P.22 Ultra-broadband polarization beam splitter with a gradual anisotropy engineered subwavelength metamaterial**
José Manuel Luque-González, Robert Halir, J. Gonzalo Wangüemert-Pérez, Pavel Cheben, Íñigo Molina-Fernández, Alejandro Ortega-Moñux
- T.P.23 Stokes-vector receivers on an indium phosphide membrane**
Sander Reniers, Jos van der Tol, Kevin Williams, Yuqing Jiao
- T.P.24 Ge/Si Electrically Tunable VIS/SWIR Photodetector**
Andrea Ballabio, Andrea De Iacovo, Jacopo Frigerio, Andrea Fabbri, Giovanni Isella, Lorenzo Colace
- T.P.25 Mode Overlap Simulations for Quantification of Bend Loss in Silicon Nitride Strip Waveguides for Sensing**
Anton Buchberger, Desiree Rist, Jakob Hinum-Wagner, Samuel Hörmann, Jochen Kraft, Alexander Bergmann
- T.P.26 In-line photo-thermal plasmonic detectors integrated in TiO₂ optical waveguides**
Andres Martinez, Vittorio Grimaldi, Deepak Kumar Sharma, Christian De Vita, Francesco Morichetti, Alexandre Bouhelier, Marco Sampietro



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- T.P.27 Numerical Analysis of Digital Pulse Modulation of Strongly Injection-Locked Whistle-Geometry Microring Lasers**
Gennady A. Smolyakov, Marek Osieński
- T.P.28 Characterization of Passively Mode-Locked Lasers and Saturable Absorbers based on an InP quantum well amplifier suitable for active-passive integration at 1300 nm**
Joel Hazan, Aser Nassar, Steven Kleijn, Kevin Williams, Erwin Bente
- T.P.29 Freeform optical arrays for free-space coupling into photonic integrated circuits**
Rakan E. Alsaigh, Martin P.J. Lavery
- T.P.30 Inverse Design of Nanophotonic Circuitry Components based on Reinforcement Learning**
Marco Butz, Alexander Leifhelm, Marlon Becker, Benjamin Risse, Carsten Schuck
- T.P.31 Polarization mode converter based on hybrid integration of nanowires on a silicon waveguide**
Ali Emre Kaplan, Valerio Vitali, Francesco Rossella, Valeria Demontis, Andrea Fontana, Periklis Petropoulos, Vittorio Bellani, Cosimo Lacava, Ilaria Cristiani
- T.P.32 Numerical calculation of active waveguide Bragg gratings amplification dependences**
Ángel Sanz-Felipe, Manuel Macías-Montero, Rocío Ariza, Juan A. Vallés, Javier Solís
- T.P.33 SiP Waveguide-Embedded Electronic Devices controlled by Substrate/Gate Potential Tuning**
Alessandro Perino, Francesco Zanetto, Matteo Petrini, Francesco Morichetti, Andrea Melloni, Giorgio Ferrari, Marco Sampietro
- T.P.34 Low loss SiN optical modulator for kHz-rate switching applications**
Alessandro Brugnoli, Ali Emre Kaplan, Michele Re, Cosimo Lacava, Ilaria Cristiani
- T.P.35 Miniaturization of 90-degree hybrid optical couplers**
Alessio Miranda, Weiming Yao, Jos van der Tol, Kevin Williams

13:45 to 15:35 EXHIBITORS SESSION (Room: 3.0.2)

Note: See pag. 27 for the complete program

15:45 to 16:30 INDUSTRIAL KEYNOTES (Room: 3.0.3)

Session Chair: Francesco Morichetti, Politecnico di Milano

- 15:45 T.K.2 Recent advances in silicon integrated photonics for high-bandwidth and energy-efficient optical interconnects**
Haisheng Rong, Intel, USA
- 16:15 T.K.3 Advances on 5G, research directions and role of optical technologies - An industry view**
Renato Lombardi, Huawei, Italy

16:45 to 18:30 LASER INTEGRATION (Room: 3.0.3)

Session Chair: Kevin Williams, Eindhoven University of Technology

- T.E.1 Towards passive hybridization of high-power and high-speed InP transmitters**
INVITED
Helene Debregeas, Almae Technologies, France



- T.E.2 Micro-Transfer-Printed III-V-on-Si Laser with 120nm tuning range**
Emadreza Soltanian, Grigorij Muliuk, Sarah Uvin, Dongbo Wang, Guy Lepage, Peter Verheyen,, Joris Van Campenhout, Stefan Ertl, Johanna Rimböck, Nicolas Vaissiere, Delphine Néel, Joan Ramirez, Jing Zhang, Gunther Roelkens
- T.E.3 CW emission and self-pulsing in III/V SiN hybrid laser with narrowband mirror**
Cristina Rimoldi, Lorenzo Columbo, Sebastian Romero-García, Jock Bovington, Mariangela Gioannini
- T.E.4 Integration of Quantum Dot Lasers with SOI Waveguides using Micro-Transfer Printing**
Ali Uzun, Fatih Atar, John Justice, Brian Corbett, Ruggero Loi, Alex Farrell, Peter Ossieur, Jing Zhang, Gunther Roelkens, Igor Krestnikov, Johanna Rimböck, Stefan Ertl, Marianna Pantouvaki, Guy Lepage, Joris Van Campenhout
- T.E.5 Long cavity hybrid mode-locked laser with improved modulation efficiency**
Yasmine Ibrahim, Sylvain Boust, Quentin Wilmar, Jean-François Paret, Alexandre Garreau, Karim Mekhazni, Catherin Fortin, François Duport, Ghaya Baili, Corrado Sciancalepore, Stéphanie Garcia, Laurent Vivien, Frédéric van Dijk
- T.E.6 GaSb/SOI flip-chip integrated DBR laser at 2 μ m wavelength region**
Nouman Zia, Jukka Viheriala, Heidi Tuorila, Samu-Pekka Ojanen, Eero Koivusalo, Joonas Hilska, Mircea Guina

16:45 to 18:30 SPECTROSCOPY AND MID-IR (Room: De Donato)

Session Chair: Sonia Garcia Blanco, University of Twente

- T.F.1 Waveguide Fourier Transform Spectrometers for Remote Sensing and Raman Spectroscopy - INVITED**
Hugh Podmore, Honeywell Aerospace, Canada
- T.F.2 Mid-infrared Fourier-transform spectrometer based on suspended silicon metamaterial waveguides**
Thi Thuy Duong Dinh, Xavier Le Roux, Natnicha Koompai, Daniele Melati, Miguel Montesinos-Ballester, David González-Andrade, Pavel Cheben, Aitor V. Velasco, Eric Cassan, Delphine Marris-Morini, Laurent Vivien, Carlos Alonso-Ramos
- T.F.3 Germanium quantum wells for mid-infrared integrated photonics**
Andrea Barzaghi, Virginia Falcone, Stefano Calcaterra, Raffaele Giani, Andrea Ballabio, Giovanni Isella, Daniel Chrastina, Michele Ortolani, Michele Virgilio, Jacopo Frigerio
- T.F.4 Mid-Infrared High Q Factor Silicon-Germanium Ring Resonator**
Marko Perestjuk, Rémi Armand, Alberto Della Torre, Milan Sinobad, Arnan Mitchell, Andreas Boes, Jean-Michel Hartmann, Jean-Marc Fedeli, Vincent Reboud, Christelle Monat, Christian Grillet
- T.F.5 Ge micro-crystals photodetectors with enhanced infrared responsivity**
Virginia Falcone, Andrea Ballabio, Andrea Barzaghi, Carlo Zucchetti, Luca Anzi, Federico Bottegoni, Jacopo Frigerio, Roman Sordan, Paolo Biagioni, Giovanni Isella
- T.F.6 Etchless Pedestal Chalcogenide Waveguides for Mid-IR On-Chip Sensing and Spectroscopy Applications**
Vasileios Mourgelas, Ben Rowlinson, James Wilkinson, Ganapathy Senthil Murugan

**18:30 & 19:15 CASTELLO VISIT
19:30 GALA DINNER**



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Friday, 6th May 2022
Politecnico di Milano

08:00 to 09:00 REGISTRATION

09:00 to 09:30 KEYNOTE (Room: 3.0.3)

Session Chair: Delphine Marris-Morini, Université Paris-Sud

F.K.1 Brillouin Scattering in Silicon Nitride Photonic Circuits
David Marpaung, Twente University, Netherlands

09:45 to 11:15 MICROWAVE PHOTONICS AND TERAHERTZ (Room: 3.0.3)

Session Chair: Delphine Marris-Morini, Université Paris-Sud

F.A.1 Photonic integration for microwave photonics systems - INVITED
Antonella Bogoni, SSSA and Inphotec, Italy

F.A.2 Microwave-optical transduction using high overtone bulk acoustic resonances
Terence Blésin, Anat Siddharth, Hao Tian, Rui Ning Wang, Alaina Attanasio, Sunil A. Bhavé, Tobias J. Kippenberg

F.A.3 Widely Tunable Flat-Top Integrated Microwave Photonic Passband Filter
Claudio Porzi, Manuel Reza, Paolo Ghelfi, Marc Sorel, Antonella Bogoni

F.A.4 Integrated THz-photonics transceivers by all-dielectric phonon-polariton non-linear nanoantennas - INVITED
De Angelis Costantino, Università di Brescia, Italy

09:45 to 11:15 WAVEGUIDE TECHNOLOGY AND COUPLING (Room: De Donato)

Session Chair: Carlos Alonso Ramos, Université Paris-Saclay

F.B.1 Integrated optical interfacing using a freeform 3-D coupling platform - INVITED
Tian Gu, MIT, USA

F.B.2 3D printed on-chip parabolic mirror for chip-to-fiber and chip-to-chip coupling
Yujia Kong, Herman Offerhaus, Meindert Dijkstra, Sonia García Blanco, Lantian Chang

F.B.3 Demonstration of an on-chip optical circulator for TE mode light
Rui Ma, Sander Reniers, Yuya Shoji, Tetsuya Mizumoto, Kevin Williams, Yuqing Jiao, Jos Van Der Tol

F.B.4 Assessment of electro- and thermo-optics response of thin film lithium niobate with phase shifted Bragg gratings
Alessandro Prencipe, Katia Gallo

F.B.5 Enhanced all-optical reading of subwavelength magnetic bits on a photonic integrated device using magneto-plasmonic effects
Hamed Pezeshki, Figen Ece Demirer, Reinoud Lavrijsen, Jos van der Tol, and Bert Koopmans



11:15 to 11:45 COFFEE BREAK

11:45 to 13:15 ADVANCES IN SILICON PHOTONICS (Room: 3.0.3)

Session Chair: Pablo Sanchis, Universitat Politècnica de València

**F.C.1 Beyond Interconnects Applications using a 300mm Silicon Photonics Technology
INVITED**

Fredric Boeuf, STm, France

F.C.2 Automatic Testing of Silicon Photonic Add/Drop Multiplexer

Matteo Petrini, Rita Baldi, Moritz Seyfried, Francesco Morichetti, Andrea Melloni

F.C.3 Micro transfer printing of electronic integrated circuits on Silicon photonics substrates

Ruggero Loi, Prasanna Ramaswamy, Alex Farrell, Antonio Jose Trindade, Alin Fecioru, Johanna Rimböck, Stefan Ertl, Marianna Pantouvaki, Guy Lepage, Joris Van Campenhout, Tinus Pannier, Ye Gu, David Gomez, Patrick Steglich, Peter Ossieur

F.C.4 Integrated Electronic Control of Silicon Mach-Zehnder Interferometers

Fabio Toso, Francesco Zanetto, Mazyar Milanizadeh, Andrea Melloni, Marco Sampietro, Francesco Morichetti, Giorgio Ferrari

F.C.5 Optical modulation based on DC Kerr effect in silicon waveguide

Jonathan Peltier, Léopold Viot, Christian Lafforgue, Lucas Deniel, Delphine Marris-Morini, Guy Aubin, Farah Amar, Dehn Tran, Callum G. Littlejohns, David J. Thomson, Weiwei Zhang, Laurent Vivien

11:45 to 13:15 NEURAL NETWORKS AND QUANTUM SOURCES (Room: De Donato)

Session Chair: Taofiq Paraíso, Toshiba

F.D.1 Silicon photonics neural networks in optical communications - INVITED

Lorenzo Pavesi, Università di Trento, Italy

F.D.2 Quantifying Hidden Noise in Integrated Nonlinear Sources

Ben M. Burridge, Imad I. Faruque, John G. Rarity, Jorge Barreto

F.D.3 Strong Pump Rejection Filter for Polarization-Diverse Silicon Platforms

Jérôme Michon, Xavier Le Roux, Alexandre Huot de Saint-Albin, Dorian Oser, Sébastien Tanzilli, Laurent Labonté, Eric Cassan, Laurent Vivien, Carlos Alonso-Ramos

F.D.4 Fully Integrated, Scalable Quantum Entropy Source at 1 Gbps

Miquel Rudé, Domenico Tulli, Waldimar Amaya, Carlos Abellán

F.D.5 Sub-milliwatt and tunable optical power limiters using vanadium dioxide in ultra-compact silicon waveguides

Jorge Parra, Juan Navarro-Arenas, Jean Pierre-Locquet, Pablo Sanchis

13:15 to 14:30 LUNCH

14:30 to 16:00 PROGRAMMABLE PHOTONICS (Room: 3.0.3)

Session Chair: David Marpaung, University of Twente

F.E.1 Does the world need general-purpose programmable photonics - INVITED

Wim Bogaerts, Ghent University - IMEC, Belgium



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MILANO 1863

F.E.2 Multi-channel free-space optical communication between self-configuring silicon photonics meshes

SeyedMohammad SeyedinNavadeh, Mazyar Milanizadeh, Francesco Zanetto, Vittorio Grimaldi, Christian De Vita, Giorgio Ferrari, David A.B. Miller, Andrea Melloni, Francesco Morichetti

F.E.3 6-mode Universal Photonic Processor fabricated by Femtosecond Laser Writing

Ciro Pentangelo, Francesco Ceccarelli, Simone Piacentini, Riccardo Albiero, Simone Atzeni, Andrea Crespi, Roberto Osellame

F.E.4 A high-index SiON integrated photonic-electronic platform for quantum technologies

Mher Ghulinyan, Martino Bernard, Gioele Piccoli, Matteo Sanna, Massimo Borghi, Stefano Azzini, Fabio Acerbi, Giovanni Paternoster, Alberto Gola, Lorenzo Pavesi, Georg Pucker

F.E.5 A Universal 20-mode Quantum Photonic Processor

Caterina Taballione, Malaquias Correa Anguita, Michiel de Goede, Pim Venderbosch, Ben Kassenberg, Henk Snijders, Narasimhan Kannan, Devin Smith, Jorn Epping, Reinier van der Meer, Pepijn W. H. Pinkse, Hans van den Vlekert, Jelmer J. Renema

14:30 to 16:00 INTEGRATED PLATFORMS FOR VISIBLE & XUV (Room: De Donato)

Session Chair: Giuseppe Cusmai, Advanced Fiber Resources

F.F.1 Integrated distributed feedback (DFB) perovskite lasers in SiN waveguide platform

Federico Fabrizio, Piotr Cegielski, Manuel Runkel, Saeed Goudarzi, Cedric Kreusel, Bartos Chmielak, Lyudmila Staroduptceva, Dmitry Dirin, Viktoriia Morad, Maksym Kovalenko, Thomas Riedl, Max Lemme

F.F.2 TiO₂ channel waveguides with 0.5 dB/cm propagation losses

Alvaro Aguirre Fontenla, Ward A.P.M. Hendriks, Meindert Dijkstra, Sonia M. Garcia-Blanco

F.F.3 Integrated Amorphous-Silicon Photodetector on Silicon Nitride Waveguide

Christian De Vita, Fabio Toso, Natale Giovanni Pruiti, Charalambos Klitis, Giorgio Ferrari, Marc Sorel, Andrea Melloni, Francesco Morichetti

F.F.4 Low-noise near-ultraviolet photonic integrated lasers

Anat Siddharth, Thomas Wunderer, Grigory Lihachev, Andrey S. Voloshin, Camille Haller, Rui Ning Wang, Mark Teepe, Zhihong Yang, Junqiu Liu, Johann Riemensberger, Nicolas Grandjean, Noble Johnson, Tobias J. Kippenberg

F.F.5 Low-loss chemical mechanically polished Al₂O₃ thin films for UV integrated photonics

Soheila Mardani, M. Dijkstra, W.A.P.M. Hendriks, M.P. Nijhuis - Groen, S.M. Garcia-Blanco

F.F.6 Femtosecond Laser Micromachining of Integrated Hollow-core Waveguides for High-order Harmonic Generation and XUV Filtering

Pasquale Barbato, Gabriele Crippa, Anna Gabriella Ciriolo, Michele Devetta, Caterina Vozzi, Salvatore Stagira, Valer Tosa, Roberto Osellame, Rebeca Martinez Vazquez

16:00 to 16:30 COFFEE BREAK



16:30 to 17:30 KEYNOTES F.K.2 (Room: 3.0.3)

Session Chair: Charles Baudot, Ciena Corporation

F.K.2 Advances and trends of Si photonics

Laurent Vivien, isheng Rong, CNRS and Univ. Paris Saclay, France

F.K.3 History and perspectives of an InP-based generic foundry approach

Meint Smit, TU/e Eindhoven University, Netherlands

17:30 to 18:00 CLOSING CEREMONY & AWARDS