

MOC2025 TECHNICAL PROGRAM

Sunday, 12 October

Satellite Conference: High School Session

9:30–11:00 Poster Session

11:00–12:30 Tutorial Talks

Photonics integration and devices by semiconductor material

Y. Chiu, *National Sun Yat-sen Univ. (Taiwan)*

The history of telescopes and binoculars

T. Yatagai, *Utsunomiya Univ. and Univ. of Tsukuba (Japan)*

12:30–13:00 Award Ceremony for High Schools

Lunch (13:00–13:55)

13:55–14:00 Welcome Remarks and Introductory for “Microoptics for Sustainable Society ~ Green Photonics”

Local Steering Committee Chair:

O. Sugihara, *Utsunomiya Univ.*

14:00–16:30 Session SS: Special Session “Microoptics for Sustainable Society ~ Green Photonics”

Chairs: Y. Kokubun, *Institute of Technologists*

O. Sugihara, *Utsunomiya Univ.*

SS-1 Creating innovations to realize Society 5.0 and beyond

14:00 K. Kyuma, *National Agriculture and Food Research Organization (Japan)*

SS-2 Opportunities and challenges of photonics as sustainable infrastructure

14:45 S. Namiki, *AIST (Japan)*

Break (15:15–15:30)

SS-3 Nanoimprint lithography performance advances for nanofabrication

15:30 S. Hirai, *Canon Inc. (Japan)*

SS-4 Green photonics initiatives at Utsunomiya University

16:00 N. Hagan, *Utsunomiya Univ. (Japan)*

Break (16:30–17:00)

17:00–19:00 Welcome Party

9:00–9:15 Opening Remarks

Honorary Conference Chair:

K. Iga, *Science Tokyo*

Conference Co-chairs:

S. Kimura, *Toshiba Corp.*

K. Ogawa, *Japan Women's Univ.*

9:15–12:30 Session PS: Plenary Session

Chairs: S. Kimura, *Toshiba Corp.*

K. Ogawa, *Japan Women's Univ.*

PS-1 Nanostructured photonic devices and circuits

9:15 T. Baba, *Yokohama National Univ. (Japan)*

PS-2 VCSEL progress: High single mode power and arrays

10:00 K. Choquette, *Univ. of Illinois (USA)*

Break (10:45–11:00)

PS-3 The revolution of silicon photonics

11:00 M. Lipson, *Columbia Univ. (USA)*

PS-4 Next-generation sensing with micro-optics

11:45 H. Ottevaere, *Vrije Universiteit Brussel (Belgium)*

12:30–12:45 MOC Award Ceremony

Lunch (12:45–13:45)

13:45–15:30 Session A: Integrated Nonlinear and Topological Photonics

Chairs: T. Miyamoto, *Science Tokyo*

T. Sato, *NTT, Inc.*

A-1 Kerr frequency combs for data communications (Invited)

13:45 A. L. Gaeta, *Columbia Univ. (USA)*

A-2 Monolithically integrated terahertz light source (Invited)

14:15 M. Jarrahi, *Univ. of California, Los Angeles (USA)*

A-3 On-chip pulse analyzer implemented on a silicon photonics chip

14:45 K. Kondo, R. Hayama, and O. Sugihara, *Utsunomiya Univ. (Japan)*

A-4 Observation of lasing in chiral edge states induced by synthetic gauge fields in photonic crystals

15:00 C. H. Jeng, Y. H. Chen, J. S. Wu, and T. C. Lu, *National Yang Ming Chiao Tung Univ. (Taiwan)*

A-5 Observed peculiarities of high-speed dynamics of the Kerr effect and two-photon absorption in silicon nanowire waveguides

15:15 S. Heinsalu, V. Zayets, and A. Noriki, *AIST (Japan)*

15:30–17:30 Session PO: Poster Session

Chairs: H. Ishii, *Furukawa Electric Co., Ltd.*
T. Kita, *Waseda Univ.*

(15:30–16:30) Even numbers

(16:30–17:30) Odd numbers

- PO-1 Evaluation of Laguerre-Gaussian beam propagation under rain using split-step beam propagation and phase screen methods**
A. Onoe, M. Teranishi, and K. Ogawa, *Japan Women's Univ. (Japan)*
- PO-2 A six-port Si₃N₄ resonant filter design with bus waveguides vertically and sideways coupled to a microring resonator for 3D photonic networks-on-chip**
W. Zhou and S. Lam, *Xi'an Jiaotong-Liverpool Univ. (China)*
- PO-3 Differentiable design of freeform projector with spatial light modulator**
H. Wang¹, J. Liu², and Y. Luo², ¹*Shenzhen Univ. (China)*, ²*Tsinghua Univ. (China)*
- PO-4 Molecular dynamics-based modeling of infrared absorption in acetone under varying concentrations**
C. Y. Shin¹, B. S. Shin², and K. Hamamoto¹, ¹*Pusan National Univ. (Korea)*, ²*Kyushu Univ. (Japan)*
- PO-5 Near infrared emission enhancement of quantum emitter embedded in SiC pillar-based lattice**
M. A. Ahamad and F. A. Inam, *Aligarh Muslim Univ. (India)*
- PO-6 Dielectric dipole nanoantenna design for enhanced and directional emission from SiV color centers**
M. A. Ahamad, *Aligarh Muslim Univ. (India)*
- PO-7 Detachable light-induced self-written optical waveguides and optical self-couplings**
M. Ichioka, T. Takizawa, H. Terasawa, S. Tamesue, O. Sugihara, and H. Kakurai, *Utsunomiya Univ. (Japan)*
- PO-8 Fabrication of curved optical waveguide by light-induced self-written method with camera film mask**
M. Tomiki, *Shizuoka Univ. (Japan)*
- PO-9 Design of polarization and intensity distribution for laser drilling of an odd-shaped hole using deep learning-based surrogate model**
A. Mizutani and A. Kitamura, *Osaka Metropolitan Univ. (Japan)*
- PO-10 Optical properties of temperature-dependent polymer dispersed liquid crystal based on observation of internal microstructures**
A. Ogiwara¹ and H. Kakiuchida², ¹*Kobe City College of Technology (Japan)*, ²*AIST (Japan)*
- PO-11 Study on the temperature and injection-current dependences of electroluminescence from GaN-based optoelectronic devices**
C.-H. Wu, J.-C. Wu, and Y.-F. Wu, *Ming Chi Univ. of Tech. (Taiwan)*
- PO-12 Tuning the optical properties of metallic nanostructures by sputtering current**
D. D. P. W. Patabendige and R. Fujimura, *Utsunomiya Univ. (Japan)*
- PO-13 Brillouin optical correlation-domain reflectometry based on convexity extraction algorithm**
R. Inoue¹, Y. Kosaka¹, R. Mogami¹, K. Kikuchi¹, Y. Mizuno², and H. Lee¹, ¹*Shibaura Inst. of Tech. (Japan)*, ²*Yokohama National Univ. (Japan)*
- PO-14 Diagnosis of temporomandibular joint disorders using second harmonic imaging of collagen fibers with multivariate curve analysis**
C. Wang¹, H.-C. Chui¹, Z. Xiao², and R. Li¹, ¹*Dalian Univ. of Technology (China)*, ²*First Affiliated Hospital of Dalian Medical Univ. (China)*
- PO-15 Design of high-efficiency Nb₂O₅-based grating coupler in integrated LDV for 3D velocity distribution measurement**
I. Hamada¹, K. Maru¹, K. Nakatsuhara², and Y. Hayama², ¹*Kagawa Univ. (Japan)*, ²*Kanagawa Inst. of Tech. (Japan)*
- PO-16 Tapering acrylic plastic optical fibers with hot water: transmission loss behavior under tension**
S. Tsurugai¹, R. Yamamoto¹, K. Kikuchi¹, Y. Mizuno², and H. Lee¹, ¹*Shibaura Inst. of Tech. (Japan)*, ²*Yokohama National Univ. (Japan)*

- PO-17 Spectral limits of the rainbow**
N. Hagen, Y. Yamamoto, and R. Ranjan, *Utsunomiya Univ. (Japan)*
- PO-18 Temperature sensing based on multimodal interference in highly nonlinear fibers**
S. Tanaka¹, K. Kikuchi¹, Y. Mizuno², and H. Lee¹, ¹*Shibaura Inst. of Tech. (Japan)*, ²*Yokohama National Univ. (Japan)*
- PO-19 Influence of systematic core offset variation on sensitivity in SNS fiber sensor**
A. Majee¹, K. Dey², and S. Roy¹, ¹*National Inst. of Tech. Warangal (India)*, ²*Missouri Univ. of Sci. and Tech. (USA)*
- PO-20 Adapting a conventional microscope for multimodal 2D+1D imaging and spectral analysis of biological tissue**
P. Thonglim, R. Ranjan, and N. Hagen, *Utsunomiya Univ. (Japan)*
- PO-21 Spectral domain optical coherence tomography using multi-wavelength light sources for simultaneous water sensing applications**
T. Kono and N. Ozaki, *Wakayama Univ. (Japan)*
- PO-22 In-process measurement of photodetector photocurrent during femtosecond laser surface structuring**
Y. Someta and Y. Hayasaki, *Utsunomiya Univ. (Japan)*
- PO-23 Evaluating noise profiles in femtosecond stimulated Raman scattering: a triple-laser approach**
R. Ranjan, *Utsunomiya Univ. (Japan)*
- PO-24 Axial strain sensing utilizing in-fiber microcavity interrogated by OTDR**
A. Majee¹, K. Dey², and S. Roy¹, ¹*National Inst. of Technology Warangal (India)*, ²*Missouri Univ. of Sci. and Tech. (USA)*
- PO-25 Development and evaluation of a spectral color management system for identifying colors in a small area**
T. Nakayama¹, N. Hashimoto¹, C. Okawa¹, G. Shinya¹, K. Kodate^{1,2}, R. Tabata³, and M. Kubo³, ¹*Photonic System Solutions Inc. (Japan)*, ²*Japan Women's Univ. (Japan)*, ³*Shogakukan Music & Digital Entertainment Co., Ltd. (Japan)*
- PO-26 Optimization of detection area for detecting disease symptoms of mango stem-end rot by fluorescence using blue LED and hyperspectral camera**
A. Ohkubo, K. Makinose, Y. Iwakiri, and M. Arai, *Miyazaki Univ. (Japan)*
- PO-27 Design of a microring resonator using Nb₂O₅ horizontal slot waveguides for sensing devices**
Y. Shimamura, U. Endo, H. Kinoshita, Y. Hayama, and K. Nakatsuhara, *Kanagawa Inst. of Tech. (Japan)*
- PO-28 Structural optical flow calibrated volumetric phase compensation for high-resolution optical coherence elastography**
S. Satpathy and R. Poddar, *Birla Inst. of Tech. (India)*
- PO-29 Influence of LiDAR optical window on acquired information**
K. Muro, *Teikyo Univ. (Japan)*
- PO-30 Withdrawn**
- PO-31 Non-destructive honey quality control through dynamic laser speckle particle counting**
H. B. Patel and A. K. Nirala, *Indian Inst. of Tech. (ISM) DHANBAD (India)*
- PO-32 Evaluation of velocity mismatch in a traveling-wave lithium niobate modulator integrated with an electro-optic equalizer for 100 GHz bandwidth**
S. Takano^{1,2}, S. Hirata², Y. Kataoka², J. Ichikawa², R. Shimizu², Y. Yamaguchi³, K. Akabane³, and R. Takigawa¹, ¹*Kyushu Univ. (Japan)*, ²*Sumitomo Osaka Cement Co., Ltd. (Japan)*, ³*NICT (Japan)*
- PO-33 Proposal and design of a novel built-in channel waveguide (BCW) laser**
A. Albert¹, Z.-J. Sun¹, I. Novitasari¹, A. Kasukawa^{1,2,3}, and S.-L. Lee^{1,3}, ¹*National Taiwan Univ. of Sci. and Tech. (Taiwan)*, ²*Yushan Fellow, Ministry of Education (Taiwan)*, ³*Heterogeneously-integrated Silicon Photonic Integration Center (Taiwan)*

- PO-34 High-efficiency device structure of n-type InP/electro-optic polymer hybrid optical modulator**
K. Ikai and J. Fujikata, *Tokushima Univ. (Japan)*
- PO-35 Improvement of optical isolation in GaN-based monolithically integrated micro-LEDs**
J. Keller, I. Sato, H. Shibano, T. Onuma, T. Yamaguchi, and T. Honda, *Kogakuin Univ. (Japan)*
- PO-36 Single-mode wide-width waveguides enabled by photonic graphene ribbons with air claddings**
C. Zhang, N. Ishida, and S. Iwamoto, *The Univ. of Tokyo (Japan)*
- PO-37 A study of coupling characteristics of holographic optical element as a multi-mode fiber coupler for underwater optical receiver**
T. Manabe^{1,2}, S. Motoyama^{1,2}, H. Yamashita², Y. Ichihashi², K. Wakunami², R. Oi², and Y. Takayama¹, ¹*Tokai Univ. (Japan)*, ²*NICT (Japan)*
- PO-38 Directionality improvement of grating coupler by reflective layer cladding**
Y. Mima¹, K. Ozawa¹, J. Inoue¹, K. Kintaka², and S. Ura¹, ¹*Kyoto Inst. of Tech. (Japan)*, ²*AIST (Japan)*
- PO-39 Self-written optical waveguide and optical self-coupling using 2 μ m laser light**
M. Shiba, H. Terasawa, K. Kondo, and O. Sugihara, *Utsunomiya Univ. (Japan)*
- PO-40 Design of a multi-focal Fresnel lens employing liquid crystal loaded metasurface**
T. Nishitake¹, K. Nakamura¹, R. Naka¹, S. Fukushima¹, T. Nagayama¹, T. Watanabe¹, and H. Kikuchi², ¹*Kagoshima Univ. (Japan)*, ²*Kyushu Univ. (Japan)*
- PO-41 Compact and low-loss silicon photonic polarization beam splitter designed by auto-differentiation**
H. Soda, *Independent Consultant (Japan)*
- PO-42 Electromagnetic analysis of chiral metasurface structure and its nonlinear effect on optical reservoir computing, compared with ring resonator**
N. Ru, J. Fujikata, and S. Akito, *Tokushima Univ. (Japan)*
- PO-43 Properties of the optical connectors using ball lenses for connecting single-mode optical fibres exposed to gamma radiation**
V. Prajzler¹, M. Zikmund¹, and J. Stefl², ¹*Czech Technical Univ. in Prague (Czech Republic)*, ²*OPTOKON, a.s. (Czech Republic)*
- PO-44 Highly energy-efficient photonic modulator based on directional coupler**
J. Ye, T. Wu, C. Patil, Q. Cai, A. Bazammul, E. Heidari, and H. Dalir, *Univ. of Florida (USA)*
- PO-45 Ultrasound-induced control in liquid crystal structures**
J. Onaka¹, Y. Kim¹, D. Koyama², N. Hagen¹, and Y. Otani¹, ¹*Utsunomiya Univ. (Japan)*, ²*Doshisha Univ. (Japan)*
- PO-46 3-stage Mach-Zehnder interferometer optical switch with ripple-free response**
T. Watanabe, D. Ishio, T. Nagayama, and S. Fukushima, *Kagoshima Univ. (Japan)*
- PO-47 Dual-input electro-optic modulator with ultralow energy consumption for monolithic integrated photonics**
T. Wu, C. Patil, J. Ye, Q. Cai, B. Jahannia, E. Heidari, and H. Dalir, *Univ. of Florida (USA)*
- PO-48 Numerical analyses of QPM-tuning characteristics of PPLN-based all-optical ultra-fast 3R circuits**
Y. Fukuchi, D. Shiratori, T. Kimura, K. Hirata, and J. Maeda, *Tokyo Univ. of Science (Japan)*
- PO-49 Resolution enhancement of passive optical phased arrays using a star coupler**
M. Komoda, R. Taniguchi, and T. Kita, *Waseda Univ. (Japan)*
- PO-50 A proposal for technique of light-induced self-written waveguide formation using a lasing mechanism**
S. Watanabe, K. Kondo, H. Terasawa, and O. Sugihara, *Utsunomiya Univ. (Japan)*
- PO-51 A compact multi-mode-interferometer (MMI) based 4 x 4 mode-division-multiplexing (MDM) mode switch on silicon photonics platform**
T.-Y. Hung and C.-W. Chow, *National Yang Ming Chiao Tung Univ. (Taiwan)*

- PO-52 Structural design of hybrid periodically poled TFLN waveguide inducing multi-nonlinear optical effects**
Y. Kitamura^{1,2}, R. Kou², T. Kita³, N. Yamamoto², C. Guangwei², K. Yamada², and A. Ishizawa¹, ¹*Nihon Univ. (Japan)*, ²*AIST (Japan)*, ³*Waseda Univ. (Japan)*
- PO-53 Bidirectional optical wireless communication (OWC) using unmanned-aerial-vehicle (UAV) with improved reliability**
Y.-H. Chang^{1,2}, C.-W. Chow¹, C.-H. Yeh³, Y.-H. Hong², and H.-C. Kuo², ¹*National Yang Ming Chiao Tung Univ. (Taiwan)*, ²*Hon Hai Research Inst. (Taiwan)*, ³*Feng Chia Univ. (Taiwan)*
- PO-54 Holographic laser processing for the fabrication of micro-optical devices**
H. Fujiki, Y. Hayasaka, and S. Hasegawa, *Utsunomiya Univ. (Japan)*
- PO-55 Evaluation of transmitter-side phase correction filters for long-range laser wireless power transmission using Laguerre-Gaussian beams**
S. Terauchi and K. Ogawa, *Japan Women's Univ. (Japan)*
- PO-56 Investigation of free-space optical communication (FSOC) under turbulence over single-mode fiber and multi-mode fiber connected receivers at different wavelengths**
B.-H. Lin, P.-L. Chiu, Y.-Z. Lin, Y.-H. Jian, and C.-W. Chow, *National Yang Ming Chiao Tung Univ. (Taiwan)*
- PO-57 Performance evaluation of LG beams in strong underwater turbulence with pix2pix-based phase compensation filter**
M. Teranishi, K. Takeuchi, and K. Ogawa, *Japan Women's Univ. (Japan)*
- PO-58 Computer generated hologram optimized using laser-generated luminescence in holographic laser processing machine**
K. Takahashi, S. Hasegawa, and Y. Hayasaka, *Utsunomiya Univ. (Japan)*
- PO-59 Compensation for positional and angular errors on mode sorting for orbital angular momentum optical beam**
K. Mitani¹, H. Kishikawa¹, S.-K. Liaw², and J.-Y. Sung², ¹*Tokushima Univ. (Japan)*, ²*National Taiwan Univ. Sci. and Tech. (Taiwan)*
- PO-60 Filter comparison of wavelength routers in wavelength routing networks**
K. Oguchi, C.-C. Chung, and B.-S. Yang, *National Taiwan Univ. of Sci. and Tech. (Taiwan)*
- PO-61 Effect of temporal coherence on mode separation in multiplexed OAM beams**
T. Hamada and H. Kishikawa, *Tokushima Univ. (Japan)*

The following postdeadline papers are accepted for poster presentation.

- PO-62 Fabrication of a micro opto-fluidic chip with a gold nanoparticle layer for sensing of nonlinear refractive index profile concerning various concentrated ethanol solutions**
H. J. Huang¹, Z. Chen¹, J. Fan¹, K. Kao², and Y. Lin³, ¹*National Formosa Univ. (Taiwan)*, ²*National Changhua Univ. of Education (Taiwan)*, ³*National United Univ. (Taiwan)*
- PO-63 Generation of terahertz dual-chirp FMCW signals using a single wavelength tunable laser in a delayed self-multiplexing system**
Y. Wang¹, S. Ye¹, R. Kaide¹, Y. Kamiura¹, N. Masutomi¹, Y. Mikami¹, Y. Ueda², and K. Kato¹, ¹*Kyushu Univ. (Japan)*, ²*NTT Corp. (Japan)*
- PO-64 High-power broadband photomixing THz transmitter enabling 40-Gbit/s wireless links**
Y. Kamiura, M. Kawano, Y. Mikami, and K. Kato, *Kyushu Univ. (Japan)*
- PO-65 Fundamental research on waveguide layout to realize long (50 cm) optical path integration**
Y. Kiya, H. Jiang, and K. Hamamoto, *Kyushu Univ. (Japan)*

17:30–18:30 The 25th Microconcert

9:00–10:30 Session B: Optical Sensing and Imaging Technologies

Chairs: H. Kawano, *Mitsubishi Electric Corp.*
T. Watanabe, *Kagoshima Univ.*

B-1 Computational imaging through scattering media with synthetic waves (Invited)

9:00 F. Willomitzer, *Univ. of Arizona (USA)*

B-2 Monolithically integrated 4×1 surface-grating VCSEL array scanner for compact solid-state LiDAR applications

9:30 A. M. A. Hassan^{1,2}, F. Koyama¹, and X. Gu^{1,3}, ¹*Science Tokyo (Japan)*, ²*Al-Azhar Univ. Assuit (Egypt)*, ³*Ambition Photonics Inc. (Japan)*

B-3 Ultra-high-resolution linear scale using circular optical system -design of an optical system for enhanced subdivision-

9:45 T. Zhou, S. Masui, M. Michihata, and S. Takahashi, *The Univ. of Tokyo (Japan)*

B-4 Liquid-crystal-layer thickness-distribution measurement by scaling-factor determination with full-voltage-range retardation curves

10:00 N. Kato, Y. Takiguchi, K. Nakamura, and H. Tanaka, *Hamamatsu Photonics K.K. (Japan)*

B-5 Areal surface texture measurement with film thickness calibration using two fluorescence intensity ratio

10:15 S. Fujii, S. Masui, M. Michihata, and S. Takahashi, *The Univ. of Tokyo (Japan)*

Break (10:30–11:00)

11:00–12:30 Session C: Optical Sensing Enabled by Integrated Photonics

Chairs: J.-W. Shi, *National Central Univ.*
E. Heidari, *Univ. of Florida*

C-1 Free-form nanostructured optical fibers: the state of the art and future perspectives (Invited)

11:00 R. Buczynski, *Univ. of Warsaw (Poland)*

C-2 Silicon photonics based interferometric fiber optic gyroscope with hybrid integrated III-V photodiode and miniaturized thermoelectric cooler

11:30 S.-T. Yang, W.-X. Chen, and Y.-J. Hung, *National Sun Yat-sen Univ. (Taiwan)*

C-3 Group birefringence measurement of a polarization-maintaining fiber using a chip-based Sagnac interferometer with grating couplers

11:45 Y.-M. Lin, W.-X. Chen, and Y.-J. Hung, *National Sun Yat-sen Univ. (Taiwan)*

C-4 Smartphone-integrated optical biosensor based on gradient guided-mode resonance

12:00 C.-S. Huang, Y.-P. Lei, and T.-Z. Lin, *National Yang Ming Chiao Tung Univ. (Taiwan)*

C-5 Demonstration of optical hydrogen sensor based on silicon microring resonator with Pt/WO₃-SiO₂ film

12:15 A. Sato, Y. Eto, S. Okazaki, Y. Nishijima, and T. Arakawa, *Yokohama National Univ. (Japan)*

Lunch (12:30–14:00)

14:00–15:45 Session D: VCSELs and High-Density Optical Communication Devices

Chairs: T. Hamaguchi, *Kyushu Univ.*
Y.-J. Hung, *National Sun Yat-sen Univ.*

D-1 High-speed VCSELs and APDs arrays for free-space optical communications (Invited)

14:00 J.-W. Shi, *National Central Univ. (Taiwan)*

- D-2** **Membrane surface-emitting lasers with distributed reflectors exhibiting highly-efficient single-mode lasing in O-band**
 14:30 T. Tsurugaya¹, Y. Maeda¹, T. Aihara¹, T. Fujii¹, E. Kanno¹, K. Takeda¹, T. Sato¹, F. Koyama², and S. Matsuo¹,
¹NTT Corp. (Japan), ²Science Tokyo (Japan)
- D-3** **Single-mode 48-channel 1060nm metal aperture VCSEL array enabling 9.6Tbps data throughput**
 14:45 H. R. Ibrahim^{1,2}, A. Hassan^{1,3}, C. Ge¹, X. Gu^{1,4}, and F. Koyama¹, ¹Science Tokyo (Japan), ²Minia Univ. (Egypt), ³Al-Azhar Univ. (Egypt), ⁴Ambition Photonics Inc. (Japan)
- D-4** **Development of high power DFB lasers with high power conversion efficiency for external laser sources**
 15:00 T. Yoshida, G. Kobayashi, A. Imamura, and H. Ishii, *Furukawa Electric Co., Ltd. (Japan)*
- D-5** **Optical pigtail 64 channel silicon photonics grating couplers through a two-dimensional fiber array for co-packaged optics applications**
 15:15 C.-H. Shih and Y.-J. Hung, *National Sun Yat-sen Univ. (Taiwan)*
- D-6** **Enabling wavelength tunability in 980-nm vertical-cavity surface-emitting lasers utilizing exceptional points**
 15:30 T. Wu, Q. Cai, J. Ye, B. Jahannia, H. Dalir, and E. Heidari, *Univ. of Florida (USA)*

Break (15:45–16:00)

16:00–17:00 Session E: Photonic Signal Processing and Acceleration Technologies

Chairs: S. Iwamoto, *The Univ. of Tokyo*
 T. Arakawa, *Yokohama National Univ.*

- E-1** **Boosting photonic computing efficiency with photonic memory and energy efficient ADC/DAC design (Invited)**
 16:00 E. Heidari, *Univ. of Florida (USA)*
- E-2** **High-dimensional quantum random number generation by metalens array**
 16:30 S. Chen, Y. Fan, and D. P. Tsai, *City Univ. of Hong Kong (Hong Kong)*
- E-3** **Photonic data encoding/decoding using hybrid Fourier phase shift neural network**
 16:45 T. Wu, J. Ye, A. S. Bazammul, Q. Cai, B. Jahannia, H. Dalir, and E. Heidari, *Univ. of Florida (USA)*

Break (17:00–17:15)

17:15–18:30 Session F: Novel Nanophotonic Structures

Chairs: R. Buczynski, *Univ. of Warsaw*
 H. Ottevaere, *Vrije Univ. Brussel*

- F-1** **Waveguide integration and micro-LED-on-CMOS optical pumping of micron-scale photonic devices on-chip (Invited)**
 17:15 M. Strain, *University of Strathclyde (UK)*
- F-2** **Analysis of oblique-incidence effects on metasurface beam shaper for optical wireless power transmission**
 17:45 N. Ochiai^{1,2}, Y. Toriumi¹, M. Takahashi¹, and S. Iwamoto², ¹NTT Space Environment and Energy Labs. (Japan), ²The Univ. of Tokyo (Japan)
- F-3** **Nonlocal meta-lens for high-quality-factor wavefront shaping**
 18:00 R. Lin, J. Yao, and D. P. Tsai, *City Univ. of Hong Kong (Hong Kong)*
- F-4** **Demonstration of ultra-compact nano-pixel optical mode switch**
 18:15 Y. Xie, P. Lin, H. Jiang, and K. Hamamoto, *Kyushu Univ. (Japan)*

Banquet (19:00–21:00)

9:00–10:30 Session G: Terahertz Photonics and Innovations in Spatial Beam Control

Chairs: H. Takahashi, *Sophia Univ.*

K. Hamamoto, *Kyushu Univ.*

- G-1** **Generation of frequency-spacing tunable and bandwidth enhanced OFC signals using nonlinear semiconductor laser dynamics in a 3-stage cascaded optical injection system**
9:00 H.-T. Tang and Y.-H. Hung, *National Sun Yat-sen Univ. (Taiwan)*
- G-2** **Polarization-division multiplexed terahertz transmission with a photonic dual-feed 2D array antenna**
9:15 M. Kawano, Y. Kamiura, R. Kaide, S. Iwamoto, Y. Mikami, and K. Kato, *Kyushu Univ. (Japan)*
- G-3** **Generation of modulated THz waves using a two-wavelength tunable silicon photonics heterogeneous laser diode**
9:30 K. Tsujishita, S. Kawano, and T. Kita, *Waseda Univ. (Japan)*
- G-4** **Cost-effective photonics-based THz frequency-division multiplexer by electro-optically tunable RTF lasers**
9:45 S. Ye¹, Y. Wang¹, B. Li¹, R. Kaide¹, Y. Mikami¹, Y. Ueda², and K. Kato¹, ¹*Kyushu Univ. (Japan)*, ²*NTT Device Technology Labs. (Japan)*
- G-5** **Vision-kinematic fusion approach for real-time safety of steerable beams in optical wireless power transmission**
10:00 C. Zuo and T. Miyamoto, *Science Tokyo (Japan)*
- G-6** **High-sensitivity on-chip autocorrelator with two-photon absorption avalanche photodiode array**
10:15 N. Koyama, O. Sugihara, and K. Kondo, *Utsunomiya Univ. (Japan)*

Break (10:30–11:00)

11:00–12:30 Session H: Materials for Functional Photonic Devices

Chairs: G. Hatakoshi, *Microoptics Group*

H. Ishii, *Furukawa Electric Co., Ltd.*

- H-1** **Integrated quantum photonic technologies with diamond membranes (Invited)**
11:00 A. A. High, *Argonne National Laboratory (USA)*
- H-2** **Reflective plasmonic fano sensor using a double-layer Au diffraction-grating structure**
11:30 A. Motogaito¹, K. Ukai¹, T. Nabuchi¹, T. Kato², and K. Hiramatsu¹, ¹*Mie Univ. (Japan)*, ²*Nagoya Univ. (Japan)*
- H-3** **Photo and electro switchable guest-host cholesteric liquid crystals**
11:45 W.-H. Wu¹, Y.-Y. Chen², L.-M. Chang¹, W.-C. Lin¹, H.-H. Chen², and C.-T. Wang¹, ¹*National Sun Yat-Sen Univ. (Taiwan)*, ²*National Taipei Univ. of Tech. (Taiwan)*
- H-4** **Broadband and polarization-selective reflection from a single-layer cholesteric liquid crystal film**
12:00 P.-C. Shih¹, Y.-M. Huang¹, C.-T. Chen¹, C.-C. Li², K.-W. Lin², W.-C. Lin¹, and C.-T. Wang¹, ¹*National Sun Yat-Sen Univ. (Taiwan)*, ²*Brilliant Optronics Co., Ltd. (Taiwan)*
- H-5** **Flexible light-induced self-written optical waveguide with cladding fabricated by advanced selective polymerization process**
12:15 R. Futawatari^{1,2}, H. Terasawa², K. Kondo², and O. Sugihara², ¹*Orbray Co., Ltd. (Japan)*, ²*Utsunomiya Univ. (Japan)*

Lunch (12:30–13:30)

13:30–15:00 Session I: Photonic Integration for Communication Systems

Chairs: R. Kou, *AIST*

T. Kita, *Waseda Univ.*

I-1 Erbium-doped photonic integrated circuits and applications (Invited)

13:30 Y. Liu, *Huazhong Univ. of Science and Technology (China)*

I-2 Cascaded triple ring resonators with low-loss waveguide bends for dense wavelength division (de) multiplexing

14:00

Y.-M. Lee, P.-C. Hung, C.-H. Chen, and Y.-J. Hung, *National Sun Yat-sen Univ. (Taiwan)*

I-3 The influence of rear facet phase fluctuations on the linewidth characteristics of high-power MSPCG DFB lasers

14:15

S. Sulikhah^{1,2}, H.-C. Chou¹, and S.-L. Lee^{1,2}, ¹*National Taiwan Univ. of Science and Technology (Taiwan)*,
²*Heterogeneously-integrated Silicon Photonic Integration Center (Taiwan)*

I-4 Wavelength and free-spectral-range control of a silicon nitride based Mach-Zehnder interferometer for DWDM applications

14:30

C. Chien, C. Chen, and Y. Hung, *National Sun Yat-sen Univ. (Taiwan)*

I-5 Photonic crystal nanolasers wedged into silicon waveguides

14:45

T.-W. Lu, H.-C. Chen, C.-W. Chen, and P.-T. Lee, *National Yang Ming Chiao Tung Univ. (Taiwan)*

Break (15:00–15:30)

15:30–16:15 Session PD: Postdeadline Session

Chairs: H. Ishii, *Furukawa Electric Co., Ltd.*

T. Kita, *Waseda Univ.*

PD-1 Ultra-high repetition FMCW measurement using thermo-optic effects with SiN/Si hybrid wavelength tunable laser diode

15:30

T. Tsunoda and T. Kita, *Waseda Univ. (Japan)*

PD-2 Terahertz multi-beam generation by photomixer arrays using fiber chromatic dispersion

15:45

M. Kawano, Y. Kamiura, Y. Mikami, and K. Kato, *Kyushu Univ. (Japan)*

PD-3 100Gbaud data transmission over 500m multimode fibers using a 1060nm single-mode coupled cavity VCSEL

16:00

H. R. Ibrahim^{1,2}, A. Hassan^{1,3}, X. Gu^{1,4}, and F. Koyama¹, ¹*Science Tokyo (Japan)*, ²*Minia Univ. (Egypt)*, ³*Al-Azhar Univ. (Egypt)*, ⁴*Ambition Photonics Inc. (Japan)*

16:15–16:45 Paper Award Ceremony / Closing Remarks

Program Co-chairs: H. Ishii, *Furukawa Electric Co., Ltd.*

T. Kita, *Waseda Univ.*