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2018 IEEE Photonics Society Summer Topicals Meeting Series

Welcome to the
2018 IEEE Photonics Society Summer Topicals Meeting Series
9 - 11 July 2018
Hilton Waikoloa Village
Waikoloa, Hawaii, USA

MA1 - Thermal and Germanium Optical Sources I — 8:30 am–10:00 am — Waikoloa 1

MA1.1: Selective Thermal Emitters Based on Photonic Crystals (Page NA)
Takashi Asano *(Kyoto University)*
Takuya Inoue *(Kyoto University)*
Susumu Noda *(Kyoto University)*

MA1.2: Optical Tunneling Based Radiative Cooling (Page 1)
Jin-Woo Cho *(Kyunghee University)*
Yoon Jeong Shin *(Kyunghee University)*
Sun-Kyung Kim *(Kyunghee University)*

MA1.3: Group-IV Epitaxial QDs as Light Emitters for Si Photonics (Page NA)
Moritz Brehm *(Johannes Kepler University Linz)*
Martyna Grydlik *(Johannes Kepler University Linz)*
Lukas Spindlberger *(Johannes Kepler University Linz)*
Patrick Rauter *(Johannes Kepler University Linz)*
Thomas Fromherz *(Johannes Kepler University Linz)*
Friedrich Schäffler *(Johannes Kepler University Linz)*

MC1 - Topological Lasers and Emitters I — 8:30 am–10:00 am — Kohala 2

MC1.1: Experimental Realization of Magnetic-Free Topological Insulator Lasers (Page NA)
Mordechai Segev *(Technion)*
Miguel A. Bandres *(Technion)*
Gal Harari *(Technion)*
Steffen Wittek *(University of Central Florida)*
Demetrios N. Christodoulides *(University of Central Florida)*
Mercedeh Khajavikhan *(University of Central Florida)*

MC1.2: Topological Source of Quantum Light (Page NA)
Sunil Mittal *(University of Maryland, College Park)*
Mohammad Hafezi *(University of Maryland, College Park)*

MC1.3: Tunable Orbital Angular Momentum Microring Laser (Page 5)
Jinhan Ren *(University of Central Florida)*
William Hayenga *(University of Central Florida)*
Midya Parto *(University of Central Florida)*
Fan Wu *(University of Central Florida)*
Demetrios N. Christodoulides *(University of Central Florida)*
Mercedeh Khajavikhan *(University of Central Florida)*

MD1 - Networks & Applications — 8:30 am–10:00 am — Kohala 3

MD1.1: Quantum Connections (Page 7)
Rodney Van Meter *(Keio University)*

MD1.2: Cryptographic and Non-Cryptographic Network Applications and Their Optical Implementations (Page 9)
Juan Miguel Arrazola *(University of Waterloo)*
Ashutosh Marwah *(University of Waterloo)*
Benjamin Lovitz *(University of Waterloo)*
Dave Touchette *(University of Waterloo and Perimeter Institute for Theoretical Physics)*
Norbert Lütkenhaus *(University of Waterloo and Perimeter Institute for Theoretical Physics)*

MD1.3: Quantum Interference Enables Constant-Time Information Processing (Page 11)
Magdalena Stobińska *(University of Warsaw)*

ME - QOPO Plenary — 8:30 am–10:00 am — Kohala 4

ME1.1: ENTROPY INSIGHTS: From Lasers and Bose Condensates to Acceleration Radiation and Black Hole Emission (Page 13)
Marlan O. Scully *(Texas A&M University, Princeton University, and Baylor University)*

ME1.2: Single-Layer Coupled Quantum Dot Lattices (Page NA)
James J. Coleman *(University of Texas at Dallas)*

MF1 - SDM Transmission I — 8:30 am–10:00 am — King's 3

MF1.1: SDM Research Activities within the EXAT Initiative (Page NA)
Yoshinari Awaji *(NICT)*

MF1.2: Joint Phase Tracking for Multicore Transmission with Correlated Phase Noise (Page 15)
Arni F. Alfredsson *(Chalmers University of Technology)*
Erik Agrell *(Chalmers University of Technology)*
Henk Wymeersch *(Chalmers University of Technology)*
Benjamin J. Puttnam *(NICT)*
Ruben S. Luís *(NICT)*

MF1.3: Impact of Intercore Crosstalk on Achievable Information Rates (Page 17)
Daniel J. Elson *(UCL (University College London))*
Benjamin J. Puttnam *(NICT)*
Georg Rademacher *(NICT)*
Ruben S. Luis *(NICT)*
Eric Sillekens *(UCL (University College London))*
Lidia Galdino *(UCL (University College London))*
Domaniç Lavery *(UCL (University College London))*
Yoshinari Awaji *(NICT)*
Naoya Wada *(NICT)*
Polina Bayvel *(UCL (University College London))*

MA2 - Thermal and Germanium Optical Sources II — 10:30 am–12:00 pm — Waikoloa 1

MA2.1: Strained Ge Micro-Laser Using Metallic Heat Sink (Page NA)
Moustafa El Kurdi *(C2N CNRS/UPSud)*
Anas Elbaz *(C2N/UPSud- STMicroelectronics)*
Abdelhanin Aassime *(C2N/UPSud)*
Sebastien Sauvage *(C2N/UPSud)*
Xavier Checoury *(C2N/UPSud)*
Isabelle Sagnes *(C2N/UPSud)*
Charles Baudot *(STMicroelectronics)*
Frédéric Boeuf *(STMicroelectronics)*
Philippe Boucaud *(C2N/UPSud)*

MA2.2: Gain/Loss Spectroscopy of Direct Band Gap Germanium from Strained Micro Bridges (Page NA)
Hans Sigg *(Paul Scherrer Institut (PSI))*

MA2.3: Highly Strained Germanium Nanowire Lasers Under Optical Pumping (Page NA)
Donguk Nam *(Nanyang Technological University)*
Shuyu Bao *(Nanyang Technological University)*
Daeik Kim *(Inha University)*
Chibuzo Onwukaeme *(Inha University)*
Shashank Gupta *(Stanford University)*
Krishna Saraswat *(Stanford University)*
Kwang Hong Lee *(Singapore-MIT Alliance for Research and Technology (SMART))*
Yeji Kim *(Inha University)*
Dabin Min *(Inha University)*
Yongduck Jung *(Inha University)*
Haodong Qiu *(Nanyang Technological University)*
Hong Wang *(Nanyang Technological University)*
Eugene Fitzgerald *(Singapore-MIT Alliance for Research and Technology (SMART))*
Chuan Seng Tan *(Nanyang Technological University)*

MB2 - MLSDN Plenary — 10:30 am–12:00 pm — King's 2

MB2.1: Applications of Machine Learning in Network Design, Optimization and Analysis (Page NA)
Anurag Sharma *(Google LLC)*

MB2.2: Intelligent Physical Layer Designs for Software-Defined Optical Networks (Page NA)
David Plant *(McGill)*

MC2 - PT-Symmetric Non-Hermitian Photonics — 10:30 am–12:00 pm — Kohala 2

MC2.1: Parity-Time and Other Symmetries in Optics and Photonics (Page NA)
Demetrios Christodoulides *(University of Central Florida)*

MC2.2: Non-Hermitian and Topological Electromagnetics: Synthetic Dimensions, and Robust Wireless Power Transfer (Page NA)
Shanhui Fan *(Stanford University)*

MD2 - Quantum Repeater Implementations — 10:30 am–12:00 pm — Kohala 3

MD2.1: Development of a Functional Quantum Repeater Node with Two Species of Alkali Atoms (Page NA)
Mark Saffman *(University of Wisconsin-Madison)*
Matthew Ebert *(University of Wisconsin-Madison)*
Garrett Hickman *(University of Wisconsin-Madison)*
Trent Graham *(University of Wisconsin-Madison)*
Xiaoyu Jiang *(University of Wisconsin-Madison)*
Cody Poole *(University of Wisconsin-Madison)*

MD2.2: Towards a Global Quantum Network (Page NA)
Nikolai Lauk *(University of Calgary)*
Christoph Simon *(University of Calgary)*

MD2.3: Quantum Interfaces with Trapped Ions: Routes to Scalability (Page NA)
Tracy Northup *(University of Innsbruck)*
Dario Fioretto *(University of Innsbruck)*
Konstantin Friebe *(University of Innsbruck)*
Moonjoo Lee *(University of Innsbruck)*
Klemens Schüppert *(University of Innsbruck)*
Markus Teller *(University of Innsbruck)*
Rainer Blatt *(University of Innsbruck)*

ME2 - Lasers — 10:30 am–12:10 pm — Kohala 4

ME2.1: Toward the Smallest Possible Lasers and Resonators (Page NA)
Yong-Hee Lee *(Korea Institute of Advanced Study)*

ME2.2: Quantum Noise in Nanolasers with Few Emitters (Page NA)
Jesper Mork *(Technical University of Denmark)*

ME2.3: Scaling Towards Efficient Monolayer WS2 Photonic Crystal Lasers (Page 21)
Xiaochen Ge *(University of Texas at Arlington)*
Momchil Minkov *(Stanford University)*
Xiuling Li *(University of Illinois Urbana-Champaign)*
Shanhui Fan *(Stanford University)*
Weidong Zhou *(University of Texas at Arlington)*

ME2.4: New Lasing Regimes of High-α Nanolasers (Page 23)
Frederik Lohof *(University of Bremen)*
Roy Barzel *(University of Bremen)*
Paul Gartner *(National Institute of Materials Physics)*
Christopher Gies *(University of Bremen)*

MF2 - SDM Components I — 10:30 am–12:00 pm — King's 3

MF2.1: Multi-Plane Light Conversion for High Spatial Mode Counts (Page NA)
Joel Carpenter *(University of Queensland)*

MF2.2: Remote Mode-Forming over Multimode Fiber for Endoscopic Imaging and Beam Steering (Page NA)
Haoshuo Chen *(Nokia Bell Labs)*

MF2.3: 6th Mode-Group Multiplexer for Intra-Mode Transmission over 50-µm GI-Multimode Fiber (Page 25)
Steffen Wittek *(University of Central Florida)*
Roland Ryf *(Nokia Bell Labs)*
Nicolas K. Fontaine *(Nokia Bell Labs)*
Haoshuo Chen *(Nokia Bell Labs)*
Juan Carlos Alvarado-Zacarias *(University of Central Florida)*
Jiaxiong Li *(Nokia Bell Labs)*
Jose Enrique Antonio-Lopez *(University of Central Florida)*
Mark Capuzzo *(Nokia Bell Labs)*
Rose Kopf *(Nokia Bell Labs)*
Al Tate *(Nokia Bell Labs)*
Hugo Safar *(Nokia Bell Labs)*
Cristian Bolle *(Nokia Bell Labs)*
David T. Neilson *(Nokia Bell Labs)*
Ellsworth Burrows *(Nokia Bell Labs)*
Kwangwoong Kim *(Nokia Bell Labs)*
Marianne Bigot *(Parc des Industries Artois Flandres)*
Adrian Amezcua-Correa *(Parc des Industries Artois Flandres)*
Pierre Sillard *(Parc des Industries Artois Flandres)*
Joel Carpenter *(University of Queensland)*
Rodrigo Amezcua-Correa *(University of Central Florida)*

MF2.4: Asymmetric Y-Junction based Reconfigurable Optical Mode-Division Multiplexing on Silicon (Page NA)
Gencheng Wang *(Zhejiang University)*
Tingge Dai *(Zhejiang University)*
Bei Chen *(Zhejiang University)*
Xiaoqing Guo *(Zhejiang University)*
Yuehai Wang *(Zhejiang University)*
Hui Yu *(Zhejiang University)*
Jianyi Yang *(Zhejiang University)*

MA3 - (Si)GeSn Devices I — 1:30 pm–3:00 pm — Waikoloa 1

MA3.1: Tunnel Injection into Group IV Semiconductors and Its Application to Light-Emitting Devices (Page 29)
Caterina J. Clausen *(University of Stuttgart)*
Inga A. Fischer *(University of Stuttgart)*
Niklas Hoppe *(University of Stuttgart)*
Michael Oehme *(University of Stuttgart)*
Daniel Schwarz *(University of Stuttgart)*
Jörg Schulze *(University of Stuttgart)*

MA3.2: Development of SiGeSn Technique Towards Integrated Mid-Infrared Photonics Applications (Page 31)
Wei Dou *(University of Arkansas)*
Yiyin Zhou *(University of Arkansas)*
Thach Pham *(University of Arkansas)*
Perry Grant *(University of Arkansas)*
Shui-Qing Yu *(University of Arkansas)*
Wei Du *(Wilkes University)*
Joe Margetis *(ASM)*
John Tolle *(ASM)*
Seyed Ghetmiri *(University of Arkansas at Pine Bluff)*
Aboozar Mosleh *(University of Arkansas at Pine Bluff)*
Mansour Mortazavi *(University of Arkansas at Pine Bluff)*
Greg Sun *(University of Massachusetts at Boston)*
Richard Soref *(University of Massachusetts at Boston)*
Huong Tran *(Arktonics, LLC)*
Yiyin Zhou *(Arktonics, LLC)*
Perry Grant *(Arktonics, LLC)*
Baohua Li *(Arktonics, LLC)*

Observation of amplified spontaneous emission in GeSn waveguides at room temperature (Page 33)
J. Mathews *(University of Dayton)*
Z. Li *(University of Dayton)*
Y. Zhao *(University of Dayton)*
J. D. Gallagher *(Arizona State University)*
D. Lombardo *(University of Dayton)*
I. Agha *(University of Dayton)*
J. Kouvetakis *(Arizona State University)*
J. Menéndez *(Arizona State University)*

MB3 - Applications of ML in Optical Networks I — 1:30 pm–3:00 pm — King's 2

MB3.1: Application of Artificial Intelligence Techniques in Optical Networks (Page 35)
Javier Mata *(Universidad de Valladolid)*
Ignacio de Miguel *(Universidad de Valladolid)*
Ramón J. Durán *(Universidad de Valladolid)*
Noemí Merayo *(Universidad de Valladolid)*
Sandeep Kumar Singh *(Technische Universität Carolo-Wilhelmina zu Braunschweig)*
Admela Jukan *(Technische Universität Carolo-Wilhelmina zu Braunschweig)*
Mohit Chamania *(ADVA Optical Networking)*

MB3.2: Management and Control of Multi-Vendor Transport Networks Supporting Machine Learning Applications (Page NA)
Stephane St.-Laurent *(Infinera Corporation)*
Omer Faruk Yilmaz *(Infinera Corporation)*
Onur Turkcu *(Infinera Corporation)*
Biao Lu *(Infinera Corporation)*
Matthew L. Mitchell *(Infinera Corporation)*
Parthiban Kandappan *(Infinera Corporation)*

MB3.3: Roles of Machine Learning in Network Management Evolutions (Page 37)
Michiaki Hayashi *(KDDI Research, Inc.)*

MC3 - Active Nanophotonics — 1:30 pm–3:00 pm — Kohala 2

MC3.1: Some Recent Results in Active Nano-Photonics (Page NA)
Marin Soljacic *(Massachusetts Institute of Technology)*

MC3.2: Photonic Crystal Membrane Lasers for Energy Efficient 3D Integrated Photonics (Page NA)
Weidong Zhou *(University of Texas at Arlington)*

MC3.3: Unidirecional Scattering of a Single Sphere-Gap-Cone Hybrid Nanoantenna (Page NA)
Y. Sun *(ITMO University)*
S. V. Makarov *(ITMO University)*
D. A. Zuev *(ITMO University)*

MD3 - Quantum Repeaters — 1:30 pm–3:00 pm — Kohala 3

MD3.1: WITHDRAWN

MD3.2: Quantum Multiplexing as a Resource Saver in Quantum Networks (Page 41)
William J. Munro *(NTT BRL)*
Nicolo Lo Piparo *(National Institute of Informatics)*
Kae Nemoto *(National Institute of Informatics)*

MD3.3: Universal Optical Modules for Quantum Network (Page 43)
Kae Nemoto *(National Institute of Informatics and Graduate University for Advanced Studies (Sokendai))*
Michael Hanks *(Graduate University for Advanced Studies (Sokendai) and National Institute of Informatics)*
Nicolo Lo Piparo *(National Institute of Informatics)*
William Munro *(NTT Corporation and National Institute of Informatics)*

ME3 - Quantum Emitters — 1:50 pm–3:00 pm — Kohala 4

ME3.1: Multiphoton Quantum States from Semiconductor Sources (Page NA)
Gregor Weihs *(University of Innsbruck)*

ME3.2: WITHDRAWN

ME3.3: The Importance of Correlation Effects in Cavity-QED Systems (Page 45)
Christopher Gies *(University of Bremen)*

MF3 - Multi-mode Fiber Modelling — 1:30 pm–3:00 pm — King's 3

MF3.1: Propagation Effects in Fibers for Space-Division Multiplexing (Page NA)
Cristian Antonelli *(University of L'Aquila)*
Antonio Mecozzi *(University of L'Aquila)*
Ori Golani *(Tel Aviv University)*
Mark Shtaif *(Tel Aviv University)*

MF3.2: Models for Mode Coupling Dynamics for Mode-Division Multiplexing (Page NA)
Karthik Choutagunta *(Stanford University)*
Joseph M. Kahn *(Stanford University)*

MF3.3: Recent Developments in Modal Analysis of Elliptical Waveguides (Page 47)
Aku Antikainen *(University of Rochester)*
René-Jean Essiambre *(Nokia Bell Labs)*
Govind P. Agrawal *(University of Rochester)*

MA4 - (Si)GeSn Devices II — 3:30 pm–5:00 pm — Waikoloa 1

MA4.1: (Si)GeSn-Based Light Sources - Challenges and Chances (Page NA)
Nils von den Driesch *(Forschungszentrum Juelich; RWTH Aachen)*
Daniela Stange *(Forschungszentrum Juelich)*
Denis Rainko *(Forschungszentrum Juelich)*
Giovanni Capellini *(IHP)*
Zoran Ikonic *(University of Leeds)*
Jean-Michel Hartmann *(Univ. Grenoble Alpes)*
Siegfried Mantl *(Forschungszentrum Juelich)*
Hans Sigg *(Paul Scherrer Institut (PSI))*
Jeremy Witzens *(RWTH Aachen)*
Detlev Grützmacher *(Forschungszentrum Juelich)*
Dan Buca *(Forschungszentrum Juelich)*

MA4.2: Mid-IR GeSn/SiGeSn-Based Lasers and Photodiodes (Page NA)
A. Chelnokov *(Univ. Grenoble Alpes)*
N. Pauc *(Univ. Grenoble Alpes)*
M. Bertrand *(Univ. Grenoble Alpes)*
Q. M. Thai *(Univ. Grenoble Alpes)*
J. Chrétien *(Univ. Grenoble Alpes)*
R. Khazaka *(Univ. Grenoble Alpes)*
J. Aubin *(Univ. Grenoble Alpes)*
F. Armand-Pilon *(Paul Scherrer Institut (PSI))*
H. Sigg *(Paul Scherrer Institut (PSI))*
J. M. Hartmann *(Univ. Grenoble Alpes)*
V. Calvo *(Univ. Grenoble Alpes)*
V. Reboud *(Univ. Grenoble Alpes)*

MA4.3: Cavity-Enhanced Electroluminescence from GeSn p-i-n Diode on Silicon-on-Insulator Substrate (Page 51)
Bo-Jun Huang *(National Chung Cheng University)*
Guo-En Chang *(National Chung Cheng University)*

MB4 - Performance Monitoring — 3:30 pm–5:00 pm — King's 2

MB4.1: Machine Learning-Assisted Optical Performance Monitoring in Fiber-Optic Networks (Page 53)
Faisal Nadeem Khan *(Hong Kong Polytechnic University)*
Qirui Fan *(Hong Kong Polytechnic University)*
Chao Lu *(Hong Kong Polytechnic University)*
Alan Pak Tao Lau *(Hong Kong Polytechnic University)*

MB4.2: Machine Learning Techniques in Optical Physical-Layer Monitoring (Page 55)
Takahito Tanimura *(Fujitsu Laboratories Ltd.)*

MB4.3: Machine Learning Based Noise Estimation in Optical Fiber Communication Networks (Page 57)
Seb J. Savory *(University of Cambridge)*
F. J. Vaquero Caballero *(University of Cambridge)*

MC4 - Topological Photonics and Weyl Points — 3:30 pm–5:00 pm — Kohala 2

MC4.1: Photonic Weyl Points at Optical Frequencies (Page NA)
Mikael C. Rechtsman *(Penn State University)*

MC4.2: Embedded Photonic Topological Insulators (Page NA)
Miguel Bandres *(Technion)*
Mordechai Segev *(Technion)*

MC4.3: Electromagnetic Scattering Laws in Weyl Systems (Page 59)
Ming Zhou *(University of Wisconsin - Madison)*
Lei Ying *(University of Wisconsin - Madison)*
Ling Lu *(Chinese Academy of Sciences)*
Lei Shi *(Fudan University)*
Jian Zi *(Fudan University)*
Zongfu Yu *(University of Wisconsin - Madison)*

MC4.4: Investigation of Tunable Dirac Cones in Two Dimensional Plasma Photonic Crystals (Page NA)
Benjamin Wang *(Stanford University)*
Mark Cappelli *(Stanford University)*

MG4 - Lasing in Non-Hermitian and PT-Symmetric Systems — 3:30 pm–5:15 pm — Kohala 1

MG4.1: Non-Hermitian Modes of Phased Microcavity Laser Arrays (Page 63)
Zihe Gao *(University of Illinois at Urbana-Champaign)*
Kent D. Choquette *(University of Illinois at Urbana-Champaign)*

MG4.2: Non-Hermitian Coupled Waveguide Lasers (Page NA)
Wei Guo *(University of Massachusetts Lowell)*

MG4.3: Experimental Realization of Supersymmetric Laser (Page 65)
Mohammad P. Hokmabadi *(University of Central Florida)*
William Hayenga *(University of Central Florida)*
Jinhan Ren *(University of Central Florida)*
Enrique Sanchez Cristobal *(University of Central Florida)*
Sanaz Faryadras *(University of Central Florida)*
Ramy El-Ganainy *(Michigan Technological University)*
Demetrios N. Christodoulides *(University of Central Florida)*
Mercedeh Khajavikhan *(University of Central Florida)*

MG4.4: Non-Hermitian Photonics Via an Optical Meta-Molecule (Page 67)
Vassilios Kovanis *(Nazarbayev University)*

MD4 - Quantum Key Distribution — 3:30 pm–5:00 pm — Kohala 3

MD4.1: Quantum Key Distribution Network and Its Applications (Page 69)
Akio Tajima *(NEC Corporation)*
Takashi Kondoh *(NEC Corporation)*
Takao Ochi *(NEC Corporation)*
Mikio Fujiwara *(National Institute of Information and Communications Technology)*
Ken-ichiro Yoshino *(NEC Corporation)*
Hiromi Iizuka *(NEC Corporation)*
Toshio Sakamoto *(NEC Corporation)*
Akihisa Tomita *(Hokkaido University)*
Shione Asami *(NEC Corporation)*
Masahide Sasaki *(National Institute of Information and Communications Technology)*

MD4.2: Coexistence of Continuous Variable Quantum Key Distribution and 7 × 12.5 Gbit/s Classical Channels (Page 71)
Tobias A. Eriksson *(National Institute of Information and Communications Technology)*
Takuya Hirano *(Gakushuin University)*
Motoharu Ono *(Gakushuin University)*
Mikio Fujiwara *(National Institute of Information and Communications Technology)*
Ryo Namiki *(Gakushuin University)*
Ken-ichiro Yoshino *(NEC Corporation)*
Akio Tajima *(NEC Corporation)*
Masahiro Takeoka *(National Institute of Information and Communications Technology)*
Masahide Sasaki *(National Institute of Information and Communications Technology)*

MD4.3: Measurement of Fiber-Induced One-Way Noise Over Deployed Optical Links for Quantum Networks (Page 73)
Helena Zhang *(Massachusetts Institute of Technology)*
Matthew E. Grein *(Massachusetts Institute of Technology)*
Scott A. Hamilton *(Massachusetts Institute of Technology)*
Isaac Chuang *(Massachusetts Institute of Technology)*

MD4.4: Security Level and Information Flow in a Quantum Key Distribution Network (Page 75)
Xiongfeng Ma *(Tsinghua University)*
Kefan Lv *(Tsinghua University)*

ME4 - Lasers and Quantum Emitters I — 3:30 pm–5:10 pm — Kohala 4

ME4.1: Advances in UV Single Photon Sources (Page NA)
Yasuhiko Arakawa *(University of Tokyo)*
Mark Holmes *(University of Tokyo)*
Munetaka Arita *(University of Tokyo)*

ME4.2: Telecom Wavelength Nanophotonic Elements for Quantum Communication (Page 77)
Mohamed Benyoucef *(University of Kassel)*
Johann Peter Reithmaier *(University of Kassel)*

ME4.3: WITHDRAWN

ME4.4: Optimized Access-Time Scheduling in Quantum Networks Using Realistic Quantum Memories (Page 79)
Siddhartha Santra *(US Army Research Laboratory)*
Liang Jiang *(Yale University)*
Vladimir S. Malinovsky *(US Army Research Laboratory)*

MF4 - Spatial Diversity and Quantum Systems — 3:30 pm–4:30 pm — King's 3

MF4.1: Multimode Fibers for Quantum-Secure Communication (Page 81)
Lyubov V. Amitonova *(University of Twente)*
Tristan B. H. Tentrup *(University of Twente)*
Ivo M. Vellekoop *(University of Twente)*
Pepijn W. H. Pinkse *(University of Twente)*

MF4.2: Control Over the Transverse Structure of Light at the Single-Photon Level (Page NA)
D. Cruz-Delgado *(Universidad Nacional Autónoma de México)*
J. C. Alvarado-Zacarias *(University of Central Florida)*
H. Cruz-Ramirez *(Universidad Nacional Autónoma de México)*
J. E. Antonio-Lopez *(University of Central Florida)*
S. G. Leon-Saval *(University of Sydney)*
R. Amezcua-Correa *(University of Central Florida)*
A. B. U'Ren *(Universidad Nacional Autónoma de México)*

MP - Welcome Reception & Poster Session — 7:00 pm–9:00 pm — Grand Promenade

MP17: First-Order Mode Compact Focusing Grating Coupler for SOI Interconnect (Page 119)
Omnia M. Nawwar *(Egypt-Japan University of Science and Technology (E-JUST))*
Hossam M. H. Shalaby *(Egypt-Japan University of Science and Technology (E-JUST) and Alexandria University)*
Ramesh K. Pokharel *(Graduate School of Information Science and Electrical Engineering)*

MP18: Multi-Band Analyses of Beam Dynamics in Disordered PT-Symmetric Optical Lattices (Page NA)
Xiankun Yao *(Zhejiang University)*
Xueming Liu *(Zhejiang University)*

TuA1 - (Si)GeSn Devices III — 8:30 am–10:00 am — Waikoloa 1

TuA1.1: GeSn-Based Nano-Electronic and Photonic Devices (Page NA)
Xiao Gong *(National University of Singapore)*

TuA1.2: GeSn Short-Wave Infrared Photodetectors by MBE (Page NA)
Buwen Cheng *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Zhi Liu *(Chinese Academy of Sciences)*
Fan Yang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Jun Zheng *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Chunlai Xue *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Chuanbo Li *(Minzu University of China)*
Yuhua Zuo *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*
Guangze Zhang *(Chinese Academy of Sciences)*
Qiming Wang *(Chinese Academy of Sciences and University of Chinese Academy of Sciences)*

TuA1.3: Design and Modeling of SiGeSn Lasers: From Modeling Experiments to Future Device Concepts (Page NA)
Jeremy Witzens *(RWTH Aachen)*

TuB1 - Multilayer Optical Networks — 8:30 am–10:00 am — King's 2

TuB1.1: Cross Layer, Spectrum Aware Planning at Scale (Page NA)
Abishek Gopalan *(Facebook)*
Satyajeet Singh Ahuja *(Facebook)*
Sri Bala *(Facebook)*
Vinayak Dangui *(Facebook)*
Gaya Nagarajan *(Facebook)*

TuB1.2: Machine Learning Aided Orchestration in Multi-Tenant Networks (Page 125)
Carlos Natalino *(KTH Royal Institute of Technology)*
Muhammad Rehan Raza *(KTH Royal Institute of Technology)*
Ahmad Rostami *(Deutsche Bahn AG)*
Peter Öhlen *(Ericsson Research)*
Lena Wosinska *(KTH Royal Institute of Technology)*
Paolo Monti *(KTH Royal Institute of Technology)*

TuB1.3: AI-Assisted Knowledge-Defined Multilayer Optical Networks (Page 127)
Zuqing Zhu *(University of Science and Technology of China)*
Siqi Liu *(University of Science and Technology of China)*
Baojia Li *(University of Science and Technology of China)*
Wei Lu *(University of Science and Technology of China)*

TuC1 - Topological Lasers and Emitters II — 8:30 am–10:00 am — Kohala 2

TuC1.1: Topological Lasing with Polaritons (Page NA)
Philippe St-Jean *(Université Paris-Sud)*
Valentin Goblot *(Université Paris-Sud)*
Élizabeth Galopin *(Université Paris-Sud)*
Aristide Lemaître *(Université Paris-Sud)*
Tomoki Ozawa *(Université Libre de Bruxelles)*
Luc LeGratiet *(Université Paris-Sud)*
Isabelle Sagnes *(C2N/UPSud)*
Jacqueline Bloch *(Université Paris-Sud)*
Alberto Amo *(Université de Lille)*

TuC1.2: Topological Lasers and Condensates (Page NA)
Henning Schomerus *(Lancaster University)*

TuC1.3: TBD (Page NA)
Boubacar Kante *(University of California, San Diego)*

TuD1 - Quantum Sensing — 9:00 am–10:00 am — Kohala 3

TuD1.1: Compressive Quantum Sensing (Page NA)
John C. Howell *(Hebrew University of Jerusalem)*

TuD1.2: Quantum Sensor Networks (Page NA)
Alexey V. Gorshkov *(University of Maryland and National Institute of Standards and Technology)*

TuE1 - Applications — 8:30 am–10:00 am — Kohala 4

TuE1.1: Coherent Ising Machine - Optical Neural Network Operating at the Quantum Limit (Page NA)
Yoshihisa Yamamoto *(Japan Science and Technology Agency)*

TuE1.2: Lightwave-Driven Quasiparticles and Qubit Valleytronics (Page NA)
Mackillo Kira *(Ann Arbor, MI, USA)*

TuE1.3: Scalable Quantum Photonics Using Quantum Dots (Page 129)
Edo Waks *(University of Maryland)*
Shuo Sun *(University of Maryland and National Institute of Standards and Technology)*
Jehyung Kim *(University of Maryland and National Institute of Standards and Technology)*
Christopher Richardson *(University of Maryland)*
Richard Leavitt *(University of Maryland)*
Glenn Solomon *(University of Maryland and National Institute of Standards and Technology)*

TuF1 - Multi-Mode Imaging — 8:30 am–10:00 am — King's 3

TuF1.1: Microscopy and Optical Manipulation Through Multimode Fibres (Page NA)
Sergey Turtaev *(Leibniz-Institute of Photonic Technology)*
Ivo T. Leite *(Leibniz-Institute of Photonic Technology)*
Martin Siler *(Institute of Scientific Instruments of the CAS)*
Tomáš Tyc *(Institute of Scientific Instruments of the ASC)*
Tomas Cizmar *(Leibniz-Institute of Photonic Technology)*

TuF1.2: Image Transport Through Anderson Localization (Page 131)
Arash Mafi *(University of New Mexico)*

TuF1.3: Holographic Optical Tweezers at the Tip of a Needle (Page 133)
Ivo T. Leite *(Leibniz-Institute of Photonic Technology)*
Sergey Turtaev *(Leibniz-Institute of Photonic Technology)*
Xin Jiang *(Max Planck Institute for the Science of Light)*
Martin Šiler *(Institute of Scientific Instruments of the Czech Academy of Sciences)*
Alfred Cuschieri *(University of Dundee)*
Philip St. J. Russell *(Max Planck Institute for the Science of Light)*
Tomáš Čižmár *(Leibniz-Institute of Photonic Technology)*

TuF1.4: Near-IR to Mid-IR Supercontinuum Generation for High-Order Modes Using AsSe Multimode Fiber (Page 135)
Ning Wang *(University of Central Florida)*
Md Selim Habib *(University of Central Florida)*
Fei Jia *(University of Central Florida)*
Guifang Li *(University of Central Florida)*
Rodrigo Amezcua-Correa *(University of Central Florida)*

TuA2 - (Si)GeSn Material Properties I — 10:30 am–12:00 pm — Waikoloa 1

TuA2.1: Developing Sn-Containing Group-IV Alloys for Mid-Infrared Sensing (Page NA)
Bruce Claflin *(Air Force Research Laboratory)*
Gordon Grzybowski *(KBRwyle)*
Stephanie Chastang *(KBRwyle)*
Arnold Kiefer *(Air Force Research Laboratory)*

TuA2.2: CMOS-Compatible MIR and SWIR Imagers and Detectors: A Materials Perspective (Page NA)
Simone Assali *(Ecole Polytechnique de Montreal)*
Anis Attiaoui *(Ecole Polytechnique de Montreal)*
Étienne Bouthillier *(Ecole Polytechnique de Montreal)*
Jérôme Nicolas *(Ecole Polytechnique de Montreal)*
Oussama Moutanabbir *(Ecole Polytechnique de Montreal)*

TuA2.3: Engineering Optoelectronic Properties of High-Sn-Content GeSn, GeSiSn, and SiSn Thin Films (Page NA)
Osamu Nakatsuka *(Nagoya University)*
Masashi Kurosawa *(Nagoya University)*
Masahiro Fukuda *(Nagoya University)*
Mitsuo Sakashita *(Nagoya University)*
Wakana Takeuchi *(Nagoya University)*
Shigeaki Zaima *(Nagoya University)*

TuB2 - Applications of ML in Optical Networks II — 10:30 am–12:00 pm — King's 2

TuB2.1: Using Machine Learning in Communication Networks (Page NA)
David Cote *(Ciena)*

TuB2.2: Deeply Programmable and Machine-Learning Assisted Optical Network (Page NA)
Reza Nejabati *(Bristol)*

TuC2 - Non-Hermitian Resonances and Optical Transport — 10:30 am–12:00 pm — Kohala 2

TuC2.1: Generalized Reflectionless Transmission in Photonic Structures via Gain-Loss Engineering (Page NA)
A. Douglas Stone *(Yale University)*
William Sweeney *(Yale University)*
Chia-Wei Hsu *(Yale University)*

TuC2.2: Non-Hermitian Wave Transport with Applications to Photonic Limiters (Page NA)
Tsampikos Kottos *(Wesleyan University)*

TuC2.3: Non-Hermitian Wave Control in Scattering Disordered Media (Page 137)
K. G. Makris *(University of Crete)*
A. Brandstötter *(Vienna University of Technology)*
S. Rotter *(Vienna University of Technology)*

TuD2 - Spectral and Temporal Entanglement Manipulation — 10:30 am–12:00 pm — Kohala 3

TuD2.1: Temporal Multiplexing: The Tool of Our Time (Page NA)
Paul Kwiat *(University of Illinois at Urbana-Champaign)*

TuD2.2: Experiments with Frequency Entangled and Frequency Encoded Photons (Page NA)
Andrew Weiner *(Purdue University)*

TuD2.3: Hong-Ou-Mandel Interference and Deterministic Control of Two-qubit Correlations for Spectral Gubits (Page NA)
Hsuan-Hao Lu *(Purdue University)*
Joseph Lukens *(Oak Ridge National Laboratory)*
Nicholas A. Peters *(Oak Ridge National Laboratory)*
Brian Williams *(Oak Ridge National Laboratory)*
Andrew Weiner *(Purdue University)*
Pavel Lougovski *(Oak Ridge National Laboratory)*

TuE2 - Resonators and Si Photonics — 10:30 am–12:00 pm — Kohala 4

TuE2.1: Soliton Microcomb Physics and Applications (Page NA)
Kerry J. Vahala *(California Institute of Technology)*

TuE2.2: An On-Chip Homodyne Detector for Measuring Quantum States (Page 139)
Giacomo Ferranti *(University of Bristol)*
Francesco Raffaelli *(University of Bristol)*
Dylan H. Mahler *(University of Bristol)*
Philip Sibson *(University of Bristol)*
Jake E. Kennard *(University of Bristol)*
Alberto Santamato *(University of Bristol)*
Gary Sinclair *(University of Bristol)*
Damien Bonneau *(University of Bristol)*
Mark G. Thompson *(University of Bristol)*
Jonathan C. F. Matthews *(University of Bristol)*

TuE2.3: Comparative Analysis of Classical and Quantum Plasmons in Graphene Nanostructures (Page 141)
Jian Wei You *(University College London)*
Nicolae C. Panoiu *(University College London)*

TuE2.4: Enhanced Photon Detection Efficiency of Silicon Single Photon Avalanche Photodetectors Enabled by Photon Trapping Structures (Page 143)
Cesar Bartolo Perez *(University of California, Davis)*
Hilal Cansizoglu *(University of California, Davis)*
Yang Gao *(University of California, Davis)*
Soroush Ghandiparsi *(University of California, Davis)*
Ahmed S. Mayet *(University of California, Davis)*

Ekaterina Ponizovskaya Devine *(University of California, Davis and W&WSens Devices, Inc.)*
Aly F. Elrefaie *(University of California, Davis and W&WSens Devices, Inc.)*
Shih-Yuan Wang *(W&WSens Devices, Inc.)*
M. Saif Islam *(University of California, Davis)*

TuF2 - SDM Transmission II — 10:30 am–11:45 am — King's 3

TuF2.1: Coupled-Core and Multi-Mode Fiber Transmission (Page NA)
Roland Ryf *(Nokia Bell Labs)*
Nicolas K. Fontaine *(Nokia Bell Labs)*
Haoshuo Chen *(Nokia Bell Labs)*

TuF2.2: Few-Mode Multi-Core Fiber Technologies for Repeated Dense SDM Transmission (Page 145)
T. Sakamoto *(NTT Corporation)*
K. Saitoh *(Hokkaido University)*
S. Saitoh *(Fujikura Ltd.)*
K. Shibahara *(NTT Corporation)*
M. Wada *(NTT Corporation)*
Y. Abe *(NTT Corporation)*
A. Urushibara *(NTT Corporation)*
K. Takenaga *(Fujikura Ltd.)*
T. Mizuno *(NTT Corporation)*
T. Matsui *(NTT Corporation)*
K. Aikawa *(Fujikura Ltd.)*
Y. Miyamoto *(NTT Corporation)*
K. Nakajima *(NTT Corporation)*

TuF2.3: Investigation of Higher Order Modulation Formats for Few-Mode Fiber SDM Transmission Systems (Page 147)
Georg Rademacher *(NICT)*
Ruben S. Luis *(NICT)*
Benjamin J. Puttnam *(NICT)*
Hideaki Furukawa *(NICT)*
Yoshinari Awaji *(NICT)*
Ryo Maruyama *(Fujikura Ltd.)*
Kazuhiko Aikawa *(Fujikura Ltd.)*
Naoya Wada *(NICT)*

TuA3 - (Si)GeSn Material Properties II — 1:30 pm–3:00 pm — Waikoloa 1

TuA3.1: Thermal Stability of GeSn and SiGeSn Layers (Page NA)
Giovanni Capellini *(IHP)*

TuA3.2: Si-Ge-Sn Semiconductors and Related (Si,Ge)5-2y(III-V)y Systems (Page NA)
John Kouvetakis *(Arizona State University)*

TuA3.3: Temperature Dependent Dielectric Function and Critical Points of Bulk Ge Compared to α-Sn on InSb (Page 149)
C. Emminger *(New Mexico State University)*
R. Carrasco *(New Mexico State University)*
N. Samarasingha *(New Mexico State University)*
F. Abadizaman *(New Mexico State University)*
S. Zollner *(New Mexico State University)*

TuB3 - Access Networks — 1:30 pm–3:00 pm — King's 2

TuB3.1: SDN Control and Monitoring of SDM/WDM and Packet Transport Networks for 5G Fronthaul/Backhaul (Page 151)
R. Muñoz *(Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA))*
J. M. Fàbrega *(Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA))*
R. Vilalta *(Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA))*
M. Svaluto Moreolo *(Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA))*
R. Martinez *(Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA))*
Ramon Casellas *(Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA))*
N. Yoshikane *(KDDI Research, Inc.)*
T. Tsuritani *(KDDI Research, Inc.)*
I. Morita *(KDDI Research, Inc.)*

TuB3.2: From Central Office Cloudification to Optical Network Disaggregation (Page 153)
Marco Ruffini *(University of Dublin, Trinity College Dublin)*
Daniel C. Kilper *(University of Arizona)*

TuB3.3: Machine-Learning-Based Prediction and Optimization of Mobile Metro-Core Networks (Page 155)
Rodolfo Alvizu *(Politecnico di Milano and SWAN networks)*
Sebastian Troia *(Politecnico di Milano)*
Guido Maier *(Politecnico di Milano and SWAN networks)*
Achille Pattavina *(Politecnico di Milano and SWAN networks)*

TuC3 - Non-reciprocal and Topological Phenomena in Photonics — 1:30 pm–3:00 pm — Kohala 2

TuC3.1: Chiral and Nonreciprocal Photonics in Optomechanical Resonator Systems (Page NA)
Seunghwi Kim *(University of Illinois at Urbana-Champaign)*
Donggyu Sohn *(University of Illinois at Urbana-Champaign)*
JunHwan Kim *(University of Illinois at Urbana-Champaign)*
Jacob Taylor *(Joint Center for Quantum Information and Computer Science)*
Gaurav Bahl *(University of Illinois at Urbana-Champaign)*

TuC3.2: Demonstration of a Bi-Anisotropic Meta-Waveguide Quantum Hall Analog (Page NA)
Steven M. Anlage *(University of Maryland)*

TuC3.3: Entangled States of Topological Modes in Nanophotonics (Page NA)
Andrea Blanco-Redondo *(University of Sydney)*
Bryn Bell *(University of Sydney)*
Dikla Oren *(Technion Israel Institute of Technology)*
Mordechai Segev *(Technion)*
Benjamin Eggleton *(University of Sydney)*

TuG3 - Active Nanophotonics — 1:30 pm–3:00 pm — Kohala 1

TuG3.1: Dynamics of Nanoscale Light Emitters (Page 157)
Y. Fainman *(University of California, San Diego)*
S. H. Pan *(University of California, San Diego)*
S. Deka *(University of California, San Diego)*
Q. Gu *(University of California, San Diego)*
A. El Amili *(University of California, San Diego)*
F. Vallini *(University of California, San Diego)*

TuG3.2: Electrooptic Activation Function for MAC-per-Attojoule Photonic Neuromorphic Computing (Page NA)
Jonathan George *(George Washington University)*
Armin Mehrabian *(George Washington University)*
Rubab Amin *(George Washington University)*
Tarek El-Ghazawi *(George Washington University)*
Jacob Khurgin *(Johns Hopkins University)*
Paul Prucnal *(Princeton University)*
Volker Sorger *(George Washington University)*

TuG3.3: Pt/Al2O3 Multilayer Films as High-Temperature Thermal Emitters (Page 159)
Tae Il Lee *(Kyunghee University)*
Youngsuk Nam *(Kyunghee University)*
Sun-Kyung Kim *(Kyunghee University)*

TuG3.4: Scalable AWGR-Based All-to-All Optical Interconnects with 2.5 D/3D Integrated Optical Interposers (Page 161)
Xian Xiao *(University of California, Davis)*
Yu Zhang *(University of California, Davis)*
Roberto Proietti *(University of California, Davis)*
S. J. B. Yoo *(University of California, Davis)*

TuD3 - Quantum Metrology — 1:30 pm–3:00 pm — Kohala 3

TuD3.1: Reinforcement Learning for Quantum Metrology via Quantum Control (Page 163)
Seyed Shakib Vedaie *(University of Calgary)*
Pantita Palittapongarnpim *(University of Calgary)*
Barry C. Sanders *(University of Calgary and Canadian Institute for Advanced Research)*

TuD3.2: Operational Wave-Particle Duality in Multi-Path Interferometers (Page NA)
Janos A. Bergou *(Hunter College of the City University of New York)*
Mark Hillery *(Hunter College of the City University of New York)*
Emili Bagán Capella *(Hunter College of the City University of New York)*
John Calsamiglia Costa *(Universitat Autònoma de Barcelona)*

TuD3.3: Spectral Densities for Quantum Networks and Implications for Quantum Darwinism (Page NA)
Barry M. Garraway *(University of Sussex)*

TuE3 - Lasers and Quantum Emitters II — 1:30 pm–3:00 pm — Kohala 4

TuE3.1: Thresholdless Lasing in Single-Atom Superradiance (Page 165)
Kyungwon An *(Seoul National University)*

TuE3.2: Active Optical Systems with Novel Metal Brightness Amplifiers (Page NA)
Maxim V. Trigub *(V.E. Zuev Institute of Atmospheric Optics SB RAS and Tomsk Polytechnic University)*
Gennadiy S. Evtushenko *(V.E. Zuev Institute of Atmospheric Optics SB RAS and Tomsk Polytechnic University)*

TuE3.3: A Charge-Tunable Quantum Dot Deep in the Strong Coupling Regime of Cavity QED (Page 169)
Daniel Najer *(University of Basel)*
Immo Söllner *(University of Basel)*
Matthias C. Loebl *(University of Basel)*
Daniel Riedel *(University of Basel)*
Benjamin Petrak *(University of Basel)*
Sebastian Starosielec *(University of Basel)*
Vincent Dolique *(Univ Lyon, Univ Claude Bernard)*
Sascha R. Valentin *(Ruhr-Universität Bochum)*
Ruediger Schott *(Ruhr-Universität Bochum)*
Andreas D. Wieck *(Ruhr-Universität Bochum)*
Arne Ludwig *(Ruhr-Universität Bochum)*
Richard J. Warburton *(University of Basel)*

TuE3.4: Coherent Polariton States in ZnO Nano- and Microstructures (Page 171)
Tom Michalsky *(Leipzig University)*
Marcel Wille *(Leipzig University)*
Evgeny Krüger *(Leipzig University)*
Chris Sturm *(Leipzig University)*
Marius Grundmann *(Leipzig University)*
Rüdiger Schmidt-Grund *(Leipzig University)*

TuF3 - SDM Transmission III — 1:30 pm–3:00 pm — King's 3

TuF3.1: Design of Multi-Core and Coupled-Core Fibers (Page 173)
Tetsuya Hayashi *(Sumitomo Electric Industries, Ltd.)*

TuF3.2: An Overview on Recent Advancement with Joint Packet and Circuit Switched Networks Using Homogeneous Multicore Fibers (Page NA)
Ruben S. Luis *(NICT)*

TuF3.3: 10 Pbit/s Transmission Using Space-Division-Multiplexing (Page 175)
Itsuro Morita *(KDDI Research)*
Daiki Soma *(KDDI Research)*
Takehiro Tsuritani *(KDDI Research)*

TuA4 - Group IV Integration — 3:30 pm–5:00 pm — Waikoloa 1

TuA4.1: Components for Integrated Ge on Si for Mid-Infrared Photonic Sensors (Page 177)
Kevin Gallacher *(University of Glasgow)*
Ross W. Millar *(University of Glasgow)*
Ugnė Griškevičiūtė *(University of Glasgow)*
Marco P. Fischer *(University of Konstanz)*
Aaron Riede *(University of Konstanz)*
Jacopo Frigerio *(Politecnico di Milano)*
Leonetta Baldassarre *(Sapienza Universitá di Roma)*
Giovanni Pellegrini *(Politecnico di Milano)*
Alfred Leitenstorfer *(University of Konstanz)*
Daniele Brida *(University of Konstanz)*
Giovanni Isella *(Politecnico di Milano)*
Michele Ortolani *(Sapienza Universitá di Roma)*
Paolo Biagioni *(Politecnico di Milano)*
Douglas J. Paul *(University of Glasgow)*

TuA4.2: Ge-on-Insulator Platform for Mid-Infrared Integrated Photonics (Page 179)
M. Takenaka *(University of Tokyo)*
S. Takagi *(University of Tokyo)*

TuA4.3: Silicon and Germanium Suspended Waveguides for the Mid-Infrared (Page 181)
A. Osman *(University of Southampton)*
J. Soler Penades *(University of Southampton)*

A. Sanchez-Postigo *(Universidad de Malaga)*
Y. Wu *(University of Southampton)*
Z. Qu *(University of Southampton)*
J. G. Wanguemert-Perez *(Universidad de Malaga)*
A. Ortega-Monux *(Universidad de Malaga)*
R. Halir *(Universidad de Malaga)*
P. Cheben *(National Research Council Canada)*
I. Molina-Fernandez *(Universidad de Malaga)*
M. Nedeljkovic *(University of Southampton)*
G. Z. Mashanovich *(University of Southampton and University of Belgrade)*

TuB4 - Transmission and Photonics — 3:30 pm–5:00 pm — King's 2

TuB4.1: Applications of Intelligent Coherent Transceivers in Software-Defined Elastic Optical Networks (Page 183)
Bo Zhang *(Beijing University of Posts and Telecommunications and McGill University)*
Qunbi Zhuge *(McGill University and Shanghai Jiao Tong University)*
Xingyu Zhou *(McGill University)*
Ru Zhang *(Beijing University of Posts and Telecommunications)*
Xiangjun Xin *(Beijing University of Posts and Telecommunications)*
David V. Plant *(McGill University)*

TuB4.2: Polarization Dependent Loss Monitor and Compensation for Digital Coherent Transmission System (Page 185)
Guoxiu Huang *(Fujitsu Ltd.)*
Yuichi Akiyama *(Fujitsu Laboratories Ltd.)*
Shoichiro Oda *(Fujitsu Ltd.)*
Hisao Nakashima *(Fujitsu Laboratories Ltd.)*
Takeshi Hoshida *(Fujitsu Ltd.)*

TuB4.3: Neuro-MMI: A Hybrid Photonic-Electronic Machine Learning Platform (Page 187)
Nicholas Soures *(Rochester Institute of Technology)*
Jeffrey Steidle *(Rochester Institute of Technology)*
Stefan Preble *(Rochester Institute of Technology)*
Dhireesha Kudithipudi *(Rochester Institute of Technology)*

TuB4.4: Extreme Mobile Broadband Tier-II Fronthaul Network Enabled by a New DNN Machine Learning Framework (Page 189)
Qi Zhou *(Georgia Institute of Technology)*
Mu Xu *(Georgia Institute of Technology)*
Peng-Chun Peng *(National Taipei University of Technology)*
Gee-Kung Chang *(Georgia Institute of Technology)*

TuC4 - Novel Concepts in Topological Photonics I — 3:30 pm–5:00 pm — Kohala 2

TuC4.1: Parity-Time-Symmetric Optics, Extraordinary Momentum and Spin in Evanescent Waves,and the Quantum Spin Hall Effect of Light Hall Effect of Light (Page 191)
Franco Nori *(RIKEN and University of Michigan)*

TuC4.2: Solids in Ultrafast Strong Fields: Topological Attosecond Phenomena (Page 193)
Mark I. Stockman *(Georgia State University)*

TuC4.3: Magnetic Dirac Cones (Page NA)
Yidong Chong *(Nanyang Technological University)*

TuG4 - Non-Hermitian Resonances and Beam Dynamics — 3:30 pm–5:00 pm — Kohala 1

TuG4.1: Exceptional Points in the Dispersion of Optically Anisotropic Planar Microcavities (Page 195)
Steffen Richter *(ELI Beamlines)*
Jesús Zúniga-Pérez *(Université Côte d'Azur)*
Christiane Deparis *(Université Côte d'Azur)*
Lukas Trefflich *(Universität Leipzig)*
Heinrich-Gregor Zirnstein *(Universität Leipzig)*
Chris Sturm *(Universität Leipzig)*
Bernd Rosenow *(Universität Leipzig)*
Marius Grundmann *(Universität Leipzig)*
Rüdiger Schmidt-Grund *(Universität Leipzig)*

TuG4.2: TBD (Page NA)
Ziad Musslimani *(Florida State University)*

TuG4.3: Pseudospin/Valley-Mediated Phenomena in Staggered Photonic Lattices (Page NA)
Zhigang Chen *(Nankai University and San Francisco State University)*

TuD4 - Enabling Photonic Technologies — 3:30 pm–5:00 pm — Kohala 3

TuD4.1: Quantum Light State Engineering and Entanglement Generation by Multimode Photon Addition (Page 197)
Marco Bellini *(Istituto Nazionale di Ottica and University of Firenze)*
Nicola Biagi *(Istituto Nazionale di Ottica and University of Firenze)*
Luca Salvatore Costanzo *(Istituto Nazionale di Ottica and University of Firenze)*
Alessandro Zavatta *(Istituto Nazionale di Ottica and University of Firenze)*

TuD4.2: Multiplexing: Moving Real-World Single-Photon Sources Toward the Ideal (Page 199)
Alan Migdall *(University of Maryland and National Institute of Standards and Technology)*

TuD4.3: Low-Loss High-Speed Fiber-Optic Switch for Quantum State Manipulation (Page 201)
K. F. Lee *(NuCrypt, LLC)*
G. S. Kanter *(NuCrypt, LLC)*

TuE4 - Active Media — 3:30 pm–5:20 pm — Kohala 4

TuE4.1: Optical Properties of Atomically Thin Semiconductors Based on Transition Metal Dichalcogenides for Applications in Nanophotonics (Page NA)
Frank Jahnke *(University of Bremen)*

TuE4.2: Photonic Integration and Quantum Coherence Phenomena (Page NA)
Ann Catrina Coleman *(University of Texas at Dallas)*

TuE4.3: Observation of Bloch-Siegert Shift in an Atomically Thin Crystal (Page 203)
Edbert J. Sie *(Massachusetts Institute of Technology and Stanford University)*
C. H. Lui *(University of California,)*
Yi-Hsien Lee *(National Tsing-Hua University)*
Liang Fu *(Massachusetts Institute of Technology,)*
Jing Kong *(Massachusetts Institute of Technology,)*
Nuh Gedik *(Massachusetts Institute of Technology,)*

TuE4.4: Theory of Steady State Superradiance: Collective Forces, Quantum Limited Metrology, and Ultra-Stable Light (Page 205)
Murray Holland *(University of Colorado Boulder)*

TuF4 - Astrophotonics — 3:30 pm–5:00 pm — King's 3

TuF4.1: Adaptive Optics and the Search for Life on Exoplanets (Page NA)
Olivier Guyon *(National Astronomical Observatory of Japan, National Institutes of Natural Sciences)*

TuF4.2: Nulling Interferometry in Astronomy with Integrated Photonics (Page NA)
Barnaby Norris *(University of Sydney)*
Simon Gross *(Macquarie University)*
Alex Arriola *(Macquarie University)*
Tiphaine Lagadec *(University of Sydney)*
Nick Cvetojevic *(Obervatory of Paris)*
Thomas Gretzinger *(Macquarie University)*
Nemanja Jovanovic *(California Institute of Technology)*
Jon Lawrence *(Australian Astronomical Observatory)*
Peter Tuthill *(University of Sydney)*

TuF4.3: Liquid-Crystal and MEMS Modulators for Beam-shaping Through a Multimode Fibre (Page 207)
Sergey Turtaev *(Leibniz-Institute of Photonic Technology)*
Ivo T. Leite *(Leibniz-Institute of Photonic Technology)*
Tomas Cizmar *(Leibniz-Institute of Photonic Technology)*

WA1 - Modulators and Optical Combs for Sensing — 8:30 am–10:00 am — Waikoloa 1

WA1.1: Silicon and Germanium Mid-Infrared Optical Modulators (Page 209)
Wei Cao *(University of Southampton)*
M. Nedeljkovic *(University of Southampton)*
C. J. Littlejohns *(University of Southampton and Nanyang Technological University)*
T. Li *(Peking University)*
Z. Zhou *(Peking University)*
F. Y. Gardes *(University of Southampton)*
D. J. Thomson *(University of Southampton)*
G. T. Reed *(University of Southampton)*
G. Z. Mashanovich *(University of Southampton and University of Belgrade)*

WA1.2: Mid-Infrared Electro-Absorption Optical Modulation in GeSn Photodiodes on Silicon (Page 211)
Jun-Han Lin *(National Chung Cheng University)*
Guo-En Chang *(National Chung Cheng University)*

WA1.3: Silicon-Microresonator-Based Mid-Infrared Comb Spectroscopy (Page NA)
Yoshitomo Okawachi *(Columbia University)*

WA1.4: Interband Cascade (IC) Optical Frequency Combs (Page 213)
Mahmood Bagheri *(California Institute of Technology)*
Clifford Frez *(California Institute of Technology)*
Igor Vurgaftman *(Naval Research Laboratory)*
Mathieu Fradet *(California Institute of Technology)*
Ivan Grudinin *(California Institute of Technology)*
Chadwick L. Candey *(Naval Research Laboratory)*
William W. Bewley *(Naval Research Laboratory)*
Charles D. Merritt *(Naval Research Laboratory)*
Chulsoo Kim *(Naval Research Laboratory)*
Siamak Forouhar *(California Institute of Technology)*
Jerry R. Meyer *(Naval Research Laboratory)*

WB1 - Network Optimization — 8:30 am–10:00 am — King's 2

WB1.1: Machine Learning Techniques for Workload-Performance Optimized Networking (Page NA)
Keren Bergman *(Columbia University)*
Yiwen Shen *(Columbia University)*
Yishen Huang *(Columbia University)*
Min Yee Teh *(Columbia University)*

WB1.1: (Page NA)
Qixiang Cheng *(Columbia University)*

WB1.2: TBD (Page NA)
Vinayak Dangui *(Facebook)*

WB1.3: Maximizing Capacity via Channel Power Optimization under Energy Constraints (Page NA)
Jose Krause Perin *(Stanford University)*
Ian Roberts *(Stanford University)*
Joseph M. Kahn *(Stanford University)*

WC1 - Non-Hermitian, Topological, and Non-reciprocal Phenomena in Photonics and Optomechanics — 8:30 am–10:00 am — Kohala 2

WC1.1: Experimental Demonstrations of Topological Adiabatic Transport Around Exceptional Points (Page NA)
Jack Harris *(Yale University)*
Haitan Xu *(Yale University)*
Luyao Jiang *(Yale University)*
David Mason *(Niels Bohr Institute)*

WC1.2: Topologically-Protected Optomechanics (Page NA)
Zheng Wang *(University of Texas at Austin)*

WC1.3: Non-Hermitian Physics of Optomechanical Cavities (Page NA)
Mohammad Ali Miri *(University of Texas at Austin)*
Freek Ruesink *(AMOLF)*
John Mathew *(AMOLF)*
Ewold Verhagen *(AMOLF)*
Andrea Alu *(University of Texas at Austin)*

WE1 - Invited Joint with QN & QOPO — 8:30 am–9:00 am — Kohala 4

WE1.1: Scalable Quantum Information Processing with Photons and Atoms (Page NA)
Jian-Wei Pan *(University of Science and Technology of China)*

WD1 - Space Communications — 9:00 am–10:00 am — Kohala 3

WD1.1: Satellite-Earth Quantum Communication: Modeling Daytime Free-Space Atmospheric Channels and Interfaces (Page 215)
Mark T. Gruneisen *(Air Force Research Laboratory)*
Michael B. Flanagan *(Leidos)*

WD1.2: Towards Quantum Communications with Satellites (Page 217)
Thomas Jennewein *(University of Waterloo)*

WE2 - AMO/OE Interface I — 9:00 am–9:50 am — Kohala 4

WE2.1: Rigorous Tests of Bell's Inequality and Beyond (Page 219)
W. Rosenfeld *(Ludwig-Maximilians-Universität)*
K. Redeker *(Ludwig-Maximilians-Universität)*
R. Garthoff *(Ludwig-Maximilians-Universität)*
T. van Leent *(Ludwig-Maximilians-Universität)*
T. Hummel *(Ludwig-Maximilians-Universität)*
P. Koschmieder *(Ludwig-Maximilians-Universität)*
D. Burchardt *(Ludwig-Maximilians-Universität)*
H. Weinfurter *(Ludwig-Maximilians-Universität)*

WE2.2: Many-Body Physics with Spin States of Rydberg Atoms (Page 221)
Svetlana A. Malinovskaya *(Stevens Institute of Technology)*
Elliot Pachniak *(Stevens Institute of Technology)*

WF1 - Properties of Multi-Mode Systems — 9:00 am–10:00 am — King's 3

WF1.1: Seamless Wireless/Optical MIMO Transmission via Radio-Over-FMF (Page 223)
Nikolaos-Panteleimon Diamantopoulos *(Osaka University and NTT Corporation)*
Yuki Yoshida *(National Institute of Information and Communications Technologies (NICT))*

WF1.1: Seamless Wireless/Optical MIMO Transmission via Radio-Over-FMF (Page 223)
Ken-ichi Kitayama *(Graduate School for the Creation of New Photonics Industries (GPI) and National Institute of Information and Communications Technologies (NICT))*

WF1.2: Optimization of the Mode-Dependent Signal Delay Method for the Measurement of Modal Dispersion (Page 225)
I. Roudas *(Montana State University)*
J. Kwapisz *(Montana State University)*

WF1.3: Properties of a Partially Coherent Beam Generated at the Output of a Stationary Multimode Fiber (Page 227)
Anatoly Efimov *(Los Alamos National Laboratory)*

WA2 - III-V and IV Integration for Optical Sensing — 10:30 am–12:00 pm — Waikoloa 1

WA2.1: GaN/AlGaN Photovoltaic Quantum Well Infrared Photodetector at 2.3 μm (Page 229)
Ben Dror *(Technion-Israel Institute of Technology)*
Piotr M. Mensz *(Technion-Israel Institute of Technology)*
Akhil Ajay *(Université Grenoble-Alpes)*
Catherine Bougerol *(Université Grenoble-Alpes)*
Eva Monroy *(Université Grenoble-Alpes)*
Meir Orenstein *(Technion-Israel Institute of Technology)*
Gad Bahir *(Technion-Israel Institute of Technology)*

WA2.2: Miniaturization Challenges in Mid-IR Chemical Sensing: The MIRPHAB Pilot Line Approach (Page 231)
Sergio Nicoletti *(Université Grenoble-Alpes)*

WA2.3: Quantum Cascade Laser Integration on Silicon for Gas Sensing (Page 233)
Mathieu Carras *(mirSense)*
Mickael Brun *(mirSense)*
Jean-Marc Fedeli *(Université Grenoble-Alpes)*
Jean-Guillaume Coutard *(Université Grenoble-Alpes)*
Laurent Duraffourg *(Université Grenoble-Alpes)*
Gregory Maisons *(mirSense)*
Guillaume Aoust *(mirSense)*
Sergio Nicoletti *(Université Grenoble-Alpes)*
Johan Abautret *(mirSense)*

WA2.4: Compact Integrated Photonic Components for λ = 3-15 μm (Page NA)
Swapnajit Chakravarty *(Omega Optics Inc.)*
Jason Midkiff *(Omega Optics Inc.)*
Kyoungmin Yoo *(University of Texas at Austin)*
Chi-Jui Chung *(University of Texas at Austin)*
Ali Rostamian *(University of Texas at Austin)*
Ray T. Chen *(Omega Optics Inc. and University of Texas at Austin)*

WB2 - Telemetry and Learning — 10:30 am–12:00 pm — King's 2

WB2.1: Machine Learning Techniques for Estimating the Quality of Transmission of Lightpaths (Page 237)
Christine Tremblay *(École de Technologie Supérieure)*
Sandra Aladin *(École de Technologie Supérieure)*

WB2.2: Cognitive Heterogeneous Multi-Domain Networks with Hierarhical Learning (Page NA)
S. J. B. Yoo *(University of California, Davis)*

WB2.3: Intelligent Optical Spectrum Analyzer using Support Vector Machine (Page NA)
Danshi Wang *(Beijing University of Posts and Telecommunications)*
Min Zhang *(Beijing University of Posts and Telecommunications)*
Jin Li *(Beijing University of Posts and Telecommunications)*
Yu Xin *(Beijing University of Posts and Telecommunications)*
Jianqiang Li *(Beijing University of Posts and Telecommunications)*
Mengyuan Wang *(Beijing University of Posts and Telecommunications)*
Xue Chen *(Beijing University of Posts and Telecommunications)*

WC2 - Exceptional Points in Optics and Photonics — 10:30 am–12:00 pm — Kohala 2

WC2.1: Explore Exceptional Points in Whispering-Gallery-Mode Optical Resonators (Page NA)
Lan Yang *(Washington University)*

WC2.2: Exceptional Points in Whispering-Gallery Microcavities (Page NA)
Jan Wiersig *(Otto-von-Guericke-Universität Magdeburg)*
Julius Kullig *(Otto-von-Guericke-Universität Magdeburg)*

WC2.3: Exceptional Points in Optical and Optomechanical Systems (Page NA)
Sahin K. Ozdemir *(Pennsylvania State University)*

WD2 - High-Dimensional Entanglement — 10:30 am–12:00 pm — Kohala 3

WD2.1: Creating and Using Multi-Partite Entanglement (Page NA)
Jacob Taylor *(Joint Center for Quantum Information and Computer Science)*
Xingyao Wu *(QuICS)*
Daniel Carney *(QuICS)*
Minh Tran *(QuICS)*

WD2.2: Long-Distance Quantum Teleportation and High-Dimensional Entanglement Distribution Over Optical Fiber (Page 243)

Hiroki Takesue *(NTT Corporation)*
Takuya Ikuta *(NTT Corporation)*

WD2.3: Quantitatively Witnessing Exceptionally Large High-Dimensional Entanglement in Photon Pairs (Page 245)
James Schneeloch *(Air Force Research Laboratory)*
Gregory A. Howland *(Air Force Research Laboratory)*

WE3 - AMO/OE Interface II — 10:30 am–12:20 pm — Kohala 4

WE3.1: Quantum Coherent Effects in Room Temperature InAs/InP Quantum Dot Optical Amplifiers (Page NA)
Gadi Eisensterin *(Technion)*

WE3.2: WITHDRAWN

WE3.3: Quantum-Optical Spectroscopy of a Two-Level System Using an Electrically Driven Micropillar Laser as Resonant Excitation Source (Page 247)
Sören Kreinberg *(Technische Universität Berlin)*
Tomislav Grbešic *(Technische Universität Berlin)*
Max Strauß *(Technische Universität Berlin)*
Alexander Carmele *(Technische Universität Berlin)*
Martin Kamp *(Julius-Maximilians-Universität Würzburg)*
Christian Schneider *(Julius-Maximilians-Universität Würzburg)*
Sven Höfling *(Julius-Maximilians-Universität Würzburg)*
Xavier Parera *(Technische Universität Berlin)*
Stephan Reitzenstein *(Technische Universität Berlin)*

WE3.4: Two Examples of Application of Optoelectronic Analytical Techniques in AMO Systems (Page 249)
Weng W. Chow *(Sandia National Laboratories)*

WF2 - Nonlinear Spatial Diverse Systems — 10:30 am–12:00 pm — King's 3

WF2.1: Toward Multi-kW Femtosecond Fiber Lasers Based on Mutlicore Fibers (Page 251)
Jens Limpert *(Friedrich-Schiller-Universität Jena, and Helmholtz-Institute Jena, and Fraunhofer Institute for Applied Optics and Precision Engineering)*

WF2.2: Thermodynamics of Nonlinear Multimode Fibers (Page NA)
Demetrios Christodoulides *(University of Central Florida)*

WF2.3: Intermodal Nonlinear Optics in Step-Index Fibers (Page NA)
Siddharth Ramachandran *(Boston University)*

WC3 - Topological Phenomena in Non-Hermitian Systems — 1:30 pm–3:00 pm — Kohala 2

WC3.1: Topological Photonics in Open Systems (Page NA)
Bo Zhen *(University of Pennsylvania)*

WC3.2: Exceptional Points and Generalized Bulk Edge-Correspondence of PT-Symmetric Topological Domain Walls (Page NA)
Xiang Ni *(City College of New York)*
Daria Smirnova *(City College of New York)*
Alexander Poddubny *(Lead Research Scientist)*
Daniel Leykam *(Institute for Basic Science)*
Yidong Chong *(Nanyang Technological University)*
Alexander Khanikaev *(City College of New York)*

WC3.3: Manipulating Edge Modes and Flat Bands Using Non-Hermitian Coupling (Page NA)
Daniel Leykam *(Institute for Basic Science)*

WG3 - Novel Platforms for Topological Photonics — 1:30 pm–3:00 pm — Kohala 1

WG3.1: Progress in Three-Dimensional Topological Photonics (Page NA)
Ling Lu *(Chinese Academy of Sciences)*

WG3.2: Photonic Topological Structures at Optical Frequencies (Page NA)
Ganapathi Subramania *(Sandia National Laboratories)*

WG3.3: Towards All-Dielectric Topological Photonics (Page NA)
Xiao Hu *(National Institute for Materials Science)*

WD3 - Quantum Photonic Circuits — 1:30 pm–3:00 pm — Kohala 3

WD3.1: Room-Temperature High-Speed Control of Quantum Emitters Using Metamaterials and Plasmonics (Page NA)
Simeon I. Bogdanov *(Purdue University)*
Mikhail Y. Shalaginov *(Massachusetts Institute of Technology)*
Oksana Makarova *(Purdue University)*
Chin-Cheng Chiang *(Purdue University)*
Alexei Lagutchev *(Purdue University)*
Alexandra Boltasseva *(Purdue University)*
Vladimir M. Shalaev *(Purdue University)*

WD3.2: Proposal to Generate Robust Entanglement Between Distant Superconducting Qubits Mediated Via Telecom Photons (Page 253)
Sourabh Kumar *(University of Calgary)*
Nikolai Lauk *(University of Calgary)*
Christoph Simon *(University of Calgary)*

WD3.3: Quantum Optical Networks Using a Single Mie Resonance of On-Chip Dielectric Light Manipulating Elements and Their Scalable Integration with Quantum Dot Single Photon Sources (Page 255)
Swarnabha Chattaraj *(University of Southern California)*
Jiefei Zhang *(University of Southern California)*
Siyuan Lu *(University of Southern California and IBM Thomas J. Watson Research Center)*
Anupam Madhukar *(University of Southern California)*

WD3.4: Wide-Bandgap Integrated Photonic Circuits for Nonlinear Interactions and Interfacing with Quantum Memories (Page 257)
Michael Fanto *(Rochester Institute of Technology and Air Force Research Laboratory)*
Tsung-Ju Lu *(Massachusetts Institute of Technology)*
Hyeongrak Choi *(Massachusetts Institute of Technology)*
Paul Thomas *(Rochester Institute of Technology)*
John Serafini *(Rochester Institute of Technology)*
Christopher Tison *(Florida Atlantic University)*
Jeffrey Steidle *(Rochester Institute of Technology)*
Stefan Preble *(Rochester Institute of Technology)*
Mohammad Soltani *(Raytheon BBN Technologies)*
Dirk Englund *(Massachusetts Institute of Technology)*
Paul Alsing *(Air Force Research Laboratory)*
Kathy-Anne Soderberg *(Air Force Research Laboratory)*

WF3 - SDM Components II — 1:30 pm–3:15 pm — King's 3

WF3.1: Multimode and Coupled-Core Fiber Amplifier (Page NA)
J. Enrique Antonio Lopez *(University of Central Florida)*
Z. Sanjabi Eznaveh *(University of Central Florida)*
J. Carlos Alvarado-Zacarias *(University of Central Florida)*
Pierre Sillard *(Prysmian Group)*
Adrian Amezcua-Correa *(Prysmian Group)*
Cedric Gonnet *(Prysmian Group)*
Marianne Bigot-Astruc *(Prysmian Group)*
Nicolas K. Fontaine *(Nokia Bell Labs)*
Roland Ryf *(Nokia Bell Labs)*
Haoshuo Chen *(Nokia Bell Labs)*
Axel Schülzgen *(University of Central Florida)*
Rodrigo Amezcua-Correa *(University of Central Florida)*

WF3.2: Recent Technologies on Multicore EDFA (Page 261)
Ryuichi Sugizaki *(Furukawa Electric Co., Ltd.)*

WF3.3: Components for Multi-Core Fiber Transmission Systems based on Long Period Gratings (Page NA)
Ana Maria Rocha *(Instituto de Telecomunicações)*
Telmo Almeida *(Instituto de Telecomunicações)*
Rogério Nunes Nogueira *(Instituto de Telecomunicações)*
Margarida Facão *(University of Aveiro)*

WF3.4: Cladding-Pumped Coupled-Core EDFA (Page 263)
Juan Carlos Alvarado-Zacarias *(University of Central Florida)*
Nicolas K. Fontaine *(Nokia Bell Labs)*
Haoshuo Chen *(Nokia Bell Labs)*
Jose Enrique Antonio-Lopez *(University of Central Florida)*
Roland Ryf *(Nokia Bell Labs)*
Steffen Wittek *(University of Central Florida)*
Hirotaka Sakuma *(Sumitomo Electric Industries, Ltd.)*
Takemi Hasegawa *(Sumitomo Electric Industries, Ltd.)*
Tetsuya Nakanishi *(Sumitomo Electric Industries, Ltd.)*
Tetsuya Hayashi *(Sumitomo Electric Industries, Ltd.)*
Rodrigo Amezcua-Correa *(University of Central Florida)*

WC4 - Novel Concepts in Topological Photonics II — 3:30 pm–4:30 pm — Kohala 2

WC4.1: Anomalous Floquet Insulators (Page NA)
Netanel Lindner *(Technion)*

WC4.2: Photon Spin in New Phases of Matter (Page NA)
Todd Van Mechelen *(Purdue University)*
Zubin Jacob *(Purdue University)*

WD4 - QIS at U.S. Army Research Laboratory — 3:30 pm–4:30 pm — Kohala 3

WD4.1: Optimizing Entanglement Distribution Rates for Quantum Networks (Page NA)
Vladimir Malinovsky *(US Army Research Laboratory)*

WD4.2: Entanglement Recovery by Manipulating Photonic Quantum States in Optical Fibers (Page NA)
Michael Brodsky *(US Army Research Laboratory)*
Brian Kirby *(US Army Research Laboratory)*
Daniel Jones *(US Army Research Laboratory)*

WF4 - SDM and Beyond - An Opportunity for Cross-Disciplinary Research — 4:00 pm–5:00 pm — King's 3

WF4: Panel Discussion: SDM and Beyond - An Opportunity for Cross-Disciplinary Research (Page NA)
Jochen Schroder *(Chalmers University of Technology)*