

Advance Program (WEB version)

# MOC2023

28th Microoptics Conference

September 24 – 27, 2023

*Seagaia Convention Center, Miyazaki, Japan*



**Sponsored by**

The Japan Society of Applied Physics (JSAP)



**Organized by**

Microoptics Group



# About MOC

The 28th MICROOPTICS CONFERENCE (MOC2023) will be held at Seagaia Convention Center, Miyazaki, Japan during September 24 - September 27, 2023. 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 MOC2023 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.

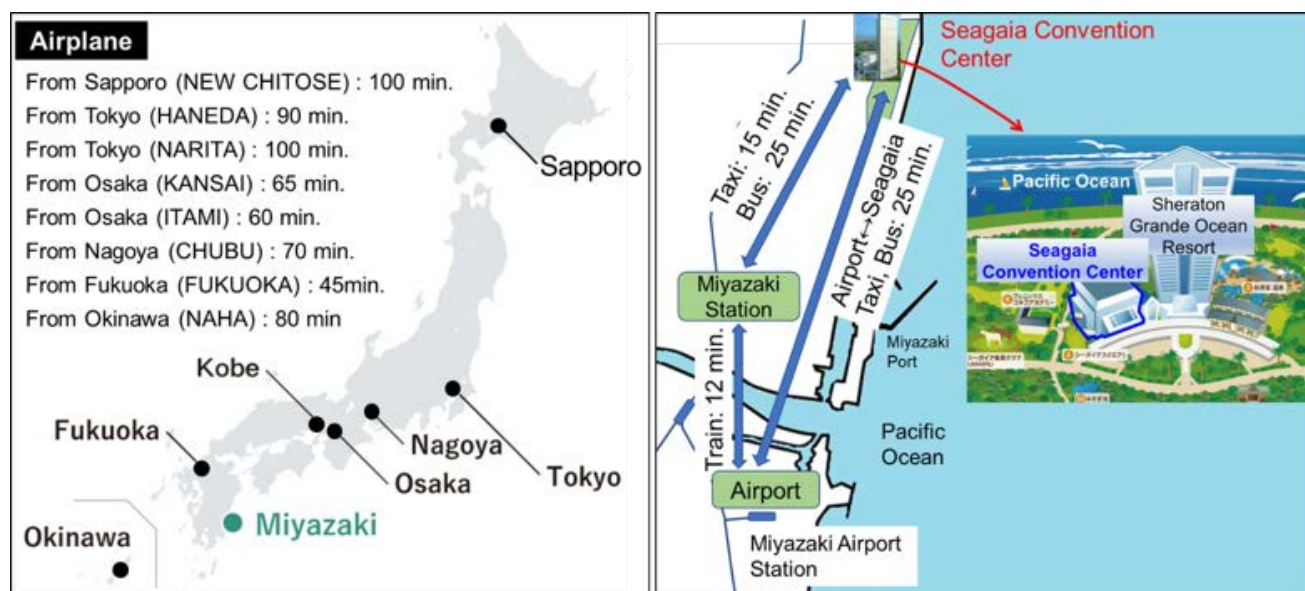
The latest information will be available on the following web site:

<https://moc2023.com/>

## Conference Site

### CONFERENCE VENUE

The MOC2023 will take place at Seagaia Convention Center, Miyazaki, Japan.



## ACCESS

The downtown area with hotels in Miyazaki City is located about 1 km from the west side of Miyazaki Station. You can use public buses or taxis from Miyazaki Station to the venue, but there are few taxis and buses, so we will prepare a charter bus. In the morning, you can use it to move from the east exit of Miyazaki Station to the conference hall, and after the conference, you can use it to move from the conference hall to the east exit of Miyazaki Station via Cottage HIMUKA. We will head to the airport only in the evening of the last day. Charter bus departure times are as follows:

Date	East exit of Miyazaki station	➡	Seagaia Convention Center		Seagaia Convention Center	➡	Cottage HIMUKA	➡	East exit of Miyazaki station	➡	Miyazaki airport
Sep. 24					18:30		18:40		19:10		
Sep. 25	8:15		8:45		20:30		20:40		21:10		
Sep. 26	8:15		8:45		22:00		22:10		22:40		
Sep. 27	8:15		8:45		17:30		17:40				18:30

# Registration

## In-person participants

Upon arrival at the Seagaia Convention Center, please go to the registration desk in front of the "JUYO" venue on the 4th floor. Please pick up your name badge and conference bag at the desk. If you are attending the Conference Party and have not yet paid your registration fee, please pay 3,000 yen in cash there.

### Registration Open:

September 24: 12:00-18:00 (JST)

September 25-27: 8:00-12:00 (JST)

## On-line participants

On-line participants can access the Zoom URL, which will be emailed to you in advance of the meeting. You will be able to view the oral presentations of the technical sessions (including plenary and special sessions).

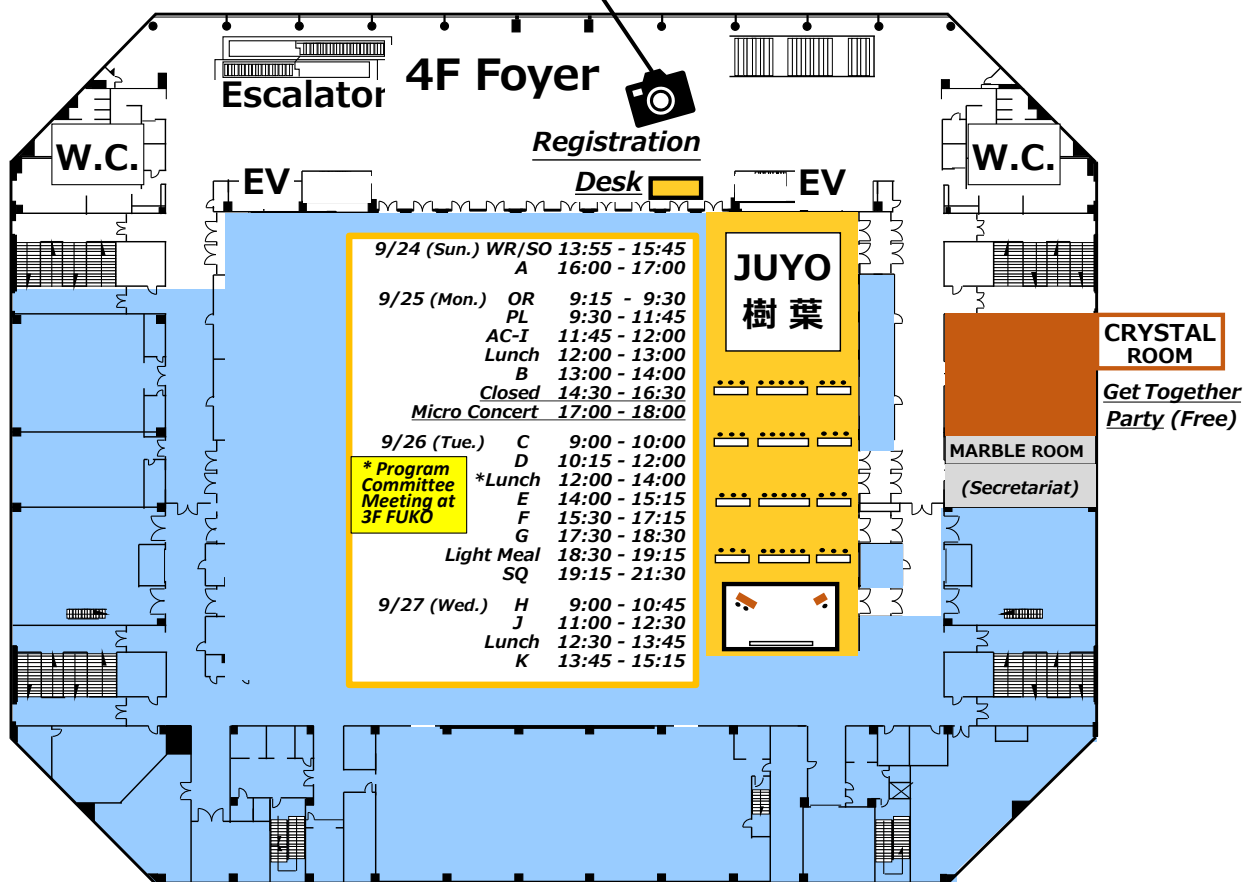
# MOC2023 At-A-Glance

JST	Sep. 24 (Sun.)	Sep. 25 (Mon.)	Sep. 26 (Tue.)	Sep. 27 (Wed.)	
8:00		Registration Open	Registration Open	Registration Open	
8:15					
8:30					
8:45					
9:00					
9:15		Opening Remarks 9:15-9:30	Session C Novel Materials and Devices (JUYO, 4F) 9:00-10:00	Session H Next generation Photonics (JUYO, 4F) 9:00-10:45	
9:30	Session PL Plenary Session (JUYO, 4F) 9:30-11:45				
9:45					
10:00					
10:15					
10:30			Session D Advanced Light Sources (JUYO, 4F) 10:15-12:00		
10:45					
11:00				Session J High Performance Modulation (JUYO, 4F) 11:00-12:30	
11:15					
11:30					
11:45		Award Ceremony I 11:45-12:00			
12:00	Registration Open 12:00-18:00	Lunch 12:00-13:00	Lunch 12:00-14:00 Program committee meeting	Lunch 12:30-13:45	
12:15					
12:30					
12:45		Session B Integrated Photonics (JUYO, 4F) 13:00-14:00			
13:00					
13:15					
13:30					
13:45	Welcoming Remarks 13:55-14:00			Session K Interconnects and Packaging (JUYO, 4F) 13:45-15:15	
14:00			Session E Communication and THz Tech. (JUYO, 4F) 14:00-15:15		
14:15	Session SO Sunday Special Session Social Optics (JUYO, 4F) 14:00-15:45	Session PO Poster Session (ORCHARD, 2F) 14:30-16:30			
14:30					
14:45					
15:00					
15:15				Session PD Post deadline Papers	
15:30					
15:45				Award Ceremony II & Closing 16:15-16:45	
16:00	Session A Emerging Photonics (JUYO, 4F) 16:00-17:00		Session F Applications of Optics (JUYO, 4F) 15:30-17:15		
16:15					
16:30					
16:45					
17:00	Get Together (CRYSTAL ROOM, 4F) 17:15-18:15	Micro Concert (JUYO, 4F) 17:00-18:00			
17:15				Session G Nanophotonic Structures (JUYO, 4F) 17:30-18:30	
17:30					
17:45					
18:00		Conference Party (ZUIYO, 3F) 18:15-20:15			
18:15					
18:30					
18:45				Light Meal	
19:00					
19:15					
19:30					
19:45					
20:00			Session SQ Special Symposium Quantum Information Processing (JUYO, 4F) 19:15-21:30		
20:15					
20:30					
20:45					
21:00					
21:15					
21:30					

4th floor, "JUYO"	3rd floor, "ZUIYO"
4th floor, "CRYSTAL"	2nd floor, "ORCHARD"



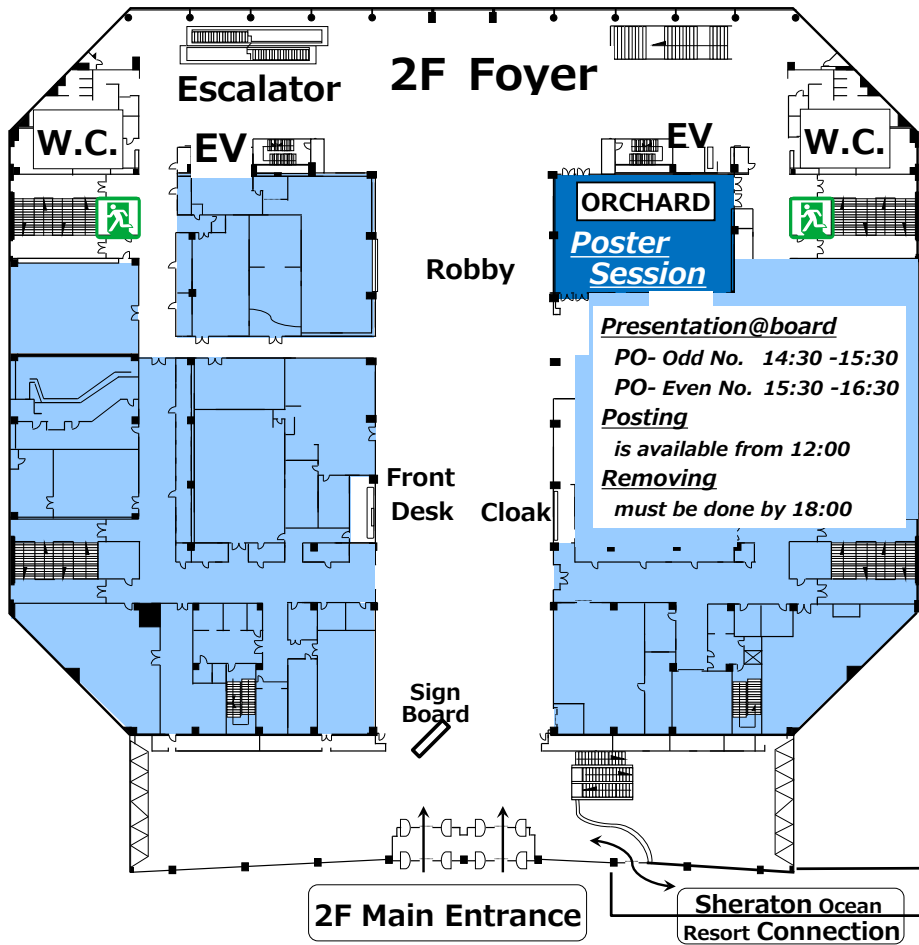
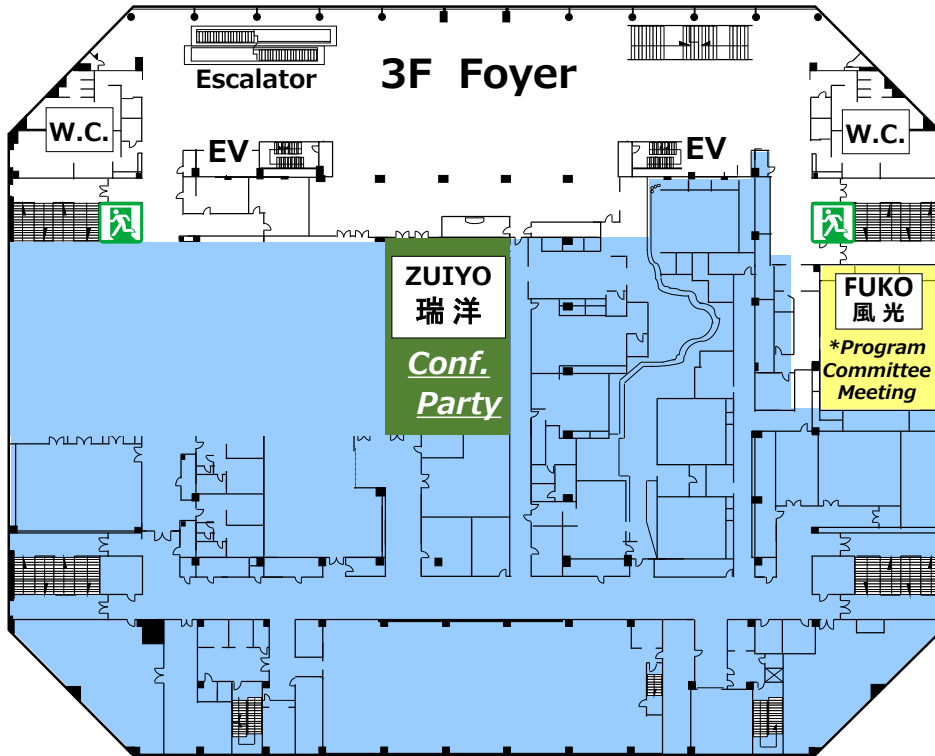
# Floor Guide



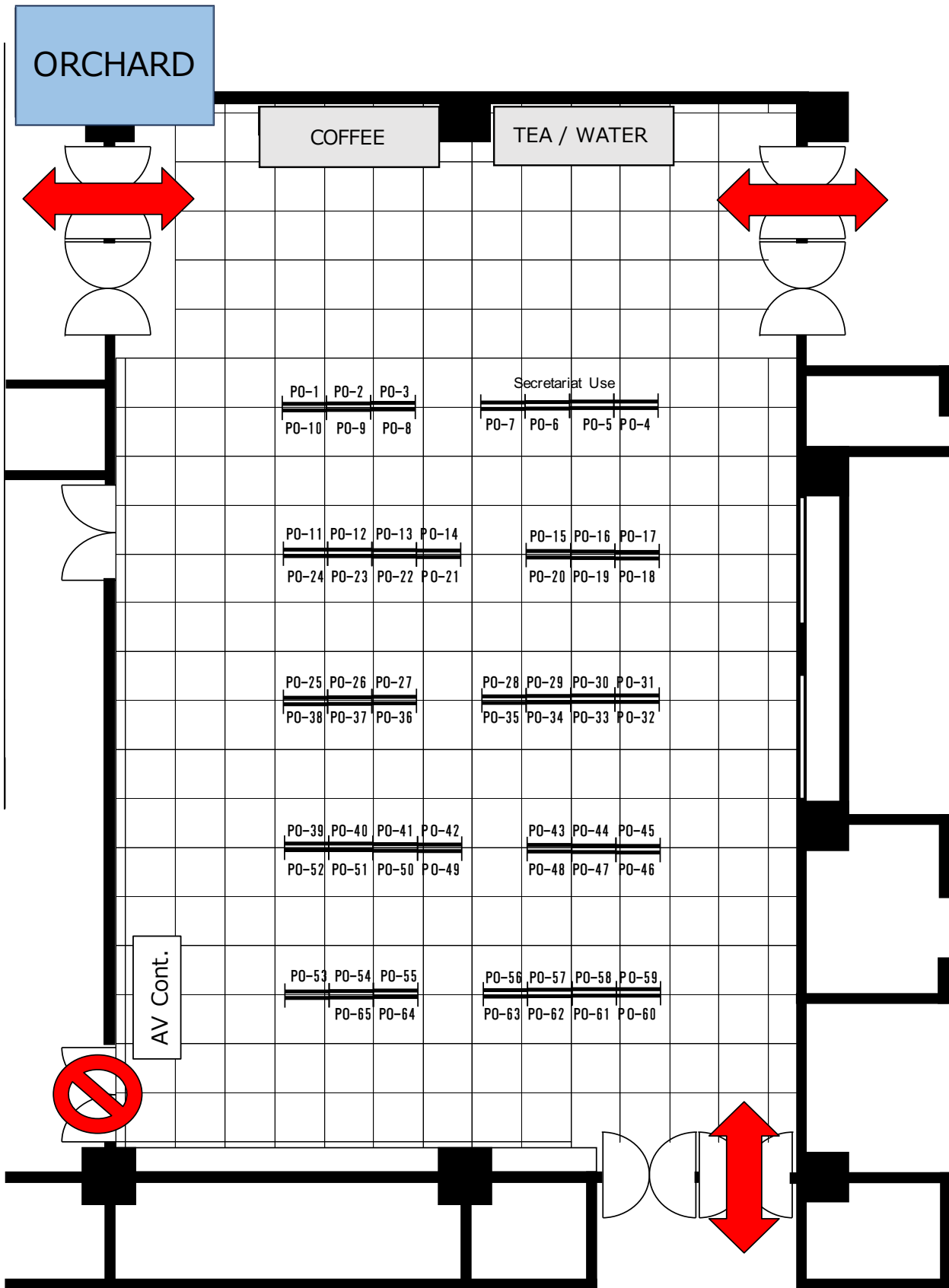
## Symbol of Sessions

**WR:** Welcome Remarks  
**SO:** Sunday Special Session "Social Optics"  
**A:** Emerging Photonics  
**OR:** Opening Remarks  
**PL:** Plenary Session  
**AC-I:** Award Ceremony I  
**B:** Integrated Photonics  
**PO:** Poster Session  
**C:** Novel Materials and Devices  
**D:** Advanced Light Sources  
**E:** Communication and THz Tech.

**F:** Applications of Optics  
**G:** Nanophotonic Structure  
**SQ:** Special Symposium  
     "Quantum Information Processing"  
**H:** Next Generation Photonics  
**J:** High Performance Modulation  
**K:** Interconnects and Packaging  
**PD:** Post Deadline papers  
**AC-II:** Award Ceremony II  
**CR:** Closing Remarks



# Poster Board Layout @ORCHARD



# The 23rd Microconcert

- The Social Event of MOC2023 -

September 25 (Monday), 17:00~18:00

At Seagaia, Congress Center 4F JUYO

Performed by  
Machida Philharmony Baroque Ensemble (MPB)

## Concert Program

- 1) W. A. Mozart: "Divertimento" K. 136
- 2) G. F. Händel : "Concerto Grosso" Op. 6-2
- 3) J. -P. -É. Martini: "Plaisir d'Amour"  
*Vocal: Prof. Hirochika Nakajima*
- 4) C. Hubert H. Parry: "An English Suite"

Machida Philharmony Baroque Ensemble (MPB) is a community string orchestra located at Machida-city, Tokyo. This Ensemble was founded in 1990 and has been performing the Microconcert as the social event of Microoptics Conferences.



Concert 2022 at Potpourri Hall, Tokyo

MPB: <http://www.home.f09.itscom.net/mpb/>

## Members on Stage

Chair : Prof. Kenichi Iga

Solo Concertmistress & Coach : Takako Yoshii

Secretary & Stage Manager : Akio Yoshii

Violin : Takako Yoshii, Kaeko Fujii, Tomoko Iga, Shoko Suzuki,  
Mizuho Okada, Mizue Hoshi, Yoshikazu Karasawa,  
Akiko Maehara, Mariko Furuta, Michiko Hoshijima\*)  
Hideyo Miyamura\*)

Viola : Reiko Araki, Yoko Miyazaki, Katsumi Mori

Violoncello : Masamichi Ishikawa, Taro Yamamizu, Kazutaka Okasaka\*)

Contrabass : Shigeyuki Narusawa, Kenichi Iga\*)

Cembalo : Naomi Hanzawa \*) Absent



# Program

## 1. Wolfgang Amadeus Mozart (1756-1791)

### “Divertimento” K. 136 in D major

It was composed in Salzburg in 1772 (at the age of 16) after returning from his second trip to Italy. In the typical sonata form, it has the atmosphere of an Italian-style overture and a melody, showing the vigor of the experimental spirit of the young Mozart.

## 2. Georg Friedrich Händel (1685-1759)

### “Concerto Grosso” Op. 6-2

There are nearly 30 of Händel's concerto grossi, but Op. 6 is currently the most frequently played. Op. 6-2 is one of the most beautiful of the 12 Op. 6 concerto grossi, and its idyllic songs, which sing about nature, are said to be similar to Beethoven's Pastoral Symphony.



Violin I Solo:  
Takako Yoshii



Violin II Solo:  
Mizue Hoshi



Violoncello Solo:  
Masamichi Ishikawa



Cembalo Solo:  
Naomi Hanzawa

## 3. Jean-Paul-Égide Martini (1741–1816)

### “Plaisir d'Amour”

Contrary to the apparently bright major melody, it is a bitter song that says, "The joy of love lasts only a moment, and the sadness of parting lasts a lifetime."

In 1859, Louis Hector Berlioz arranged this song for orchestra and voice as H134.

Vocal: Hirochika Nakajima



## 4. Charles Hubert Hastings Parry (1848-1918)

### “An English Suite”

He was a composer who laid the foundations of modern British music, and influenced Vaughan Williams, Holst and Britten. Parry was close to Wagner, but was more inclined to Bach and Brahms in composition. An English Suite was a Händel-style string ensemble written in the style of the Baroque period, and unfinished by Parry's death. It was compiled into its present form by Dr. Emily R. Daymond of the Royal College of Music, which received the dedication.

# Technical Program

## Special Session

### ■ Sunday Special Session “Social Optics”

Sunday Special Session “Social Optics” will be held in JUYO, 4F on Sunday, 24 September. The following papers are invited talk.

**" Membrane Photonic Devices for IOWN "**

S. Matsuo, K. Takeda, T. Fujii, T. Tsurugaya, T. Sato, and T. Segawa, *NTT Corp.*

**" X-raying the Universe with Semiconductor Detectors "**

K. Mori<sup>1,2</sup>, <sup>1</sup>*Univ. Miyazaki*, <sup>2</sup>*JAXA*

**" Optical Technologies for Solving Social Issue "**

S. Wada, T. Ogawa, M. Yumoto, T. Murakami, and N. Saito, *RIKEN*

### ■ Special Symposium “Quantum Information Processing”

Special Session “Quantum Information Processing” will be held in JUYO, 4F on Tuesday, 26 September. The following papers are invited talk.

**" Introductory Talk: “How Can Integrated Photonics Boost Quantum Technology?” "**

S. Iwamoto, *Univ. Tokyo*

**" Photonic Quantum Computing "**

M. Thompson, *Psi-Quantum*

**" Generation, Manipulation and Detection of Light at the Single Photon Level "**

V. Zwiller, *KTH Royal Inst. Tech.*

**" Monolithic Ion Trap Integrated with a Micro Optical Cavity for Quantum Networks "**

S. Gao, S. Teh, E. Kassa, and H. Takahashi, *OIST*

**" Topological Quantum Photonics "**

A. Blanco-Redondo, *Univ. Central Florida*

## Plenary Session

Plenary Session will be held in JUYO, 4F on Monday, 25 September. The following papers are invited as the plenary talks.

**" Review of Semiconductor Lasers in Long Haul Optical Fiber Communications "**

A. Kasukawa, *Furukawa Electric Co., Ltd.*

**" Integrated Lithium Niobate Photonics and Applications "**

M. Loncar, *Harvard Univ.*

**" 3D Laser Micro- and Nanoprinting: Status and Perspectives "**

M. Wegener, *Karlsruhe Inst. of Tech.*

## Oral Presentation

Oral Sessions are to be held in Venue, 4F. 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 Venue, 2F, in the afternoon on Monday, 25 September. The poster session is open during 14:30-16:30. For the convenience of the participants, the presentation core time when the authors must stand will be divided into two periods. The first period (14:30-15:30) is for authors with the paper of odd-number (P1, P3, ...) and the second period (15:30-16:30) 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 mm<sup>2</sup>).

## 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 MOC2023 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 MOC2023 paper and will be published in Aug. 2024. The instructions for preparation and submission of manuscript are on MOC2023 website (Mode of Presentation). The deadline for submission of manuscripts is 13 January 2024. Submitted papers will be reviewed based on the JJAP standard.

## Official Language

The official language of MOC2023 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

## Get-Together

Get Together will be held in CRYSTAL ROOM, 4F on the evening of Sunday, 24 September. All the attendees of MOC2023 are cordially invited.

## Award Ceremony

MOC award ceremony will be held in JUYO, 4F at 11:45, Monday, 25 September.

MOC paper award ceremony will be held in JUYO, 4F at 16:15, Wednesday, 27 September.

## Microconcert

"Microconcert" will be performed by Machida Philharmony Baroque Ensemble (MPB) in JUYO, 4F, 17:00-18:00 Monday 25, September. All the attendees of MOC2023 and their accompanying family are invited to the Microconcert.

## Conference Party

On the evening of Monday, 25 September, Conference Party starts at 18:15 right after the Microconcert at 3F ZUIYO. Participants who want to attend the party are requested to make registration. The party registration fee is ¥3,000 per person.

# Technical Sessions

Sunday, 24 September

**13:55–14:00 Welcome Remarks**

Venue: 4<sup>th</sup> floor, JUYO

**Welcome Remarks and Introductory for “Social Optics”:**

13:55 M. Arai, *Univ. Miyazaki*

**14:00–15:45 Session SO: Sunday Special Session “Social Optics”**

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs: M. Arai, *Univ. Miyazaki*

T. Sato, *NTT*

**SO-1 Membrane Photonic Devices for IOWN** (*Invited*)

14:00 S. Matsuo, K. Takeda, T. Fujii, T. Tsurugaya, T. Sato, and T. Segawa, *NTT Corp.*

**SO-2 X-raying the Universe with Semiconductor Detectors** (*Invited*)

14:30 K. Mori<sup>1,2</sup>, <sup>1</sup>*Univ. Miyazaki*, <sup>2</sup>*JAXA*

**SO-3 Optical Technologies for Solving Social Issue** (*Invited*)

15:00 S. Wada, T. Ogawa, M. Yumoto, T. Murakami, and N. Saito, *RIKEN*

**SO-4 Canon's Latest Activity on Micro-optics**

15:30 T. Sukegawa, Y. Okura, M. Koyama, T. Nakayasu, and Y. Suyama, *Canon Inc.*

Break (15:45–16:00)

**16:00–17:00 Session A: Emerging Photonics**

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs: S-L. Lee, *Taiwan Tech.*

H. Ishii, *Furukawa Electric*

**A-1 Cryogenic Integrated Photonics: Where Optical Communication Meets Cryogenic Computing** (*Invited*)

16:00 P. Pintus<sup>1,2</sup>, A. Singh<sup>3</sup>, L. Ranzani<sup>3</sup>, S. Pinna<sup>2</sup>, W. Xie<sup>2</sup>, D. Huang<sup>2,4</sup>, M.V. Gustafsson<sup>3</sup>, G.A. Casula<sup>1</sup>, Y. Shoji<sup>5</sup>, Y. Takamura<sup>5</sup>, T. Mizumoto<sup>5</sup>, G. Moody<sup>2</sup>, M. Soltani<sup>3</sup>, and J.E. Bowers<sup>2</sup>, <sup>1</sup>*Univ. Cagliari*, <sup>2</sup>*UCSB*, <sup>3</sup>*Raytheon BBN Tech.*, <sup>4</sup>*Currently with Intel Corp.*, <sup>5</sup>*Tokyo Inst. Tech.*

**A-2 SU(4) States of Coherent Photons and Symmetry-Breaking: A Quantum-Classical Crossover**

16:30 S. Saito, *Hitachi, Ltd.*

**A-3 High-Order Gaussian Beams and Optical Vortices as Rigorous Solutions of Maxwell Equations**

16:45 G. Hatakoshi<sup>1</sup> and S. Kawakami<sup>2</sup>, <sup>1</sup>*Microoptics Group*, <sup>2</sup>*Photonic Lattice, Inc.*

Break (17:00–17:15)

**17:15–18:15 Get Together Party**

Venue: 4<sup>th</sup> floor, CRYSTAL ROOM

# Monday, 25 September

## 9:15–9:30 Opening Remarks

Venue: 4<sup>th</sup> floor, JUYO

Honorary Conference Chair:

K. Iga

Conference Co-Chairs:

T. Sato, *NTT Corp.*

T. Watanabe, *Kagoshima Univ.*

## 9:30–11:45 Session PL: Plenary Session

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs:

T. Sato, *NTT Corp.*

T. Watanabe, *Kagoshima Univ.*

### PL-1 Review of Semiconductor Lasers in Long Haul Optical Fiber Communications

9:30 A. Kasukawa, *Furukawa Electric Co., Ltd.*

### PL-2 Integrated Lithium Niobate Photonics and Applications

10:15 M. Loncar, *Harvard Univ.*

### PL-3 3D Laser Micro- and Nanoprinting: Status and Perspectives

11:00 M. Wegener, *Karlsruhe Inst. of Tech.*

## 11:45–12:00 Award Ceremony I

Venue: 4<sup>th</sup> floor, JUYO

Lunch (12:00-13:00)

## 13:00–14:00 Session B: Integrated Photonics

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs:

Y.-J. Chiu, *National Sun Yet-sen Univ.*

Y. Kokubun, *Inst. Technologists*

### B-1 Scalability of Heterogeneous Photonic Integrated Circuits (*Invited*)

13:00 Y. Su, *Shanghai Jiao Tong Univ.*

### B-2 Silicon Photonics based Multi-functional Integrated Optical Circuit with Hybrid Integrated III-V Photodiode for fiber Optics Gyroscope Application

13:30 T.-H. Kuo, T.-J. Kuo, S.-Y. Lu, W.-X. Chen, Y.-C. Wang, L.-X. Lan, and Y.-Jr. Hung, *National Sun Yat-sen Univ.*

### B-3 Silicon Based High Resolution Passive Optical Phased Array Consisting of Multi-Mode Waveguides

13:45 Y. Misugi and T. Kita, *Waseda Univ.*

Break (14:00–14:30)

## 14:30–16:30 Session PO: Poster Session

Venue: 2<sup>nd</sup> floor, ORCHARD

Co-Chairs:

S. Kimura, *Toshiba Corp.*

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

### PO-1 Simulated Spectra and Power of Laser Oscillation and Amplified Spontaneous Emission for Spectral-Broadness-Tunable Littman External Cavity Lasers

N. Kato, Y. Takiguchi, and H. Tanaka, *Hamamatsu Photonics K.K.*

### PO-2 Spatial Distribution Observation of Sonoluminescence from Acoustic Cavitation Bubbles in Electric-Field-Applied Water

T. Kashiwaki, S. Fukushima, T. Watanabe, and T. Nagayama, *Kagoshima Univ.*

### PO-3 Proposal of 5-mode Multiplexer Using Pillar Type Photonic Crystal Waveguides

H. Wang, T. Fujisawa, T. Sato, and K. Saitoh, *Hokkaido Univ.*



- PO-4 High Tolerant Design of Peltier-Free Si Wavelength Filter Using Mach-Zehnder Interferometer for DWDM Application**  
K. Maeda<sup>1</sup>, T. Sato<sup>1</sup>, T. Fujisawa<sup>1</sup>, T. Mitarai<sup>2</sup>, T. Hiratani<sup>2</sup>, T. Okimoto<sup>2</sup>, T. Ishikawa<sup>2</sup>, N. Kono<sup>2</sup>, N. Fujiwara<sup>2</sup>, H. Yagi<sup>2</sup>, and K. Saitoh<sup>1</sup>, <sup>1</sup>*Hokkaido Univ.*, <sup>2</sup>*Sumitomo Electric Ind., Ltd.*
- PO-5 See-Through HMD With Triangular Microstructure for High Visibility**  
C-S. Yang<sup>1</sup>, K-W. Zhao<sup>2</sup> and J-W. Pan<sup>1</sup>, <sup>1</sup>*National Yang Ming Chiao Tung Univ.*, <sup>2</sup>*National Chiao Tung Univ.*
- PO-6 100 Gbps Direct Modulation Scheme by Utilizing Active-MMI Laser**  
H. Xiao, Y. Kawano, H. Jiang, and K. Hamamoto, *Kyushu Univ.*
- PO-7 Pixel Base Optimized Design Method for Compact and Low-Loss Three-Dimensional Silicon Photonic Y-Junction**  
H. Soda, *Independent Consultant*
- PO-8 Construction of Laser Interferometer Consisting of Different Wavelengths Using Laser Combiner System for Fabrication of Holographic Memory for Optically Reconfigurable Gate Array**  
A. Ogiwara<sup>1</sup> and M. Watanabe<sup>2</sup>, <sup>1</sup>*Kobe City College of Tech.*, <sup>2</sup>*Okayama Univ.*
- PO-9 Investigation of Stimulated Raman Scattering in Magnesium Fluoride Microcavities**  
G. Lin, Harbin Inst. Tech.
- PO-10 Near Infrared Photopolymerizing Resin Compositions for Light-induced Self-Written Waveguide**  
H. Terasawa<sup>1</sup>, T. Namekawa<sup>2</sup>, K. Kondo<sup>1</sup>, and O. Sugihara<sup>1</sup>, <sup>1</sup>*Utsunomiya Univ.*, <sup>2</sup>*Orbray Co., Ltd.*
- PO-11 Novel 3D Printing Technology without Voxel Defect for Optical Application**  
J-F. Tang, K-W. Lin, T-H. Lin, and W-C. Lin, *National Sun Yat-sen Univ.*
- PO-12 Photoluminescence Intensity Dependence of InGaAs MQW on Relaxation Layer Composition on GaAs Substrate**  
K. Usui, K. Hombu, H. Suzuki, and M. Arai, *Univ. Miyazaki*
- PO-13 High-Quality Incoherent Digital Holography Imaging with Interference Fringe Super-Resolution**  
Y. Katano, M. Usui, T. Nobukawa, K. Hagiwara, and T. Muroi, *Japan Broadcasting Corp.*
- PO-14 Water Flow Detection Optical Sensor Using Flat-top beam Generated by Galilean Telescoping Beam Shaper for Underwater Channel Monitor**  
F. Kobori, T. Ishikawa, A. Kariya, K. Tanaka, and T. Kodama, *Kagawa Univ.*
- PO-15 Crack Detection Using Laser Displacement Measurement System based on Signal Intensity Correlation**  
Y. Endo, K. Kumano, T. Ideno, and Y. Yanaka, *Tokyo Univ. of Agriculture and Tech.*
- PO-16 Multi-point Optical Fiber Remote Temperature Measurement System by Combining Fabry-Perot-interference Sensors and a Wavelength Division Multiplexing Filter**  
H. Fukano and M. Kamada, *Okayama Univ.*
- PO-17 Corroded Area Detection and Onset Day Estimation of Mango Using Hyperspectral Imaging**  
H. Yoshioka, K. Shimotabira, and M. Arai, *Univ. Miyazaki*
- PO-18 Characteristics of Highly Sensitive Hydrogen Sensor Based on Pt-SiO<sub>2</sub>/Si Microring Resonator**  
J. Igarashi<sup>1</sup>, S. Okazaki<sup>1</sup>, Y. Nishijima<sup>1</sup>, A. Higo<sup>2</sup>, and T. Arakawa<sup>1</sup>, <sup>1</sup>*Yokohama National Univ.*, <sup>2</sup>*Univ. Tokyo*
- PO-19 Simultaneous Measurement of Velocity Distribution by Three-Dimensional Spatial Encoding**  
H. Yamaji and K. Maru, *Kagawa Univ.*
- PO-20 Multi-Point Measurement of Vibration Displacements with their Phase Difference Using Phase-Modulated Interferometer**  
K. Asanuma, Y. Noda, S. Matsumoto, and Y. Tanaka, *Tokyo Univ. of Agriculture and Tech.*

- PO-21 High-Power Laser Irradiative Optical Fiber Probe Integrated with a Short Temperature Sensor for Laser Ablation**  
K. Ooshima and H. Fukano, *Okayama Univ.*
- PO-22 Beam Steering with Improved Peak Intensity and PSL for OPA's Using Novel Grouping Phase Error Technique**  
S. R. G. Neralla and S-L Lee, *National Taiwan Univ. of Science and Tech.*
- PO-23 Nonradiative Recombination Centers Mapping of Oxygen Precipitates in p-type Si Using a Laser Heterodyne Photothermal Displacement Method**  
T. Harada<sup>1,2</sup>, T. Iwakiri<sup>1</sup>, H. Ohyama<sup>1</sup>, S. Harada<sup>1</sup>, T. Ikari<sup>1</sup>, and A. Fukuyama<sup>1</sup>, <sup>1</sup>*Univ. Miyazaki*, <sup>2</sup>*JSPS Research Fellow*
- PO-24** withdrawal
- PO-25 Calibration and Analysis of Microscopic Hyperspectral Imaging and its Applications on Micro-Optics**  
Y-C. Huang<sup>1,2</sup>, H-Y. Cheng<sup>3</sup>, G-H. Lu<sup>1</sup>, C-F. Liu<sup>1</sup>, and C-J. Weng<sup>1</sup>, <sup>1</sup>*Taiwan Instrument Research Inst.*, <sup>2</sup>*National Tsing Hua Univ.*, <sup>3</sup>*National Taiwan Univ.*
- PO-26 Microoptics Integrating Smartphone Applications Reader with Paper-based Analyser for Accurate Estimation of Nickel in Water**  
M. Nakagawa<sup>1</sup>, G. Tong<sup>1</sup>, P. Nath<sup>2</sup> and D. Citterio<sup>1</sup>, <sup>1</sup>*Keio Univ.* <sup>2</sup>*Tezpur Univ.*
- PO-27 Convolutional Neural Networks for Distributed Fiber Sensor Detection with Low Complexity and High Accuracy**  
B. Pamukti<sup>1</sup>, S-K. Liaw<sup>1</sup>, F-L. Yang<sup>2</sup>, and C-W. Liao<sup>2,3</sup>, <sup>1</sup>*Taiwan Tech*, <sup>2</sup>*Academia Sinica*, <sup>3</sup>*Industrial Technology Research Institute*
- PO-28 Generation of Terahertz Wave at 560 GHz based on Photomixing of 560-GHz-spacing Soliton Microcomb with UTC-PD**  
S. Okada, K. Nishimoto, Y. Tokizane, H. Kishikawa, Y. Okamura, N. Kuse, and T. Yasui, *Tokushima Univ.*
- PO-29 High-bandwidth Silicon Micro-Ring Modulator Employing Low-loss Waveguide Bends**  
R-S. Wang<sup>1</sup>, C-H. Wu<sup>1</sup>, C-H. Chen<sup>1</sup>, P-H. Chiang<sup>1</sup>, R-Y. Chen<sup>1</sup>, C-C. Wei<sup>1</sup>, Y-J. Chiu<sup>1</sup>, C-S. Huang<sup>2</sup>, H-C. Hsieh<sup>2</sup>, H-C. Pan<sup>2</sup>, H. Li<sup>2</sup>, and Y-Jr. Hung<sup>1</sup>, <sup>1</sup>*National Sun Yat-sen Univ.*, <sup>2</sup>*Wistron Corp.*
- PO-30 Realization of High-power DFB Lasers with Single and Multiple Partially Corrugated Gratings**  
S. Sulikhah<sup>1</sup>, K-C. Ma<sup>1</sup>, S-L. Lee<sup>1</sup>, C-G. Tu<sup>2</sup>, I-F. Jang<sup>2</sup>, H-P. Shiao<sup>2</sup>, and H-W. Tsao<sup>3</sup>, <sup>1</sup>*National Taiwan Univ. of Science and Tech.*, <sup>2</sup>*WIN Semiconductors*, <sup>3</sup>*National Taiwan Univ.*
- PO-31 Tunable Vernier Series-coupled Microring Resonator Filters Based on Multiple-quantum-well Waveguide**  
Z. Peng and T. Arakawa, *Yokohama National Univ.*
- PO-32 A Buried Heterostructure Laser Diode Based on High Thermal Conductivity Silicon. Carbide Substrate**  
W-C. Feng, Y-J. Chen, J-Y. Chiu, B-H. Chen, L-K. Du, C-W. Hsiao, and Y-J Chiu, *Inst. Electro-Optical Engineering and Dep. Photonics*
- PO-33 Proposal of Ultralow-Driving-Voltage Microring Resonator Electroabsorption Modulator for Cryogenic Operation**  
M. Aomi<sup>1</sup>, Y. Kokubun<sup>2</sup>, and T. Arakawa<sup>1</sup>, <sup>1</sup>*Yokohama National Univ.*, <sup>2</sup>*Inst. Technologists*
- PO-34 2D Grating Coupler Integrated with Two Parallel EAMs for Compact PAM-4 Silicon Photonics Transmitter**  
H-J. Chen, R-Y. Chen, Y-Jr Hung, C-C. Wei, and Y-J. Chiu, *National Sun Yat-sen Univ.*
- PO-35 Investigation of Planar Antennas for Improving Modulation Characteristics of Quantum Well Optical Phase Modulators for Radio-over-fiber System**  
R. Nakazawa, G. Sekiguchi, and T. Arakawa, *Yokohama National Univ.*

- PO-36 Optical Transition Energy of InAs/GaSb Type-II Superlattice Investigated by Using Photoluminescence and Photoreflectance Spectroscopy**  
T. Yatabe, N. Taketa, M. Arai, K. Maeda, T. Ikari, and A. Fukuyama, *Univ. Miyazaki*
- PO-37 Thermo-responsive Smart Glass**  
T-H. Wang and S-C. Jeng, *National Yang Ming Chiao Tung Univ.*
- PO-38 Carrier Transition Process of Wire-on-Well Quantum Structures Investigated by Using Photoluminescence and Photoreflectance Spectroscopies**  
S. Komaba<sup>1</sup>, N. Taketa<sup>1</sup>, M. Asami<sup>2</sup>, M. Sugiyama<sup>2</sup>, T. Ikari<sup>1</sup>, and A. Fukuyama<sup>1</sup>, <sup>1</sup>*Univ. Miyazaki*, <sup>2</sup>*Univ. Tokyo*
- PO-39 Relationships Between Distribution of Dislocation Glide Planes and Carrier Recombination Properties in InGaAs Solar Cells Using Microwave Photoconductivity Decay Mapping and Photoluminescence Spectroscopy**  
S. Harada<sup>1</sup>, H. Suzuki<sup>1</sup>, A. Ogura<sup>2</sup>, M. Imaizumi<sup>3</sup>, T. Ikari<sup>1</sup>, and A. Fukuyama<sup>1</sup>, <sup>1</sup>*Univ. Miyazaki*, <sup>2</sup>*Tsukuba Univ.*, <sup>3</sup>*Sanjo City Univ.*
- PO-40 One kHz-Order Linewidth-Stabilized Ring-Cavity Fiber Laser Based on Sub-Ring Cavities and Saturable Absorber Hybrid Scheme**  
Z. Wang<sup>1</sup>, S-K. Liaw<sup>1</sup>, C-H. Yeh<sup>2</sup>, Y-M. Yang<sup>3</sup>, and B-H. Lee<sup>3</sup>, <sup>1</sup>*National Taiwan Univ. of Science and Tech.*, <sup>2</sup>*Feng Chia Univ.*, <sup>3</sup>*Industrial Tech. Research Inst.*
- PO-41 Simultaneously Measurement of Refractive Index and Strain by Using Polished Hollow-Core Fiber**  
Y-C. Wang and C-P. Yu, *National Sun Yet-sen Univ.*
- PO-42 Experimental Demonstration of Vertical Field Tuning Using Nano-Pixel Spot-Size Converter**  
R. Matsuo, H. Jiang, Y. Kim, and K. Hamamoto, *Kyushu Univ.*
- PO-43 Nb<sub>2</sub>O<sub>5</sub>-based Grating Coupler Design in Integrated Probe for 3D Velocity Distribution Measurement**  
S. Yamada<sup>1</sup>, K. Maru<sup>1</sup>, and K. Nakatsuhara<sup>2</sup>, <sup>1</sup>*Kagawa Univ.* <sup>2</sup>*Kanagawa Inst. Tech.*
- PO-44 Wavelength Insensitive Three-Mode Directional Coupler Designed by Wavefront Matching Method for Broadband Mode- Dependent-Loss Equalizer**  
R. Ima<sup>1</sup>, T. Fujisawa<sup>1</sup>, M. Wada<sup>2</sup>, T. Mori<sup>2</sup>, T. Sakamoto<sup>2</sup>, R. Imada<sup>2</sup>, T. Sato<sup>1</sup>, T. Matsui<sup>2</sup>, K. Nakajima<sup>2</sup>, and K. Saitoh<sup>1</sup>, <sup>1</sup>*Hokkaido Univ.*, <sup>2</sup>*NTT Corp.*
- PO-45 Serially-Connecting Cascaded Mach-Zehnder Interferometers and Ring Resonator Arrays for Wavelength (de)multiplexing CW-WDM Channels**  
R-S. Wang<sup>1</sup>, C-H. Chen<sup>1</sup>, C-S. Huang<sup>2</sup>, H-C. Hsieh<sup>2</sup>, H-C. Pan<sup>2</sup>, H. Li<sup>2</sup>, and Y-Jr Hung<sup>1</sup>, <sup>1</sup>*National Sun Yat-sen Univ.*, <sup>2</sup>*Wistron Corp.*
- PO-46 Controlling Liquid Crystal Droplets in Aqueous Solution**  
C-W Lin<sup>1</sup>, A-I. Hsu<sup>1</sup>, W-Y. Li<sup>2</sup> and S-C Jeng<sup>1</sup>, <sup>1</sup>*National Yang Ming Chiao Tung Univ.*, <sup>2</sup>*CM Visual Tech. Corp.*
- PO-47 Numerical Analyses of All-Optical Gate Switches Using Cascaded Second Harmonic Generation and Difference Frequency Mixing in Quasi-Phase-Matched LiNbO<sub>3</sub> Devices**  
Y. Fukuchi, Y. Saotome, and D. Shiratori, *Tokyo Univ. of Science*
- PO-48 Low-Loss VCSEL Coupler in Si Photonics**  
N. Tahara, R. Taira, and T. Baba, *Yokohama National Univ.*
- PO-49 Sixteen-Channel CW-WDM Wavelength Multiplexer Based on Free-Spectral-Range Insensitive Cascaded Mach-Zehnder Interferometers on SOI**  
C-H. Chen and Y-Jr Hung, *National Sun Yat-sen Univ.*
- PO-50 Compact Silicon MZI Optical Switch with Low Thermal-crosstalk**  
K. Iino and T. Kita, *Waseda Univ.*
- PO-51** withdrawal

- PO-52 Hybrid Integration of Active III-V on Standard SOI Photonic Platform Based with GACC Methods**  
I. Novitasari and S-L. Lee, *National Taiwan Univ. of Science and Technology*
- PO-53 Real-time Underwater Channel Transmission Experiment of Robust Gigabit-UWOC System with Dithering by Rotating Mechanical Beam Steering**  
T. Ishikawa, F. Kobori, A. Kariya, K. Tanaka, and T. Kodama, *Kagawa Univ.*
- PO-54 Spectrally Efficient OFDM Modulation and Characterization of Silicon Photonics Micro-ring Modulator**  
Y-C. Yu<sup>1</sup>, P-H. Chiang<sup>1</sup>, C-C. Wei<sup>1</sup>, C.S. Huang<sup>2</sup>, H.C. Hsieh<sup>2</sup>, H.C. Pan<sup>2</sup>, and W-J. Ting<sup>2</sup>, <sup>1</sup>*National Sun Yat-sen Univ.*, <sup>2</sup>*Wistron Corp.*
- PO-55 Optical Label Recognition for Two-Symbol QPSK-Coded Labels Using Complex-Valued Neural Network**  
Y. Ohkubo, H. Kishikawa, and J. Fujikata, *Tokushima Univ.*
- PO-56 Influence of Underwater Turbulence on Orbital Angular Momentum Beam Propagation**  
A. Nakamura, H. Kishikawa, and J. Fujikata, *Tokushima Univ.*
- PO-57 Inter-Mode Noises Homogenization for All-Optical Hybrid MDM-OFDM Systems Using Subcarrier-Group Power-Loading**  
T. Kodama<sup>1</sup> and G. Cincotti<sup>2</sup>, <sup>1</sup>*Kagawa Univ.*, <sup>2</sup>*Univ. Roma Tre*
- PO-58 Performance Evaluation of Ground-to-Satellite Free Space Optical Wireless Communication at Low Earth Orbit (LEO) Range**  
S. Afifah<sup>1</sup>, L. Marlina<sup>1</sup>, S-K. Liaw<sup>1</sup>, H. Kishikawa<sup>2</sup>, and P-J. Lee<sup>1</sup>, <sup>1</sup>*Taiwan Tech.*, <sup>2</sup>*Tokushima Univ.*
- PO-59 Signal Quality Improvement in Optical Communication at Varying Bit Rates Using Machine Learning: A Preliminary Study**  
L. Marlina<sup>1</sup>, M. H. B. Pratama<sup>2</sup>, M. F. F. Pradipta<sup>1</sup>, S-K. Liaw<sup>1</sup>, J-Y. Sung<sup>1</sup>, and H. Ochi<sup>2</sup>, <sup>1</sup>*National Taiwan Univ. of Science and Tech.*, <sup>2</sup>*Kyushu Inst. Tech.*

( Following postdeadline papers are accepted for poster presentation )

- PO-60 Simulation on Temperature Rise Using Ring-Resonator-Type Device for Heat-Assisted Magnetic Recording**  
R. Katayama<sup>1</sup> and S. Sugiura<sup>2</sup>, <sup>1</sup>*Fukuoka Inst. Tech.*, <sup>2</sup>*InnovaStella*
- PO-61 Fundamental Study on Propagation Using Laguerre-Gaussian Beams and Correction Filters for Underwater Optical Wireless Communications**  
K. Takeuchi and K. Ogawa, *Japan Women's Univ.*
- PO-62 1 × 4 Nano-Pixel Power Splitter Designed Using Overlap-Integral Method**  
Y. Xie, H. Jiang, and K. Hamamoto, *Kyushu Univ.*
- PO-63 Distributed Fiber Optic Sensor for Branch Localization Using Twice-FFT**  
Y. Song, Y. Ma, X. Lai, B. Jia, and Q. Xiao, *Fudan Univ.*
- PO-64 Nano-Pixel Polarization Rotator for Photonic Integrated Breath Sensor**  
S. Bruhier, H. Jiang, and K. Hamamoto, *Kyushu Univ.*
- PO-65 90° Nano-Pixel Bending Waveguide Toward Highly Compact Reflecting Element**  
I. M. Shafiqul, H. Jiang, R. Kuwahata, Z. Zheng, and K. Hamamoto, *Kyushu Univ.*

Break (16:30–17:00)

**17:00–18:00 Microconcert**

Venue: 4<sup>th</sup> floor, JUYO

**Performed by Machida Philharmony Baroque Ensemble (MPB)**

- 1) W. A. Mozart: "Divertimento" K. 136
- 2) G. F. Händel: "Concerto Grosso" Op. 6-2
- 3) J. -P. -É. Martini: "Plaisir d'Amour"  
Vocal: Prof. Hirochika Nakajima
- 4) C. Hubert H. Parry: "An English Suite"

Break (18:00–18:15)

**18:15–20:15 Conference Party**

Venue: 3<sup>rd</sup> floor, ZUIYO

## Tuesday, 26 September

**9:00–10:00 Session C: Novel Materials and Devices**

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs: S. Gao, OIST  
R. Kou, AIST

**C-1 Strong Exciton-Photon Coupling in 2D Materials** (*Invited*)

9:00 V. Menon, *The City College of New York*

**C-2 All-Glass 3D-Printed Fiber Couplers**

9:30 P-H. C-Nguyen, and H. Zappe, *Univ. of Freiburg*

**C-3 Preliminary Investigation of Inverse Faraday Effect Using Silicon Waveguide on Magneto Optical Garnet**

9:45 T. Murai<sup>1</sup>, R. Kou<sup>1</sup>, Y. Shoji<sup>2</sup>, and K. Yamada<sup>1</sup>, <sup>1</sup>AIST, <sup>2</sup>Tokyo Inst. Tech.

Break (10:00–10:15)

**10:15–12:00 Session D: Advanced Light Sources**

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs: C-P. Yu, National Sun Yet-sen Univ.  
G. Hatakoshi, JSAP

**D-1 Integrated Photonic Quantum Sources and Circuits in Lithium Niobate Platform** (*Invited*)

10:15 T-D. Pham<sup>1</sup>, Y-X. Lin<sup>1</sup>, C-C. Chiu<sup>1</sup>, H-P. Chung<sup>1</sup>, A. Niko<sup>1</sup>, P-J. Tsai<sup>1</sup>, M. Younesi<sup>2</sup>, R. Geiss<sup>2</sup>, F. Setzpfandt<sup>2</sup>, T. Pertsch<sup>2</sup>, and Y-H. Chen<sup>1</sup>, <sup>1</sup>National Central Univ., <sup>2</sup>Friedrich-Schiller-Univ Jena

**D-2 Narrow Spectral Linewidth Wavelength Tunable Laser Diode Using Self-injection Locking**

10:45 T. Yabuki, T. Kita, *Waseda Univ.*

**D-3 Hybrid Wavelength Tunable Laser Diode Using Curved Directional Couplers with Small Wavelength Dependence**

11:00 K. Iwanaga, Y. Tomimura, and T. Kita, *Waseda Univ.*



**D-4 Demonstration of Improvement of Relative Frequency Precision in Multi-Wavelength Light Source**

11:15 K. Ishikawa, A. Yamamoto, R. Otsubo, Y. Ishikawa, M. Kotoku, and H. Ishii, *Furukawa Electric Co., Ltd.*

**D-5 Polarization-Maintaining Single-Transverse-Mode 10 W Er/Yb-Codoped Fiber Amplifier for Space Communication Operating with Continuous-Wave Signals**

11:30 H. Kobayashi<sup>1</sup>, R. Kano<sup>1</sup>, T. Seo<sup>1</sup>, Y. Suzuki<sup>1</sup>, E. Mizuta<sup>2</sup>, Y. Hashimoto<sup>2</sup>, T. Araki<sup>2</sup>, and Y. Takada<sup>1</sup>, <sup>1</sup>*Nikon Corp.*, <sup>2</sup>*JAXA*

**D-6 A Novel Microwave Photonic Circuit Switch Design Using Period-one Nonlinear Semiconductor Laser Dynamics**

11:45 H-W. W. Lin and Y-H. Hung, *National Sun Yat-sen Univ.*

Lunch (12:00–14:00)

**14:00–15:15 Session E: Communication and THz Tech.**

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs: Y-H. Chen, National Central Univ  
Y. Takiguchi, Hamamatsu Photonics

**E-1 Modulation Format Conversion From One 8QAM to Three BPSK Based on Four Wave Mixing**

14:00 T. Ishida, H. Kishikawa, and J. Fujikata, *Tokushima Univ.*

**E-2 Terahertz Beam Deflection by Automatic Optical Phase Control**

14:15 R. Doi, K. Kondo, B. Li, M. Che, Y. Mikami, and K. Kato, *Kyushu Univ.*

**E-3 Terahertz Wave Beam Steering Using Chromatic Dispersion at Optical Fibers by 4-Arrayed Photomixer**

14:30 A. Asano, R. Doi, B. Li, Y. Mikami, and K. Kato, *Kyushu Univ.*

**E-4 THz-wave Pulse Frequency-Amplitude Modulation Enabled by Single Wavelength-Tunable Laser**

14:45 N. Masutomi<sup>1</sup>, S. Ye<sup>1</sup>, R. Matsumoto<sup>1</sup>, B. Li<sup>1</sup>, H. Tang<sup>1</sup>, Y. Mikami<sup>1</sup>, Y. Ueda<sup>2</sup>, and K. Kato<sup>1</sup>, <sup>1</sup>*Kyushu Univ.*, <sup>2</sup>*NTT Corp.*

**E-5 Demonstration of Frequency Hopping in 300-GHz Band by Photomixing Using Tunable DFB Laser Array**

15:00 B. Li, S. Ye, M. Che, H. Tang, and K. Kato, *Kyushu Univ.*

Break (15:15–15:30)

**15:30–17:15 Session F: Applications of Optics**

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs: U. D. Zeitner, Fraunhofer IOF  
K. Kato, Kyushu Univ.

**F-1 Occlusion and Focus Cue Support for Optical See-through Augmented Reality Near Eye Displays (Invited)**

15:30 J-H. Park, *Inha Univ.*

**F-2 Flight Height Extension of Micro-drones by Light Beam Shape Control of Optical Wireless Power Transmission**

16:00 T. Watamura and T. Miyamoto, *Tokyo Inst. Tech.*

**F-3 Development of Si Microring Resonator Biosensor for the Detection of SARS-CoV-2**

16:15 Y. Uchida<sup>1</sup>, A. Higo<sup>2</sup>, T. Arakawa<sup>1</sup>, and Y. Ishizaka<sup>3</sup>, <sup>1</sup>*Yokohama National Univ.*, <sup>2</sup>*Univ. Tokyo*, <sup>3</sup>*Kanto Gakuin Univ.*

**F-4 High Repetition FMCW Measurement; Using Direct Modulation of a Hybrid Wavelength Tunable Laser Diode**

16:30 S. Irie, Y. Misugi, and T. Kita, *Waseda Univ.*

**F-5 Pattern Projection Using Arbitrary Shaped Microlenses and Intentional Crosstalk**

16:45 R.Kundu, D. Michaelis, P. Schreiber, P. Schleicher, A. Schöneberg, and R. Leitel, *Fraunhofer Inst.*

**F-6 Miniaturized Broadband Spectrometers Using Concave Blazed Gratings**

17:00 H. Ottevaere, A. Shcheglov, Y. Nie, and H. Thienpont, *Vrije Universiteit Brussel*

Break (17:15–17:30)

**17:30–18:30 Session G: Nanophotonic Structure**

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs: H. Ottevaere, *Vrije Univ. Brussel*  
K. Hamamoto, *Kyushu Univ.*

**G-1 Tailoring the Visual Appearance with Disordered Arrays of Resonant metaatoms (Invited)**

17:30 A. Agreda<sup>1</sup>, A. Hereu<sup>1</sup>, R. Pacanowski<sup>2</sup>, T. Wu<sup>1</sup>, A. Dufay<sup>2</sup>, X. Granier<sup>1</sup>, M. Tréguer-Delapierre<sup>1</sup>, G.L. Drisko<sup>1</sup>, K. Vynck<sup>1</sup>, P. Lalanne<sup>1</sup>, <sup>1</sup>*CNRS*, <sup>2</sup>*INIRIA*

**G-2 Design of a Heterostructured Valley Photonic Crystal Waveguide Supporting a Slow-Light Mode with a Large Mode Width**

18:00 C. Zhang and S. Iwamoto, *Univ. Tokyo*

**G-3 Biosensing Application of Surface-Plasmon Tip-Tapered Fiber with Gold Nanoparticles to Albumin Detection**

18:15 A. Miyazaki, M. Yamamoto, T. Ki, Y. Matsushima, H. Ishikawa, and K. Utaka, *Waseda Univ.*

Break & Light Meal (18:30–19:15)

**19:15–21:30 Session SQ: Special Symposium “Quantum Information Processing”**

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs: S. Iwamoto, *Univ. Tokyo*  
S. Saito, *Hitachi*

**SQ-1 Introductory Talk: “How Can Integrated Photonics Boost Quantum Technology?” (Invited)**

19:15 S. Iwamoto, *Univ. Tokyo*

**SQ-2 Photonic Quantum Computing (Invited)**

19:30 M. Thompson, *Psi-Quantum*

**SQ-3 Generation, Manipulation and Detection of Light at the Single Photon Level (Invited)**

20:00 V. Zwiller, *KTH Royal Inst. Tech.*

**SQ-4 Monolithic Ion Trap Integrated with a Micro Optical Cavity for Quantum Networks (Invited)**

20:30 S. Gao, S. Teh, E. Kassa, and H. Takahashi, *OIST*

**SQ-5 Topological Quantum Photonics (Invited)**

21:00 A. Blanco-Redondo, *Univ. Central Florida*

## Wednesday, 27 September

### 9:00–10:45 Session H: Next Generation Photonics

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs: Y-H. Hung, *National Sun Yet-sen Univ.*

T. Miyamoto, *Tokyo Inst. Tech.*

**H-1 NEO-PGA: Nonvolatile Electro-Optically Programmable Gate Array (Invited)**

9:00 A. Majumdar, Z. Fang, and R. Chen, *Univ. Washington*

**H-2 Diffractive Optical Networks & Computational Imaging Without a Computer (Invited)**

9:30 A. Ozcan, *UCLA*

**H-3 Proof-of-Concept Demonstration of Remote-driven Fiber Optics Gyroscope for Application in Autonomous Underwater Vehicles**

10:00 R-S. Shen, T-H. Kuo, T-J. Kuo, W-X. Chen, Y-C. Wang, and Y-Jr Hung, *National Sun Yat-sen Univ.*

**H-4 S+C+L Band Tapered Asymmetric Directional Coupler for Broadband Polarization Splitter-Rotator**

10:15 S. Ochiai<sup>1</sup>, T. Fujisawa<sup>1</sup>, K. Nakamura<sup>1</sup>, T. Sato<sup>1</sup>, M. Okano<sup>2</sup>, and K. Saitoh<sup>1</sup>, <sup>1</sup>*Hokkaido Univ.*,  
<sup>2</sup>*AIST*

**H-5 OFDR Analysis of Si Photonics Components**

10:30 S. Nawa, M. Kamata, M. Ando, and T. Baba, *Yokohama National Univ.*

Break (10:45–11:00)

### 11:00–12:30 Session J: High Performance Modulation

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs: Y-H. Hung, *National Sun Yet-sen Univ.*

S. Ura, *Kyoto Inst. Tech.*

**J-1 High-Speed Optical Modulation Through the Quantum Well Intermixing (QWI) Semiconductor Optical Amplifier (SOA)-Integration Electroabsorption Modulator (EAM) (Invited)**

11:00 Y-J. Chiu, Y-H. Chang, Z-H. Wang, Y-J. Chen, P-W. Huang, and R-Y. Chen, *National Sun Yat-sen Univ.*

**J-2 Ultra-High Efficiency Electro-Optic Modulator on Thin-Film Lithium Niobate**

11:30 N. Chen, Y. Yu, K. Lou, and T. Chu, *Zhejiang Univ.*

**J-3 Radiation Tolerance of Zn-Doped Periodically Poled Lithium Niobate Waveguide Modules toward Space Applications**

11:45 Y. Hashimoto<sup>1</sup>, T. Kazama<sup>2</sup>, M. Abe<sup>2</sup>, K. Watanabe<sup>2</sup>, T. Araki<sup>1</sup>, and T. Umeki<sup>2</sup>, <sup>1</sup>JAXA, <sup>2</sup>NTT Corp.

**J-4 Filter-Based Optical Duo-Binary Transmitters Using Silicon Photonics Micro-Ring Modulator**

12:00 P-H. Chiang<sup>1</sup>, Y-C. Yu<sup>1</sup>, C-C. Wei<sup>1</sup>, R-S. Wang<sup>1</sup>, Y-Jr Hung<sup>1</sup>, C. S. Huang<sup>2</sup>, H. C. Hsieh<sup>2</sup>, H. C. Pan<sup>2</sup>, and W-J. Ting<sup>2</sup>, <sup>1</sup>National Sun Yat-sen Univ., <sup>2</sup>Wistron Corp.

**J-5 Gate Voltage Modulation Nanolasers on the Graphene-Insulator-Metal Platform**

12:15 T-C. Lu, Z-T. Huang, T-W Chien, and C-C. Li, *National Yang Ming Chiao Tung Univ.*

Lunch (12:30–13:45)

**13:45–15:15 Session K: Interconnects and packaging**

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs: Y-Jr. Hung, National Sun Yet-sen Univ.

T. Kita, Waseda Univ.

**K-1 Polarization-Multiplexed Short-Reach Optical Interconnects (Invited)**

13:45 W. Shieh, *Univ. Westlake*

**K-2 High-Performance Optical Convolutional Neural Network Accelerator with High-Speed Optical Modulator and Carrier-Injection-Type Attenuator**

14:15 A. Shinya<sup>1</sup>, K. Kida<sup>2</sup>, H. Sato<sup>1</sup>, G-W. Lu<sup>3</sup>, S. Yokoyama<sup>4</sup>, and J. Fujikata<sup>1</sup>, <sup>1</sup>Tokushima Univ., <sup>2</sup>Kagawa Univ., <sup>3</sup>Aizu Univ., <sup>4</sup>Kyushu Univ.

**K-3 Arrayed Polymer Spot Size Expander Applicable to Silicon Photonics Chip for Coupling to Single Mode Fibers**

14:30 A. Sawada<sup>1</sup>, Y. Kamiura<sup>2</sup>, C. Fujikawa<sup>1</sup>, and O. Mikami<sup>3</sup>, <sup>1</sup>Tokai Univ., <sup>2</sup>Kyushu Univ., <sup>3</sup>Univ. Teknologi Malaysia

**K-4 Characterization of Doubly Periodic Guided-Mode-Resonance Grating for Angular Insensitive Bandpass Filter**

14:45 Z. Yang<sup>1</sup>, S. Ishioka<sup>1</sup>, J. Inoue<sup>1</sup>, K. Kintaka<sup>2</sup>, and S. Ura<sup>1</sup>, <sup>1</sup>Kyoto Inst. Tech., <sup>2</sup>AIST

**K-5 Microlens-Assisted Expanded Beam Technique for Coupling of Laser Source to Photonic Integrated Circuit**

15:00 C. M. Patil<sup>1</sup>, H. Y. Hwang<sup>1</sup>, M. Pfeiffer<sup>2</sup>, W. Noell<sup>2</sup>, P. E. Morrissey<sup>1</sup>, and P. O'Brien<sup>1</sup>, <sup>1</sup>Tyndall National Institute, <sup>2</sup>SUSS MicroOptics SA.

Break (15:15–15:30)

**15:30–16:15 Session PD: Post Deadline Papers**

Venue: 4<sup>th</sup> floor, JUYO

Co-Chairs: S. Kimura, Toshiba Corp.  
K. Ogawa, Japan Women's Univ.

**PD-1 Novel Terahertz Wave Power Combining Technique by Arrayed Photomixers**

15:30 Y. Kamiura, H. Ssali, H. Agemori, R. Doi, Y. Mikami, and K. Kato, *Kyushu Univ.*

**PD-2 Increased Transmission Distance Range in LED-Based Optical Wireless Power Transmission Using Liquid Lens**

15:45 M. Zhao and T. Miyamoto, *Tokyo Inst. Tech.*

**PD-3 First Observation of Slow Light Effect in Nano-Pixel Waveguide**

16:00 H. Jiang, R. Kuwahata, J. Guo, and K. Hamamoto, *Kyushu Univ.*

**16:15–16:30 Award Ceremony II**

Venue: 4<sup>th</sup> floor, JUYO

**16:30–16:45 Closing Remarks**

Venue: 4<sup>th</sup> floor, JUYO

Program Co-Chairs:

S. Kimura, *Toshiba Corp.*  
K. Ogawa, *Japan Women's Univ.*



# MOC2023 COMMITTEE MEMBERS

## HONORARY CONFERENCE CHAIR

K. Iga (Tokyo Inst. Tech.)

## ORGANIZING COMMITTEE

### Conference Co-chairs

T. Sato (NTT Corp.)

T. Watanabe (Kagoshima Univ.)

### Members

T. Aoki (Waseda Univ.)

M. Bunsen (Fukuoka Univ.)

T. Endo (Mitsubishi Electric Corp.)

K. Hotate (Toyota Tech. Institute)

M. Miura (Japan Broadcasting Corp.)

K. Kato (Kyushu Univ.)

K. Kishino (Sophia Univ.)

Y. Koike (Keio Univ.)

T. Kojima (Fuji Xerox Co., Ltd.)

K. Kuroda (Utsunomiya Univ.)

Y. Lee (Hitachi, Ltd.)

T. Maeda (Waseda Univ.)

K. Maru (Kagawa Univ.)

M. Mori (AIST)

S. Saito (Toshiba Corp.)

H. Shoji (Sumitomo Electric Ind., Ltd.)

Y. Takada (Nikon Corp.)

H. Takahashi (Pioneer Corp.)

H. Takahashi (Oki Electric Industry Co., Ltd.)

Y. Takiguchi (Hamamatsu Photonics K. K.)

K. Tsunetomo (Nippon Sheet Glass Co., Ltd.)

K. Ueyanagi (TSS Co., Ltd.)

Y. Uozu (Mitsubishi Chemical Corp.)

S. Ura (Kyoto Inst. Tech.)

Y. Yamagata (Fujikura Ltd.)

I. Yamaguchi (Toyo Seiki Seisaku-sho Ltd.)

T. Yatagai (Utsunomiya Univ.)

## LOCAL STEERING COMMITTEE

### Chair

M. Arai (Univ. Miyazaki)

### Members

A. Fukuyama (Univ. Miyazaki)

A. Kameyama (Univ. Miyazaki)

K. Maeda (Univ. Miyazaki)

Y. Naka (Univ. Miyazaki)

A. Yokotani (Univ. Miyazaki)

## INTERNATIONAL ADVISORY COMMITTEE

R. Baets (Univ. Gent)

A. Bräuer (Fraunhofer IOF)

C. J. Chang-Hasnain (UC Berkeley)

K. J. Ebeling (Ulm Univ.)

S. Fleming (Univ. Sydney, retired)

M. T. Flores-Arias (Univ. Santiago de Compostela)

B. Y. Kim (KAIST)

K. Kodate (Univ. Electro-Communications)

Y. -H. Lee (KAIST)

K. Nishizawa (Mirai IPTRC)

Y. Okino (Kansai Univ.)

Y.-P. Park (Yonsei Univ.)

G. C. Righini (Enrico Fermi Center)

P. Russell (Max Planck Institute)

H. K. Shin (Opticis Co., LTD)

Y. Suematsu (Tokyo Inst. Tech.)

C. S. Tsai (UC Irvine)

D. P. Tsai (City Univ. Hong Kong)

M. C. Wu (UC Berkeley)

## PROGRAM COMMITTEE

### Co-chairs

S. Kimura (Toshiba Corp.)

K. Ogawa (Japan Women's Univ.)

### Domestic Members\*

T. Arakawa (Yokohama National Univ.)

H. Fuji (Osaka Univ.)

K. Hamamoto (Kyusyu Univ.)

G. Hatakoshi (Toshiba Corp., retired)

T. Hamaguchi (Sony Group Corp.)

K. Iga (Tokyo Inst. Tech.)

D. Inoue (Sumitomo Electric Ind., Ltd)

H. Ishii (Furukawa Electric Co., Ltd.)

S. Iwamoto (Univ. Tokyo)

R. Katayama (Fukuoka Inst. Tech.)

T. Kita (Waseda Univ.)

S. Kogo (Konica Minolta, Inc.)

Y. Kokubun (Inst. Technologists)

R. Kou (AIST)

M. Kuwata (Mitsubishi Electric Corp.)

T. Miyamoto (Tokyo Inst. Tech.)

T. Mizumoto (JSPS)

N. Mori (Yamashita Denso Corp.)

R. Morohashi (Fujikura Ltd.)

H. Nakajima (Waseda Univ.)

S. Saito (Hitachi, Ltd.)

A. Sakai (Ricoh Co., Ltd.)

O. Sugihara (Utsunomiya Univ.)

H. Takahashi (Sophia Univ.)

Y. Tsuchiya (Nagoya Inst. Tech.)

T. Yamaguchi (Kogakuin Univ.)

K. Yamamoto (Osaka Univ.)

S. Yamashita (Univ. Tokyo)

K. Yokomori (Hirosaki Univ.)

\*All domestic members are also organizing committee members.

### Overseas Members

E. Acosta (Univ. Santiago de Compostela)

K.-S. Chiang (City Univ. Hong Kong)

Y.-J. Kim (Yonsei Univ.)

S.-L. Lee (Taiwan Tech.)

T.-C. Lu (National Yang Ming Chiao Tung Univ.)

Y. Luo (Tsinghua Univ.)

H. Ottevaere (Vrije Univ. Brussel)

N.-C. Park (Yonsei Univ.)

S. Park (Samsung Electronics Corp.)

H. Tan (Australian National Univ.)

Z. J. Wong (Texas A&M Univ.)

K. -T. Yong (Nanyang Technological Univ.)

K. Yu (KAIST)

U. D. Zeitner (Fraunhofer IOF)

## TECHNICAL ADVISOR

H. Nakajima (Waseda Univ.)

## LIAISON ADVISOR

K. Yokomori (Hirosaki Univ.)

## SECRETARIAT

Y. Ogura (Microoptics Group)

## Sponsored by

The Japan Society of Applied Physics (JSAP)



## Organized by

Microoptics Group, JSAP



## Technically co-sponsored by

IEEE Photonics Society



## In cooperation with

- Optica (formerly OSA)
- The Optical Society of Japan
- IEICE Electronics Society
- The Chemical Society of Japan
- The Society of Polymer Science, Japan
- The Laser Society of Japan
- Optoelectronics Industry and Technology Development Association
- Japan Optomechatronics Association
- Japan Photonics Council

## Financially Supported by

- Miyazaki Prefecture Tourism Association

公益財団法人

宮崎県観光協会

- The Telecommunications Advancement Foundation



- The Takano Eiichi Optical Science Funds



- National Institute of Information and Communications Technology (NICT)



- Tsurugi-Photonics Foundation



*Tsurugi-Photonics Foundation*

- The Murata Science Foundation

公益財団法人 村田学術振興財団

- Konica Minolta Science and Technology Foundation



- Support Center for Advanced Telecommunications Technology Research (SCAT)



- Nippon Sheet Glass Foundation for Materials Science and Engineering

公益財団法人 日本板硝子材料工学助成会  
Nippon Sheet Glass Foundation for Materials Science and Engineering