

MOC2019 TECHNICAL PROGRAM

Sunday, 17 November

Main Hall, 3F

10:00-10:05 Opening Remarks

Conference Co-chairs:

O. Sugihara, *Utsunomiya Univ.*

H. Takahashi, *Sophia Univ.*

10:00-12:20 Session MS: MOC Science School in Toyama "Light and Laser" (in Japanese)

Coodinator:

H. Nakajima, *Waseda Univ.*

Moderators:

G. Hatakoshi, *Waseda Univ.*

S. Naka, *Univ. Toyama*

This session is for beginners and open to public, especially school students and non-experts.

MS-1 The surface emitting laser turned of light: everybody has it

10:05 K. Iga, *Tokyo Institute of Technology*

MS-2 Organic light emitting diodes — for new era displays —

10:35 H. Okada, *University of Toyama*

Break (11:05-11:20)

MS-3 Observing gravitational waves by laser interferometer

11:20 T. Kajita, *Inst. Cosmic Ray Research (ICRR), Univ. of Tokyo*

Lunch (12:20-13:30)

13:30-17:00 Session SS: Special Symposium "Sensing by Light"

Coordinator:

T. Miyamoto, *Tokyo Inst. Tech.*

Moderators:

K. Yokomori, *Nanophotonics Eng. Org.*

E. Tokumitsu, *Japan Advanced Institute of Sci. & Tech.*

T. Maruyama, *Kanazawa Univ.*

This session is for beginners and open to public, especially school students and non-experts.

SS-0 Introductory talk

13:30 K. Iga, *Tokyo Institute of Technology*

SS-1 Light for detecting neutrinos and gravitational waves

13:45 T. Kajita, *Inst. Cosmic Ray Research (ICRR), Univ. of Tokyo*

SS-2 LiDAR: A key to AI-mobile

14:30 T. Baba, *Yokohama National University*

Break (15:15-15:30)

SS-3 VCSEL array for 3D sensing

15:30 C. J. Chang-Hasnain, *University of California, Berkeley*

SS-4 Biophotonic imaging and sensing

16:15 K.-T. Yong, *Nanyang Technological University*

Break (17:00-17:15)

Gallery, 1F

17:15-18:45 Get Together

Main Hall, 3F

9:00-9:15 Opening Remarks

Conference Co-chairs:

O. Sugihara, *Utsunomiya Univ.*

H. Takahashi, *Sophia Univ.*

9:15-11:45 Session PL: Plenary Session

Chairs: O. Sugihara, *Utsunomiya Univ.*

H. Takahashi, *Sophia Univ.*

PL-1 A renaissance in Brillouin photonics for on-chip signal processing and sensing

9:15 B. J. Eggleton, *The University of Sydney Nano Institute*

PL-2 Glass-based optics for the connected world

10:00 W. S. Ishak, *Corning Research & Development Corporation*

Break (10:45-11:00)

PL-3 Progress in photonic-crystal lasers

11:00 S. Noda, *Kyoto University*

11:45-12:00 MOC Award Ceremony

Lunch (12:00-13:45)

Main Hall, 3F

13:45-15:30 Session A: Optical Communications

Chairs: G. Harari, *Technion*

N. Goto, *Tokushima Univ.*

A-1 High-speed electro-optics based on lithium niobate nanophotonics (Invited)

13:45 C. Wang, *City University of Hong Kong*

A-2 High-extinction-ratio multiple quantum well modulator based on multimode interference waveguide

14:15 K. Yamashina, K. Saito, Y. Kanesaka, and T. Arakawa, *Yokohama National University*

A-3 Mode detection of vector beams by use of crossed-fork-shaped polarization grating fabricated by photoalignment of photo-crosslinkable polymer liquid crystal

14:30 M. Sakamoto¹, Y. Kaneko¹, K. Noda¹, T. Sasaki¹, N. Kawatsuki², and H. Ono¹, ¹*Department of Electrical Engineering, Nagaoka University of Technology*, ²*Department of Applied Chemistry, University of Hyogo*

A-4 Secure digital-domain symbol masking using four-level phase-shift-based two-bit block-ciphering for coherent QPSK transmission

14:45 T. Kodama, *Kagawa University*

A-5 An experimental study of harmonic optical quantizer

15:00 K. Kondo¹, T. Kodama², and M. Hanawa¹, ¹*University of Yamanashi*, ²*University of Kagawa*

A-6 A novel spot-size converter with asymmetric taper for deep-ridge waveguide devices

15:15 T. Hiratani, N. Kono, T. Katsuyama, R. Yamabi, Y. Itoh, M. Watanabe, M. Ekawa, and H. Shoji, *Sumitomo Electric Industries, Ltd.*

Break (15:30-15:45)

15:45-17:30 Session B: New Materials

Chairs: C. Wang, *City Univ. of Hong Kong*
H. Shoji, *Sumitomo Electric Ind., Ltd.*

B-1 Topological insulator laser (Invited)

15:45 G. Harari¹, M. A. Bandres², S. Wittek², M. Parto², D. N. Christodoulides², M. Khajavikhan², and M. Segev¹,
¹*Technion*, ²*University of Central Florida*

B-2 Cross-stacking of guided-mode resonance gratings for polarization-independent flat-top filtering

16:15 K. Kawanishi¹, A. Shimatani¹, K. J. Lee², J. Inoue¹, S. Ura¹, and R. Magnusson², ¹*Department of Electronics, Kyoto Institute of Technology*, ²*Department of Electrical Engineering, University of Texas at Arlington*

B-3 Plasmonic nanolasers based on graphene-insulator-metal platform

16:30 H. Li, K.-B. Hong, C.-Y. Hsu, Z.-T. Huang, and T.-C. Lu, *National Chiao Tung University*

B-4 100°C deposited transparent silicon nitride film for O-band photonic applications

16:45 R. Kou¹, N. Yamamoto¹, G. Fujii², T. Aihara³, T. Tsuchizawa³, A. Ishizawa⁴, K. Hitachi⁴, H. Gotoh⁴, M. Ukibe², and K. Yamada¹, ¹*Electronics and Photonics Research Institute, AIST*, ²*Nanoelectronics Research Institute, AIST*, ³*NTT Device Technology Laboratories*, ⁴*NTT Basic Research Laboratories*

B-5 Extreme nonlinear optics in epsilon-near-zero materials (Invited)

17:00 Y. Yang, *Tsinghua University*

Main Hall, 3F

9:00-10:45 Session C: Silicon Photonics

Chairs: S.-L. Huang, *National Taiwan Univ.*
R. Kou, *AIST*

C-1 Cross-polarization effects in sheared two-dimensional grating couplers for silicon photonics

9:00 G. Georgieva¹, K. Voigt¹, C. Mai², K. Petermann¹, and L. Zimmermann^{1,2}, ¹*TU Berlin*, ²*IHP*

C-2 Beam waist controlled vertical optical path conversion using integrated curved micro mirror for silicon photonics

9:15 A. Noriki^{1,2} and T. Amano^{1,2}, ¹*AIST*, ²*PETRA*

C-3 Reflective silicon arrayed waveguide grating using one-dimensional photonic crystal reflector

9:30 H. Okayama^{1,2}, Y. Onawa^{1,2}, H. Takahashi^{1,2}, D. Shimura^{1,2}, H. Yaegashi^{1,2}, and H. Sasaki^{1,2}, ¹*R&D Center, Oki Electric Industry Co. Ltd.*, ²*Photonics Electronics Technology Research Association (PETRA)*

C-4 Heterogeneous integration in silicon photonics through micro-transfer-printing (Invited)

9:45 J. Zhang¹, G. Muliuk¹, J. Goyvaerts¹, B. Haq¹, A. Liles¹, S. Kumari¹, J. Juvert¹, C. Op de Beeck¹, B. Kuyken¹, J. Van Campenhout², G. Lepage², P. Verheyen², A. Gocalinska³, E. Pelucchi³, B. Corbett³, A. J. Trindade⁴, C. Bower⁴, and G. Roelkens¹, ¹*Ghent University - imec*, ²*IMEC*, ³*Tyndall National Institute*, ⁴*X-Celeprint limited*

C-5 Novel Si photonic waveguides and applications to optical modulators (Invited)

10:15 S. Saito, M. Sotto, K. Debnath, J. Byers, A. Z. A.-Attili, I. Tomita, D. Burt, M. K. Husain, K. Ibukuro, D. J. Thomson, W. Zhang, B. Chen, F. Y. Gardes, G. T. Reed, and H. N. Rutt, *University of Southampton*

Break (10:45-11:00)

11:00-12:45 Session D: Microoptics for Imaging (1)

Chairs: E. Acosta, *Univ. of Santiago deCompostela*
N. Mori, *Yamashita Denso*

D-1 Skin cancer detection using cellular resolution optical coherence tomography (Invited)

11:00 C.-K. Chang¹, J.-T. Lin¹, C. You¹, M. C.-Delgado¹, J.-W. Tjiu², and S.-L. Huang¹, ¹*National Taiwan University*, ²*National Taiwan University Hospital*

D-2 Investigation of excitation beam modulation using azimuthal polarization to improve STED resolution

11:30 G. Lim¹, W.-C. Kim², and N.-C. Park¹, ¹*Yonsei University*, ²*Hanbat National University*

D-3 Thin multi-aperture microscope

11:45 S. Schacke^{1,2}, R. Berlich¹, B. Höfer¹, P. Dannberg¹, B. Zaage¹, E. Beckert¹, and N. Danz¹, ¹*Fraunhofer Institute for Applied Optics and Precision Engineering IOF*, ²*Fraunhofer Project Hub for Microelectronic and Optical Systems for Biomedicine MEOS*

D-4 Glass 3D printing for ultra-miniaturized endoscopic optical systems

12:00 S. Kretschmer, C. Ataman, and H. Zappe, *University of Freiburg*

D-5 Waveguide integrated organic laser source for lab-on-chip applications

12:15 M. Čehovski¹, J. Becker², O. Charfi¹, R. Caspary¹, H.-H. Johannes¹, C. Müller², and W. Kowalsky¹, ¹*TU Braunschweig, IHF and Cluster of Excellence PhoenixD*, ²*University of Freiburg, FIT*

D-6 Snapshot-type CCD spectrometer utilizing distributed passband-type multichannel photonic crystal wavelength filter array

12:30 Y. Ohtera and N. Ikeda, *Toyama Prefectural University*

Lunch (12:45-13:45)

13:45-15:15 Session E: Microoptics for Imaging (2)

Chairs: S. Saito, *Univ. of Southampton*
S. Komatsu, *Waseda Univ.*

E-1 Ultra-compact 3D measurement module using silica-based PLC

13:45 S. Katayose¹, Y. Kurata², K. Watanabe¹, R. Kasahara¹, M. Itoh¹, D. Watanabe³, K. Matsuo³, and K. Hanano³,
¹*NTT Device Technology Labs, NTT Corporation*, ²*NTT Device Innovation Center, NTT Corporation*, ³*Optical System Development, Olympus Corporation*

E-2 Wide-range structured-light sensing based on non-mechanical VCSEL beam scanner

14:00 R. Li, Z. Ho, X. Gu, and F. Koyama, *Tokyo Institute of Technology*

E-3 Time of flight 3D imaging using VCSEL beam scanner

14:15 I. Fujioka, R. Li, Z. Ho, X. Gu, and F. Koyama, *Tokyo Institute of Technology*

E-4 Integrated devices of MEMS VCSEL and DBR beam deflector

14:30 H. Ota, T. Asahi, X. Gu, T. Sakaguchi, and F. Koyama, *Tokyo Tech FIRST*

E-5 Tunable optical filters using artificial muscles

14:45 J. K. Lall, Z. Wang, Y. Folwill, P.-H. C.-Nguyen, and H. Zappe, *University of Freiburg*

E-6 Jacobi-Fourier phase masks to increase performance of wavefront coded optical systems for random or varying aberrations alleviation

15:00 J. M. Olvera¹, E. Gonzalez¹, J. Arines¹, J. Sasian², J. Schwiegerling², and E. Acosta¹, ¹*Dept. of Applied Physics, Faculty of Physics, Universidad de Santiago de Compostela*, ²*College of Optical Sciences, The University of Arizona*

Room 201-203, 2F

15:15-17:15 Session P: Poster Session

Chairs: T. Arakawa, *Yokohama National Univ.*
M. Kuwata, *Mitsubishi Electric Corp.*

(15:15-16:15) Odd numbers

(16:15-17:15) Even numbers

P-1 Simultaneous cross-sectional velocity distribution measurements using laser doppler velocimeter employing 7 x 8 spatial encoding

M. Yukinari and K. Maru, *Kagawa University*

P-2 Snapshot-type compact multispectral imager utilizing photonic crystal multi-patterned spectral filter array

Y. Ohtera and N. Ikeda, *Toyama Prefectural University*

P-3 Optical frequency comb generation from a bismuth-based fiber laser

Y. Fukuchi and R. Miyauchi, *Tokyo University of Science*

P-4 A cluster of grating couplers for input coupling of mixed wavefronts

A. Shimatani¹, J. Inoue¹, S. Ura¹, D. Inoue², T. Yamashita², and K. Oyama³, ¹*Kyoto Institute of Technology*,
²*Toyota Central R&D Labs., Inc.*, ³*DENSO CORPORATION*

P-5 Wavelength tunable filter with curved directional coupler

Y. Ito, M. M.-Astudillo, and T. Kita, *Waseda University*

P-6 Optical simulation of diffraction characteristics of eccentric Fresnel lenses for a compact spectrometer

K. Tanaka¹, R. Ohara², T. Fukuda³, and A. Emoto⁴, ¹*Kyoto University*, ²*Doshisha University*, ³*AIST*, ⁴*Tokushima University*

- P-7 Reduction of optical background noise in BOCDA distributed strain measurement technology by synthesizing frequency modulation waveform of light source**
N. Ito¹, M. Kishi², and K. Hotate¹, ¹*Toyota Tech. Inst.*, ²*Kogakuin Univ.*
- P-8 Bistable tuning operation in an Nb₂O₅ DBR resonator with ferroelectric liquid crystal cladding**
Y. Hayama, S. Inamori, R. Ito, K. Nakatsuhara, T. Nishizawa, and M. Takeda, *Kanagawa Institute of Technology*
- P-9 Polymer interconnection waveguide for multi-core fibers using 45° mirror and self-formation lens**
D. Hikima, T. Ishii, D. Suzuki, Y. Matsushima, H. Ishikawa, and K. Utaka, *Waseda University*
- P-10 Simultaneous QAM conversion of CATV multi-channel signals by using external optical modulators**
J. Murotani, K. Sumizawa, and K. Kikushima, *Intellectual Information Engineering, Faculty of Engineering, University of Toyama*
- P-11 Fine porous structures fabricated from poly(vinyl alcohol)-coated polystyrene templates for functional biosensing chips**
A. Emoto¹, J. Ando², and T. Fukuda³, ¹*Tokushima University*, ²*Doshisha University*, ³*AIST*
- P-12 Bandwidth improvement of step-index multimode fiber using variable mode scramble device**
K. Horiguchi^{1,2}, Y. Beppu¹, Y. Hyakutake¹, and O. Sugihara², ¹*Adamant Namiki Precision Jewel Co., Ltd.*, ²*Utsunomiya University*
- P-13 High output power GaN-based green resonant-cavity light emitting diodes with trapezoidal quantum wells**
H. Li¹, H. Wu^{2,3}, S.-Y. Kuo¹, B.-Y. Chen¹, H. Huang^{2,3}, and T.-C. Lu¹, ¹*National Chiao Tung University*, ²*South China University of Technology*, ³*South China University of Technology*
- P-14 Compact fluorescence endoscope with speckle-generating fiber probe**
T. Okubo¹, T. Katagiri², and Y. Matsuura³, ¹*Graduate School of Engineering, Tohoku University*, ²*Graduate School of Science and Engineering for Research, University of Toyama*, ³*Graduate School of Biomedical Engineering, Tohoku University*
- P-15 Modulation format conversion between QPSK, OOK and 8QAM using optical nonlinear effects**
H. Kishikawa, M. Uetai, and N. Goto, *Tokushima University*
- P-16 A random laser with tunable threshold by bending curvature**
T.-W. Yeh¹, K.-H. Liu¹, Z.-P. Yang², Y.-C. Yao¹, C.-Y. Chang¹, M.-T. Tsai^{3,4}, J.-K. Sheu⁵, and Y.-J. Lee¹, ¹*Institute of Electro-Optical Science and Technology, National Taiwan Normal University*, ²*Institute of Photonic System, National Chiao-Tung University*, ³*Department of Electrical Engineering, Chang Gung University*, ⁴*Department of Dermatology, Chang Gung Memorial Hospital*, ⁵*Department of Photonics, National Cheng Kung University*
- P-17 Design of high-order microring resonator-based Chebyshev wavelength filter using digital filter design method**
M. Yamauchi¹, Y. Kokubun², and T. Arakawa¹, ¹*Yokohama National University*, ²*Chubu University*
- P-18 Computational ghost image via controlling pseudothermal light source**
X.-E. Hong, C.-C. Chen, and C.-H. Tien, *Department of Photonics, College of Electrical and Computer Engineering, National Chiao Tung University*
- P-19 Athermal silicon ring resonators with TiO₂ hybrid-polymer claddings**
T. Kita¹, M. M.-Astudillo¹, M. Masaka², F. Tan², and O. Sugihara², ¹*Department of Applied Physics, Waseda University*, ²*Department of Optical Engineering, Utsunomiya University*
- P-20 High-speed wide-range wavelength switching for tunable distributed amplification (TDA-) DFB laser based on nonlinear model**
Y. Niiya, S. Kono, T. Kuboki, and K. Kato, *Kyushu University*
- P-21 Investigation on ultra-low voltage quantum well optical modulator for optical interconnection for superconducting integrated circuits**
K. Sakai¹, S. Kato¹, N. Yoshikawa¹, Y. Kokubun², and T. Arakawa¹, ¹*Yokohama National University*, ²*Chubu University*
- P-22 Nano-second spectrometry by the use of a spinning polygon mirror**
M. Saito and Y. Itai, *Ryukoku Univ.*

- P-23 Cobalt ferrite films deposited on silicon with magnesium oxide buffer layer for silicon photonics magneto-optic devices**
M. A. Serrano-Nunez¹, Y. Shoji^{1,2}, and T. Mizumoto¹, ¹*Department of Electrical and Electronic Engineering, Tokyo Institute of Technology*, ²*FIRST, Tokyo Institute of Technology*
- P-24 High speed and low power consumption, thermo-optic phase shifter**
M. Okamoto, M. M.-Astudillo, and T. Kita, *Waseda University*
- P-25 Real-time displacement measurement based on intensity correlation between reflected probe light and phase modulated signal**
N. Kashiwagura, K. Yamaguchi, K. Yamamoto, and Y. Tanaka, *Tokyo University of Agriculture and Technology*
- P-26 Compact and high sensitive swgms bragg grating on SOI platform for refractive index sensing**
S. Heinsalu, H. Ishikawa, Y. Matsushima, and K. Utaka, *Waseda University*
- P-27 Rapid thickness and optoelectronic properties characterization of few-layer 2D materials based on hyperspectral microscopy**
Y.-K. Wang¹, Y.-C. Chang², and D.-Y. Lin¹, ¹*Department of Electronic Engineering, National Changhua University of Education*, ²*Department of Electrical Engineering, National Changhua University of Education*
- P-28 Suppression of fiber fuse initiation by amplitude modulation of input light**
S. Ishikawa¹, K. Kurokawa¹, N. Hanzawa², T. Matsui², and K. Nakajima², ¹*Kitami Institute of Technology*, ²*NTT Access Network Service Systems Labs.*
- P-29 Optimized LED-based optical wireless power transmission system configuration for compact IoT**
Y. Zhou and T. Miyamoto, *FIRST, IIR, Tokyo Institute of Technology*
- P-30 Dopant dependence of fiber fuse propagation threshold**
K. Hamatani¹, K. Kurokawa¹, S. Nozoe², T. Matsui², K. Tsujikawa², and K. Nakajima², ¹*Kitami Institute of Technology*, ²*NTT Access Network Service Systems Labs.*
- P-31 Incident-angle-dependence-relaxed polarization grating formed using polymer liquid crystal exhibiting biaxial optical anisotropy**
R. Momosaki¹, K. Ashikawa¹, M. Sakamoto¹, K. Noda¹, T. Sasaki¹, N. Kawatsuki², and H. Ono¹, ¹*Department of Electrical Engineering, Nagaoka University of Technology*, ²*Department of Applied Chemistry, University of Hyogo*
- P-32 Light-induced self-written optical waveguide fabrication by near infrared continuous wave laser light with microwatt power**
H. Terasawa and O. Sugihara, *Utsunomiya University*
- P-33 Optical filter for infrared region formed by polymer stabilized cholesteric liquid crystals**
A. Ogiwara¹ and H. Kakiuchida², ¹*Kobe City College of Technology*, ²*AIST*
- P-34 Numerical and experimental analysis of power generation characteristics in beam direction control of optical wireless power transmission with mirror**
J. Tang and T. Miyamoto, *Tokyo Institute of Technology*
- P-35 A broadband PLC-type mode converter designed by wavefront matching method**
M. Shirata¹, T. Fujisawa¹, T. Sakamoto², T. Matsui², K. Tsujikawa², K. Nakajima², and K. Saitoh¹, ¹*Graduate School of Information Science and Technology, Hokkaido University*, ²*NTT Access Network Service Systems Laboratories, NTT Corporation*
- P-36 Hybrid refraction-diffraction optical element of side-absorption concentrated array system for photovoltaic-thermal hybrid applications**
J.-R. Sze¹ and A.-C. Wei², ¹*Taiwan Instrument Research Institute, National Applied Research Laboratories*, ²*Graduate Institute of Energy Engineering, National Central University*
- P-37 Wavelength characteristics of a silicon waveguide Mach–Zehnder interferometer having a Ce:YIG cladding**
K. Nakatsuhara¹, N. Iijima¹, Y. Hayama¹, N. Katsumata¹, M. Hijikata¹, T. Yamaguchi¹, T. Nishizawa¹, M. Takeda¹, and S. Noge², ¹*Kanagawa Institute of Technology*, ²*National Institute of Technology, Numazu College*

- P-38 Electrochemical synthesis of transition metal oxides and polymer layers for OPV fabrication**
O. Charfi¹, M. Frericks², M. Cehovski¹, H.-H. Johannes¹, and W. Kowalsky³, ¹*TU Braunschweig: IHF, Cluster of Excellence PhoenixD*, ²*TU Darmstadt: Materials Science Department, Surface Science Division, InnovationLab GmbH Heidelberg*, ³*TU Braunschweig: IHF, Cluster of Excellence PhoenixD, InnovationLab GmbH Heidelberg*
- P-39 Design of free-form light intensity distribution control element for high-brightness projectors using solid-state light sources**
T. Tsutsumi and R. Katayama, *Fukuoka Inst. Tech.*
- P-40 Light receiving characteristics from air to underwater optical wireless power transmission**
J. Li and T. Miyamoto, *FIRST, IIR, Tokyo Institute of Technology*
- P-41 Cooperative control of injection current and temperature at DFB-LD for high-speed high-reliability wavelength switching**
S. Kono, Y. Niiya, T. Kuboki, and K. Kato, *Kyushu University*
- P-42 Fundamental study of saturation output power on quantum dot semiconductor optical amplifier (SOA) under high temperature (85°C)**
R. Kuwahata, H. Jiang, and K. Hamamoto, *Kyushu University*
- P-43 Grating coupler biosensor with a low refractive index buffer layer for bulk and surface sensitivity enhancements**
C.-J. Cho, H.-Y. Li, Y.-C. Lee, Y.-H. Lai, G.-E. Chang, and W.-H. Hsieh, *Dept. of Mechanical Engineering and Advanced Institute of Manufacturing with High-tech Innovations (AIM-HI)*
- P-44 Design of chirped focusing grating coupler in Nb₂O₅-based integrated probe for laser Doppler cross-sectional velocity distribution measurement**
S. Doi¹, K. Maru¹, and K. Nakatsuhara², ¹*Kagawa University*, ²*Kanagawa Institute of Technology*
- P-45 Efficient decoding method for M-ary OAM shift keying in FSO link**
M. Adiya, H. Kishikawa, and N. Goto, *Department of Optical Science, Tokushima University*
- P-46 Multiple aerial imaging by use of infinity mirror and oblique retro-reflector**
K. Chiba¹ and H. Yamamoto^{1,2}, ¹*Utsunomiya University*, ²*JST ACCEL*
- P-47 Multipoint sensing measurement using optical fiber refractive index sensors driven by integrable tunable laser assembly**
T. Mukai and H. Fukano, *Graduate School of Natural Science and Technology, Okayama University*
- P-48 Nonreciprocity enhancement of graphene-on-Si waveguide using one-dimensional photonic crystal**
K. Nakamura¹, T. Sato², T. Fujisawa¹, and K. Saitoh¹, ¹*Hokkaido University*, ²*University of Hyogo*
- P-49 Analysis of fiber based emitting head for optical wireless communication**
Y.-L. Yu¹, S.-K. Liaw², H. Kishikawa¹, and N. Goto¹, ¹*Department of Optical Science and Technology, Tokushima University*, ²*Department of Electronic and Computer Engineering, National Taiwan University of Science and Technology*
- P-50 Improved light extraction of organic light emission diodes with ZnO-nanorod structure**
N. Kurimoto¹, S. Hirayama¹, H. Okada², and M. F. Hossain¹, ¹*Graduate School of Sci. & Eng., Univ. of Toyama*, ²*Dept. of Electrical & Electronic Eng., Rajshahi Univ. of Eng. & Tech.*
- P-51 Three-dimensional bending measurement using multicore fiber Bragg grating and two-photon absorption process in Si-APD**
T. Abe and Y. Tanaka, *Tokyo University of Agriculture and Technology*
- P-52 Adaptive compensation for atmospheric turbulence in orbital angular momentum free space optical transmission system**
H. Kishimoto, H. Kishikawa, and N. Goto, *Tokushima University*
- P-53 Improving the quality of decrypted signal in an encryption system for secure free-space optical communication**
Y. Sato, K. Ikeda, O. Koyama, and M. Yamada, *Osaka Prefecture University*

- P-54 A self-compensating grating bio-sensing system for the detection of C-reactive protein**
T.-H. Chang, H.-Y. Li, Y.-C. Lee, Y.-H. Lai, L.-T. Chou, and W.-H. Hsieh, *Dept. of Mechanical Engineering and Advanced Institute of Manufacturing with High-tech Innovations (AIM-HI)*
- P-55 A low cost interrogation method for strain monitoring in bridge beams**
S. Alamandala¹, V Durga Rama Pavan¹, R.L.N. Sai Prasad¹, and P. Rathish Kumar², ¹*Department of Physics, National Institute of Technology Warangal*, ²*Department of Civil Engineering, National Institute of Technology Warangal*
- P-56 Application of scattering characteristics to module with filters on solar cell for improvement of OWPT equipment appearance**
Y. Liu and T. Miyamoto, *FIRST, Tokyo Institute of Technology*
- P-57 Transmission performance of 16QAM signal interleaved with amplified reference light**
Y. Okamura, Y. Seto, N. Ishimura, and A. Takada, *Tokushima University*
- P-58 Manipulation of received beam for free-space optical communications of intermediate distance**
M. Yamazaki¹, H. Yamashita¹, Y. Takayama¹, C. Fujikawa¹, T. Nakayama¹, and K. Kodate², ¹*Tokai University*, ²*The University of Electro-Communications*
- P-59 Biosensing resolution enhancement on optical low coherence interferometry through stepper motor stage**
S. Hsu and Y.-S. Syu, *National Taiwan University of Science and Technology*
- P-60 Widening the polarization conversion properties of an L-figured Si-wire waveguide**
J. Yamauchi, Y. Nakagawa, and H. Nakano, *Hosei University*
- P-61 Consideration of all-optical modulation format conversion from BPSK to QPSK in free-space communication using OAM beam**
K. Fujiwara, H. Kishikawa, and N. Goto, *Tokushima University*
- P-62 Fiber fuse terminator consisting of a step-index multimode fiber spliced with SMFs**
S. Furuya and K. Kurokawa, *Kitami Institute of Technology*
- P-63 Aerial display on a clear sphere with aerial imaging by retro-reflection**
K. Fujii¹ and H. Yamamoto^{1,2}, ¹*Utsunomiya University*, ²*JST ACCEL*
- P-64 Simulation of microoptics under inhomogeneous illumination: Sinusoidal phase grating under gaussian beam illumination**
M. Yousefi^{1,2}, D. Nečesal¹, T. Scharf², and M. Rossi³, ¹*EPFL University*, ²*AMS AG*
- P-65 Shape measurement using digital holography with a close set of two wavelengths**
H. Ishigaki^{1,2}, T. Mamiya¹, I. Futamura¹, and Y. Hayasaki², ¹*CKD Co.*, ²*Utsunomiya University*
- P-66 Asynchronous DPSK-OCDM-based optical access system using time-extended multi-level QAM-code**
T. Kodama¹ and G. Cincotti², ¹*Kagawa University*, ²*University Roma Tre*
- P-67 Influence of the f/# in wavefront coding with Jacobi Fourier phase masks**
E. Gonzalez, A. M. Olvera, J. Arines, and E. Acosta, *Dept. of Applied Physics, Faculty of Physics, Universidad de Santiago de Compostela*
- P-68 Patterned emission of organic light emitting diodes with laser irradiation**
R. Sugimoto, M. Morimoto, and S. Naka, *Graduate School of Science and Engineering, University of Toyama*
- P-69 Nested Mach–Zehnder interferometer optical switch with low crosstalk**
T. Watanabe, K. Tasaki, T. Nagayama, and S. Fukushima, *Kagoshima University*
- P-70 Fabry-Perot optical fiber temperature sensor using graded-index fiber for cryotherapy**
H. Fukano and K. Yoshioka, *Okayama University*
- P-71 Effect of radiation dose of Gamma-Ray irradiation on volume gratings using liquid crystal composites**
M. Toda¹, A. Ogiwara¹, and M. Watanabe², ¹*Kobe City College of Technology*, ²*Shizuoka University*

- P-72 Photophysical properties of Ru(II) complexes encapsulated into metal-organic frameworks**
S. Huh¹, I.-H. Choi¹, S. B. Yoon¹, and Y. Kim², ¹*Hankuk University of Foreign Studies*, ²*Ewha Womans University*
- P-73 White-light confocal spectroscopy for measuring reflectivity of micro-optics**
C.-J. Weng¹, Y.-H. Lai², and Y.-F. Chen², ¹*Taiwan Instrument Research Institute, National Applied Research Laboratories*, ²*Department of Electrophysics, National Chiao Tung University*
- P-74 Effects of core aspect-ratio in bent buried Si-wire waveguides**
T. Aso, T. Ishiguro, J. Yamauchi, and H. Nakano, *HOSEI University*
- P-75 Influence of phase constant difference between dispersive elements in difference-frequency generation based optical-phase-conjugation circuit**
Y. Okamura and A. Takada, *Tokushima University*
- P-76 Controlled generation of isolated C-points in few-mode optical fiber**
C. H. Krishna and S. Roy, *National Institute of Technology Warangal*
- P-77 Wave plate fabrication using surface plasmon polariton in a Ag wire grid structure**
A. Motogito and A. Watanabe, *Graduate School of Engineering, Mie University*
- P-78 Luminescence investigation of magnesium stannate phosphors films**
M.-T. Tsai and Y.-C. Hsu, *National Formosa University*
- P-79 Plano-concave mini-lens array for plenoptic imaging applications**
A. Grosso^{1,2} and T. Scharf², ¹*Datalogic IP Tech Srl*, ²*EPFL*
- P-80 The surface-enhanced Raman spectroscopy of Rhodamine 6G on a nanopillar array**
X. Chen^{1,2}, Z. Wang², C.-T. Tsai³, K. Liu¹, T. Cao¹, J. Jia¹, and H.-C. Chui^{1,3}, ¹*School of Optoelectronic Engineering and Instrumentation Science, Dalian University of Technology*, ²*School of Microelectronics, Dalian University of Technology*, ³*Department of Photonics, National Cheng Kung University*
- P-81 Studies on fiber coupling characteristics of received beam by transmission-type holographic optical element for free-space optical communications**
H. Yamashita^{1,2}, K. Wakunami², Y. Ichihashi², and Y. Takayama¹, ¹*Graduate School of Science and Technology, Tokai University*, ²*National Institute of Information and Communications Technology*
- P-82 Study of plasmonic nanolasers with graphene-metal interaction**
Y.-C. Chung¹, H. Li², T.-C. Lu², K.-P. Chen², and T.-R. Lin^{1,2}, ¹*National Taiwan Ocean University*, ²*National Chiao Tung University*
- P-83 Dynamics of a highly sensitive erbium-doped Fabry-Perot fiber (EDFBF) laser sensor under pump modulation**
N. O. Onubogu, C. H. Pua, H. S. Lin, and F. A. Rahman, *Universiti Tunku Abdul Rahman*
- P-84 The mechanism of H₂ plasma in III-nitride low-temperature epitaxy**
Z. Zhang, Y. Luo, W. Yu, X. Li, J. Wang, J. Yu, L. Wang, Z. Hao, C. Sun, and Y. Han, *Beijing National Research Center for Information Science and Technology (BNRist)*, *Department of Electronic Engineering, Tsinghua University*
- P-85 Adjoint-based optimization for diffractive beam-splitters**
D. C. Kim^{1,2}, A. Hermerschmidt¹, P. Dyachenko¹, and T. Scharf², ¹*Holoeye Photonics AG*, ²*EPFL*
- P-86 Temperature effects on dispersion tailoring of slow light engineered photonic crystal waveguide**
D. R. P. Vadapalli and S. Roy, *National Institute of Technology Warangal*
- P-87 Feasibility study of scanning photocurrent microscopy in ultra-thin silicon nanowire ohmic-contact devices**
C.-H. Chu and M.-H. Mao, *National Taiwan University*
- P-88 Subnanoscale localization of rare-earth-ion in doped crystal via electromagnetically induced transparency**
O. N. Verma and S. Roy, *National Institute of Technology Warangal*
- P-89 Optical response measurements of R/G/B mini-LEDs with short pulse voltage**
S.-C. Liao, S.-W. Hsu, C.-H. Chen, H.-Y. Ko, and T.-A. Liu, *Industrial Technology Research Institute*

- P-90 All-fiber imaging system for ultra-thin flexible endoscope based on compressed image reconstruction**
T. Kubota¹, T. Katagiri², and Y. Matsuura³, ¹*Graduate School of Engineering, Tohoku University*, ²*Graduate School of Science and Engineering for Research, University of Toyama*, ³*Graduate School of Biomedical Engineering, Tohoku University*
- P-91 Inscription and optimization of fiber-optic long period gratings using electric arc discharge**
K. Dey¹, K. Ghosh¹, P Kishore¹, M Sai Shankar¹, B Ramesh² and Sourabh Roy¹, *National Institute of Technology Warangal*, ²*Institute for Plasma Research*
- P-92 Analysis on lithium niobate on insulator rib-type photonic wire waveguide**
Q. Xu¹, E.Y.B. Pun², and D.L. Zhang^{1,2}, ¹*Tianjin University*, ²*City University of Hong Kong*

(Following postdeadline papers are accepted for poster presentation)

- PD-2 Three-dimensional observation of polymer and liquid crystal director in highly oriented liquid crystal / polymer composite films which show electro-optical transparency-turbidity switching**
E. Ishida¹, Y. Okumura¹, S. Niiyama², and H. Kikuchi¹, ¹*Kyushu University*, ²*AGC Inc.*
- PD-3 Exciton contributed optical model gain spectra of single ZnO microrod by variable stripe length method**
S.-C. Wu, Y.-P. Tseng, and H.-C. Hsu, *National Cheng Kung University*
- PD-4 Optical wireless power transmission of applying OAM and adaptive optics**
M. Tatsutomi and K. Ogawa, *Japan Women's University*
- PD-5 Micron-ordered optical interference organic light emitting diodes with patterned structure**
N. Kurimoto and H. Okada, *University of Toyama*
- PD-6 Conductive GaN grating reflector**
C. H. To, Y. F. Cheung, and H. W. Choi, *The University of Hong Kong*

Break (17:15-17:30)

17:30-18:30 Microconcert

♪♪ The 20th Microconcert ♪♪

Machida Philharmony Baroque Ensemble (MPB)

Program

- 1) Georg Friedrich Händel: "Concerto Grosso" Op.6-7
- 2) Carl Philipp Emanuel Bach: "Symphony for String Orchestra" Wq.182 No.4
- 3) Charles Gounod: "Ave Maria" Vocal: Hirochika Nakajima
- 4) John Rutter: "Suite for Strings"



Concert 2018 at Wako University Popuri Hall, Tokyo

Members on Stage

Chair: Prof. Kenichi Iga

Solo Concertmistress & Coach: Takako Yoshii

Secretary: Kaeko Fujii

Stage Manager: Akio Yoshii

Violin: Takako Yoshii, Kaeko Fujii, Tomoko Iga, Shoko Suzuki, Mariko Furuta, Mizuho Okada,
Yoshikazu Karasawa, Mizue Hoshi, Akiko Maehara

Viola: Yoko Miyazaki, Reiko Araki

Cello: Mitsuko Nagahama, Kazutaka Okasaka, Masamichi Ishikawa

Contrabass: Kenichi Iga

Cembalo: Naomi Hanzawa

Break (18:30-18:45)

Foyer, 3F

18:45-20:15 Conference Party

Main Hall, 3F

9:00-10:45 Session F: Novel Applications

Chairs: D. Kuchta, *IBM*
Y. Yang, *Tsinghua Univ.*

- F-1 Polarization control of GaN-based micro-cavity lasers with top high-contrast grating reflectors**
9:00 T.-C. Chang, K.-B. Hong, S.-Y. Kuo, and T.-C. Lu, *National Chiao Tung University*
- F-2 Speckle measurement for light diffusion fiber**
9:15 K. Ochi and K. Yamamoto, *Osaka University*
- F-3 Characterization and optimization of fly-eye lens system in optical wireless power transmission**
9:30 Y. Katsuta and T. Miyamoto, *FIRST, Tokyo Institute of Technology*
- F-4 Infrared LED marker for target recognition in optical wireless power transmission to moving object at dark environment condition**
9:45 A. W. Setiawan Putra, H. Kato, and T. Maruyama, *Kanazawa University*
- F-5 High-voltage CMOS photovoltaic module with Schottky bypass diodes**
10:00 J.-F. Liao, Y.-C. Cheng, and Y.-J. Hung, *National Sun Yat-sen University*
- F-6 Green VCSELs based on nitride semiconductors (Invited)**
10:15 B.-P. Zhang, *Xiamen University*

Break (10:45-11:00)

11:00-12:45 Session G: Lasers

Chairs: U. Zeitner, *Fraunhofer IOF*
R. Petruškevičius, *Center for Physical Sciences and Technology*

- G-1 High speed VCSELs and co-packaging for short reach communication within cloud and high performance computing (Invited)**
11:00 D. Kuchta, *IBM*
- G-2 High speed modulation single mode 850 nm DTCC-VCSEL**
11:30 H.R. Ibrahim¹, M. Ahmed², and F. Koyama¹, ¹*Tokyo Institute of Technology*, ²*Minia University*
- G-3 Enhancement of modulation responses of directly modulated lasers with passive feedback and partially corrugated grating**
11:45 S. Sulikhah¹, H.-W. Tsao², and S.-L. Lee¹, ¹*National Taiwan University of Science and Technology*, ²*National Taiwan University*
- G-4 Observation of 60 GHz and 20 GHz multiple photon-photon resonances using active multimode interferometer laser diodes**
12:00 S. Murakami, B. Hong, H. Jiang, and K. Hamamoto, *Kyushu University*
- G-5 Quantum dot-based optically pumped VCSELs with high-contrast periodic gratings**
12:15 T. Fördös^{1,4,5}, E.Y.B. Clarke¹, P. Patil¹, R. J. Airey¹, N. Babazadeh¹, B. Cemlyn³, M. Adams³, I. Henning³, and J. Heffernan^{1,2}, ¹*EPSRC National Epitaxy Facility, University of Sheffield*, ²*Department of Electronic and Electrical Engineering, University of Sheffield*, ³*School of Computer Science and Electronic Engineering, University of Essex*, ⁴*Nanotechnology Centre, VSB - Technical University of Ostrava*, ⁵*IT4Innovation, VSB - Technical University of Ostrava*
- G-6 Local tuning of transfer-printed quantum-dot single-photon sources on a CMOS silicon chip**
12:30 R. Katsumi, Y. Ota, A. Osada, T. Tajiri, T. Yamaguchi, M. Kakuda, S. Iwamoto, H. Akiyama, and Y. Arakawa, *The University of Tokyo*

Lunch (12:45-13:45)

13:45-15:30 Session H: Microoptics for Sensing

Chairs: J. Zhang, *Ghent Univ.*

K. Hotate, *Toyota Tech. Institute*

H-1 Micro- and nano-structures for high-end optics (Invited)

13:45 U. D. Zeitner^{1,2}, F. Burmeister¹, T. Fluegel-Paul¹, and M. Heusinger², ¹*Fraunhofer IOF*,
²*Friedrich-Schiller-University Jena*

H-2 Performance improvement of phase modulation scheme in Brillouin optical correlation domain reflectometry

14:15 K. Uyama¹, R. Shimizu², M. Kishi³, and K. Hotate¹, ¹*Toyota Technological Institute*, ²*The University of Tokyo*,
³*Kogakuin University*

H-3 Miniature integrated spectrometer array

14:30 N. Danz¹, B. Höfer¹, E. Förster², T. Harzendorf¹, P. Dannberg¹, R. Leitel¹, S. Kleinle¹, and R. Brunner^{1,2},
¹*Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Jena*, ²*Applied Optics, University of Applied Sciences, Jena*

H-4 Effective localization of Brillouin dynamic grating for distributed fiber sensing by intensity-modulated correlation-domain technique

14:45 Y. Okawa¹, R. K. Yamashita², M. Kishi³, and K. Hotate¹, ¹*Toyota Tech. Inst.*, ²*Furukawa Electric Corp.*,
³*Kogakuin Univ.*

H-5 Perforated microring resonators for enhanced sensing (Invited)

15:00 R. Petruškevičius¹, A. Balčytis^{1,2,3}, D. Urbonas^{1,4}, M. Gabalis¹, K. Vaškevičius¹, and S. Juodkazis³, ¹*Center for Physical Sciences and Technology*, ²*Yokohama National University*, ³*Swinburne University of Technology*,
⁴*IBM*

Break (15:30-15:45)

15:45-16:00 Session PD: Postdeadline Session

Chairs: T. Arakawa, *Yokohama National Univ.*

M. Kuwata, *Mitsubishi Electric Corp.*

PD-1 High-power-output (11 dBm) SOA assisted extended reach EADFB laser (AXEL) for 1.25-Gbit/s high-loss budget optical access networks

M. Chen, T. Shindo, S. Kanazawa, H. Katsurai, Y. Nakanishi, A. Kanda, T. Yoshimatsu, and K. Sano,
NTT Corporation

16:00-16:15 Award Ceremony

16:15-16:30 Closing Remarks

Program Co-chairs:

T. Arakawa, *Yokohama National Univ.*

M. Kuwata, *Mitsubishi Electric Corp.*