

THE TWENTY-FOURTH MICROOPTICS CONFERENCE

MOC2019

CONFERENCE PROGRAM



Sponsored by the Japan Society of Applied Physics (JSAP)

Organized by Microoptics Group, JSAP

Technically Cosponsored by IEEE Photonics Society



November 17 - 20, 2019

Toyama International Conference Center, Toyama, Japan

MOC2019 Agenda At-A-Glance

November 17 (Sun.)		November 18 (Mon.)		November 19 (Tue.)		November 20 (Wed.)	
8:30	Registration Open 9:00	8:00	Registration Open 8:00	8:00	Registration Open 8:00	8:00	Registration Open 8:00
		8:30		8:30		8:30	
9:00		9:00		9:00		9:00	
9:30	MOC Science School in Toyama "Light and Laser" (Main Hall, 3F) 10:00-12:20 Break (11:05-11:20)	9:30	Plenary Session (Main Hall, 3F) 9:15-12:00 Break (10:45-11:00) MOC Award Ceremony 11:45-12:00	9:30	Session C Silicon Photonics (Main Hall, 3F) 9:00-10:45	9:30	Session F Novel Applications (Main Hall, 3F) 9:00-10:45
10:00		10:00		10:00		10:00	
10:30		10:30		10:30		10:30	
11:00		11:00		11:00		11:00	
11:30		11:30		11:30		11:30	
12:00		12:00		12:00	Session D Microoptics for Imaging (1) (Main Hall, 3F) 11:00-12:45	12:00	Session G Lasers (Main Hall, 3F) 11:00-12:45
12:30	Lunch 12:20-13:30	12:30	Lunch 12:00-13:45	12:30		12:30	
13:00		13:00		13:00		13:00	
13:30		13:30		13:30	Lunch 12:45-13:45	13:30	Lunch 12:45-13:45
14:00	Special Symposium "Sensing by Light" (Main Hall, 3F) 13:30-17:00 Break (15:15-15:30)	14:00	Session A Optical Communications (Main Hall, 3F) 13:45-15:30 Break Session B New Materials (Main Hall, 3F) 15:45-17:30	14:00	Session E Microoptics for Imaging (2) (Main Hall, 3F) 13:45-15:15 Session P Poster Session (Room 201-203, 2F) 15:15-17:15 15:15-16:15 Odd numbers 16:15-17:15 Even numbers	14:00	Session H Microoptics for Sensing (Main Hall, 3F) 13:45-15:30 Break Postdeadline Session 15:45-16:00 Award Ceremony&Closing 16:00-16:30
14:30		14:30		14:30		14:30	
15:00		15:00		15:00		15:00	
15:30		15:30		15:30		15:30	
16:00		16:00		16:00		16:00	
16:30		16:30		16:30		16:30	
17:00	Break	17:00	Free Evening for Toyama's Gourmet	17:00	Break	17:00	
17:30	Get Together (Gallery, 1F) 17:15-18:45	17:30		17:30		17:30	
18:00		18:00		18:00	Microconcert (Main Hall, 3F) 17:30-18:30	18:00	
18:30		18:30		18:30		18:30	
19:00		19:00		19:00	Conference Party (Foyer, 3F) 18:45-20:15	19:00	
19:30		19:30		19:30		19:30	
20:00		20:00		20:00		20:00	
20:30		20:30		20:30		20:30	

Technical Program

The 24th MICROOPTICS CONFERENCE (MOC2019) will be held at Toyama International Conference Center, in Toyama city, Japan during November 17 - November 20, 2019. This conference is sponsored by the Japan Society of Applied Physics (JSAP) and organized by Microoptics Group and in cooperation with several academic societies and associations.

The MOC2019 is intended to provide a central forum for an update and review of scientific and technical information covering a wide range of microoptics field from fundamental researches to systems and applications.

The latest information will be available on the following web site:

<http://moc2019.com/>

Special Open Sessions on Sunday

Special open sessions will be held in Main Hall, 3F on Sunday, 17 November.

The sessions are for beginners and open to the public, especially for high school students and non-experts.

■ MOC SCIENCE SCHOOL IN TOYAMA "LIGHT AND LASER"

Nov. 17 (Sun.) 10:00 – 12:00

The MOC attendees are welcome, but the talks will be given in Japanese.

"The Surface Emitting Laser Turned of Light: Everybody Has It"

Kenichi Iga, *Tokyo Institute of Technology*

"Organic Light Emitting Diodes – For New Era Displays –"

Hiroyuki Okada, *University of Toyama*

"Observing Gravitational Waves with Laser Interferometers"

Takaaki Kajita, Nobel Laureate in Physics, *The University of Tokyo*

■ SPECIAL SYMPOSIUM "SENSING BY LIGHT"

Nov. 17 (Sun.) 14:00 – 17:20

The talks will be given in English.

"Introductory Talk"

Kenichi Iga, *Tokyo Institute of Technology*

"Light for Detecting Neutrinos and Gravitational Waves"

Takaaki Kajita, Nobel Laureate in Physics, *The University of Tokyo*

"LiDAR – A Key to AI-Mobile –"

Toshihiko Baba, *Yokohama National University*

"VCSEL Sensing for 3D Face Recognition"

Connie J. Chang-Hasnain, *University of California, Berkeley*

"Biophotonic Imaging and Sensing"

Ken-Tye Yong, *Nanyang Technological University*

Plenary Session

Plenary Session will be held in Main Hall, 3F on Monday, 18 November. The following papers are invited as the plenary talks.

"A Renaissance in Brillouin Photonics for On-Chip Signal Processing and Sensing"

Benjamin J. Eggleton, *The University of Sydney*

"Innovations in Optics for the Connected World"

Waguih S. Ishak, *Corning Incorporated*

"Progress in Photonic-Crystal Lasers"

Susumu Noda, *Kyoto University*

Oral Presentation

Oral Sessions are to be held in Main Hall, 3F. The presentation time (including discussion) will be 30 minutes for invited papers, 15 minutes for regular papers and post deadline papers. All the speakers are requested to present the paper with a data projector. Prior to the starting time of the session, the speakers are asked to contact the session chairs and to confirm the connection between their computer and the projector.

Poster Session

Poster Session will be held in Room 201-203, 2F in the afternoon on Tuesday, 19 November. The poster session is open during 15:15-17:15. For the convenience of the participants, the presentation core time when the authors must stand will be divided into two periods. The first period (15:15-16:15) is for authors with the paper of odd-number (P1, P3, ...). The second period (16:15-17:15) is for authors with the paper of even-number (P2, P4, ...). The authors should stay in the vicinity of the bulletin board for discussion. Each author is requested to display his/her poster on a 120 cm wide and 210 cm high bulletin board. The recommended poster size is A0 (841 × 1189 mm²).

Paper Publication

Accepted papers will be published in **IEEE/Xplore** in addition to conference technical digest. The authors also have a chance to publish an extended, full-length version of the paper presented at MOC2019 in **a special issue of the JJAP**, which is an international journal published by the Japan Society of Applied Physics and IOP publishing. The papers can partially include the MOC2019 paper and will be published in Aug. 2020. The instructions for preparation and submission of manuscript are on MOC2019 website (Mode of Presentation). The deadline for submission of manuscripts is 13 January 2020. Submitted papers will be reviewed based on the JJAP standard.

Paper Awards

Some excellent contributed papers will be awarded the Best Paper Award. Moreover, some excellent papers presented by students will be awarded the Student Paper Award.

Official Language

The official language of MOC2019 is English.

Photograph and Video

No photographing and video recording are permitted during all technical sessions including the special open sessions on Sunday, and poster session.

Social Events & Exhibition

Get-Together

Get Together will be held in Gallery, 1F on the evening of Sunday, 17 November. All the attendees of MOC2019 are cordially invited.

Award Ceremony

MOC award ceremony will be held in Main Hall, 3F at 11:45, Monday, 18 November.

MOC paper award ceremony will be held in Main Hall, 3F at 16:00, Wednesday, 20 November.

Microconcert

"Microconcert" will be performed by Machida Philharmony Baroque Ensemble (MPB) in Main Hall, 3F, 17:30-18:30 Tuesday 19, November. All the attendees of MOC2019 and their accompanying family are invited to the Microconcert.

Conference Party

On the evening of Tuesday, 19 November, Conference Party starts at 18:45 right after the Microconcert at 3F-Foyer. Participants who want to attend the party are requested to make registration. The party registration fee is ¥3,000 per person.

Technical Exhibition

Table-Top Technical Exhibition is planned during MOC2019. Take this opportunity to see the latest products and technologies in relation to microoptics. Exhibition will be held in 3F-Foyer. During Session P (Poster Session) on November 19, Exhibition will be held in Room 201-203, 2F.

Exhibitors (alphabetical order)

- Lumerical Inc. / LightBridge
- Optoquest Co., Ltd.
- Think-Lands Co., Ltd.

Technical Sessions

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)

Coordinator:

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,
¹NTT Device Technology Labs, NTT Corporation, ²NTT Device Innovation Center, NTT Corporation, ³Optical 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, ¹Dept. of Applied Physics, Faculty of Physics, Universidad de Santiago de Compostela, ²College 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, ¹Kyoto Institute of Technology, ²Toyota Central R&D Labs., Inc., ³DENSO 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, ¹Kyoto University, ²Doshisha University, ³AIST, ⁴Tokushima 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*JSTACCEL*
- 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-shaped 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

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Conference Site

Conference Venue

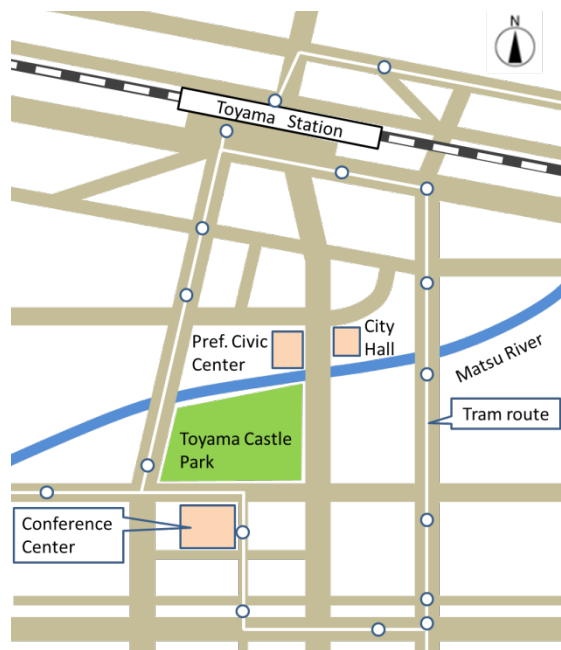
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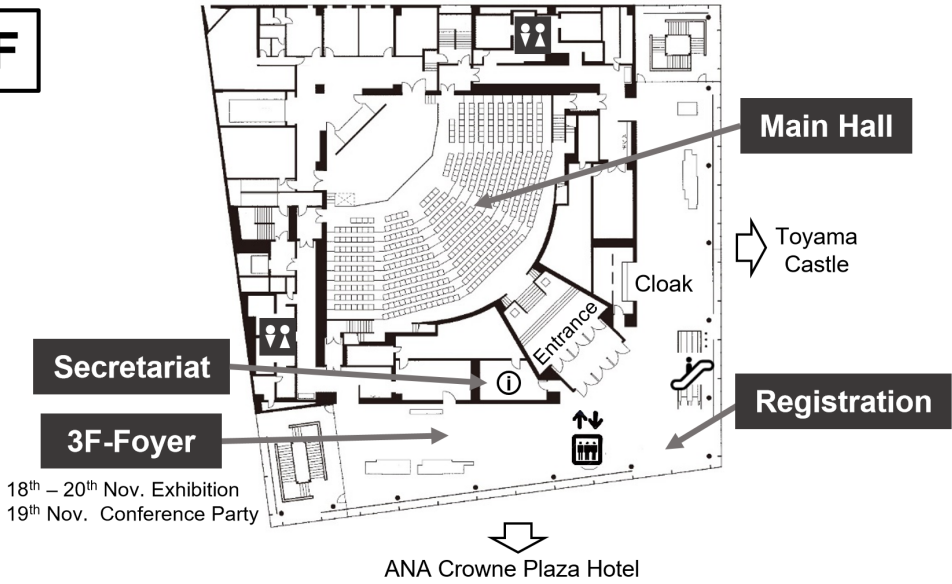


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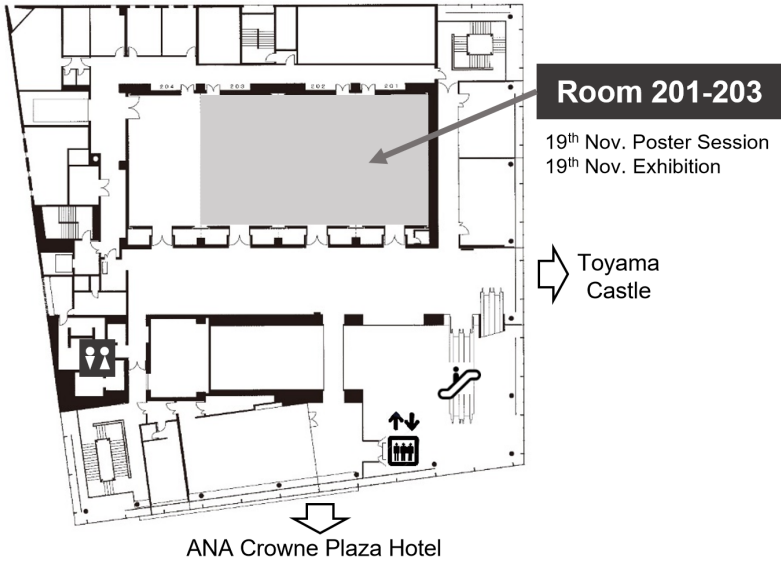
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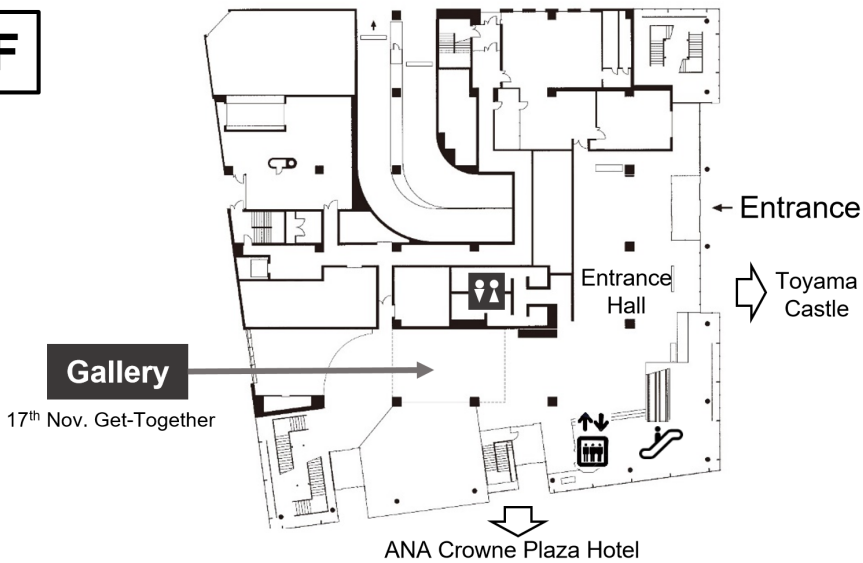
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