



PHOTONICS NORTH | 2024

JOIN US IN
Vancouver Convention Centre
May 28-30, 2024

CONFERENCE PROGRAM



PN 2024 - Program at a glance

Tuesday, May 28, 2024

08:30 - 10:30	Biophotonics East Meeting Room 8	High Power East Meeting Room 11	Semiconductor East Meeting Room 12	Nonlinear East Meeting Room 13	Quantum East Ballroom A
10:30 - 10:50	Coffee Break - East Meeting Room 1-3				
10:50 - 11:00	Opening Welcome East Ballroom A				
11:00 - 12:00	Plenary Lecture 1 - Dr. Cheng-Wei Qiu East Ballroom A				
12:00 - 13:00	Lunch session: Industry Insight East Meeting Room 2		Lunch East Meeting Room 1-3		
12:15 - 14:00	Student Paper Competition (closed session)				
13:00 - 15:20	Biophotonics East Meeting Room 8	High Power East Meeting Room 11	Semiconductor East Meeting Room 12	Nonlinear East Meeting Room 13	Quantum East Ballroom A
15:20 - 15:40	Coffee Break - East Ballroom BC				
15:40 - 18:00	Biophotonics East Meeting Room 8	Theory Design East Meeting Room 11	Semiconductor East Meeting Room 12	Photonics and AI East Meeting Room 13	Quantum East Ballroom A
18:00 - 20:00	Welcome Reception East Ballroom BC				
19:00 - 20:00	Workshop - How to start a company in Photonics East Meeting Room 8				

Wednesday, May 29, 2024

08:30 - 10:30	Startup Pitch Competition East Meeting Room 2					
09:00 - 12:00	Quantum Photonics Workshop East Meeting Room 2					
08:00 - 09:20	Biophotonics East Meeting Room 8	Theory Design East Meeting Room 11	Semiconductor East Meeting Room 12	Photonics and AI East Meeting Room 13	Quantum East Ballroom A	
09:20 - 10:20	Plenary Lecture 2 - Dr. Lihong Wang East Ballroom A					
10:20 - 10:40	Coffee Break and Exhibition opening - East Ballroom BC					
11:00 - 12:00	Nonlinear East Meeting Room 2	Biophotonics East Meeting Room 8	Theory Design East Meeting Room 11	Semiconductor East Meeting Room 12	Photonics and AI East Meeting Room 13	Quantum East Ballroom A
12:00 - 13:00	Lunch session: Exhibitor Presentations East Meeting Room 2		Lunch East Meeting Room 1-3			

13:00 - 14:00	Strategic Technology Panel East Ballroom A				
14:00 - 15:00	Introduction to Horizon Eureka East Meeting Room 2				
15:00 - 16:00	Introduction to EUREKA East Meeting Room 2				
14:00 - 15:40	Biophotonics East Meeting Room 8	Theory Design East Meeting Room 11	Green East Meeting Room 12	Photonics and AI East Meeting Room 13	Quantum East Ballroom A
15:40 - 16:00	Coffee Break and Exhibition - East Ballroom BC				
16:00 - 18:00	Joint PN and JCEP Symposium on Attosecond Photonics This session is in partnership with the U. Ottawa NRC Joint Centre for Extreme Photonics (JCEP) East Ballroom A				
18:00 - 20:00	Poster Session and Exhibition East Ballroom BC				
19:00 - 20:00	Workshop - How to protect your research and IP in photonics East Meeting Room 8				
19:00 - 20:00	Workshop - CMC Roadmap East Meeting Room 11				

Thursday, May 30, 2024

08:00 - 09:20	Biophotonics East Meeting Room 8	Theory Design East Meeting Room 11	Green East Meeting Room 12	Nonlinear East Meeting Room 13	Quantum East Ballroom A	
09:20 - 10:20	Plenary Lecture 3 - Dr. Stephanie Simmons, Ph.D. East Ballroom A					
10:20 - 10:25	Close Remarks and Award Ceremony East Ballroom A					
10:2 - 10:40	Coffee Break and Exhibition - East Ballroom BC					
10:40 - 12:00	High Power East Meeting Room 2	Biophotonics East Meeting Room 8	Theory Design East Meeting Room 11	Green East Meeting Room 12	Nonlinear East Meeting Room 13	Quantum East Ballroom A
12:00 - 13:00	Lunch session: Career Development and Inspirational Speakers East Meeting Room 2			Lunch East Meeting Room 1-3		
13:00 - 14:50	High Power (second part of the special symposium) East Meeting Room 2	Biophotonics East Meeting Room 8	Theory Design East Meeting Room 11	Green East Meeting Room 12	Nonlinear East Meeting Room 13	Quantum East Ballroom A
14:50 - 15:10	Coffee Break and Exhibition closes at 16:00 - East Ballroom BC					
15:10 - 17:30	High Power East Meeting Room 2	Materials East Meeting Room 8	Theory Design East Meeting Room 11	Green East Meeting Room 12	Photonics and AI East Meeting Room 13	

Table of Contents

PN 2024 - Program at a glance	2
Organizing Committee & Session Chairs.....	6
Welcoming message	8
General Information.....	9
Industry Related Events.....	10
Oral Presentations	13
Poster Presentations	56
Exhibition	65
Partners and Exhibitors.....	66
Thank you to our Partners !.....	70

Photonics North 2024
Secretariat
pn.info@conferium.com



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Photonics North Corp., Toronto, Canada

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Niagara College, Canada

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Canada

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Vancouver, Canada

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Christian Davila
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Research and Early Development, Roche
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Simon Fraser University, Canada

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UBC, Canada

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University of Ottawa, Canada

Tigran Galstian
Université Laval, Canada

Xihua Wang
University of Alberta, Canada

Winnie Ye
Carleton University, Canada

Welcoming message

Dear colleagues,

The conference aims at strengthening the connections between theory and application and building stronger ties between university research and industry needs. We have the pleasure of welcoming leading researchers who shared the results of their work and industry exhibitors who presented their products and services.

We are also delighted to be joined by students who have chosen photonics as a career path. It is a great opportunity to network with the community of photonics researchers and industry.

Similar to last year, we will be dedicating a significant part of the conference to industry-related events, creating many opportunities for companies to showcase their products and technologies; network with other business leaders; meet end users, as well as opportunities to identify and talk to potential employees.

Finally, we wish to convey our gratitude to Dr Jinyang Liang and Dr Lora Ramunno who is doing an outstanding job as Program Co-Chairs. Thank you also to the partners, supporters, session chairs, and many volunteers, without you, the conference would not be possible.

Looking forward to seeing you in Vancouver.

Conference Co-Chairs

Luca Razzari
INRS-EMT, Montréal, Canada

Mirwais Aktary
CEO, Applied Nanotools, Edmonton, Canada

General Information

VENUE

Vancouver Convention & Exhibition Centre

East building, 999 Canada Place,
Vancouver, BC V6C 0C3
Phone: +1-604-689-8232

PARKING

The Vancouver Convention Centre offers secure parking through independent operators within both buildings. They operate 24 hours per day, 7 days a week on a first come, first serve basis.

The conference will be in the East building of the Vancouver Convention Centre. Enter the parking at the foot of Howe Street.

The East building has 750 stalls and is operated by Indigo. Indigo can be reached at +1-866-856-8080

REGISTRATION

All participants should register at registration desk. The registration desk is located in the East Lobby and it will be open at the Conference venue:

Tuesday, May 28	07:30 - 20:00
Wednesday, May 29	07:00 - 20:00
Thursday, May 30	07:00 - 17:00

EXHIBITION HALL

Wednesday, May 29	10:20 - 20:00
Thursday, May 30	10:25 - 16:00

NAME BADGE

Please wear your name badge at all times. This will ensure your access to the conference rooms and Exhibition Hall.

CERTIFICATE OF ATTENDANCE

An official Certificate of Attendance will be available on demand.

INTERNET ACCESS / MOBILE PHONE

Free internet access is available to all participants at the Conference venue. During the meetings, please turn off your mobile.

Network name: **PN2024**

Password: **light2024**

DISCLAIMER

The Photonics North 2024 secretariat and organizers cannot assume liability for personal accidents, loss of or damage to private property of participants, and accompanying persons, either during or directly arising from the Photonics North 2024 Conference. Participants should make their own arrangement with respect to health and travel insurance.

SECURITY & SAFETY

Please do not leave bags and luggage unattended at any time, whether inside or outside session rooms.

Industry Related Events

TUESDAY, MAY 28, 2024

Lunch Session – Industry Insight

Come and have your lunch here to listen to an intriguing industry keynote speech on a new frontier of photonics.

Room: East Meeting Room 2, from 12:00 - 13:00

Workshop – How to start a company in photonics

Uncover the opportunities and challenges of starting a company in the photonics.

Room: East Meeting Room 2, from 19:00 to 20:00

WEDNESDAY, MAY 29, 2024

Startup Pitch Competition

Pitch your big idea to start a company to a group of business leaders and investors. The event is open to all attendees. Pitch presenters must register in advance using the link here: <https://www.eventbrite.ca/e/903289692787?aff=oddttdcreator>

Room: East Meeting Room 2, from 08:30 to 10:30

Lunch Session - Exhibitor Presentation

Come and have your lunch here to listen to the exhibitors talking about their companies, technologies and products.

Room: East Meeting Room 2, from 12:00 to 13:00

Strategic Technology Panel

A panel of technology and business leaders will be sharing their vision on semiconductor photonics.

Room: East Meeting Room 2, from 13:00 to 14:00

Introduction to Horizon Europe

As the world's largest research and innovation funding program involving countries around the globe, Horizon Europe gives Canadians access to opportunities to elevate our research and innovations through global partnerships.

Room: East Meeting Room 2, from 14:00 to 15:00

Introduction to EUREKA

Eureka is an international network for industrial R&D collaboration including over 45 economies from Europe, Israel, South Korea, Argentina, Chile, Singapore and Canada. Come and find out how this platform can help your business to accelerate growth through access to global value chains and collaboration with international partners.

Room: East Meeting Room 2, from 15:00 to 16:00

Workshop – How to protect your research and IP in photonics

Learn about steps you can take to protect your research and innovation from external threats. This workshop is open to all attendees.

Room: East Meeting Room 2, from 19:00 to 20:00

Workshop – CMC Roadmap Community Consultation

Roadmaps set the framework for innovation and will help to position Canada as a leader in the semiconductor space.

Room: East Meeting Room 8, from 19:00 to 20:00

THURSDAY, MAY 30, 2024

Lunch Session – Career Development and Inspirational Speakers

Come and have your lunch here to listen to an inspiration keynote speech from technology and business leaders on handling the challenges in real world and building a successful career path.

Room: East Meeting Room 2, from 12:00 to 13:00

EXHIBITION

Please visit our partners, they are very important for the success of Photonics North.

Room: Ballroom BC,

Tuesday, June 13 | 10:30 - 20:00

Wednesday, May 29 | 08:30 - 15:30

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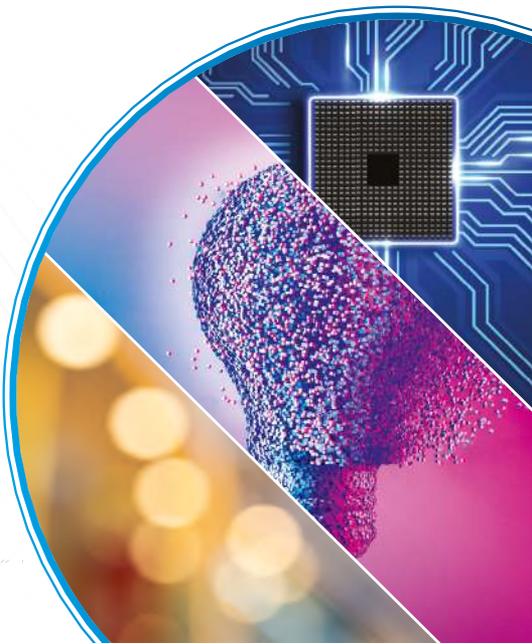


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Oral Presentations

Tuesday, May 28, 2025

BIOPHOTONICS, NOVEL SENSING, AND ADVANCED IMAGING - PART 1 OF 9

EAST MEETING ROOM 8

Chair: Parsin Haji Reza, University of Waterloo, Canada

Shuo Tang, University of British Columbia, Canada

8:30 - 8:45 **INTRODUCTION**

8:45 - 9:10 **BP-1.2 / COMPUTATIONAL FLUORESCENCE LIFETIME IMAGING MICROSCOPY**

Liang Gao, UCLA, United States of America

9:10 - 9:35 **BP-1.3 / AUGMENTING TUMOUR ABLATION WITH RADIATION-ACTIVATED PHOTODYNAMIC THERAPY (RADIOPDT) FOR PRECISION-GUIDED RADIOTHERAPY**

Deepak Dinakaran, , Canada

Abul Kalam Azad, Hua Chen, Houston Cole, Colin Cameron, Lothar Lilge, John Lewis, Sherri McFarland, Ronald Moore

9:35 - 9:50 **BP-1.5 / DOUBLE-CLAD FIBER PHOTON ABSORPTION REMOTE SENSING PROBE FOR HIGH RESOLUTION LABEL-FREE IMAGING**

Jenna Veugen, University of Waterloo, Canada

James Alexander Tummon Simmons, Parsin Haji Reza

9:50 - 10:05 **BP-1.6 / MULTI-WAVELENGTH PHOTON ABSORPTION REMOTE SENSING: NON-CONTACT LABEL-FREE FUNCTIONAL VASCULAR IMAGING**

Sarah J. Werezak, University of Waterloo, Canada

James Alexander Tummon Simmons, Parsin Haji Reza

Tuesday

HIGH POWER LASER TECHNOLOGY, ULTRAFAST OPTICS, AND APPLICATIONS - PART 1 OF 5

EAST MEETING ROOM 11

Chair: Arkady Major, University of Manitoba, Canada

8:30 - 8:45 **HPL-1.1 / TEMPORAL CHARACTERIZATION OF YB-LASER-BASED HIGH-REPETITION RATE ULTRASHORT PULSE SOURCES USING FREQUENCY-RESOLVED OPTICAL SWITCHING**

Mayank Kumar, INRS-EMT, Canada

Elissa Haddad, Adrien Longa, Saadat Mokhtari, Heide Ibrahim, Gaëtan Jargot, Giulio Vampa, François Légaré

8:45 - 9:00 **HPL-1.2 / OFFSET-FREE FEMTOSECOND ER:FIBER LASER AMPLIFIER FREQUENCY COMB SYSTEM IN THE MID-INFRARED**

Gabriel Demontigny, femtoQ Laboratory, Department of Engineering Physics, Polytechnique Montréal, Canada
Laurent Rivard, Denis V. Seletskiy

9:00 - 9:25 **HPL-1.3 / HIGH-POWER MID-IR AND LWIR OPTICAL SOURCES FOR STRONG-FIELD AND ATTOSECOND STUDIES**

Vyacheslav Leshchenko, SLAC National Accelerator Laboratory, United States of America

9:25 - 9:50 **HPL-1.4 / ADVANCING TR-ARPES AND THE ROLE OF HIGH POWER ULTRAFAST LASER DEVELOPMENT**

Arthur K. Mills, University of British Columbia, Canada
MengXing Na, David J. Jones

9:50 - 10:15 **HPL-1.5 / METAOPTICS FOR THE EXTREME-ULTRAVIOLET**

Marcus Ossiander, TU Graz, Austria

10:15 - 10:30 **HPL-1.6 / ADAPTING MULTIDIMENSIONAL SOLITARY STATES IN HOLLOW-CORE FIBERS FOR YB LASER SOURCE AT 20 KHZ**

Adrien Longa, Institut national de la recherche scientifique (INRS), Canada

Loïc Arias, Gaëtan Jargot, Antoine Pomerleau, Philippe Lassonde, Fabio Boschini, Heide Ibrahim, François Légaré

Tuesday

SEMICONDUCTOR PHOTONICS - PART 1 OF 5

EAST MEETING ROOM 12

Chair: Jens Schmid, National Research Council Canada, Canada

8:30 - 9:05 **SP-1.1 / SILICON PHOTONICS FOR HIGH-CAPACITY OPTICAL INTERCONNECTS**

Hon Ki Tsang, The Chinese University of Hong Kong, Hong Kong
David Chan, Dan Yi, Xuetong Zhou

9:05 - 9:30 **SP-1.2 / QUANTUM DOT LASER AND AMPLIFIER ENABLED CONVERGED OPTICAL AND WIRELESS ACCESS NETWORK SYSTEMS**

Zhenguo Lu, Quantum and Nanotechnologies Research Centre, National Research Council Canada, Canada
Guocheng Liu, Philip J. Poole, Xiaoran Xie, Jiaren Liu, Youxin Mao, Pedro Barrios, Yang Qi, Martin Vachon, Chun-Ying Song, Mohamed Rahim, Daniel Poitras, Penghui Ma, John Weber, Ping Zhao, Long Huang, Yiran Guan, Jianping Yao, Ke Wu, Rongqing Hui, Maurice O'Sullivan

9:30 - 9:55 **SP-1.3 / ADDRESSING THE CHALLENGES OF FUTURE TELECOMMUNICATION NETWORKS WITH ADVANCED PHOTONIC INTEGRATION TECHNOLOGIES**

David Bitauld, III-V Lab / Nokia Bell Labs, France

9:55 - 10:10 **SP-1.4 / PASSIVELY ASSEMBLED, BROADBAND EVANESCENT COUPLERS FOR SUSTAINABLE PB/S CO-PACKAGED OPTICS**

Drew Weninger, Massachusetts Institute of Technology, United States of America
Luigi Ranno, Samuel Serna, Lionel Kimerling, Anuradha Agarwal

10:10 - 10:25 **SP-1.5 / INAS/INP QUANTUM DASH SEMICONDUCTOR OPTICAL AMPLIFIERS FOR MODERN COMMUNICATION NETWORKS**

Youxin (Linda) Mao, National Research Council Canada, Canada

Tuesday

NONLINEAR OPTICS, NANOPHOTONICS, AND PLASMONICS - PART 1 OF 7

EAST MEETING ROOM 13

Chair: Pablo Bianucci, Concordia University, Canada

- 8:55 - 9:20 **NL-1.2 / TUNING BROADBAND VOLATILE AND NON-VOLATILE TRANSITIONS IN NANOSTRUCTURED PHASE CHANGE AND PHOTO-IONIC CHALCOGENIDE METACOATINGS**
Behrad Gholipour, University of Alberta, Canada
Avik MAndal, Joshua Perkins, Ahmed Elfarash, Mahirah Zaini, James Davis, Kwanghyun Kim
-
- 9:20 - 9:45 **NL-1.3 / ULTRAFAST QUADRATIC NONLINEAR NANOPHOTONICS: FROM SUPERIOR COMPONENTS TO ADVANCED CIRCUITS**
Alireza Marandi, California Institute of Technology, United States of America
-
- 9:45 - 10:00 **NL-1.4 / ALL-DIELECTRIC HUYGENS' META-WAVEGUIDES FOR NONLINEAR INTEGRATED PHOTONICS**
Ozan William Oner, University of Ottawa, Canada
Gabriel Flizikowski, M. Saad Bin-Alam, Thomas Pertsch, Isabelle Staude, Jens Schmid, Pavel Cheben, Ksenia Dolgaleva
-
- 10:00 - 10:15 **NL-1.5 / KERKER EFFECT IN INGAAS METASURFACES FOR NEAR-UNITY ABSORPTION EFFICIENCY**
Sasan V. Grayli, University of Waterloo, Canada
Brad van Kasteren, Tarun Patel, Sathursan Kokilathasan, Sarah Odinotski, Burak Tekcan, Adam Tsem, Zbigniew Wasilewski, Michael Reimer
-
- 10:15 - 10:30 **NL-1.6 / CMOS COMPATIBLE ADD-DROP SILICON-ORGANIC HYBRID RACETRACK MODULATOR**
Maryam Moridsadat, Queen's University, Canada
Marcus Tamura, Bhavin Shastri
-

Tuesday

QUANTUM LIGHT-MATTER INTERACTIONS: SENSING, COMMUNICATIONS, AND INFORMATION PROCESSING - PART 1 OF 9

EAST BALLROOM A

Chair: Benjamin Sussman, NRC, Canada

- 8:30 - 8:55 **QLM-1.1 / CHIRPED LASER DRIVING OF QUANTUM EMITTERS FOR MULTIPLEXING IN QUANTUM NETWORKS**
Kimberley Hall, Dalhousie University, Canada
Ajan Ramachandran, Grant Wilbur, Reuble Mathew, Allister Mason, Sabine O'Neal, Dennis Deppe
-
- 8:55 - 9:20 **QLM-1.2 / CRYOGENIC PLUG-AND-PLAY INTEGRATED QUANTUM-PHOTONIC SOURCES AND DETECTORS**
Jeff Young, University of British Columbia, Canada
Marco De Gregorio, Andreas Pfenning, Donald Witt, Becky Lin, Shangxuan Yu, Matthew Mitchell, Abdelrahman Affi, Adan Azem, Lukas Chrostowski
-
- 9:20 - 9:45 **QLM-1.3 / LIGHT-FIELD CONTROL OF REAL AND VIRTUAL CHARGE CARRIERS**
Ignacio Franco, University of Rochester, United States of America
-
- 9:45 - 10:00 **QLM-1.4 / GENERATION OF QUANTUM OPTICAL SIDEBANDS DURING HIGH-HARMONIC EMISSION FROM A SEMICONDUCTOR**
Giulio Vampa, Joint Attosecond Science Laboratory, Canada
Sohail Abdul Jalil, David Purschke, Neda Boroumand, Andrei Naumov, Andre Staudte, David Villeneuve, Thomas Brabec, Giulio Vampa
-
- 10:00 - 10:15 **QLM-1.5 / A HERALDED SINGLE PHOTON AND AN ATTENUATED COHERENT STATE TAKE A QUANTUM WALK...**
Kate Fenwick, University of Ottawa | National Research Council of Canada, Canada
Frédéric Bouchard, Jonathan Baker, Guillaume Thekkadath, Aaron Goldberg, Philip Bustard, Duncan England, Khabat Heshami, Benjamin Sussman
-
- 10:15 - 10:30 **QLM-1.6 / ULTRAFAST SPATIAL MODE SWITCHING OF SINGLE PHOTONS**
Alicia Sit, National Research Council of Canada, Canada
Frédéric Bouchard, Duncan England, Philip Bustard, Benjamin Sussman
-

Tuesday

PLENARY LECTURE 1 - DR. CHENG-WEI QIU

EAST BALLROOM A

Chair: Lora Ramunno, University of Ottawa, Canada

Jinyang Liang, INRS - Université du Québec, Canada

11:00 - 12:00 **PL-1 / WHEN LOW-DIMENSIONAL MATERIALS MEET METASURFACES**
Cheng-Wei Qiu, Associate Professor and Dean's Chair,
Department of Electrical and Computer Engineering, National
University of Singapore, Singapore

BIOPHOTONICS, NOVEL SENSING, AND ADVANCED IMAGING - PART 2 OF 9

EAST MEETING ROOM 8

Chair: Christian Davila Peralta, Roche Tissue Diagnostics, United States
Of America

Parsin Haji Reza, University of Waterloo, Canada

13:00 - 13:35 **BP-2.1 / DEVELOPMENT AND CLINICAL TRANSLATION OF
STIMULATED RAMAN HISTOLOGY (SRH)**
Christian Freudiger, Invenio Imaging Inc., United States of America

13:35 - 14:00 **BP-2.2 / DISEASE BIOLOGY INSIGHTS USING MULTIPLEXED
AND MULTI-OMIC TISSUE AUTOFLUORESCENCE VIRTUAL STAINING
METHODS**
Raymond Kozikowski, Pictor Labs, Inc., United States of America

14:00 - 14:25 **BP-2.3 / VIRTUAL STAINING OF LABEL-FREE TISSUE USING DEEP
LEARNING**
Aydogan Ozcan, UCLA, United States of America

14:25 - 14:50 **BP-2.4 / DEVELOPMENT OF A PHOTON ABSORPTION REMOTE
SENSING ADVANCED IMAGING DEVICE FOR LIFE SCIENCE RESEARCH**
Mike Bishop, illumiSonics, Canada
Benjamin Ecclestone, Parsin Haji Reza

14:50 - 15:05 **BP-2.5 / RAPID LABEL-FREE HISTOLOGY WITH PHOTON ABSORPTION
REMOTE SENSING MICROSCOPY**
Benjamin Ecclestone, University of Waterloo, Canada
James Tweel, Parsin Haji Reza

15:05 - 15:20 **BP-2.6 / PREDICTING THE REMAINING SHELF LIFE OF FRESH PRODUCE
THROUGH HYPERSPECTRAL IMAGING AND SCIENTIFIC COMPUTING**
Louis Sasseville, Agriculture and Agri-Food Canada, Canada
Louis Sasseville

HIGH POWER LASER TECHNOLOGY, ULTRAFAST OPTICS, AND APPLICATIONS - PART 2 OF 5

EAST MEETING ROOM 11

Chair: Shawn Sederberg, Simon Fraser University, Canada

- 13:00 - 13:15 **HPL-2.1 / TEST THE TOPOLOGICAL PROTECTION IN LASER FILAMENTATION**
Yonghao Mi, University of Ottawa, Canada
Kamalesh Jana, Daryoush Abdollahpour, Dong Hyuk Ko, Paul Corkum
-
- 13:15 - 13:30 **HPL-2.2 / RECONSTRUCTING DISCONTINUOUS DISPERSION SCANS**
Mat Britton, Linac Coherent Light Source, SLAC National Accelerator Laboratory, United States of America
Ebram Youssef, Brian Kaufman, Huanyu Song, Kirk Larsen, Martin Gebhardt, Christopher Lantigua, Christian Brahm, John Travers, Marcel Neuhaus, Chelsea Kincaid, Yi Wu, Michael Chini, Zenghu Chang, Joseph Robinson, Eric Cunningham, Ruairidh Forbes
-
- 13:30 - 13:55 **HPL-2.3 / ALL OVER THE SPECTRUM: GENERATION AND SHAPING OF BROADBAND LIGHT WITH ULTRAFAST ADIABATIC FREQUENCY CONVERSION**
Noah Flemens, Stanford University, United States of America
-
- 13:55 - 14:20 **HPL-2.4 / SUPERCONTINUUM AMPLIFICATION BY KERR INSTABILITY**
TJ Hammond, University of Windsor, Canada
TJ Hammond
-
- 14:20 - 14:35 **HPL-2.5 / MULTIPHOTON INTERFERENCES OF NON-PERTURBATIVE PHOTON-MIXING PATHWAYS IN ZINC OXIDE**
David Purschke, National Research Council of Canada, Canada
Sohail Abdul Jalil, Alvaro Jimenez-Galan, Thomas Brabec, Andrei Naumov, Andre Staudte, David Villeneuve, Giulio Vampa
-
- 14:35 - 14:50 **HPL-2.6 / TIME-RESOLVED SPECTROSCOPY OF STRONG-FIELD RECOLLISION INFLUENCED BY GIANT PLASMONIC RESONANCE**
Dong Hyuk Ko, University of Ottawa, Canada
Paul Corkum
-
- 14:50 - 15:05 **HPL-2.7 / PHOTOELECTRON SPECTROSCOPY WITH SYNTHETICALLY CHIRAL LASER PULSES**
Andre Staudte, National Research Council of Canada, Canada
Giorgios P. Katsoulis, Tian Wang, Yonghao Mi, Philippe G. Burden, Andrei Yu Naumov, David M. Villeneuve, Paul Corkum, Agapi Emmanouilidou, Andre Staudte
-
- 15:05 - 15:20 **HPL-2.8 / OPTICAL SPECTROSCOPY WITH FREE-RUNNING 1.55 μ M DUAL FREQUENCY COMB WITH LOCKED REPETITION RATE OFFSET**
Émile Dessureault, École Polytechnique Montréal, Canada
Gabriel Demontigny, Patrick Cusson, Justine Rakotomalala, Frederic Lesage, Denis V. Seletskiy
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Tuesday

SEMICONDUCTOR PHOTONICS - PART 2 OF 5

EAST MEETING ROOM 12

Chair: Amr Helmy, University of Toronto, Canada

13:00 - 13:35 **SP-2.1 / METAMATERIAL INTEGRATED PHOTONICS**
Daniele Melati, CNRS/Universite Paris-Saclay, France

13:35 - 14:00 **SP-2.2 / HYBRID TELLURITE GLASS-SILICON DEVICES FOR PHOTONIC INTEGRATED CIRCUITS**
Jonathan Bradley, McMaster University, Canada

14:00 - 14:25 **SP-2.3 / IMPLEMENTING A PIC USING COMMERCIAL PDKS FOR OPTOELECTRONIC OSCILLATOR COMB LASER GENERATOR**
Ahmad Atieh, Optiwave Systems Inc, Canada

14:25 - 14:50 **SP-2.4 / EXPLORING NONLINEAR EFFECTS IN INP/INGAASP PLATFORM IN THE TELECOM RANGE**
Lais Fujii dos Santos, University of Ottawa, Canada
Ozan William Oner, Athulya Thulaseedharan, Ehsan Mobini, Kaustubh Vyas, Gabriel Flizikowski, Ksenia Dolgaleva

14:50 - 15:05 **SP-2.5 / MEASURING THE QUANTUM YIELD OF SILICON USING SIPMS**
Harry Lewis, TRIUMF, Canada
Nicholas Morrison, Mahsa Mahtab, Fabrice Retière, Giacomo Gallina, Nicolas Massacret, Peter Margetak, Lars Martin, Andrea Capra, Ryan Underwood, Maia Henriksson-Ward

15:05 - 15:20 **SP-2.6 / REFERENCE-BASED WAVEFRONT SENSING AND CORRECTION USING INTEGRATED PHOTONICS PLATFORM**
Aydin Amini, McMaster University, Canada
Alexander Parent, Steve Hranilovic, Rafael Kleiman

Tuesday

NONLINEAR OPTICS, NANOPHOTONICS, AND PLASMONICS - PART 2 OF 7

EAST MEETING ROOM 13

Chair: Jayshri Sabarinathan, The University of Western Ontario, Canada

- 13:00 - 13:35 **NL-2.1 / BRAGG SOLITON DYNAMICS ON AN ULTRA-SILICON-RICH NITRIDE CHIP**
Dawn Tan, Singapore University of Technology and Design, Singapore
Ju-Won Choi, Byoung-Uk Sohn, Ezgi Sahin, Doris Ng, Xavier Chia,
George Chen, Kenny Ong, Hongwei Gao
-
- 13:35 - 14:00 **NL-2.2 / MICRORESONATOR OPTICAL FREQUENCY COMBS: THERMAL NOISE, PRECISION, AND PROGRESS TOWARD LOW-NOISE SIGNALS AND OPTICAL CLOCKWORK**
Tara Drake, University of New Mexico, United States of America
-
- 14:00 - 14:15 **NL-2.3 / LINEAR FEEDBACK ACTUATOR OF THE REPETITION RATE FREQUENCY OF SOLITON MICROCOMBS USING A C-BAND AUXILIARY LASER**
Tanvir Mahmood, Army Research Laboratory, United States of America
James P. Cahill, Patrick Sykes, Logan Courtright, Lue Wu, Kerry Vahala, Curtis R. Menyuk, Weimin Zhou
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- 14:15 - 14:30 **NL-2.4 / EFFICIENT FWM-BASED WAVELENGTH CONVERSION IN DEUTERATED ULTRA-SILICON-RICH NITRIDE (USRN:D)**
Xavier Chia, Singapore University of Technology and Design, Singapore
Hongwei Gao, Kenny Ong, George Chen, Ju-Won Choi, Jia Sheng Goh, Doris Ng, Dawn Tan
-
- 14:30 - 14:45 **NL-2.5 / MID-INFRARED OPTICAL PARAMETRIC AMPLIFIER FOR TIME AND ANGLE RESOLVED PHOTOEMISSION SPECTROSCOPY AT ALLS**
Gaëtan Jargot, INRS, Canada
Adrien Longa, Dario Armano, Benson Frimpong, Fabio Boschini, François Légaré
-
- 14:45 - 15:00 **NL-2.6 / MODELING AND SIMULATION OF METALENS-BASED COMPRESSED ULTRA-COMPACT FEMTO-PHOTOGRAPHY**
Miguel Marquez, Institut national de la recherche scientifique, Canada
Giacomo Balistreri, Roberto Morandotti, Luca Razzari, Jinyang Liang
-
- 15:00 - 15:15 **NL-2.7 / ANGLE AND POLARIZATION INSENSITIVE MID-INFRARED OPTICAL FILTERS USING DENSE ARRAY OF RESONANT CAVITIES**
Shivashankar Vangala, Air Force Research Laboratory, Sensors Directorate, United States of America
Matthew Klein, Joshua Hendrickson, Ivan Avrutsky
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Tuesday

QUANTUM LIGHT-MATTER INTERACTIONS: SENSING, COMMUNICATIONS, AND INFORMATION PROCESSING - PART 2 OF 9

EAST BALLROOM A

Chair: Roman Krems, University of British Columbia, Canada

13:00 - 13:15 **QLM-2.1 / EFFECT OF FABRICATION PARAMETERS AND DESIGN APPROACH FOR PHOTON EXTRACTION FROM SINGLE CRYSTALLINE DIAMOND FOR QUANTUM APPLICATIONS**

Mohammad Soltani, Institute for Quantum Computing (IQC),
University of Waterloo, Canada
Behrooz Semnani, Abdolreza Pasharavesh, Vinodh Raj Rajagopal
Muthua, Christopher Wilson, Michal Bajcsy

13:15 - 13:30 **QLM-2.2 / MECHANISM OF SINGLE PHOTON EMITTER FORMATION IN LOCALLY STRAINED MONOLAYER WSE₂**

Ivan Iorsh, Queen's University, Canada
Vasily Kravtsov, Igor Chestnov, Ivan Iorsh

13:30 - 14:05 **QLM-2.3 / ULTRAFAST QUANTUM COMPUTING WITH ULTRACOLD ATOM ARRAYS AT QUANTUM SPEED LIMIT**

Kenji Ohmori, Institute for Molecular Science, National Institutes of Natural Sciences, Japan

14:05 - 14:30 **QLM-2.4 / HOLONOMIC QUANTUM STATE CONTROL IN ULTRACOLD ATOMS**

Lindsay LeBlanc, Department of Physics, University of Alberta, Canada

14:30 - 14:55 **QLM-2.5 / PROGRAMMABLE INTERACTIONS BETWEEN OPTICAL FIELDS AND ATOM-LIKE SYSTEMS IN INTEGRATED CIRCUITS**

Hugo Larocque, Massachusetts Institute of Technology, United States of America
Mustafa Atabey Buyukkaya, Carlos Errando-Herranz, Mark Dong,
Andrew Leehneer, Camille Papon, Samuel Harper, Max Tao, Jacques Carolan, Chang-Min Lee, Christopher Richardson, Gerald Leake,
Daniel Coleman, Gerald Gilbert, Matt Eichenfield, Michael Fanto, Edo Waks, Dirk Englund

14:55 - 15:20 **QLM-2.6 / PHOTONIC WIRE BONDING FOR INTEGRATED QUANTUM PHOTONICS**

Lukas Chrostowski, The University of British Columbia, Canada

Tuesday

BIOPHOTONICS, NOVEL SENSING, AND ADVANCED IMAGING - PART 3 OF 9

EAST MEETING ROOM 8

Chair: Kamran Avanaki, The University of Illinois at Chicago, United States Of America

Shuo Tang, University of British Columbia, Canada

15:40 - 16:05 **BP-3.1 / GIGASCALE LARGE AREA MICROSCOPY FOR INTRAOPERATIVE TUMOR MARGIN DETECTION**
J. Quincy Brown, Tulane University, United States of America

16:05 - 16:30 **BP-3.2 / DIGITAL ANALYSIS OF THE PROSTATE TUMOR MICROENVIRONMENT WITH HIGH-ORDER CHROMOGENIC MULTIPLEXING**
Christian Davila, Senior Systems Engineer, Path Lab Research and Early Development, Roche Diagnostics Solutions, United States of America

16:30 - 16:55 **BP-3.3 / TOWARDS ROBUST, PORTABLE, POINT-OF-NEED DIAGNOSTICS USING SILICON PHOTONIC BIOSENSORS**
Samantha M. Grist, The University of British Columbia, Canada
Lauren S. Puumala, Sheri Chowdhury, Mohammed A. Al-Qadasi, Stephen Kioussis, Ben Cohen-Kleinstejn, Kithmin Wickremasinghe, Karyn Newton, Yuting Hou, Sajida Chowdhury, Avineet Randhawa, Matthew Mitchell, Lukas Chrostowski, Sudip Shekhar, Karen C. Cheung

16:55 - 17:10 **BP-3.4 / QUANTUM-BASED PHASE GRADIENT APPROACH FOR QUANTITATIVE PHASE MICROSCOPY**
Yingwen Zhang, University of Ottawa, Canada
Paul-Antoine Moreau, Duncan England, Ebrahim Karimi, Benjamin Sussman

17:10 - 17:25 **BP-3.5 / FIBER OPTICS TWEEZER FOR TRAPPING THE SMALL SIZE PROTEINS**
Veerpal Kaur, University of Victoria, Canada
Demelza Wright, Reuven Gordon

17:25 - 17:40 **BP-3.7 / CLASSIFICATION OF SINGLE CANCEROUS AND NON-CANCEROUS EXTRACELLULAR VESICLES USING A CONVOLUTIONAL NEURAL NETWORK AND NANOAPERTURE OPTICAL TWEEZERS**
Matthew Peters, University of Victoria, Canada
Sina Halvaei, Annie Yang-Schulz, Karla Williams, Reuven Gordon

Tuesday

PHOTONIC THEORY, DESIGN, AND SIMULATIONS - PART 1 OF 8

EAST MEETING ROOM 11

Chair: Pavel Cheben, NRC, Canada

15:40 - 16:15 **PTD-1.1 / FINDING AND COUNTING CHANNELS WITH WAVES: LIMITS AND OPPORTUNITIES**

David Miller, Stanford University, United States of America

16:15 - 16:40 **PTD-1.2 / SUBWAVELENGTH AND RESONANT METAMATERIALS IN INTEGRATED PHOTONICS**

Jens Schmid, National Research Council Canada, Canada

16:40 - 17:05 **PTD-1.3 / NON-CLASSICAL OPTICAL SOURCES FOR PRACTICAL QUANTUM SENSING**

Amr S. Helmy, University of Toronto, Canada
Zhizhong Yan, Zacharie Leger

17:05 - 17:30 **PTD-1.4 / 20 YEARS OF ULTRALONG FIBER LASER TECHNOLOGY AND ITS APPLICATIONS**

Juan Diego Ania-Castañón, Instituto de Óptica - Consejo Superior de Investigaciones Científicas, Spain
Inés Cáceres-Pablo

17:30 - 17:45 **PTD-1.5 / HIGH PERFORMANCE, LOW-LOSS SI₃N₄ WAVEGUIDES FOR OPTICAL GYROSCOPE APPLICATIONS**

Kazem Zandi, One Silicon Chip Photonics,
Hoda Rezaei, Reza Fasihaniard, Ramanand Tewari, Sean Romaniuk,
Kazem Zandi

17:45 - 18:00 **PTD-1.6 / SLOT-MODE OPTOMECHANICAL SYSTEM FOR MASS SENSING**

Cheeru Thrideep, University of Alberta, Canada
Miroslav Belov, Wayne Hiebert

Tuesday

SEMICONDUCTOR PHOTONICS - PART 3 OF 5

EAST MEETING ROOM 12

Chair: Ahmad Atieh, Optiwave Systems Inc, Canada

15:40 - 16:05 **SP-3.1 / USHERING IN NEW PEAK POWER AND PULSE WIDTH FRONTIERS USING BRAGG LASERS**

Amr S. Helmy, University of Toronto , Canada
Bilal Janjua

16:05 - 16:30 **SP-3.2 / RECENT ADVANCES IN HIGH POWER PCSELS**

Weidong Zhou, University of Texas at Arlington, United States of America
Mingsen Pan, Chhabindra Gautam

16:30 - 16:55 **SP-3.3 / IMPLEMENTING ADVANCED PACKAGING SCHEMES FOR ENHANCED OPTICAL COUPLING AND NONLINEAR APPLICATIONS**

Samuel Serna, Bridgewater State University, United States of America

16:55 - 17:20 **SP-3.4 / ADVANCED DESIGNS OF OPTICAL ANTENNAS AND OPTICAL PHASED ARRAYS**

Jianhao Zhang, National Research Council Canada, Canada
Pavel Cheben, Jens Schmid, Dan-Xia Xu

17:20 - 17:45 **SP-3.5 / FAULT-TOLERANT PHOTONIC QUANTUM COMPUTING WITH GKP QUBITS**

Zachary Vernon, Xanadu Quantum Technologies Inc, Canada

17:45 - 18:00 **SP-3.6 / MONOLITHICALLY INTEGRATED III-NITRIDE DUV AND VISIBLE LEDS FOR STERILIZATION TECHNOLOGY**

Zhiyuan Liu, King Abdullah University of Science and Technology, Saudi Arabia
Zhiyuan Liu, Xiaohang Li

Tuesday

PHOTONICS AND AI - PART 1 OF 4

EAST MEETING ROOM 13

Chair: Ksenia Yadav, Enablence Technologies, Canada

15:40 - 16:05 **AI-4.1 / LITHOGRAPHY-FREE INTEGRATED PHOTONICS FOR RECONFIGURABLE INFORMATION PROCESSING**
Liang Feng, University of Pennsylvania, United States of America
Liang Feng

16:05 - 16:30 **AI-1.2 / PHOTONICS DESIGN FOR AI/ML APPLICATIONS**
Jens Niegemann, Ansys Canada Ltd, Canada
Ruoshi Xu, Zeqin Lu, Federico Duque-Gomez, Adam Reid, James Pond

16:30 - 16:55 **AI-1.3 / AI-BASED INVERSE DESIGN FOR TARGETING MATERIAL PROPERTY AND DEVICE DESIGN**
Tomah Sogabe, The University of Electro-Communications, Japan
Kodai Shiba, Hibiki Yoshida

16:55 - 17:20 **AI-1.4 / INVERSE DESIGNS FROM QUANTUM NANOPHOTONICS TO HYBRID METADEVICES**
Lin Wu, Singapore University of Technology & Design (SUTD), Singapore

17:20 - 17:35 **AI-1.5 / PHOTONIC NEURAL NETWORK AND IN-SITU BACKPROPAGATION IN A SYNTHETIC FREQUENCY DIMENSION**
Kai Wang, McGill University, Canada
Kai Wang

17:35 - 17:50 **AI-1.6 / HYPERNO: NEAR-FIELD PREDICTION OF DISPERSIVE ALL-DIELECTRIC METASURFACES THROUGH HYPERNET-AUGMENTED NEURAL OPERATOR**
Doksoo Lee, Northwestern University, United States of America
Lu Zhang, Yue Yu, Wei Chen

Tuesday

QUANTUM LIGHT-MATTER INTERACTIONS: SENSING, COMMUNICATIONS, AND INFORMATION PROCESSING - PART 3 OF 9

EAST BALLROOM A

Chair: Lindsay LeBlanc, University of Alberta, Canada

- 15:40 - 16:05 **QLM-3.1 / ROTATIONAL CONTROL OF MOLECULES AND ROTONS IN SUPERFLUID HELIUM**
V. Milner, University of British Columbia, Canada
A. A. Milner, P. C. E. Stamp, I. MacPhail-Bartley, K. Preocanin, S. Dasgupta, X. Peng
-
- 16:05 - 16:30 **QLM-3.2 / QUANTUM SENSING WITH DIAMOND DEFECTS**
Erika Janitz, University of Calgary, Canada
-
- 16:30 - 16:55 **QLM-3.3 / OBSERVATION OF A GROUP DELAY IN HIGH-GAIN PARAMETRIC DOWN-CONVERSION**
Guillaume Thekkadath, National Research Council Canada, Canada
Martin Houde, Duncan England, Nicolás Quesada, Ben Sussman
-
- 16:55 - 17:10 **QLM-3.4 / PHASE RETRIEVAL OF SPATIAL BI-PHOTON STATES FROM COINCIDENCE IMAGES**
Nazanin Dehghan, University of Ottawa, Canada
Alessio D'Errico, Francesco Di Colandrea, Danilo Zia, Fabio Sciarrino, Ebrahim Karimi
-
- 17:10 - 17:25 **QLM-3.5 / A NEW LIGHT ON CORRELATIONS FOR MULTIMODE STATES**
Aaron Goldberg, National Research Council of Canada, Canada
-
- 17:25 - 17:40 **QLM-3.6 / FREE-SPACE SPIN-PRESERVING CHIRAL CAVITIES**
Behrooz Semnani, University of Waterloo, Canada
Mohammad Soltani, Anna Maria Houk, Sai Sreesh Venuturumilli, Michal Bajcsy
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- 17:40 - 17:55 **QLM-3.7 / OPTICAL MEMORY AND SPECTROSCOPY OF 171YB3+: Y2SiO5 AT MILLIKELVIN TEMPERATURES**
Nasser Gohari Kamel, Department of Physics and Astronomy and Institute for Quantum Science and Technology, University of Calgary, Canada
Farhad Rasekh, Ujjwal Gautam, Sourabh Kumar, Vahid Salari, Erhan Saglamyurek, Daniel Oblak
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Tuesday

Wednesday, May 29, 2024

BIOPHOTONICS, NOVEL SENSING, AND ADVANCED IMAGING - PART 4 OF 9

EAST MEETING ROOM 8

**Chair: Parsin Haji Reza, University of Waterloo, Canada
Kamran Avanaki, The University of Illinois at Chicago, United States Of America**

8:00 - 8:15 **BP-4.1 / OPTIMIZING PERSONALIZED INTERSTITIAL PHOTODYNAMIC TREATMENT PLANNING: INVESTIGATING THE IMPACT OF PHOTOSENSITIZER HETEROGENEITY AND EXPLORING PREDICTIVE STRATEGIES**
Tina Saeidi, University of Toronto, Canada
Shuran Wang, Hectoralex Contreras, Anjola Adewale, Jeffrey Zabel, Michael Daly, Alex Vitkin, Vaughn Betz, Lothar Lilge

8:15 - 8:30 **BP-4.2 / DEVELOPMENT OF A SIDE-FIRE OPTICAL FIBER DIFFUSER FOR HIGH-ENERGY LIGHT TRANSPORT FOR INTRALUMINAL PHOTOACOUSTIC IMAGING**
Nidhi Singh, University of Toronto, Canada
Carlos-Felipe Roa, Lothar Lilge, Christine Demore

8:30 - 8:55 **BP-4.3 / LIGHT + SOUND: PEERING INTO BRAIN FUNCTION AND METABOLISM ACROSS SCALES**
Song Hu, Washington University in St. Louis, United States of America

8:55 - 9:20 **BP-4.4 / X-RAY INDUCED ACOUSTIC COMPUTED TOMOGRAPHY (XACT)**
Shawn Xiang, UC Irvine, United States of America

PHOTONIC THEORY, DESIGN, AND SIMULATIONS - PART 2 OF 8

EAST MEETING ROOM 11

Chair: Daniele Melati, C2N, CNRS, Université Paris-Saclay, France

8:00 - 8:15 **PTD-2.1 / IMPROVED METASURFACE PERFORMANCE USING GENERALIZED RCWA (G-RCWA)**
Anna Maria Houk, University of Waterloo - Institute for Quantum Computing, Canada
Athena Xu, Michal Bajcsy, Behrooz Semnani

8:15 - 8:30 **PTD-2.2 / SUBWAVELENGTH GRATINGS ENGINEERED 90-DEGREE OPTICAL HYBRID FOR COHERENT DETECTION**
Minu Sunny, Carleton University, Canada
Winnie Ye

8:30 - 8:55 **PTD-2.3 / OPTIMIZATION OF SILICON PHOTONIC COUPLERS, Y-JUNCTIONS AND MODULATORS**
Stewart Aitchison, University of Toronto, Canada

SEMICONDUCTOR PHOTONICS - PART 4 OF 5

EAST MEETING ROOM 12

Chair: Weidong Zhou, University of Texas at Arlington, United States Of America

8:00 - 8:15 **SP-4.1 / DESIGN OF A FANO RESONANCE BASED MICRORING MODULATOR USING PHASE TRANSITION OF VANADIUM OXIDE**
Mir Hammadi, Queen's University, Canada
Muhammad Alam

8:15 - 8:30 **SP-4.2 / VANADIUM OXIDE BASED FANO MODULATOR**
Muhammad Alam, Queen's University, Canada
Mir Hammadi

8:30 - 8:55 **SP-4.3 / PROBABILISTIC COMPUTING: A NEW OPPORTUNITY FOR SEMICONDUCTOR PHOTONICS**
Giovanni Finocchio, University of Messina, Italy

8:55 - 9:20 **SP-4.4 / SILICON NANOSTRUCTURES FOR NONLINEAR AND OPTOMECHANICAL APPLICATIONS**
Carlos Alonso Ramos, C2N, France
Jianhao Zhang, David González-Andrade, Hiba El Batoul Ferhat, Thi Thuy Duong Dinh, David Medina-Quiroz, Samson Edmond, Pavel Cheben, Delphine Marris-Morini, Eric Cassan, Laurent Vivien, Norberto Daniel Lanzillotti-Kimura, Carlos Alonso Ramos

Wednesday

PHOTONICS AND AI - PART 2 OF 4

EAST MEETING ROOM 13

Chair: Ksenia Yadav, Enablence Technologies, Canada

8:00 - 8:15 **AI-2.1 / IMPLEMENTATION AND SCALING OF AN OPTICAL COMPUTING UNIT BASED ON TRANSIENT NONLINEAR DYNAMICS**
Nicolas Perron, Institut National de la Recherche Scientifique (INRS-EMT), Canada

Bennet Fischer, Mario Chemnitz, Yi Zhu, Piotr Roztock, Benjamin MacLellan, Luigi Di Lauro, Abdul Rahim Aadhi, Cristina Rimoldi, Tiago Henrique Falk, Roberto Morandotti

8:15 - 8:30 **AI-2.2 / ON-DEMAND SUPERCONTINUUM ENGINEERING ASSISTED BY MACHINE LEARNING**
Shilong Liu, Polytechnique Montreal Engineering Physics, Canada
Denis V. Seletskiy

8:30 - 8:55 **AI-2.3 / NEUROMORPHIC PHOTONICS FOR REAL-TIME SIGNAL PROCESSING**
Aadhi Rahim, Queen's University, Canada
Weipeng Zhang, Joshua Lederman, Thomas Ferriera de Lima, Alexander Tait, Paul Prucnal, Bhavin Shastri

8:55 - 9:20 **AI-2.4 / META-OPTICAL ENCODERS FOR AI ACCELERATORS**
Arka Majumdar, University of Washington, United States of America

QUANTUM LIGHT-MATTER INTERACTIONS: SENSING, COMMUNICATIONS, AND INFORMATION PROCESSING - PART 4 OF 9

EAST BALLROOM A

Chair: Aaron Goldberg, National Research Council of Canada, Canada

8:00 - 8:15 **QLM-4.1 / CAVITY-ENHANCED SILICON SPIN-PHOTON INTERFACE FOR DISTRIBUTED QUANTUM COMPUTING**

Camille Bowness, Simon Fraser University, Canada
Michael Dobinson

8:15 - 8:30 **QLM-4.2 / QUANTUM OPTICAL FRAMEWORKS FOR SUBCYCLE PULSES**
Joscelyn van der Veen, University of Toronto, Canada

8:30 - 8:55 **QLM-4.3 / PHOTONS AND SPINS IN QUANTUM TECHNOLOGY AND QUANTUM BIOLOGY**
Christoph Simon, University of Calgary, Canada
Christoph Simon

8:55 - 9:20 **QLM-4.4 / QUANTUM INSPIRED LIDAR**
Amr S. Helmy, University of Toronto, Canada
Han Liu

Wednesday

PLENARY LECTURE 2 - DR. LIHONG WANG

EAST BALLROOM A

Chair: Lora Ramunno, University of Ottawa, Canada

Jinyang Liang, INRS - Université du Québec, Canada

9:20 - 10:20 **PL-2 / PHOTOACOUSTIC, LIGHT-SPEED, AND QUANTUM IMAGING**
Lihong V. Wang, Bren Professor of Medical Engineering and
Electrical Engineering Andrew and Peggy Cherng Medical Engineering
Leadership Chair California Institute of , Canada

NONLINEAR OPTICS, NANOPHOTONICS, AND PLASMONICS - PART 3 OF 7

EAST MEETING ROOM 2

**Chair: Tara Drake, Center for High Technology Materials - University of
New Mexico, United States Of America**

10:40 - 11:05 **NL-3.1 / PROBING HIGH-TEMPERATURE ANNEALING EFFECTS ON
DIAMOND OPTICAL MICROCAVITIES**
Natalia do Carmo Carvalho, University of Calgary, Canada
Vinaya K. Kavatamane, Ahmas El-Hamamsy, Joseph E. Losby, Paul Barclay

11:05 - 11:30 **NL-3.2 / YITTRIUM IRON GARNET PHOTONIC CRYSTALS FOR CAVITY
MAGNOMECHANICS**
John Davis, University of Alberta, Dept of Physics, Canada
Ali Rashedi

11:30 - 11:45 **NL-3.3 / MULTIMODE ENTANGLED SQUEEZED LIGHT GENERATION
AND PROPAGATION IN A COUPLED-CAVITY PHOTONIC CRYSTAL**
Dylan van Eeden, Queen's University, Canada
Marc Dignam

11:45 - 12:00 **NL-3.4 / POROUS SHELL OPTICAL RESONATORS FOR PHOTOCATALYSIS**
Xin Jin, Istituto Italiano di Tecnologia, Italy
Vincenzo Aglieri, Marzia Ferrera, Andrea Toma, Luca Razzari

BIOPHOTONICS, NOVEL SENSING, AND ADVANCED IMAGING - PART 5 OF 9

EAST MEETING ROOM 8

Chair: Song Hu, Washington University in St. Louis, United States Of America

Shawn Xiang, UC Irvine, United States Of America

10:40 - 11:05 **BP-5.1 / HIGH PERFORMANCE PHOTOACOUSTIC MICROSCOPY BASED ON MINIATURE ULTRASOUND TRANSDUCER**

Chengbo Liu, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China (People's Republic of)

11:05 - 11:30 **BP-5.2 / DEEP-LEARNING-ENHANCED TRANSLATION PHOTOACOUSTIC IMAGING**

Jun Xia, University at Buffalo, United States of America

11:30 - 11:55 **BP-1.1 / ADAPTIVE OPTICS MULTIPHOTON MICROSCOPY FOR NEUROSCIENCE RESEARCH**

Jianan Y. Qu, Hong Kong University of Science and Technology, Hong Kong

PHOTONIC THEORY, DESIGN, AND SIMULATIONS - PART 3 OF 8

EAST MEETING ROOM 11

Chair: Pavel Cheben, NRC, Canada

10:40 - 11:15 **PTD-3.1 / NEXT GENERATION FREQUENCY MICROCOMBS FOR PHOTONIC INTEGRATION OF OPTICAL FREQUENCY DIVISION SYSTEMS**
Kerry Vahala, California Institute of Technology, United States of America

11:15 - 11:40 **PTD-3.2 / CLADDING-MODULATED INTEGRATED BRAGG GRATINGS FOR SPECTRAL FILTERING**

Alejandro Ortega-Moñux, Universidad de Málaga, Spain
Alejandro Fernández-Hinestrosa, Carlos Pérez Armenta, José Manuel Luque-González, Alejandro Sánchez Postigo, Daniel Pereira-Martín, J. Gonzalo Wangüemert-Pérez, Robert Halir, Abdelfettah Hadij-Elhouati, Pavel Cheben, Jens Schmid, Maziyar Milanizadeh, Shurui Wang, Kevan K. Mackay, Winnie Ye, Íñigo Molina-Fernández

11:40 - 12:05 **PTD-3.3 / MONOLITHIC INTEGRATION FOR LOW POWER INTEGRATED PHOTONICS**

Thalia Dominguez Bucio, University of Southampton, United Kingdom

PHOTONICS AND AI - PART 3 OF 4

EAST MEETING ROOM 13

Chair: Sean Molesky, Polytechnique de Montréal, Canada

10:40 - 11:05 **AI-3.1 / DIMENSIONALITY REDUCTION IN PHOTONICS DESIGN - NEW METHODS AND APPLICATIONS**

Yuri Grinberg, National Research Council of Canada, Canada
Dan-Xia Xu, Muhammad Al-Digeil, Daniele Melati, Robert Hunter, Alexandre Walker, Gavin Forcade, Jacob Krich, Karin Hinzer, Md Mahadi Masnad, Odile Liboiron-Ladouceur, Pavel Cheben, Jens Schmid, Siegfried Janz

11:05 - 11:40 **AI-3.2 / NOVEL PHOTONIC SCHEMES FOR AI, AND AI FOR BAND DISCOVERY**

Marin Soljagic, MIT, United States of America

11:40 - 12:05 **AI-3.3 / MACHINE LEARNING METHODS FOR DESIGNING AND MODELING PHOTONIC SYSTEMS**

Jonathan Fan, Stanford University, United States of America

SEMICONDUCTOR PHOTONICS - PART 5 OF 5

EAST MEETING ROOM 12

Chair: Carlos Alonso Ramos

10:40 - 10:55 **SP-5.1 / THE IMPACT OF OXIDE LAYER PLACEMENT AND THICKNESS ON THE OPTICAL PROPERTIES OF OXIDE-CONFINED VCSEL**

Ahmed Nashed, Crosslight Software Inc, Canada
Michel Lestrade, Zhiqiang Li, Zhanming Li

10:55 - 11:20 **SP-5.2 / ACCELERATING DESIGN AND ENABLING HIGH-VOLUME ADOPTION OF PLANAR LIGHTWAVE CIRCUITS THROUGH MACHINE LEARNING**

Ksenia Yadav, Enablence Technologies, Canada
Ksenia Yadav, Ashok Balakrishnan

11:20 - 11:35 **SP-5.3 / WIDE TEMPERATURE RANGE OPERATION OF QUANTUM-DASH MODE-LOCKED LASERS**

Youxin (Linda) Mao, National Research Council Canada,
Zhenguo Lu, Jiaren Liu, Philip J. Poole, Youxin (Linda) Mao, Chun-Ying Song, Ping Zhao, Martin Vachon, Xianling Chen, Pedro Barrios

11:35 - 11:50 **SP-5.4 / BEHAVIOR EFFECT OF SEMICONDUCTOR 2D DOPANTS ON TIME RESPONSE OF TMDC-MOS₂ BASED SCHOTTKY-PHOTODIODE**

Ahmed Abdelhady A. Khalil, Dep. of Physics, School of Sciences and Engineering, The American University in Cairo, Egypt
Maram T. H. Abou Kana, Mohamed A. Swillam

Wednesday

QUANTUM LIGHT-MATTER INTERACTIONS: SENSING, COMMUNICATIONS, AND INFORMATION PROCESSING - PART 5 OF 9

EAST BALLROOM A

Chair: Milica Banic, National Research Council of Canada, Canada

10:40 - 10:55 **QLM-5.1 / COMPARISON OF LAGUERRE-GAUSS AND PIXEL MODES FOR HIGH-DIMENSIONAL MULTIPLEXING AND QKD**

Felix Hufnagel, University of Ottawa, Canada
Ebrahim Karimi, Itay Kozlov, Justin Tam

10:55 - 11:20 **QLM-5.2 / TBC**

Daniel Oblak, University of Calgary, Canada

11:20 - 11:55 **QLM-5.3 / SHARPER IMAGES THROUGH QUANTUM IMAGING**

Robert W. Boyd, University of Ottawa and University of Rochester, Canada

LUNCH SESSION - EXHIBITOR PRESENTATIONS

EAST MEETING ROOM 2

Chair: Kasturi Narayanan, NRC IRAP, Canada

12:00 - 12:10 **LL-1 / NAVIGATING CANADIAN PHOTONICS: INSIGHTS INTO 2023**

Sparrow McGowan, Photons Canada, Canada
Marie-Christine Ferland

12:10 - 12:20 **LL-2 / THORLABS' ROLE IN EMERGING QUANTUM TECHNOLOGIES**

Garrett Cole, Thorlabs Manager for Quantum Technologies, United States of America

12:20 - 12:30 **LL-3 / OPTICS LEADS THE FUTURE**

Carly Chen, Hengrun Optics Co., Ltd., China (People's Republic Of)

12:30 - 12:40 **LL-4 / PIC CHARACTERIZATION USING OFDR TECHNIQUE**

Mohamed Tahar Chentir, Santec USA Corporation, United States of America

12:40 - 12:50 **LL-5 / SPIE'S LATEST ANALYSIS OF THE GLOBAL PHOTONICS INDUSTRY AND RECENT INTERNATIONAL ADVOCACY INITIATIVES AT SPIE**

Andrew Brown, Senior Director Global Business Director at SPIE, United States of America

BIOPHOTONICS, NOVEL SENSING, AND ADVANCED IMAGING - PART 6 OF 9

EAST MEETING ROOM 8

Chair: Chengbo Liu, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China (People's Republic Of)

Jun Xia, University at Buffalo, United States of America

14:00 - 14:25 **BP-6.1 / UNDERSTANDING THE ROLES OF DISTAL VASCULATURE AND PERILIMBAL SCLERA IN INTRAOCULAR PRESSURE REGULATION**
Guan Xu, University of Michigan, United States of America

14:25 - 14:50 **BP-6.2 / ENGINEERING HEALTH WITH PHOTOACOUSTIC IMAGING: UPDATES IN WOUND CARE, ORAL HEALTH, AND CONTRAST AGENTS**
Jesse Jokerst, University of California, San Diego, United States of America

14:50 - 15:05 **BP-6.3 / RESONANT DIELECTRIC NANOPARTICLES FOR ALL-OPTICAL NANOSCALE HEATING AND TEMPERATURE SENSING IN CELLS**
Mikhail Zyuzin, Harbin Engineering University, China (People's Republic of)
Elena Gerasimova

15:05 - 15:20 **BP-6.4 / GRAPHENE OXIDE COATED FIBER MACH-ZEHNDER INTERFEROMETER FOR SENSING**
Qiyong Chen, Department of Physics and Physical Oceanography, Memorial University of Newfoundland, Canada
Liqiu Men, Qiyong Chen

15:20 - 15:35 **DISCUSSION**

PHOTONIC THEORY, DESIGN, AND SIMULATIONS - PART 4 OF 8

EAST MEETING ROOM 11

Chair: Jonathan Bradley, NRC, Canada

14:00 - 14:25 **PTD-4.1 / INTEGRATED DEVICES FOR APPLICATION IN QUANTUM OPTICS AND PHOTONIC MACHINE LEARNING**
Roberto Morandotti, Institut national de la recherche scientifique, Canada
Luigi Di Lauro, Stefania Sciara, Abdul Rahim Aadhi, Celine Mazoukh, Hao Yu, Bennet Fischer, Nicolas Perron, Nicola Montaut, Mario Chemnitz, Brent Little, Sai Tak Chu, David J. Moss, Zhiming Wang, Roberto Morandotti

14:25 - 14:50 **PTD-4.2 / GENERATION OF ENTANGLED PHOTON PAIRS IN NANOSTRUCTURES**
Frank Setzpfandt, Friedrich Schiller University, Germany

14:50 - 15:15 **PTD-4.3 / MIE-RESONANT HUYGENS' METAWAVEGUIDE STRUCTURES**
M. Saad Bin-Alam, National Research Council Canada, Canada
Yunus Denizhan Cirmaci, Jianhao Zhang, Ozan William Oner, Gabriel Flizikowski, Shahrzad Ramtinfard, Ksenia Dolgaleva, Jens Schmid, Isabelle Staude, Pavel Cheben

15:15 - 15:40 **PTD-4.4 / RAPID-PROTOTYPING OF SILICON AND SILICON NITRIDE PHOTONIC INTEGRATED CIRCUITS**
Mirwais Aktary, Applied Nanotools Inc., Canada
Jocelyn N. Westwood-Bachman, Nandini Debnath, Kevin Setzer, Alexandria McKinlay, Cameron Horvath, Batoul Hashemi, Niloofar Majidian Taleghani, Evan Jonker, Cameron M. Naraine, Jonathan Bradley

15:40 - 16:05 **PTD-4.5 / ADJOINT VARIABLE METHOD UNLEASHED: A JOURNEY INTO RAPID INVERSE DESIGN STRATEGIES**
Mohamed A. Swillam, The American university in Cairo, Egypt

Wednesday

GREEN PHOTONICS, ENERGY, AND RELATED TECHNOLOGIES - PART 1 OF 5

EAST MEETING ROOM 12

Chair: Hieu P. T. Nguyen, Texas Tech University, United States of America

- 14:00 - 14:35 **GP-1.1 / GAN LEDS FOR ENVIRONMENTAL SENSING**
Pei-Cheng Ku, Department of Electrical Engineering and Computer Science, University of Michigan, United States of America
-
- 14:35 - 15:00 **GP-1.2 / TENSILE-STRAINED INGAAS QUANTUM DOT LIGHT SOURCES FOR MID-IR ENVIRONMENTAL MONITORING**
Paul Simmonds, Tufts University, United States of America
-
- 15:00 - 15:15 **GP-1.3 / TYPE-II KAPPA/BETA GALLIUM OXIDE PHASE HETEROJUNCTION FOR DEEP ULTRAVIOLET SELF-POWERED PHOTODETECTION**
Patsy Arely Miranda Cortez, Advanced Semiconductor Lab, Saudi Arabia
Yi Lu, Xiao Tang, Zhiyuan Liu, Vishal Khandelwal, Shibin Krishna, Xiaohang Li
-
- 15:15 - 15:30 **GP-1.4 / HIGHLY STABLE GREEN LEDS BASED ON STRAIN RELAXED NANOROD ARRAYS**
Nirmal Anand, INRS-EMT, Canada
Sharif Sadaf
-
- 15:30 - 15:45 **GP-1.5 / MULTIPHYSICS DESIGN AND ANALYSIS OF SILVER-BASED LOW-EMISSIVITY COATING TECHNOLOGY**
Khashayar Ghaffari, Ansys Canada Ltd., Canada
Anthony Leger, Duane Mateychuk, Amrita Pati, Laila Salman
-

Wednesday

PHOTONICS AND AI - PART 4 OF 4

EAST MEETING ROOM 13

Chair: Sean Molesky, Polytechnique de Montréal, Canada

14:00 - 14:35 **AI-1.1 / UNLOCKING THE POWER OF PHOTONICS THROUGH INVERSE DESIGN AND HETEROGENEOUS INTEGRATION**
Jelena Vuckovic, Stanford University, United States of America

14:35 - 15:00 **AI-4.2 / INVERSE DESIGN AND FORWARD MODELLING IN NANOPHOTONICS USING DEEP-LEARNING**
Junsuk Rho, Pohang University of Science and Technology (POSTECH), South Korea

15:00 - 15:25 **AI-4.3 / EFFICIENT INVERSE DESIGN TECHNIQUES FOR TOPOLOGICAL PHOTONIC CRYSTAL WAVEGUIDES**
Stephen Hughes, Queen's University, Canada
Antonio Neill, Nir Rotenberg, Stephen Hughes

15:25 - 15:50 **AI-4.4 / ACCELERATED OPTIMIZATION OF ROBUST NANOPHOTONIC DEVICES VIA DEEP LEARNING**
Sawyer D. Campbell, The Pennsylvania State University, United States of America
Ronald P. Jenkins, Pingjuan L. Werner, Douglas H. Werner

Wednesday

QUANTUM LIGHT-MATTER INTERACTIONS: SENSING, COMMUNICATIONS, AND INFORMATION PROCESSING - PART 6 OF 9

EAST BALLROOM A

Chair: Alicia Sit, National Research Council of Canada, Canada

- 14:00 - 14:25 **QLM-6.1 / HOW TO LINK QUANTUM KEY DISTRIBUTION EXPERIMENTS TO A SOLID SECURITY ANALYSIS**
Norbert Lutkenhaus, University of Waterloo, Canada
-
- 14:25 - 14:50 **QLM-6.2 / DOWNLOADING MANY-QUBIT ENTANGLED STATE FROM MANY-MODE CONTINUOUS-VARIABLE ENTANGLEMENT**
Kero Lau, Simon Fraser University, Canada
Zhi Han
-
- 14:50 - 15:05 **QLM-6.3 / EVALUATING LIGHT POLLUTION FOR QUANTUM COMMUNICATIONS**
Paul Oh, University of Waterloo, Canada
Nouralhoda Bayat, Paul Oh, Katanya Kuntz, Brian Moffat, Thomas Jennewein
-
- 15:05 - 15:20 **QLM-6.4 / FAST ADAPTIVE OPTICS FOR HIGH-DIMENSIONAL QUANTUM COMMUNICATIONS IN TURBULENT CHANNELS**
Lukas Scarfe, University of Ottawa, Canada
Felix Hufnagel, Manuel Ferrer-Garcia, Alessio D'Errico, Khabat Heshami, Ebrahim Karimi
-
- 15:20 - 15:35 **QLM-6.5 / SATELLITE-TO-GROUND QUANTUM KEY DISTRIBUTION WITH HIGH ACCURACY TRACKING**
Yunhong Gong, University of Calgary, Canada
-

SPECIAL SYMPOSIUM ON ATTOSCIENCE HONORING PROFESSOR PAUL CORKUM

EAST BALLROOM A

Chair: François Légaré, INRS - Université du Québec, Canada

- 16:00 - 16:45 **SS-1 / ATTOSECOND X-RAY SOURCES DRIVEN BY LONG-WAVELENGTH LASERS**
Zenghu Chang, Professor, Canada Excellence Research Chair, University of Ottawa, Canada
-
- 16:45 - 17:30 **SS-2 / ATTOSECOND SCIENCE: BACK TO THE QUANTUM FUTURE**
Mikhail Ivanov, Max Born Institute for Nonlinear Optics, Germany
-
- 17:30 - 18:00 **PANEL DISCUSSION**
-

Thursday, May 30, 2024

BIOPHOTONICS, NOVEL SENSING, AND ADVANCED IMAGING - PART 7 OF 9

EAST MEETING ROOM 8

Chair: Shuo Tang, University of British Columbia, Canada

Jesse Jokerst, UC San Diego, United States Of America

8:00 - 8:15 **BP-7.1 / A METHOD FOR DEFOCUS CORRECTION AND NOISE SUPPRESSION IN OPTICAL COHERENCE TOMOGRAPHY IMAGES OF THE HEALTHY HUMAN CORNEA ACQUIRED IN-VIVO**
Nima Abbasi, University of Waterloo, Canada
Keyu Chen, Alexander Wong, Kostadinka Bizheva

8:15 - 8:30 **BP-7.2 / EFFECTIVENESS OF NUMERICAL REFOCUSING ON OPTICAL COHERENCE MICROSCOPY FOR EX VIVO RETINAL TISSUE IMAGING**
Yujie Hu, University of British Columbia, Canada
Jun Song, Shuichi Makita, Yoshiaki Yasuno, Kimiya Mousavi, Pierre Lane, Myeong Jin Ju

8:30 - 8:55 **BP-7.3 / COMPUTATIONAL CONTRAST AUGMENTATION OF OPTICAL COHERENCE MICROSCOPY FOR LABEL-FREE TISSUE FUNCTION IMAGING**
Yoshiaki Yasuno, University of Tsukuba, Japan

8:55 - 9:20 **BP-7.4 / ADVANCING TELEOPHTHALMOLOGY: DEVELOPING AFFORDABLE, PORTABLE WIDEFIELD FUNDUS CAMERAS FOR MULTISPECTRAL CHORIORETINAL IMAGING**
Xincheng Yao, University of Illinois Chicago, United States of America

Thursday

PHOTONIC THEORY, DESIGN, AND SIMULATIONS - PART 5 OF 8

EAST MEETING ROOM 11

Chair: Amr Helmy, University of Toronto, Canada

- 8:00 - 8:15 **PTD-5.1 / ULTRA-ENHANCED SENSITIVITY IN NONLINEAR EXCEPTIONAL-POINT LASERS**
Todd Darcie, University of Toronto, Canada
J. Stewart Aitchison
-
- 8:15 - 8:30 **PTD-5.2 / DESIGN OF EFFICIENT SINGLE-ETCH GRATING COUPLERS FOR SILICON NITRIDE PHOTONICS AT 1550 NM**
William Fraser, Carleton University, Canada
Daniel Benedikovic, Radovan Korcek, Maziyar Milanizadeh, Thalia Domínguez Bucio, Valerio Vitali, Frederic Gardes, Jens Schmid, Pavel Cheben, Winnie Ye
-
- 8:30 - 8:55 **PTD-5.3 / BROADBAND WAVELENGTH CONVERSION IN INTEGRATED WAVEGUIDES BASED ON INTERMODAL FOUR-WAVE MIXING**
Valerio Vitali, Electrical, Computer and Biomedical Engineering Department, University of Pavia, Italy
Thalia Domínguez Bucio, Hao Liu, José Manuel Luque-González, Francisco Jurado-Romero, Alejandro Ortega-Moñux, Glenn Churchill, James C. Gates, James Hillier, Nikolaos Kalfagiannis, Daniele Melati, Jens Schmid, Pavel Cheben, J. Gonzalo Wangüemert-Pérez, Íñigo Molina-Fernández, Frederic Gardes, Ilaria Cristiani, Periklis Petropoulos, Cosimo Lacava
-
- 8:55 - 9:20 **PTD-5.4 / HIGH-FREQUENCY NONLINEAR DYNAMICS OF SILICON MICRORING MODULATORS**
Farshid Shateri, Laval University, Canada
Alireza Geravand, Erwan Weckenmann, Wei Shi
-

Thursday

GREEN PHOTONICS, ENERGY, AND RELATED TECHNOLOGIES - PART 2 OF 5

EAST MEETING ROOM 12

Chair: Xihua Wang, University of Alberta, Canada

-
- 8:00 - 8:15 **GP-2.1 / HOT CARRIER EXTRACTION IN PLASMON INTEGRATED TiO2 ANODES FOR ENHANCED PHOTOELECTROCHEMICAL ACTIVITY**
Narendra Chaulagain, University of Alberta, Canada
Ehsan Vahidzadeh, Damin Vrushabendrakumar, Karthik Shankar
-
- 8:15 - 8:30 **GP-2.2 / III-NITRIDE SEMICONDUCTOR NANOSTRUCTURED PHOTOCATALYSTS FOR PHOTOELECTROCHEMICAL SOLAR FUEL PRODUCTION**
Afjalur Rahman, INRS-EMT, Canada
Sharif Sadaf
-
- 8:30 - 8:55 **GP-2.3 / HOLLOW TITANIUM DIOXIDE AND TITANIUM NITRIDE NANOSPHERES: ABSORPTION, SCATTERING AND LSPR AT WORK FOR PHOTOCATALYTIC H2 PRODUCTION**
Jerome Claverie, Université de Sherbrooke, Canada
-
- 8:55 - 9:10 **GP-2.4 / PLASMONIC AU DECORATED CDS NANOWIRE ARRAYS FOR ENHANCED PHOTOELECTROCHEMICAL HYDROGEN EVOLUTION**
Kazi Alam, University of Alberta, Canada
Narendra Chaulagain, Ajay Manuel, Karthik Shankar
-

NONLINEAR OPTICS, NANOPHOTONICS, AND PLASMONICS - PART 4 OF 7

EAST MEETING ROOM 13

Chair: Andrea Blanco Redondo, University of Central Florida, United States Of America

-
- 8:00 - 8:15 **NL-4.1 / ENHANCED NONLINEAR EFFECTS FROM HYBRID QUANTUM DOTS-PLASMONIC METASURFACE INTERACTIONS**
Jeetendra Gour, Friedrich Schiller University Jena, Germany
Sebastian Beer, Raktim Baruah, Alessandro Alberucci, Maria Wächtler, Stefan Nolte, Uwe Detlef Zeitner
-
- 8:15 - 8:30 **NL-4.2 / MOS2 EXCITON AND PLASMON COUPLING MANIPULATION**
Nathan Eddy, Queen's University, Canada
Kurt Tyson, Robert Knobel
-
- 8:30 - 8:55 **NL-4.3 / NEAR-FIELD HOT SPOTS USING PATTERNED METASURFACES**
Nasim Mohammadi Estakhri, Chapman University, United States of America
Michael Cheng, Nooshin M. Estakhri
-
- 8:55 - 9:10 **NL-4.4 / PLASMONIC PENTAMER-ARRANGED NANOHOLE ARRAYS**
Pierre Berini, University of Ottawa, Canada
Hyung Woo Choi, Fatemeh Fouladi Mahani, Luis Angel Moyoral Astorga, Arash Mokhtari, Pierre Berini
-

Thursday

QUANTUM LIGHT-MATTER INTERACTIONS: SENSING, COMMUNICATIONS, AND INFORMATION PROCESSING - PART 7 OF 9

EAST BALLROOM A

Chair: Kate Fenwick, University of Ottawa | National Research Council of Canada, Canada

- 8:00 - 8:15 **QLM-7.1 / HYPERFINE CHARACTERIZATION OF T CENTRES IN SILICON AND MEMORY QUBIT PROTECTION SCHEME**
Mehdi Keshavarz, Simon Fraser University, Canada
Nicholas Brunelle, Joshua Kanaganayagam, Chloe Clear, Myles Ruether, Adam DeAbreu, Amirhossein AlizadehKhaledi, Nikolay Abrosimov, Ian Kennedy, Melanie Gascoine, Yehudah Ackermann, Michael L. W. Thewalt, Daniel B. Higginbottom, Stephanie Simmons
-
- 8:15 - 8:30 **QLM-7.2 / MAGNETOMETRY WITH BROADBAND MICROWAVE FIELDS IN NITROGEN-VACANCY CENTERS IN DIAMOND**
Arezo Afshar, National Research Council Canada and University of Ottawa, Canada
Aaron Goldberg, Khabat Heshami
-
- 8:30 - 8:55 **QLM-7.3 / SUPERRESOLUTION IN TIME AND FREQUENCY**
Luis Sanchez-Soto, Universidad Complutense, Spain
-
- 8:55 - 9:20 **QLM-7.4 / RECENT PROGRESS OF STRUCTURED PHOTONS: FROM FUNDAMENTAL RESEARCH TO QUANTUM INFORMATION PROCESSING**
Ebrahim Karimi, Nexus for Quantum Technologies (NEXQT), Canada
-

PLENARY LECTURE 3 - DR. STEPHANIE SIMMONS, PH.D.

EAST BALLROOM A

Chair: Lora Ramunno, University of Ottawa, Canada
Jinyang Liang, INRS - Université du Québec, Canada

- 9:20 - 10:20 **PL-3 / DISTRIBUTED QUANTUM COMPUTING IN SILICON**
Stephanie Simmons, Ph.D. Founder & Chief Quantum Officer, Photonic Inc. Associate Professor of Physics, Simon Fraser University, Canada
-

Thursday

HIGH POWER LASER TECHNOLOGY, ULTRAFAST OPTICS, AND APPLICATIONS - PART 3 OF 5

EAST MEETING ROOM 2

Chair: Arkady Major, University of Manitoba, Canada

- 10:40 - 10:55 **HPL-3.1 / SINGLE-STEP WRITING OF BRAGG GRATING WAVEGUIDES IN LOW-IRON GLASS THROUGH FS SELECTIVE PULSES CONTROL**
Foroogh Jafari, Polytechnique Montreal, Canada
Jean-Sébastien Boisvert, Raman Kashyap, Sébastien Loranger
-
- 10:55 - 11:20 **HPL-3.2 / ULTRAFAST LASER BEAM SHAPING - FILAMENTS AND LIGHT SHEETS FOR ENGINEERING PERIODIC DIFFRACTIVE STRUCTURE IN BULK AND FIBRE GLASSES**
Peter Herman, University of Toronto, Canada
Gligor Djogo, Pok Man Chow, Stephen Ho, Jianzhao Li, Yueqi Wang, Polina Zavyalova
-
- 11:20 - 11:35 **HPL-3.3 / MICRORESONATOR-BASED MODE-LOCKED LASER WITH TUNABLE PULSE REPETITION RATES**
Pavel Dmitriev, Institut National de la Recherche Scientifique - Énergie Matériaux Télécommunications, Canada
Luigi Di Lauro, Abdul Rahim Aadhi, Imtiaz Alamgir, Bennet Fischer, Nicolas Perron, Celine Mazouk, Piotr Roztocky, Cristina Rimoldi, Mario Chemnitz, Armaghan Eshaghi, Evgeny Viktorov, Anton Kovalev, Brent Little, Sai Tak Chu, David Moss, Roberto Morandotti
-
- 11:35 - 11:50 **HPL-3.4 / COMPRESSED ULTRAFAST FEMTOGRAPHY BY CODED-APERTURE SWEEPING**
Miguel Marquez, Institut National de la Recherche Scientifique, Canada
Jingdan Liu, Yingming Lai, Heide Ibrahim, Katherine Légaré, Philippe Lassonde, Xianglei Liu, Michel Hehn, Stéphane Mangin, Grégory Malinowski, Zhengyan Li, François Légaré, Jinyang Liang
-
- 11:50 - 12:05 **HPL-3.5 / NONLINEAR PROPAGATION OF CYLINDRICAL VECTOR BEAMS IN PHOTONIC CRYSTAL FIBERS**
Kurosh Firouzi, Simon Fraser University, Canada
Alessio D'Errico, Eric Brace, Pierre Lane, Gary Leach, Ebrahim Karimi, Shawn Sederberg
-

Thursday

BIOPHOTONICS, NOVEL SENSING, AND ADVANCED IMAGING - PART 8 OF 9

EAST MEETING ROOM 8

Chair: Xincheng Yao, University of Illinois Chicago, United States Of America
Chengbo Liu, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China (People's Republic Of)

- 10:40 - 10:55 **BP-8.1 / NUMERICAL AND EXPERIMENTAL STUDY OF SPECTRUM SHUTTLE FOR GENERATING GHZ BURST PULSES WITHOUT SACRIFICING SPECTRAL RANGES IN ADVANCED ULTRAFAST IMAGING**
Keitaro Shimada, The University of Tokyo, Japan
Ayumu Ishijima, Takao Saiki, Ichiro Sakuma, Yuki Inada, Keiichi Nakagawa
-
- 10:55 - 11:30 **BP-8.2 / OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY AND ITS BIOMEDICAL APPLICATIONS**
Ruikang Wang, University of Washington, United States of America
-
- 11:30 - 11:45 **BP-8.3 / MULTISPECTRAL IMAGING OF FLUORESCENT-TAGGED LEAVES**
Emma Abbey, University of Victoria, Canada
Travis Ferguson, Hans-Peter Look
-
- 11:45 - 12:00 **BP-8.4 / TOWARDS THE DIAGNOSTIC APPLICATION OF ULTRAWEAK PHOTON EMISSION: MONITORING MAGNETIC FIELD EFFECTS AND OXIDATIVE STRESS IN GREEN LEAVES**
Vishnu Seshan, University of Calgary, Canada
Lujaina Eldelebshany, Vahid Salari, Ayesha Iqbal, Lana Frankle, Daniel Oblak
-

PHOTONIC THEORY, DESIGN, AND SIMULATIONS - PART 6 OF 8

EAST MEETING ROOM 11

Chair: Jonathan Bradley, NRC, Canada

- 10:40 - 11:15 **PTD-6.1 / A 300GB/S SINGLE-CHANNEL SILICON PHOTONICS MODULATOR-DRIVER COMBINATION**
Graham Reed, Optoelectronics Research Centre, University of Southampton, UK, United Kingdom
-
- 11:15 - 11:40 **PTD-6.2 / OPTIMIZED METAMATERIAL PHOTONIC DEVICES FOR INTEGRATED AND FREE-SPACE APPLICATIONS**
Daniele Melati, Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Saclay, France
-
- 11:40 - 12:05 **PTD-6.3 / POLARIZATION CONTROL DEVICES IN THE SILICON NITRIDE PLATFORM FOR QUANTUM APPLICATIONS**
Zindine Mokeddem, Centre de nanosciences et nanotechnologie, France
Lauren Vivien, Eric Cassan, Delphine Marris-Morini, Pavel Cheben, Jens Schmid, Dan-Xia Xu, Mazyar Milanizadeh, Yuri Grinberg, Carlos Alonso-Ramos, Daniele Melati
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GREEN PHOTONICS, ENERGY, AND RELATED TECHNOLOGIES - PART 3 OF 5

EAST MEETING ROOM 12

Chair: Paul J. Simmonds, Tufts University, United States Of America

10:40 - 11:05 **GP-3.1 / WIDE QUANTUM WELL STRUCTURES BASED ON INGAN: INTERPLAY BETWEEN EXTREME QUANTUM-CONFINED STARK EFFECT AND HIGH EFFICIENCY**

Greg Muziol, Institute of High Pressure Physics Polish Academy of Sciences, Poland

11:05 - 11:30 **GP-3.2 / GREEN ENERGY FROM SEMICONDUCTOR NANOWIRES AND 2D MATERIALS**

Cristina Cordoba, University of Victoria, Canada

11:30 - 11:45 **GP-3.3 / AMORPHOUS INDIUM-GALLIUM-ZINC-OXIDE (A-IGZO) THIN FILM TRANSISTORS (TFT) DRIVEN NANO-LIGHT-EMITTING DIODES (NANO-LEDS)**

Dipon Kumar Ghosh, INRS-EMT, Canada
Nirmal Anand, Christy G. Jenson, Afjalur Rahman, Sharif Sadaf

11:45 - 12:00 **GP-3.4 / LOWERING THE ENVIRONMENTAL IMPACT OF SILICON MANUFACTURING THROUGH LASER-DRIVEN SILICA REDUCTION**

Karthik Shankar, University of Alberta, Canada
Amina Hussein, Robert Fedosejevs, Amit Kumar

NONLINEAR OPTICS, NANOPHOTONICS, AND PLASMONICS - PART 5 OF 7

EAST MEETING ROOM 13

Chair: Nasim Mohammadi Estakhri, Chapman University, United States Of America

10:40 - 10:55 **NL-5.1 / CONTROLLING THE POLARIZATION AND PHASE OF HIGH-ORDER HARMONICS WITH A PLASMONIC METASURFACE**

Giulio Vampa, Joint Attosecond Science Laboratory, Canada
Sohail Abdul Jalil

10:55 - 11:10 **NL-5.2 / METAL-DIELECTRIC HYBRID NONLINEAR PLASMONIC ANTENNA FOR EFFICIENT THZ FIELD MEASUREMENT**

Hesam Heydari, University of Ottawa, Canada

11:10 - 11:25 **NL-5.3 / TERAHERTZ SIGNAL PROCESSING VIA CONTROLLED PHASE TRANSITION IN METAL-WIRE WAVEGUIDE BRAGG GRATINGS**

Mohammad Ghazialsharif, INRS, Canada
Junliang Dong, Domenico Bongiovanni, Anton Vorobiov, Ziteng Wang, Zhigang Chen, Detlef Kip, Roberto Morandotti

Thursday

11:25 - 11:40 **NL-5.4 / SPECTRAL CHARACTERIZATION OF A TERAHERTZ VORTEX BEAM GENERATED VIA A TWO-PHOTON LITHOGRAPHY PRINTED SPIRAL PHASE PLATE**

Andreea Aura Paraipan, INRS, Canada

Diana Gonzalez-Hernandez, Innem Reddy, Giacomo Balistreri, Luca Zanotto, Mostafa Shalaby, Roberto Morandotti, Carlo Liberale, Luca Razzari

11:40 - 11:55 **NL-5.5 / DRIVEN-DISSIPATIVE TOPOLOGICAL INTERFACES IN THE SYNTHETIC FREQUENCY DIMENSION**

Félix Pellerin, Université de Montréal, Canada

Romane Houvenaghel, Alexandre Chénier, Philippe St-Jean

QUANTUM LIGHT-MATTER INTERACTIONS: SENSING, COMMUNICATIONS, AND INFORMATION PROCESSING - PART 8 OF 9

EAST BALLROOM A

Chair: Norbert Lutkenhaus, University of Waterloo, Canada

10:40 - 11:05 **QLM-8.1 / QUANTUM INFORMATION PROCESSING BASED ON SILICON T CENTRES**

Youn Seok Lee, Photonic Inc, Canada

11:05 - 11:30 **QLM-8.2 / DYNAMICAL MEASUREMENTS ON THE MATRIX PRODUCT STATE**

Thomas Baker, Department of Physics & Astronomy; Department of Chemistry; Centre for Advanced Materials and Related Technologies, University of Victoria, Canada

11:30 - 11:45 **QLM-8.3 / UNDERSTANDING TOPOLOGY AND GEOMETRY IN SOLID-STATE PHYSICS WITH PHOTONIC QUANTUM WALKS**

Alessio D'Errico, University of Ottawa, Canada

Francesco Di Colandrea, Nazanin Dehghan, Filippo Cardano, Ebrahim Karimi

11:45 - 12:00 **QLM-8.4 / EQUATORIAL STATE QUBIT COMPRESSION**

Rui Jie Tang, University of Toronto, Canada

Thursday

HIGH POWER LASER TECHNOLOGY, ULTRAFAST OPTICS, AND APPLICATIONS (2ND PART OF THE SPECIAL SYMPOSIUM) - PART 4 OF 5

EAST MEETING ROOM 2

Chair: André Staudte, National Research Council of Canada, Canada

- 13:00 - 13:25 **HPL-4.1 / HIGH HARMONIC GENERATION FROM METALS**
Shima Gholam Mirzaeimoghadar, University of Ottawa/National Research Council of Canada, Canada
-
- 13:25 - 13:50 **HPL-4.2 / CONTROL OF HIGH-HARMONIC BEAMS WITH NANOSTRUCTURED SURFACES**
Giulio Vampa, University of Ottawa, Canada
-
- 13:50 - 14:15 **HPL-4.3 / INTENSE INFRARED SOURCES FOR HIGH HARMONIC GENERATION IN GASES, SOLIDS, AND LIQUIDS**
Jiro Itatani, Institute for Solid State Physics, The University of Tokyo, Japan
-
- 14:15 - 14:40 **HPL-4.4 / PROBING CHIRAL SYSTEMS WITH INTENSE LIGHT PULSES**
Ravi Bhardwaj, Department of Physics, University of Ottawa, Canada
-

BIOPHOTONICS, NOVEL SENSING, AND ADVANCED IMAGING - PART 9 OF 9

EAST MEETING ROOM 8

Chair: Ben Eccelstone

- 13:00 - 13:15 **BP-9.1 / REFRACTIVE INDEX CHANGES IN MACH-ZEHNDER WAVEGUIDE INTERFEROMETERS FOR BIOLOGICAL APPLICATIONS**
Gloria Verónica Vázquez, Centro de Investigaciones en Óptica, A. C., Mexico
Gloria Verónica Vázquez, Erika Rodríguez-Sevilla, Rubí Reséndiz-Ramírez
-
- 13:15 - 13:30 **BP-9.2 / HIGHLY EFFICIENT IMAGING SPATIAL TRANSCRIPTOMICS WITH COMPRESSED SENSING AT LOW MAGNIFICATION**
Jahanara Freedman, Broad Institute of MIT and Harvard, United States of America
Lindsey Erion Barner, Nicolas Lapique, John P. Bryan, Brian Cleary, Samouil L. Farhi
-
- 13:30 - 13:45 **BP-9.3 / DNN-BASED SIGNAL-TO-NOISE RATIO ENHANCEMENT OF 3D RETINAL IMAGES FROM MULTIPLE SPECTROMETER-BASED SD-OCT SYSTEM**
Hee-Jae Jeon, Kangwon National University, South Korea
Jun Song, Myeong Jin Ju, Hee-Jae Jeon
-

13:45 - 14:00 **BP-9.4 / BIO-INSPIRED POLARIZATION COMPASS FOR SOLAR AZIMUTH PREDICTION**
Devyansh Agarwal, Queen's University, Canada
Benjamin Potter, Jawad Siddiqui, Yahia Antar, Muhammad Alam

14:00 - 14:15 **BP-9.5 / POTENTIAL-RESOLVED MULTICOLOR, MULTIANALYTE ELECTROCHEMILUMINESCENCE DETECTION ON CMOS SEMICONDUCTOR IMAGE SENSOR; OPTIMIZED AND MINIATURIZED SE-ECL**
Reza Abbasi, McGill University, Canada
Sebastian Wachsmann-Hogiu

PHOTONIC THEORY, DESIGN, AND SIMULATIONS - PART 7 OF 8

EAST MEETING ROOM 11

Chair: Graham Reed, ORC, University of Southampton, United Kingdom

13:00 - 13:25 **PTD-7.1 / RECENT DEVELOPMENT IN BULK-GE-BASED ON-CHIP LIGHT EMITTERS AND VCSELS**
Guangrui Xia, the University of British Columbia, Canada

13:25 - 14:00 **PTD-7.2 / FUTUR-IC: RESEARCH SOLUTIONS TOWARDS A SUSTAINABLE MICROCHIP MANUFACTURING INDUSTRY**
Anuradha Agarwal, MIT, United States of America

14:00 - 14:25 **PTD-7.3 / LARGE-MODE-AREA INTEGRATED PHOTONICS FOR HIGH-POWER LASERS AND AMPLIFIERS**
Neetesh Singh, DESY, Germany

14:25 - 14:50 **PTD-7.4 / MODELLING AND DESIGN OF COMPLEX LIGHT MATTER INTERACTIONS ON THE NANOSCALE**
Lora Ramunno, Department of Physics and Nexus for Quantum Technologies Institute, University of Ottawa, Canada

Thursday

GREEN PHOTONICS, ENERGY, AND RELATED TECHNOLOGIES - PART 4 OF 5

EAST MEETING ROOM 12

Chair: Grzegorz Muziol, Institute of High Pressure Physics Polish Academy of Sciences, Poland

13:00 - 13:25 **GP-3.1 / RECENT PROGRESS OF ELECTRICALLY-PUMPED ALGAN UV-A LASERS WITH TRANSPARENT TUNNEL JUNCTIONS**
Shamsul Arafin, Ohio State University, United States of America
Arnob Ghosh, Agnes M. D. M. Xavier, Sheikh Ifatur Rahman, Andrew Allerman, Siddharth Rajan

13:25 - 13:40 **GP-3.6 / ETCHING-FREE PIXEL DEFINITION IN INGAN GREEN MICRO-LEDS**
Zhiyuan Liu, King Abdullah University of Science and Technology, Saudi Arabia
Yi Lu, Haicheng Cao, Glen Isaac Maciel Garcia, Tingang Liu, Xiao Tang, Na Xiao, Raul Aguilera Vazquez, Mingtao Nong, Xiaohang Li

13:40 - 14:05 **GP-3.4 / PHYSICAL PROCESSES LEADING TO THE DEGRADATION OF UV-C LEDES AND THEIR MODELING BY DEFECT REACTIONS AND NUMERICAL SIMULATIONS**
Carlo De Santi, University of Padova, Italy
Matteo Buffolo, Francesco Piva, Nicola Roccato, Nicola Trivellin, Gaudenzio Meneghesso, Enrico Zanoni, Matteo Meneghini

NONLINEAR OPTICS, NANOPHOTONICS, AND PLASMONICS - PART 6 OF 7

EAST MEETING ROOM 13

Chair: Pablo Bianucci, Concordia University, Canada

13:00 - 13:25 **NL-6.1 / FLOQUET TOPOLOGICAL PHOTONICS WITH MICRORING LATTICES**
Vien Van, University of Alberta, Canada
Hanfa Song, Tyler Zimmerling, Tae Bin Kim

13:25 - 14:00 **NL-6.2 / PROGRAMMABLE TOPOLOGICAL PHOTONICS**
Andrea Blanco-Redondo, CREOL, The College of Optics and Photonics, University of Central Florida, United States of America

14:00 - 14:25 **NL-6.3 / NONCLASSICAL EMISSION FROM A TOPOLOGICAL FLOQUET RESONANCE**
Shabir Barzanjeh, University of Calgary, Canada

14:25 - 14:50 **NL-6.4 / NON-HERMITIAN SWALLOWTAIL DEGENERACY IN SQUEEZED STATES OF LIGHT**
Kai Wang, McGill University, Canada
E. S. Moiseev, Kai Wang

Thursday

QUANTUM LIGHT-MATTER INTERACTIONS: SENSING, COMMUNICATIONS, AND INFORMATION PROCESSING - PART 9 OF 9

EAST BALLROOM A

Chair: **Guillaume Thekkadath**, National Research Council Canada, Canada

- 13:00 - 13:15 **QLM-9.1 / INTEGER FACTORIZATION WITH SHOR'S ALGORITHM USING SINGLE-PHOTON QUDITS IN THE FREQUENCY AND TIME DOMAINS**
Jinwon Yoo, INRS, Canada
Nicola Montaut, Matteo Piccolini, Stefania Sciara, Rosario Lo Franco, Roberto Morandotti
-
- 13:15 - 13:30 **QLM-9.2 / GENERATION AND VERIFICATION OF HIGH-DIMENSIONAL ANGLED STATES IN SYNTHETIC PHOTONIC LATTICES**
Agnes George, INRS-EMT, Canada
Nicola Montaut
-
- 13:30 - 13:45 **QLM-9.3 / A SPRINT-BASED SINGLE PHOTON SUBTRACTOR FOR PNS ATTACKS ON QKD**
Abdolreza Pasharavesh, Institute for quantum computing (IQC), University of Waterloo, Canada
Michal Bajcsy
-
- 13:45 - 14:10 **QLM-9.4 / DIAMOND PHOTONIC CRYSTALS: FROM X-BAND OPTOMECHANICS TO NONLINEAR OPTICS**
Paul Barclay, University of Calgary, Canada
-
- 14:10 - 14:25 **QLM-9.5 / FREQUENCY BIN ENCODING AND GRAPHS**
Milica Banic, National Research Council of Canada, Canada
John Sipe, Marco Liscidini
-
- 14:25 - 14:40 **QLM-9.6 / OPTIMIZATION OF DETERMINISTIC PHOTONIC GRAPH STATE GENERATION VIA LOCAL OPERATIONS**
Sobhan Ghanbari, University of Toronto, Canada
Jie Lin, Benjamin MacLellan, Luc Robichaud, Piotr Roztocki, Hoi-Kwong Lo
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Thursday

HIGH POWER LASER TECHNOLOGY, ULTRAFAST OPTICS, AND APPLICATIONS - PART 5 OF 5

EAST MEETING ROOM 2

Chair: Shawn Sederberg, Simon Fraser University, Canada

Arkady Major, University of Manitoba, Canada

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- 15:10 - 15:35 **HPL-5.1 / OPTICAL RECTIFICATION, DIFFERENCE FREQUENCY GENERATION, AND ELECTRO-OPTIC SAMPLING SPANNING THE TERAHERTZ TO MID-INFRARED SPECTRAL RANGES**
Brett Carnio, Ecole Polytechnique, Canada
Mingyuan Zhang, Kevin Zawilski, Peter Schunemann, Oussama Moutanabbir, Abdulhakem Elezzabi
-
- 15:35 - 16:00 **HPL-5.2 / FLYING DOUGHNUT PULSES FOR ISOLATED TERAHERTZ MAGNETIC FIELDS**
Kamalesh Jana, University of Ottawa, Canada
Yonghao Mi, Dong Hyuk Ko, Shawn Sederberg, Paul Corkum
-
- 16:00 - 16:15 **HPL-5.3 / HIGH-FIELD THZ SOURCE CENTERED AT 2.6 THZ**
Wei Cui, University of Ottawa, Canada
Eeswar Yalavarthi, Aswin Vishnuradhan, Mohammad Bashirpour, Angela Gamouras, Jean-Michel Ménard
-
- 16:15 - 16:30 **HPL-5.4 / TERAHERTZ SPECTROSCOPY OF THE SUPERCONDUCTING STATE OF TITANIUM NITRIDE**
Alireza Noori, Simon Fraser University, Canada
Laleh Mohtashemi, J. Steven Dodge
-
- 16:30 - 16:45 **HPL-5.5 / DETECTION OF ZEPTOJOULE TERAHERTZ PULSES VIA PARAMETRIC UPCONVERSION**
Aswin Vishnuradhan, University of Ottawa, Canada
Défi Junior Jubgang Fandio, Eeswar Kumar Yalavarthi, Nicolas Couture, Wei Cui, Angela Gamouras, Jean-Michel Ménard
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- 16:45 - 17:00 **HPL-5.6 / HOW NONLINEARITY DISTORTS THE EVIDENCE FOR PHOTOINDUCED SUPERCONDUCTIVITY**
J. Steven Dodge, Simon Fraser University, Canada
Leya Lopez, Derek Sahota
-
- 17:00 - 17:15 **HPL-5.7 / ELUCIDATING THE REACTION KERNEL: HOLY GRAIL OF CHEMICAL REACTIONS**
Soumyajit Mitra, University of Toronto, Canada
Simon Bittmann, Stuart Hayes, Daniel Jacob, Ming Zhang, Zheng Li, Dilara Farkhutdinova, Leticia Gonzalez, Yifeng Jiang, Tadahiko Ishikawa, Scott Murphy, Kazuyuki Takahashi, Dwayne Miller
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- 17:15 - 17:30 **HPL-5.8 / PROBING PHOTODISSOCIATION DYNAMICS IN BROMINE MOLECULES**
Nida Haram, Joint Attosecond Science Laboratory, National Research Council Canada & University of Ottawa, Canada
Tian Wang, Zack Dube, Yonghao Mi, Fatemeh Mousavi Karimi, Andrei Naumov, Giulio Vampa, Caterina Vozzi, Albert Stolow, Michael Schuurman, David Villeneuve, Paul Corkum, Andre Staudte
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Thursday

PHOTONIC MATERIALS - PART 1 OF 1

EAST MEETING ROOM 8

Chair: Lora Ramunno, University of Ottawa, Canada

Jinyang Liang, INRS - Université du Québec, Canada

15:10 - 15:35 **PM-1.1 / FEMTOSECOND LASER 3D PRINTING OF INTEGRATED PHOTONIC ARCHITECTURES**
Lionel Canioni, ICMCB - UMR 5026 CNRS Université de Bordeaux
Bordeaux INP, France
Yannick Petit, Bruno Bousquet, Lionel Canioni

15:35 - 16:00 **PM-1.2 / MOS₂/WS₂ HETEROSTRUCTURE GROWTH USING PULSED LASER DEPOSITION (PLD)**
Manisha Gupta, University of Alberta, Canada
Andres Forero Pico, Manisha Gupta

16:00 - 16:15 **PM-1.3 / GENERATING SELF-TRAPPED BEAMS OF LIGHT WITH A DIGITAL PROJECTOR**
Kyle Stegman, McMaster University, Canada
Dusan Srdic, Fariha Mahmood, Kalaichelvi Saravanamuttu

16:15 - 16:30 **PM-1.4 / TEOS-PECVD FILMS FOR HIGH-QUALITY SiO₂ CLADDING LAYERS IN Si₃N₄-PHOTONICS WITH LOW MECHANICAL STRESS AND OPTICAL LOSS**
Leila Mehrvar, INRS, Energy Materials Telecommunications Research Center, Canada
Boris Le Drogoff, Michael Menard, Mohammed Chaker

16:30 - 16:45 **PM-1.5 / BROADBAND METAMATERIAL-BASED PHOTODETECTORS FOR BIO-IMAGING APPLICATIONS**
Sarah Odinotski, Institute for Quantum Computing, University of Waterloo, Canada
Burak Tekcan, Sasan Vosough-Grayli, Lin Tian, Tarun Patel, Zbig Wasilewski, Michael Reimer

Thursday

PHOTONIC THEORY, DESIGN, AND SIMULATIONS - PART 8 OF 8

EAST MEETING ROOM 11

Chair: Guangrui Xia, the University of British Columbia, Canada

15:10 - 15:35 **PTD-8.1 / PHOTONIC RESERVOIR COMPUTING: PRINCIPLES, ARCHITECTURES AND APPLICATIONS FOR SENSING AND INFORMATION PROCESSING**
Sendy Phang, George Green Institute for Electromagnetics Research, University of Nottingham, United Kingdom
David Furniss, Mark Farries, Angela B. Seddon, Peter Bienstman, Sendy Phang

15:35 - 16:00 **PTD-8.2 / INTEGRATED DEVICES FOR MONOLITHIC SILICON PHOTONICS**
Ahmed Abumazwed, CMC Microsystems, Canada

16:00 - 16:15 **PTD-8.3 / ENHANCING SPATIAL SAMPLING RESOLUTION USING MULTI-PORT GRATING COUPLERS**
Md Abduhu Ruhul Fatim, McMaster University, Canada
Rafael Kleiman

16:15 - 16:30 **PTD-8.4 / HIERARCHY OF METHODS FOR LASER DESIGN AND COMPACT MODELING IN A PHOTONIC INTEGRATED CIRCUIT SIMULATOR**
Bozidar Novakovic, Ansys, Canada
Ahmed Gabr, Parya Samadian

16:30 - 16:45 **PTD-8.5 / SEEDING GAUSSIAN BOSON SAMPLERS WITH SINGLE PHOTONS FOR ENHANCED STATE GENERATION**
Valerio Crescimanna, University of Ottawa, Canada
Aaron Goldberg, Khabat Heshami

GREEN PHOTONICS, ENERGY, AND RELATED TECHNOLOGIES - PART 5 OF 5

EAST MEETING ROOM 12

Chair: Shamsul Arafin, The Ohio State University, United States Of America

15:10 - 15:35 **GP-3.1 / ENERGY-EFFICIENT PHOTO-ELECTROCHEMICAL CO₂ ELECTROLYSIS TO PRODUCE FEEDSTOCK CHEMICALS AND FUELS**
Md Golam Kibria, University of Calgary, Canada

15:35 - 16:00 **GP-3.2 / CARBON NITRIDE (CN) NANOSHEETS AND DOPED CN NANOPARTICLES FOR PHOTOVOLTAICS, SOLAR FUELS AND SENSING**
Karthik Shankar, University of Alberta, Canada

Thursday

16:00 - 16:25 **GP-3.3 / PEROVSKITE PHOTOVOLTAICS: PERFORMANCE, UPSCALING, AND RELIABILITY**
Makhsud Saidaminov, University of Victoria, Canada

16:25 - 16:40 **GP-3.4 / SINGLE-CRYSTAL PLASMONICS FOR ENERGY HARVESTING AND CATALYSIS**
Gary Leach, Simon Fraser University, Canada
Finlay MacNab, Sasan Vosoogh-Grayli, Gary Leach

16:40 - 16:55 **GP-3.5 / EFFECT OF IN SITU EXFOLIATION ON THE PHOTOLUMINESCENCE AND PHOTOCATALYTIC ACTIVITY OF CARBON NITRIDE**
Narendra Chaulagain, University of Alberta, Canada
John Garcia, Kazi Alam, Karthik Shankar

NONLINEAR OPTICS, NANOPHOTONICS, AND PLASMONICS - PART 7 OF 7

EAST MEETING ROOM 13

Chair: Jayshri Sabarinathan, The University of Western Ontario, Canada

15:10 - 15:25 **NL-7.1 / GRATING-INSULATOR-GRATING METAMATERIALS FOR RECONFIGURABLE UNIDIRECTIONAL DIFFRACTION ENGINEERING**
Abbas Sheikh Ansari, University of Alberta, Canada
Ashwin K. Iyer, Behrad Gholipour

15:25 - 15:50 **NL-7.2 / TBC**
Yang Liu, N/A, United States of America

15:50 - 16:15 **NL-7.3 / TBC**
Zaijun Chen, N/A, United States of America

16:15 - 16:40 **NL-7.4 / TBC**
Amir Safavi-Naeini, N/A, United States of America

16:40 - 17:05 **NL-7.5 / PROGRESS IN HETEROGENEOUS LASER INTEGRATION IN SILICON PHOTONICS**
Chao Xiang, The University of Hong Kong, Hong Kong

17:05 - 17:20 **NL-7.7 / OPTOMAGNETISM IN TWO-DIMENSIONAL DIRAC MATERIALS**
Hamed Majedi, University of Waterloo, Canada

Poster Presentations

Wednesday, May 29, 2024

FROM 18:00 TO 20:00

POSTER SESSION & EXHIBITION

- POS-001** **ACCELERATING POLARIZATION RESOLVED SECOND HARMONIC GENERATION IMAGING WITH ENHANCED SUPER-RESOLUTION GENERATIVE ADVERSARIAL NETWORKS**
Arash Aghigh, INRS-EMT, Canada
Jysiane Cardot, Melika Mohammadi, Gaëtan Jargot, Heide Ibrahim, Isabelle Plante, François Légaré
-
- POS-004** **ARTIFICIAL INTELLIGENCE APPLIED TO COLOR TECHNIQUES ALGORITHMS IN BRAIN CELLS DETERIORATION**
Eduardo Perez-Careta, UNIVERSITY OF GUANAJUATO, Mexico
Evelin Meza Rodriguez, Salomon Padilla, Diego Reza Perez, Samantha Grajeda Avila, Cinthya Arroyo Mendez
-
- POS-007** **COLOR AND TEXTURE ANALYSIS OF IMAGE GUIDED OPTICAL TOMOGRAPHY**
Eduardo Perez-Careta, UNIVERSITY OF GUANAJUATO, Mexico
Diego Reza Perez, Felix Chavira, Ivanna Paola Valenzuela Sanchez, Oscar Giron
-
- POS-010** **COMPACT OPTICAL OXYGEN AND CARBON DIOXIDE SENSING FOR METABOLIC APPLICATIONS**
Ezra Sebastian, The University of British Columbia (Dr. Kenneth Chau Research Group), Canada
-
- POS-019** **FEMTOSECOND LASER MICROFABRICATED POLYMERIC GRATINGS FOR SENSING**
Qiyang Chen, Department of Physics and Physical Oceanography, Memorial University of Newfoundland, Canada
Daiying Zhang, Liqiu Men
-
- POS-025** **LOCK-IN PHASE SEGMENTATION IN SRS MICROSCOPY: APPLICATION TO LITHIUM ORES**
Alexander Harper, University of Ottawa, Canada
Siddarth Shivkumar, Leah Frackleton, Jonathan Boisvert, Tassos Grammatikopoulos, Adrian Pegoraro, Albert Stalow
-

- POS-028 NANOPHOTONICS TO IMPROVE ANTIMICROBIAL CLINICAL PERIODONTAL TREATMENT**
Carla Raquel Fontana, School of Pharmaceutical Sciences, Sao Paulo State University (Unesp), Brazil
Vanderlei Salvador Bagnato, Mansoor M. Amiji, Nikolaos S. Soukos
-
- POS-031 NUMERICAL SIMULATION OF D-SHAPED OPTICAL FIBER WATER SALINITY SENSOR**
Ahmed Kreta, The American University in Cairo, Egypt
Mohamed A. Swillam
-
- POS-037 ON-CHIP HYBRID INTEGRATION OF DFB LASER TO PHOTONIC INTEGRATED CIRCUITS USING PHOTONIC WIRE BONDING (PWB)**
Sheri Chowdhury, The University of British Columbia, Canada
Kithmin Wickremasinghe, Samantha Grist, Hang Zou, Matthew Mitchell, Mohammed A. Al-Qadasi, Becky Lin, Davin Birdi, Shannon Smythe, Sudip Shekhar, Karen Cheung, Lukas Chrostowski
-
- POS-040 SIMULATION AND EXPERIMENTAL MODEL OF SPECTROPHOTOMETER WITH INTEGRATING SPHERE**
Miguel Torres-Cisneros, University of Guanajuato, Mexico
E. Montes-Ramirez, E. Sarmiento-Gomez, T. Cordova-Fraga, Mary Carmen Peña-Gomar, Eduardo Perez-Careta, Miguel Torres-Cisneros, Rafael Guzman-Cabrera
-
- POS-043 GAS & OIL OXYGEN PROCESS HEATER OPTICS ANALYZER CHARACTERIZATION**
Eduardo Perez-Careta, UNIVERSITY OF GUANAJUATO, Mexico
Jose Huerta-Sanchez, Omar Delgado-Garcia, Evelin Meza Rodriguez, Ivanna Paola Valenzuela Sanchez
-
- POS-046 INVERSE DESIGN OF OPTICAL DIFFUSERS FOR WHITE LED LIGHTING BY MACHINE LEARNING**
Zihan Wang, University of Alberta, Canada
Gangyi Li, Xihua Wang
-
- POS-049 QUANTUM DOT FILLED POLYMER AND LENS DESIGN FOR HIGH-QUALITY WHITE LED LIGHTING**
Jiangwen Zhang, University of Alberta, Canada
Qiwei Xu, Xihua Wang
-
- POS-052 STUDY OF OPTICAL AND STRUCTURAL PROPERTIES OF ZINC OXIDE DOPED WITH GOLD**
Lizeth Martínez, Autonomous Hidalgo State University, Mexico
María del Rayo Jiménez Vivanco, Hilario Martines Arano, Francisco Morales Morales, Raúl Herrera Becerra
-

- POS-055** **A SIMPLE DEMONSTRATION OF Q-SWITCHED BISMUTH DOPED FIBER LASER AT 1722 NM**
Ali Roohforouz, McGill University, Canada
Seyed Mohammad Reza Khalifeh Soltanian, Pin Long, Nitika Vaish,
Lawrence Chen
-
- POS-058** **ABSORPTION PROPERTIES OF NEODYMIUM-DOPED LASER CRYSTALS FOR LOW QUANTUM DEFECT PUMPING**
Arkady Major, University of Manitoba, Canada
Nirankush Roy, Arkady Major
-
- POS-061** **ADVANCING ELEMENTAL ANALYSIS: FEMTOSECOND LASER-INDUCED BREAKDOWN SPECTROSCOPY (FS-LIBS) WITH HIGH ACQUISITION SPEED SPECTROMETER FOR MAPPING METALLIC SURFACE**
Afaf Almoabadi, University of Waterloo, Canada
Reza Karimi, Scott McGeorge, Joe Sanderson, Stefan Pantazi, Kahan Ajmera, Mac Hepburn
-
- POS-064** **EXPLORING SPONTANEOUS MULTIMODE SOLITARY WAVE GENERATION: UNRAVELING THE INTERPLAY OF ORGANIZED INSTABILITY AND SYSTEM EVOLUTION**
Maghsoud ArshadiPirlar, INRS-EMT, Canada
Stephen Londo, Gaëtan Jargot, François Légaré, Reza Safaei
-
- POS-067** **MODELING OF ULTRAVIOLET-B ALGAN-BASED LASER DIODE WITH POLARIZATION CHARGE EFFECT**
Yegao Xiao, Crosslight Software Inc, Canada
Michel Lestrade, Zhiqiang Li, Zhanming Li
-
- POS-070** **PERFORMANCE OF DIODE-PUMPED ND:YVO4 AND ND:GDVO4 LASERS**
Marzieh Esmaeilzadeh, University of Manitoba, Canada
Arkady Major
-
- POS-073** **PERFORMANCE OF IN-BAND DIODE-PUMPED ND:YVO4 AND ND:GDVO4 LASERS**
Marzieh Esmaeilzadeh, University of Manitoba, Canada
Arkady Major
-
- POS-076** **PHOTOBIMODULATION APPLIED TO EPILEPSY AS A PREVENTION STRATEGY**
Eduardo Perez-Careta, UNIVERSITY OF GUANAJUATO, Mexico
-
- POS-079** **PHOTOCONDUCTIVITY IN PUMP-PROBE SPECTROSCOPY AT HIGH PUMP FLUENCES**
Leya Lopez, Simon Fraser University, Canada
J. Steven Dodge
-

POS-082	SELF-START WIDE TUNING MODE-LOCKED FIBER LASER AT 2MM SPECTRAL REGION Pin Long , O-E Land Inc., Canada Seyed Mohammad Reza Khalifeh Soltanian, François Légaré
POS-085	STUDY AND DEVELOPMENT OF A COMPACT FIBER OPTIC RING INTERFEROMETER FOR IMPLEMENTATION OF VIBRATION SENSOR USING NOISE-LIKE PULSES Maximino Tapia , Universidad de Guanajuato, Mexico Juan Carlos Hernández, Julian Estudillo, Maximino Tapia, Olivier Pottiez, David Filoteo, Pablo Lauterio, Roberto Rojas
POS-088	SUPPRESSION OF HIGHER ORDER MODES IN A FEW-TRANSVERSE-MODE ER-YB CO-DOPED FIBER LASER OSCILLATOR Maksim Khudiakov , INRS-EMT, Université du Québec, Canada Reza Safaei, Serguei Papernyi, Wallace Clements, François Légaré
POS-094	USING NANOSTRUCTURED DIELECTRIC SURFACES FOR THE GENERATION OF NANO-FOCUSED XUV RADIATION Parnia Bastani , Joint Attosecond Science Laboratory, National Research Council of Canada and University of Ottawa and Institut National de la Recherche Scientifique, Canada Aleksy Korobenko, Vedran Jelic, Paul Corkum, François Légaré, Giulio Vampa
POS-097	A NOVEL METHOD FOR BROADBAND LASER INTENSITY NOISE SUPPRESSION BASED ON SECOND HARMONIC GENERATION Yishen Li , University of Alberta, Canada Farzaneh Seddighi, Gil Porat
POS-100	COMPACT AND HIGHLY EFFICIENT MID-IR DETECTOR FOR FREE-SPACE COMMUNICATION Tyler Kashak , McMaster University, Canada Ali Atwi, Liam Flannigan, Chang-Qing Xu
POS-103	ENTANGLED PHOTON SOURCE (EPS) FOR SATELLITE-BASED QUANTUM KEY DISTRIBUTION Sungeun Oh , University of Waterloo, Canada Thomas Jennewein
POS-106	EXPERIMENTAL REALIZATION OF THE FRACTIONAL NONLINEAR SCHRÖDINGER EQUATION IN OPTICS: INSIGHT INTO THE SPECTRAL BIFURCATION Shilong Liu , Polytechnique Montreal Engineering Physics, Canada
POS-109	GAIN-COMPENSATED PLASMONIC CAVITY MODES AND A MILLION-FOLD IMPROVEMENT OF PURCELL FACTORS Becca VanDrunen , Queen's University Department of Physics, Engineering Physics, and Astronomy, Canada Juanjuan Ren, Sebastian Franke, Stephen Hughes

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- POS-112** **HIGH EFFICIENCY PUMP-ENHANCED DIFFERENCE FREQUENCY GENERATION FOR MID-IR COMMUNICATIONS**
Liam Flannigan, McMaster University, Canada
Ali Atwi, Tyler Kashak, Daniel Poitras, Chang-Qing Xu
-
- POS-115** **LIGHT-INDUCED MAGNETIC FIELD IN GRAPHENE**
Sina Abedi, University of Waterloo, Canada
Hamed Majedi
-
- POS-118** **MODE-MATCHING METHOD FOR EFFICIENT COUPLING AND NEAR-UNITY ABSORPTANCE IN A SINGLE TAPERED SEMICONDUCTOR NANOWIRE**
Sathursan Kokilathanan, Institute of Quantum Computing (University of Waterloo), Canada
Sasan Vosoogh-Grayli, Brad van Kasteren, Tarun Patel, Dan Dalacu, Philip J. Poole, Michael E. Reimer
-
- POS-124** **PHOTONIC CRYSTAL LORENTZ FORCE MAGNETOMETER**
Lance Siquioco, The University of Western Ontario, Canada
Brett Poulsen, Michael Zylstra, Jayshri Sabarinathan
-
- POS-127** **QUANTUM EFFECTS WITH MOS₂ METASURFACE WITH ODD AND EVEN NUMBER OF MONOLAYERS**
Dipanjan Nandi, University of Alberta, Canada
Andres Forero Pico, Manisha Gupta
-
- POS-130** **RAPID AND COST-EFFECTIVE FABRICATION OF A NANOSCALE OPTICAL TRAPPING MICROFLUIDIC CHIP**
Annie Yang-Schulz, UVIC, Canada
Reuven Gordon
-
- POS-133** **STRAIGHTFORWARD MEASUREMENT OF SATURATION INTENSITY OF DOPPLER-BROADENED TRANSITIONS: APPLICATION TO RUBIDIUM VAPOUR**
Omid Mozafar, University of Ottawa, Canada
Varun Sharma, R. Margoth Córdova-Castro, Akbar Safari, Jeremy Upham, Robert W. Boyd
-
- POS-136** **THIN FILM LITHIUM NIOBATE WAVEGUIDES FOR ANTENNA NEAR-FIELD SENSING APPLICATION**
Shuyu Ding, University of Waterloo, Canada
Hamed Majedi
-
- POS-139** **BIO-INSPIRED WAVEGUIDE ENCODED LATTICE ARCHITECTURES INSCRIBED IN A DYNAMIC LENS SYSTEM**
Anjilee Manhas, Department of Chemistry and Chemical Biology, McMaster University, Canada
Kalaichelvi Saravanamuttu
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- POS-142** **DEFECT MODE ACTIVATION OF A POROUS SI-SIO MICROCAVITY EMBEDDED WITH ZNO NANOPARTICLES**
María del Rayo Jiménez Vivanco, Universidad Nacional Autónoma de México, Mexico
Raúl Herrera Becerra, Lizeth Martínez, Eduardo Lugo
-
- POS-145** **LARGE-AREA, PULSED LASER DEPOSITION OF MOLYBDENUM DISULFIDE WITH LAYER-BY-LAYER GROWTH CONTROL AND THE EFFECT OF THE LAYER ROTATION ANGLE ON THE BAND STRUCTURE**
Andres Forero Pico, University of Alberta, Canada
Junsen Gao, Manisha Gupta
-
- POS-148** **LOW NOISE AND DRIFT SOLUTION-PROCESSED PHASE CHANGE MATERIALS WITH REDUCED THERMO-OPTIC COEFFICIENTS**
Joshua Perkins, Nanoscale Optics Lab, University of Alberta, Canada
Mahirah Zaini, Ahmed Elfarash, Avik Mandal, Kwanghyun Kim, Liam Kloster, Behrad Gholipour
-
- POS-151** **OPTICAL FREQUENCY COMB GENERATION USING INTEGRATED CASCADED MZMS ON SOI**
Mostafa Khalil, McGill University, Canada
Hao Sun, Thomas Papatheodorakos, Rhys Adams, Lawrence Chen
-
- POS-154** **PHOTONIC BAND ENGINEERING FOR SURFACE EMITTING ULTRAVIOLET LASERS**
Mohammad Fazel Vafadar, McGill University, Canada
Songrui Zhao
-
- POS-157** **SELF-DIFFRACTION EFFECT IN THE MIX OF GELATIN AND HIBISCUS SABDARIFFA**
Oscar Mejia, Universidad de Guanajuato., Mexico
Michel Olaf Chacon Carrero, Edgar Alvarado-Mendez, Jose Amparo Andrade Lucio
-
- POS-160** **WATER PURIFICATION BY PHOTOCATALYTIC PROCESSES IN THE PRESENCE (UV/ZNO): STUDY AND OPTIMIZATION**
Merabet Smail, University of Bejaia, Algeria
Zabar Zakaria
-
- POS-166** **DESIGN OF SILICON ON DIAMOND GRATING COUPLERS**
Sohrab Samadi, University of Calgary, Canada
Radovan Korek, Jens Schmid, Daniel Benedikovic, Dan-Xia Xu, Yuri Grinberg, Pavel Cheben, Paul Barclay
-
- POS-169** **EFFECTIVE MEDIUM THEORY FOR ATHERMAL DESIGN OF BRAGG GRATINGS**
Constantine Papakonstantinou, York University, Canada
Regina Lee
-

- POS-172** **SPIN-ORBITAL HALL EFFECT OF LIGHT UPON TIGHT FOCUSING AND ITS EXPERIMENTAL OBSERVATION IN AZOPOLYMER FILMS**
Ilya Golub, Algonquin College, Canada
Svetlana Khonina, Andrey Ustinov, Nikolay Ivliev, Ilya Golub
-
- POS-175** **STUDY OF PHOTONIC PLATFORMS FOR ON-CHIP REFRACTIVE INDEX SENSING**
Raghi El Shamy, McMaster University, Canada
Mohamed A. Swillam, Li Xun
-
- POS-178** **ARTIFICIAL NEURAL NETWORKS TO DESIGN AND OPTIMIZE COLOR SPLITTERS FOR OPTOELECTRONIC APPLICATIONS**
Didulani Acharige, University of Western Ontario, Canada
Eric Johlin
-
- POS-181** **DETECTION OF RENAL LITHIASIS USING CNN AND DATA AUGMENTATION**
Miguel Torres-Cisneros, Universidad de Guanajuato, Mexico
Aron Hernández-Trinidad, Jose Ruiz-Pinales, Luis A. Perez-Martinez, Mary Carmen Peña-Gomar, Eduardo Perez-Careta, Miguel Torres-Cisneros
-
- POS-184** **EFFICIENT IMAGING PROCESS ACCELERATION USING AI UPSCALING IN POLARIZATION-RESOLVED SECOND HARMONIC GENERATION (P-SHG) IMAGING**
Melika Mohammadi, INRS-EMT, Canada
Arash Aghigh, Jysiane Cardot, Gaëtan Jargot, Heide Ibrahim, Isabelle Plante, François Légaré
-
- POS-187** **EXPLORING BOUND STATES IN THE CONTINUUM IN METASURFACES USING DEEP REINFORCEMENT LEARNING**
Abdullah Bin Shams, University of Toronto, Canada
Abdur Rahman Akib, J. Stewart Aitchison
-
- POS-190** **INVERSE-DESIGNED METASURFACE FOR MULTIDIMENSIONAL SPATIAL STATE RECONSTRUCTION**
Yuming Niu, McGill University, Canada
Kai Wang
-
- POS-196** **PHOTONICS INVERSE DESIGN OVER LOCALIZED SPECTRAL AND SPATIAL REGIONS**
Nasim Mohammadi Estakhri, Chapman University, United States of America
-
- POS-199** **SMART MICROCOMB GENERATION VIA OPTIMIZATION ALGORITHMS**
Celine Mazouk, Institut National de la Recherche Scientifique, Canada
Luigi Di Lauro, Imtiaz Alamgir, Bennet Fischer, Nicolas Perron, Abdul Rahim Aadhi, Armaghan Eshaghi, Brent Little, Sai Tak Chu, David J. Moss, Roberto Morandotti
-

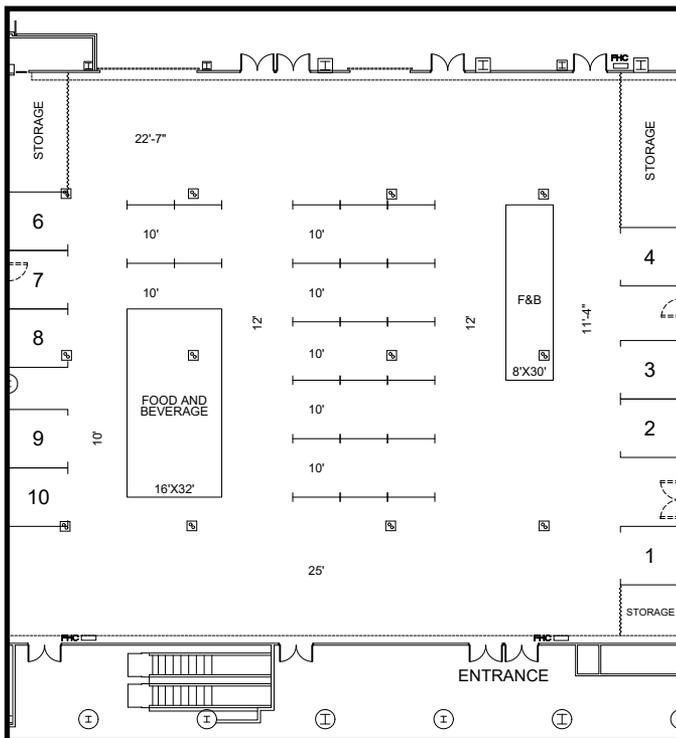
- POS-202** **SPECTRAL DATA ANALYSIS USING MACHINE LEARNING**
Frank Chen, Holy Heart of Mary High School , Canada
Zhiyue Lei, Norman Chen
-
- POS-205** **A 112 GBPS UNDERWATER OPTICAL WIRELESS COMMUNICATION LINK BASED ON DUAL-POLARIZED-16-QAM SIGNAL**
Sonam Khattar, Chandigarh University, India
Mehtab Singh, Somia A. Abd. Mottaleb, Ahmad Atieh
-
- POS-211** **AN 80 GBPS INTER-SATELLITE OPTICAL WIRELESS TRANSMISSION SYSTEM BASED ON LAGUERRE-GAUSSIAN BEAMS**
Sonam Khattar, Chandigarh University, India
Mehtab Singh, Somia A. Abd. Mottaleb
-
- POS-214** **ANALYTIC SOLUTION TO THE NONLINEAR GENERATION OF SQUEEZED STATES IN A THERMAL BATH**
Paul Hughes, Department of Physics, Engineering Physics and Astronomy, Queen's University, Canada
Marc Dignam
-
- POS-217** **ANCILLA-ASSISTED PROCESS TOMOGRAPHY WITH BIPARTITE MIXED SEPARABLE STATES**
Zhuo Ran Bao, University of Toronto, Canada
Daniel F. V. James
-
- POS-220** **ARCHITECTURAL AND LINK ANALYSIS OF A CRYOGENIC PHOTONIC READOUT CIRCUIT ON A SOI PLATFORM FOR RF QUBITS**
Hang Zou, The University of British Columbia, Canada
Lukas Chrostowski, Jeff Young, Sudip Shekhar, Joseph Salfi
-
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Nita Ghosh, University of Toronto, Canada
-
- POS-226** **CHARACTERIZATION OF A LONG-RANGE FIBER OPTIC STRAIN SENSING SYSTEM**
Swapnil Daxini, University of Victoria, Canada
Deniz Aydin, Arthur Giron-Santos, Jack Barnes, Xijia Gu, Hans-Peter Looch
-
- POS-229** **COMPARATIVE STUDY OF OPTICAL QUANTUM SWAP GATES USING QINTERCONNECT**
Thomas Mikhail, The American University in Cairo, Egypt
Mohamed A. Swillam
-
- POS-232** **DECOHERENCE-PROTECTED QUANTUM GATES**
Chunfeng Wu, Singapore University of Technology and Design, Singapore
-

- POS-235** **DEMONSTRATION AND ANALYSIS OF QUANTUM KEY DISTRIBUTION WITH THE REFERENCE-FRAME INDEPENDENT QUANTUM COMMUNICATION (REFQ) SATELLITE QUANTUM SOURCE**
Justin Schrier, Institute for Quantum Computing, Canada
Paul Godin, Brendon Higgins, Vinodh Muthu, Nigar Sultana, Shihong Pan, Thomas Jennewein
-
- POS-244** **OPTICAL SPECTROSCOPY OF THERMAL CURRENT FLUCTUATIONS DETECTED VIA QUANTUM INTERFERENCE OF ABSORPTION PATHWAYS IN CENTROSYMMETRIC SEMICONDUCTORS**
Amin Lakhali, Polytechnique Montreal, Canada
Jacob B. Khurgin, Denis V. Selestkiy
-
- POS-247** **PROTOCOLS FOR DETERMINISTIC TWO-QUBIT GATES WITH INDIVIDUAL YTTERBIUM IONS-DOPED YTTRIUM ORTHOSILICATE**
Mahsa Karimi, University of Calgary, Canada
Faezeh Kimiaeeasadi, Stephen Wein, Christoph Simon
-
- POS-250** **RECONFIGURABLE UNITARY TRANSFORMATIONS OF OPTICAL BEAM ARRAYS**
Manuel Ferrer, University of Ottawa, Canada
-
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Manuel Ferrer, University of Ottawa, Canada
Lukas Scarfe, Felix Hufnagel, Alessio D'Errico, Rojan Abolhassani, Khabat Heshami, Ebrahim Karimi
-
- POS-262** **TOWARDS A REALISTIC MODEL FOR CAVITY-ENHANCED ATOMIC FREQUENCY COMB QUANTUM MEMORIES**
Shahzad Taherizadegan, University of Calgary, Canada
Jacob H. Davidson, Sourabh Kumar, Daniel Oblak, Christoph Simon
-
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Mohammad Rezaul Islam, McMaster University, Canada
Manuel Mendez-Rosales, Ranjan Das, Andrew Knights
-
- POS-268** **PROPERTIES STUDY OF ALCLPC THIN FILM PREPARED BY THERMAL EVAPORATION TECHNIQUE**
Bassel Abdel Samad, Moncton university, Canada
Zackaria Kabore
-
- POS-271** **SIGNIFICANT PHOTOLUMINESCENCE IMPROVEMENTS FROM BULK GERMANIUM-BASED THIN FILMS**
Liming Wang, The University of British Columbia, Canada
Gideon Kassa, Jifeng Liu, Guangrui Xia
-

Exhibition

Exhibition Booths

DELTA PHOTONICS	1
SPIE- THE INTERNATIONAL SOCIETY FOR OPTICS AND PHOTONICS	2
BUSCH VACUUM SOLUTIONS, OFFICIAL DISTRIBUTOR OF PFEIFFER PRODUCTS	3
JOINT CENTRE FOR EXTREME PHOTONICS	4
HENGRUN OPTICS CO., LTD	7
SANTEC USA CORPORATION	8
PHOTONS CANADA	9
NEXUS FOR QUANTUM TECHNOLOGIES	10



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