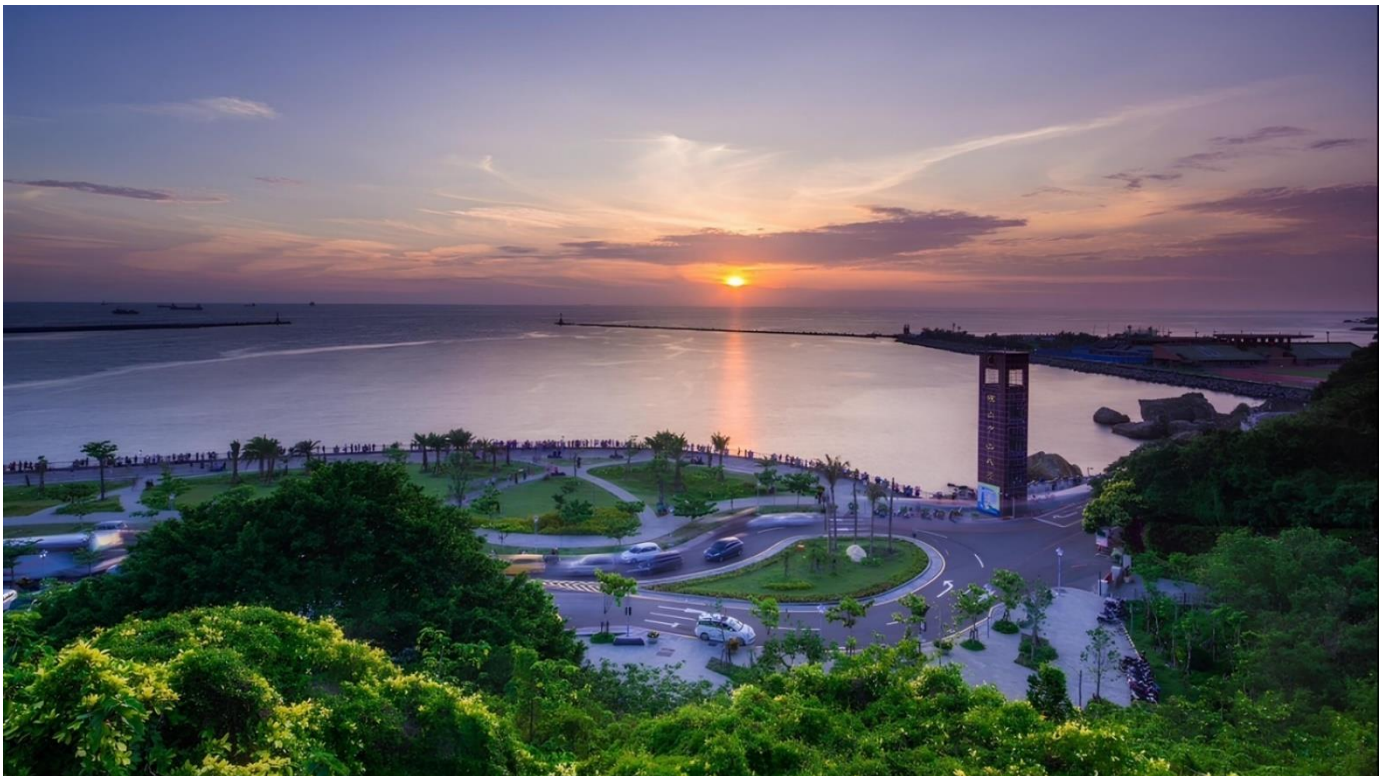


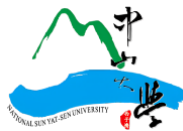
THE TWENTY-NINTH MICROOPTICS CONFERENCE

MOC2024

TECHNICAL PROGRAM



***Organized by National Sun Yat-sen University (NSYSU) and
Microoptics Group, JSAP***



**September 29 – October 02, 2024, National Sun Yat-sen
University (NSYSU), Kaohsiung, Taiwan**

FOREWORD

Welcome to The 29th MICROOPTICS CONFERENCE (MOC2024) to be held in the Kwang-Chung Hall of National Sun Yat-sen University (NSYSU), Kaohsiung, Taiwan from September 29 to October 02, 2024. MOC2024 is co-organized by NSYSU and Microoptics Group of the Japan Society of Applied Physics (JSAP).

The MOC started in 1987 and was held in Japan every two years until 2003. In 2004, the 10th MOC was held for the first time overseas in Jena, Germany. Since then, MOC has been held alternately in Japan and overseas every year. The 12th MOC was held in Seoul, 2006; the 14th MOC in Brussels, 2008; the 16th MOC in Hsinchu, 2010; the 19th MOC in Nice, 2014; the 21st MOC in Berkeley, 2016; and the 23rd MOC in Taipei, 2018. Due to the influence of COVID-19, the 25th MOC originally scheduled in Jena, 2020 was finally cancelled. Both the 26th MOC and the 27th MOC were held in an online format at Hamamatsu, Shizuoka, 2021, and Jena, 2022, respectively. The 28th MOC was held in Miyazaki, 2023 in a hybrid online/in-person format. This year, the 29th MOC is held in Kaohsiung in person.

MOC2024 aims to provide a central forum for an update and review of scientific and technical information covering a wide range of the microoptics field from fundamental researches to systems and applications. In 2024, a total of 161 papers, including 4 plenary talks, 1 keynote speech, 12 invited talks, 130 contributed papers, and 14 post-deadline papers, will be presented during the four-day conference.

We have planned the Emerging Photonics Workshop on Sunday afternoon to start the journey to the cutting-edge microoptics research progresses, followed by a Get together party through Cruise Excursion. We have also planned the Special Symposium of Meet IEEE/OPTICA Award Winners on Tuesday afternoon, where Emeritus Prof. Kenichi Iga, recipient of the 2024 Optica Frederic Ives Medal/Jarus W. Quinn Prize, Prof. John Bowers, recipient of the 2024 IEEE Jun-ichi Nishizawa Prize, and Emeritus Prof. Fumio Koyama, recipient of the 2024 IEEE Nick Holonyak Jr. Medal will deliver speeches on their journeys to the research excellence and medal winners.

Microconcert, the Social Event of MOC2024, will be held on Monday evening, where you will enjoy classical music performed by Machida Philharmony Baroque Ensemble (MPB) in a relax and friendly atmosphere. MPB is a community string orchestra located at Machida-city, Tokyo. This Ensemble headed by Emeritus Prof. Kenichi Iga was founded in 1990 and has been performing the Microconcert for more than 30 years. This year the Microconcert will be performed in person at Kwang-Chung Hall of NSYSU for the first time after COVID-19.

MOC conference banquet will be held on Tuesday evening, where you can also enjoy the sunset and the beauty of Siziwan Bay. Paper Award Ceremony will take place on Wednesday afternoon as a part of the closing ceremony. A celebration party will be held after the closing ceremony.

We would like to extend our deep thanks to all the presenters and participants of MOC2024 for their contributions to the success of this conference. We are also deeply grateful for the financial support by the National Science and Technology Council, Taiwan, the Economic Development Bureau of Kaohsiung City Government, Heterogeneously-integrated Silicon Photonic Integration Center (HiSiPIC) of NTUST, Takano Eiichi Optical Science Funds, SPIE, and by the industrial companies with their logos underneath.



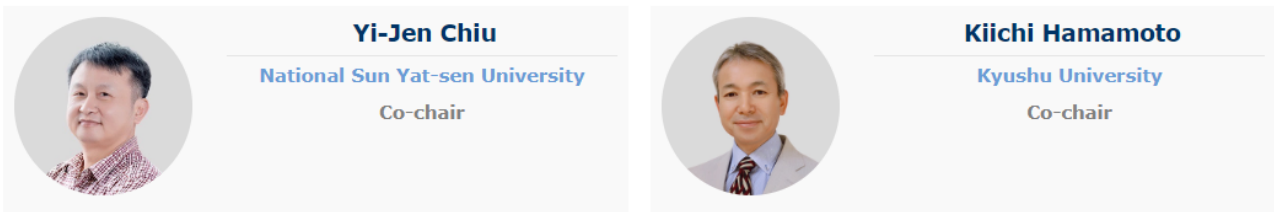
We hope all the attendees will join in informative and stimulating discussions and will enjoy the conference.

The latest information will be available on the following website:

<https://moc2024.conf.tw/>

MOC2024, Kaohsiung, Taiwan

Conference General Chairs



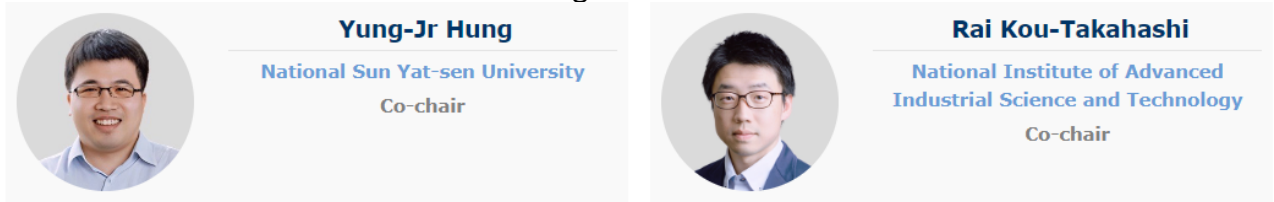
Yi-Jen Chiu

National Sun Yat-sen University
Co-chair

Kiichi Hamamoto

Kyushu University
Co-chair

Technical Program Committee Chairs



Yung-Jr Hung

National Sun Yat-sen University
Co-chair

Rai Kou-Takahashi






National Institute of Advanced
Industrial Science and Technology
Co-chair

Conference Venue

The MOC2024 will take place at National Sun Yat-sen University, Kaohsiung, Taiwan.



From Taoyuan International Airport:

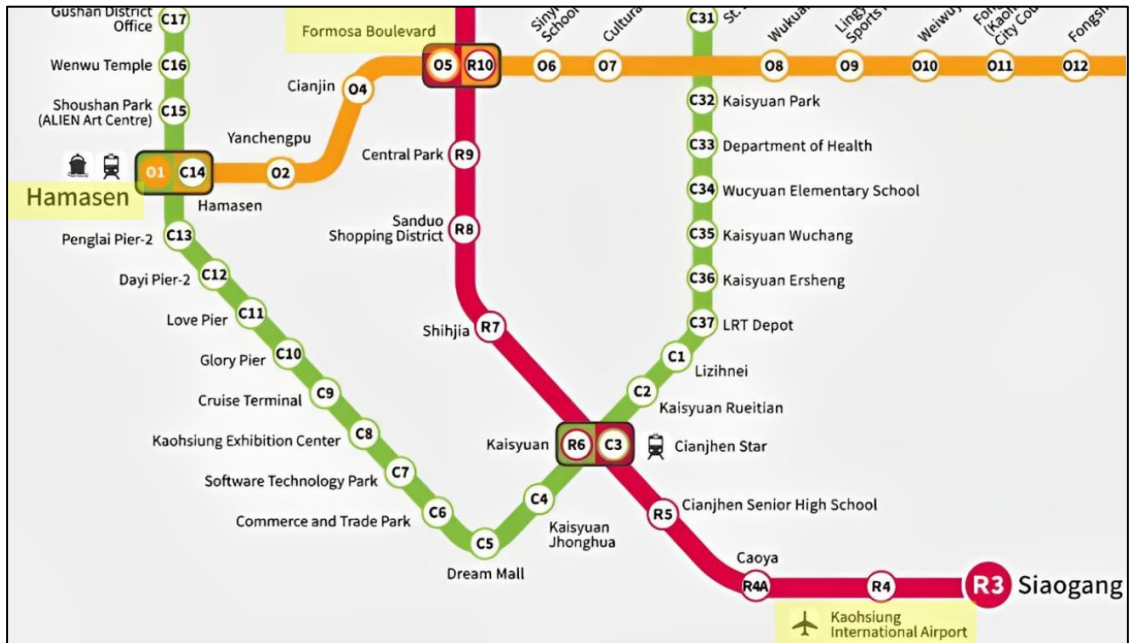
<p>Step1.</p>	 <p>Take Taoyuan metro to Taoyuan HSR Station (A18): 17 mins</p>				
<p>Step2.</p>	  <p>High Speed Rail (HSR) from Taoyuan to Zuoying: 95 mins</p>				
<p>Step3.</p>	 <p>Take Kaohsiung Metro from R16 Zuoying Station to R10/O5 Formosa Boulevard (Red line) and then transfer to (Orange line) go to O1 Hamasen (Sizihwan) Station (Exit 2): 19 mins</p> 				
<p>Step4.</p>	<p>There are three ways you can choose:</p> <table border="1" data-bbox="906 1496 1423 1762"> <tr> <td>Walking: 12mins</td> </tr> <tr> <td>Bus (Orange 1 C): 5 mins</td> </tr> <tr> <td>U-bike: 8 mins</td> </tr> <tr> <td>Taxi (Car): 3 mins</td> </tr> </table>	Walking: 12mins	Bus (Orange 1 C): 5 mins	U-bike: 8 mins	Taxi (Car): 3 mins
Walking: 12mins					
Bus (Orange 1 C): 5 mins					
U-bike: 8 mins					
Taxi (Car): 3 mins					

From Kaohsiung International Airport (Siaogang Station):



Take Kaohsiung Metro from R4 Kaohsiung International Airport Station to R10/O5 Formosa Boulevard (Red line), and then transfer to (Orange line) go to O1 Sizihwan Station (Exit 2): 23 mins

Step1.



Step3.

There are three ways you can choose:

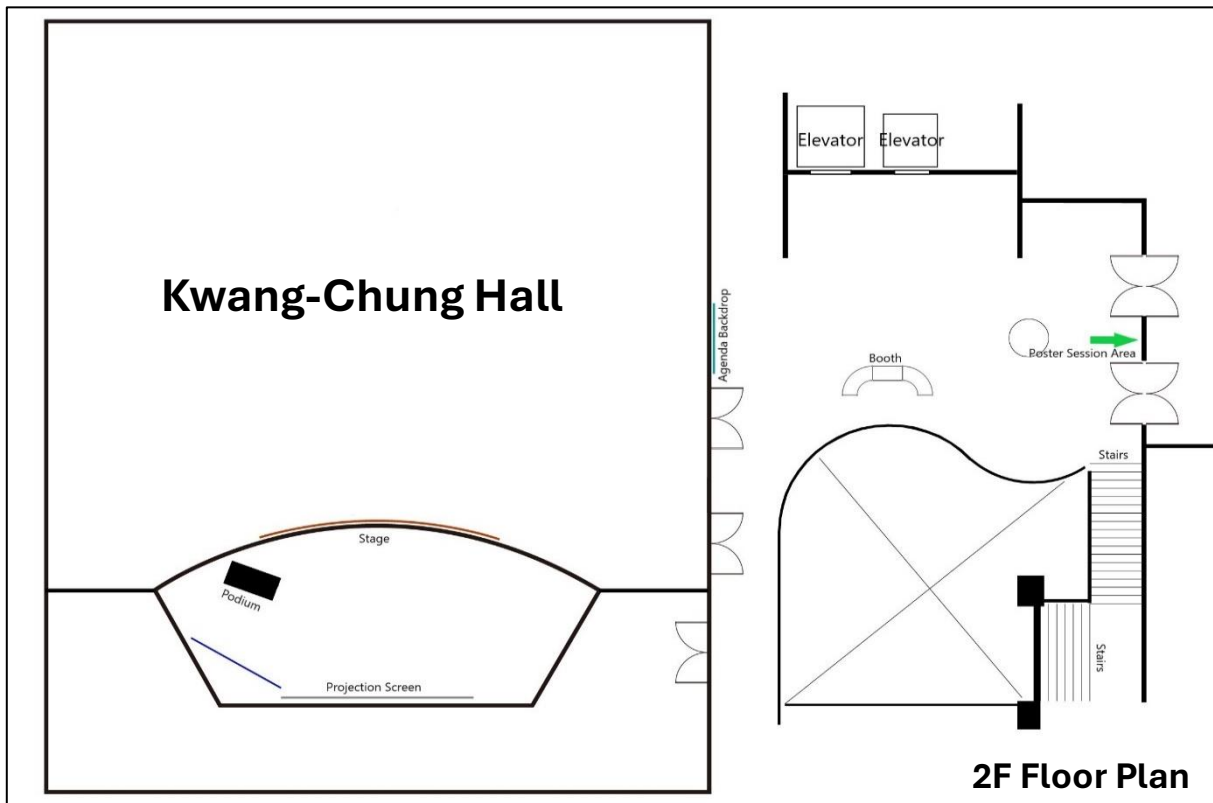
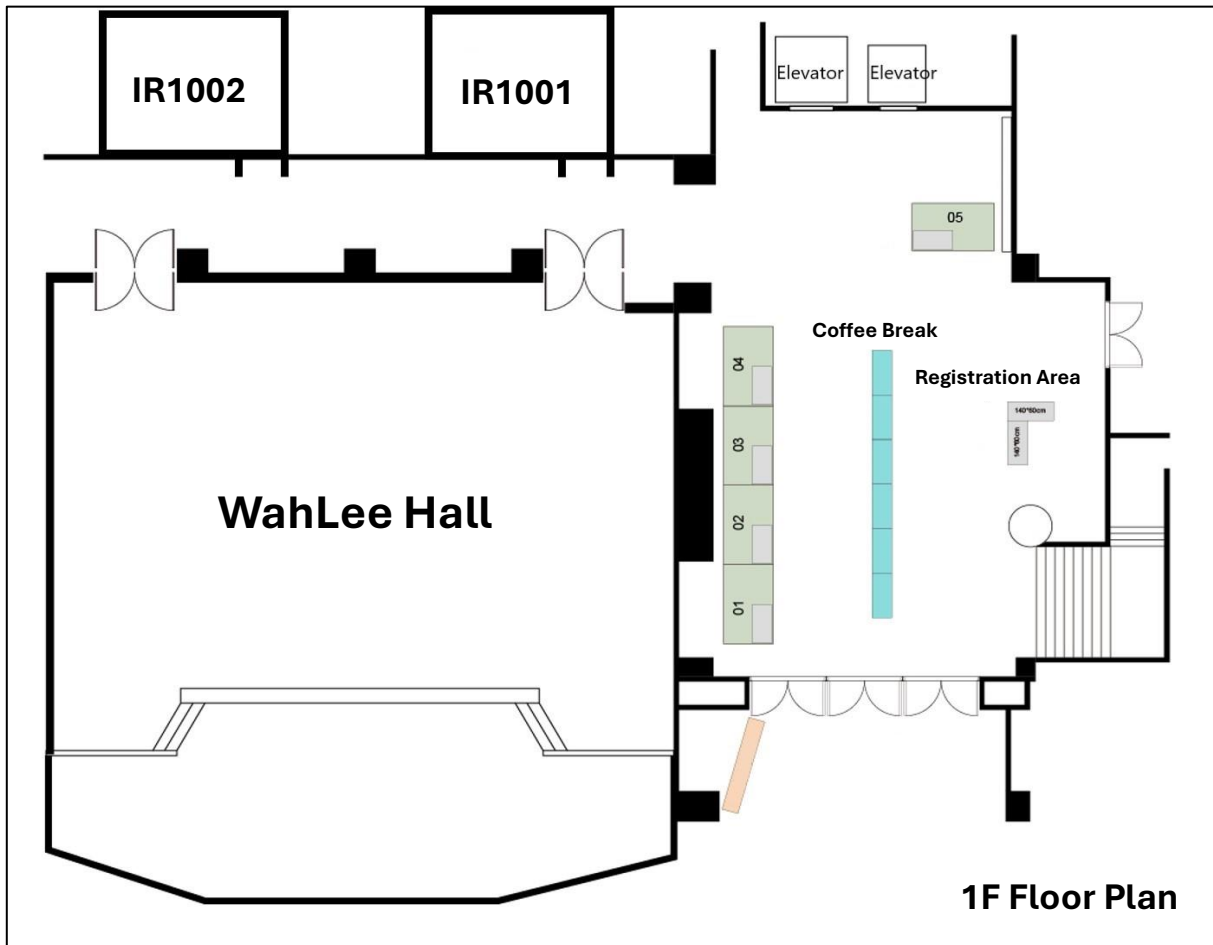
Walking: 12mins

Bus (Orange 1 C): 5 mins

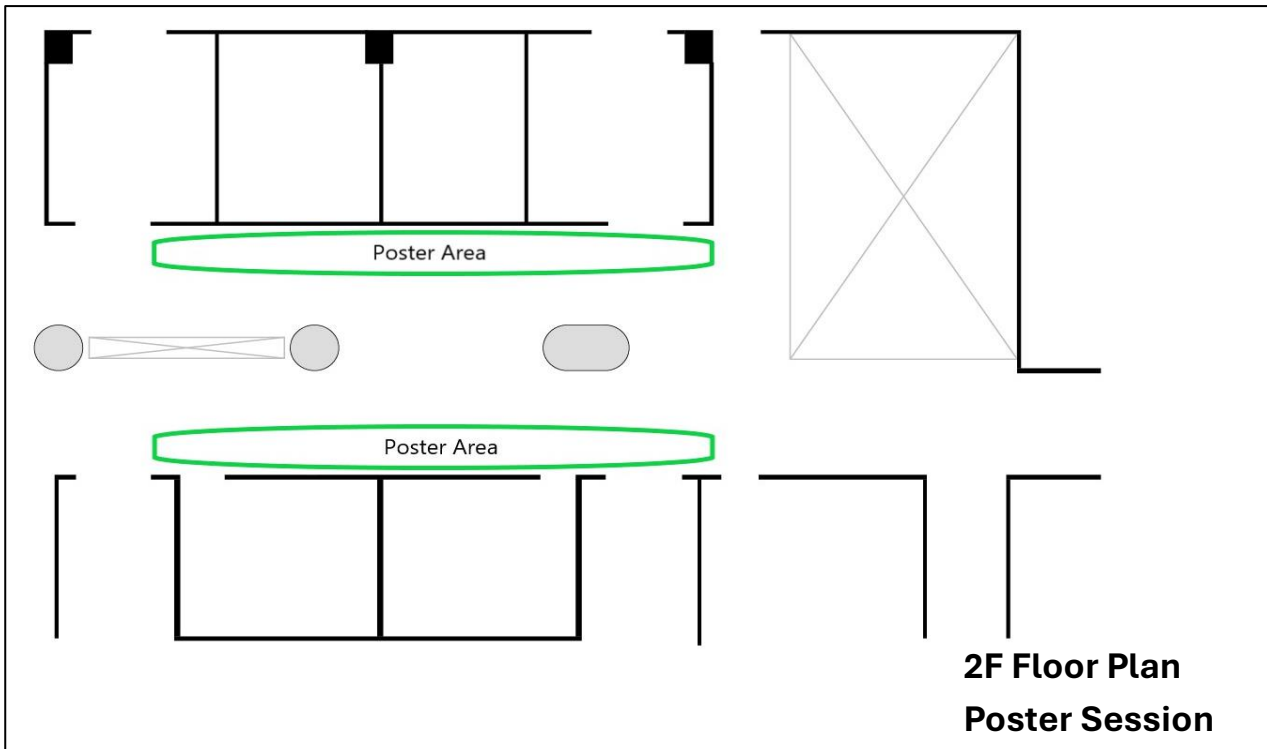
U-bike: 8 mins

Taxi (Car): 3 mins

Conference Floor Plan



Conference Floor Plan



Wi-Fi Information

Please note that the username and password are case-sensitive.

To connect, select the "[TANetRoaming](#)" network. When the authentication page appears, choose "[Guest](#)," then enter the username and password. Thank you.

◆ **Username: MOC2024**

◆ **Password: NSYSU2024**

Shuttle Bus

Date	Time	Departure Place	Destination
September 29	12:00	Chateau de Chine Kaohsiung	NSYSU
	15:30	Chateau de Chine Kaohsiung	NSYSU
	16:30	NSYSU	Kaohsiung port warehouse no.2
	18:40	Kaohsiung port warehouse no.2	Chateau de Chine Kaohsiung
	19:10	Kaohsiung port warehouse no.2	NSYSU
September 30	08:00	Chateau de Chine Kaohsiung	NSYSU
	11:30	Chateau de Chine Kaohsiung	NSYSU
	18:30	NSYSU	Chateau de Chine Kaohsiung
October 1	08:00	Chateau de Chine Kaohsiung	NSYSU
	20:30	NSYSU	Chateau de Chine Kaohsiung
October 2	08:00	Chateau de Chine Kaohsiung	NSYSU

MOC2024 At-A-Glance

TST	Sep.29 (Sun.)	Sep.30 (Mon.)	Oct.01 (Tue.)	Oct.02 (Wed.)			
08:00		Registration Open (1F) 08:00-08:30	Registration Open (1F) 08:00-08:30	Registration Open (1F) 08:00-08:30			
08:15							
08:30		MOC Opening Remark 08:30-09:00	Keynote Speech 08:30-09:00	Session E: Advanced fiber, waveguide and optics design 08:30-10:30			
08:45							
09:00	High-school Registration (1F) 09:00-09:30	Plenary Session A 09:00-10:30	Plenary Session B 09:00-10:30				
09:15							
09:30							
09:45	High School Poster Session (2F) 09:30-10:30						
10:00							
10:15							
10:30	Session HSE: Sunday special session for high school event 10:30-12:00	Coffee Break (1F) 10:30-11:00	Coffee Break (1F) 10:30-11:00	Coffee Break (1F) 10:30-11:00			
10:45							
11:00							
11:15			Session B: Semiconductor lasers 11:00-12:30	Session D: Si photonics devices & applications 11:00-12:30	Session F: Photonic sensing and beam steering technology 11:00-12:30		
11:30							
11:45							
12:00	High School Poster Award Ceremony 12:00-12:30						
12:15							
12:30	MOC2024 Registration Open (1F) 12:30-13:00	Lunch 12:30-13:30	Lunch TPC meeting 12:30-13:30	Lunch 12:30-13:30			
12:45							
13:00	Workshop Opening 13:00-13:30						
13:15							
13:30	Session A: Emerging Photonics 1 13:30-15:00	Session C: Photonic communication systems & subsystems 13:30-15:00	Meet IEEE/Optica Award Winners 13:30-15:00	Session G: Advanced photonics devices & signal processing 13:30-15:15			
13:45							
14:00							
14:15							
14:30							
14:45							
15:00	Coffee Break (1F) 15:00-15:15	Coffee Break (1F) 15:00-15:30	Coffee Break (1F) 15:00-15:30				
15:15				Coffee Break (1F) 15:15-15:30			
15:30	Session A: Emerging Photonics 2 15:15-16:15	Poster Session 1 (2F) 15:30-17:00	Poster Session 2 (2F) 15:30-17:00	Post deadline papers 15:30-16:15			
15:45					Coffee Break (1F) 16:15-16:30		
16:00	Get Together Party (Cruise Excursion) 16:15-18:00			Award & Closing 16:30-17:00			
16:15				Celebration Party 17:00-17:30			
16:30							
16:45							
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17:30							
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18:00							
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18:30							
18:45							
19:00			Conference Banquet 18:30-20:00				
19:15							
19:30							
19:45							
20:00							

International Research Building, NSYSU	1 st floor, "WahLee Hall"
	2 nd floor, "Kwang-Chung Hall"
	2 nd floor, "The hallway outside Kwang-Chung Hall"
Cruise Excursion	Kaohsiung port warehouse no.2 (KW2)
Conference Banquet	Sizihwan Sunset Beach Resort

The 24th Microconcert

- The Social Event of MOC2024 -

September 30 (Monday), 17:00~18:00⁺

At Kwang-Chung Hall, International Research Building, National Sun Yat-sen University (NSYSU), Kaohsiung, Taiwan

Performed by
Machida Philharmony Baroque Ensemble (MPB)

The registered members and accompanied persons can freely join.
The invited local people are also welcome to this concert.

Concert Program

- 1) Georg Friedrich Händel : "Concerto Grosso" Op. 6-12
- 2) Max Bruch : "Serenade"
- 3) Rolf Løvland : "You Raise Me Up" vocal by Prof. Hirochika Nakajima
- 4) Masaaki Hayakawa : From "Four Seasons of Japan"



After the Concert 2023 at Potpourri Hall, Tokyo

Machida Philharmony Baroque Ensemble (MPB)

Machida Philharmony Baroque Ensemble (MPB) is a community string orchestra located at Machida-city, Tokyo. This Ensemble headed by Prof. Kenichi Iga was founded in 1990 and has been performing the Microconcert as the social event of Microoptics Conferences for more than 30 years.

Sponsored by MOC2024: <https://moc2024.conf.tw/>

Sep. 30th (Mon)
17:00-18:30

Kwang-Chung Hall,
International Research Building

The 24th Microconcert The Social Event of MOC2024



MACHIDA PHILHARMONY BAROQUE ENSEMBLE (MPB)



Chair : Prof. Kenichi Iga

Concert Program

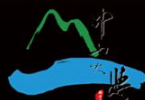
Georg Friedrich Händel : "Concerto Grosso" Op. 6-12

Max Bruch : "Serenade"

Rolf Lovland : "You Raise Me Up" vocal by Prof. Hirochika Nakajima

Masaaki Hayakawa : From "Four Seasons of Japan"

Organized by



Sponsored by



Plenary/ Keynote/ Invited Speech

Sunday Special Session for High School Event (HSE)

Sunday Special Session HSE will be held in WahLee Hall (1F) on Sunday, 29 September, 2024.

“ Introduction to the Microoptics World ”

Prof. Hirochika Nakajima, Waseda University

“ Light and electrons — Why do semiconductors emit light? ”

Prof. Gen-ichi Hatakoshi, Microoptics Group, JSAP

“Nanostructured semiconductor materials for solar energy conversion ”

Prof. Hyeonseok Lee, Faculty of Department of Photonics, NSYSU

Plenary Session A

Plenary Session A will be held in Kwang-Chung Hall, 2F on Monday, 30 September.

“Integrated Silicon Photonic Circuits”

Prof. John E. Bowers, Distinguished Professor, Departments of Electrical and Computer Engineering and Materials at University of California, Santa Barbara, USA

“Advanced VCSEL Photonics: Communication and Sensing”

Prof. Fumio Koyama, Professor Emeritus, Tokyo Institute of Technology, Japan

Plenary Session B

Plenary Session B will be held in Kwang-Chung Hall (2F) on Tuesday, 01 October, 2024.

“Laser Technology Development in LandMark”

Dr. Wei Lin, Vice Chairman, LandMark Optoelectronics Corporation, Taiwan

“Opportunities and Challenges in the Commercialization of MicroLED Display Technology”

Dr. Yun-Li (Charles) Li, Co-founder and CEO, PlayNitride Display Co., Ltd., Taiwan

Keynote Speech

Keynote Speech will be held in Kwang-Chung Hall, 2F on Tuesday, 01 October, 2024.

“Meta Lens: from Imaging and Sensing to Quantum Optical Source”

Prof. Din Ping Tsai, Department of Electrical Engineering, City University of Hong Kong, Hong Kong

Session A: Emerging Photonics Workshop

Emerging Photonics Workshop will be held in Kwang-Chung Hall (2F) on Sunday, 29 September, 2024.

“Lithium niobate photonics: Unlocking the electromagnetic spectrum”

Dr. Andy Boes, The University of Adelaide, Australia

“Semiconducting Bismide-Based Microlasers: Challenges and Prospectives.”

Dr. Renata Butkutė, Institute of Photonics and Nanotechnology (IPN), Vilnius University, Lithuania

“Study of ion implantation technology on blue micro-LEDs array applications”

Prof. Ray-Hua Horng, National Yang Ming Chiao Tung University, Taiwan

“Nano-carbon mode-locked lasers: 20 years anniversary”

Prof. Sze Yun Set, The University of Tokyo, Japan

“Neuromorphic hardware with integrated spiking laser neurons”

Prof. Weiming Yao, Eindhoven University of Technology, Netherlands

Session B: Semiconductor Lasers

Session B will be held in Kwang-Chung Hall (2F) on Monday, 30 September, 2024.

“Heterogeneous Integration Technology Towards Future Optical Devices”

Prof. Moataz Eissa, Tokyo Institute of Technology, Japan

Session C: Photonic Communication Systems & Subsystems

Session C will be held in WahLee Hall (1F) on Monday, 30 September, 2024.

“Precise Optical Modulation Technology for Measurement Applications”

Prof. Tetsuya Kawanishi, Waseda University, Japan

Session D: Si Photonics Devices & Applications

Session D will be held in Kwang-Chung Hall (2F) on Tuesday, 01 October, 2024.

“Ultrafast nonlinear optics on thin film lithium niobate”

Prof. Mengjie Yu, University of Southern California, USA

Session E: Advanced Fiber, Waveguide and Optics Design

Session E will be held in Kwang-Chung Hall (2F) on Wednesday, 02 October, 2024.

“Raman spectroscopic study of microLED”

Prof. Jong In Shim, Hanyang University, South Korea

“Nonlinear and Topological Photonics on a CMOS Chip”

Prof. Dawn Tan, Singapore University of Technology and Design, Singapore

Session F: Photonic Sensing and Beam Steering Technology

Session F will be held in Kwang-Chung Hall (2F) on Wednesday, 02 October, 2024.

“Photonic-crystal surface-emitting lasers for optical vortex beam generations”

Prof. Kyoko Kitamura, Tohoku University, Japan

Session G: Advanced Photonics devices & signal processing

Session G will be held in Kwang-Chung Hall (2F) on Wednesday, 02 October, 2024.

“Nanoparticles-doped blue-phase liquid crystals for emerging tunable photonic devices”

Prof. Kamil Orzechowski, Warsaw University of Technology, Poland

Oral Session

The time slot for each talk in oral sessions is listed below:

- Contributed talk: 15 minutes
- Invited talk: 30 minutes

The last 2-3 minutes in each talk are set for questions and discussions.

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 presiders of the session and to confirm the connection between their computer and projector.

Poster Session

Two poster sessions will be held at the Venue (2F) in the afternoon (15:30~17:00) on Monday, September 30, and on Tuesday, October 1, respectively. MOC2024 provides each presenter with a bulletin board on which the presenter can mount a poster with **A0 format (84.1cm in width and 118.9 cm in height)**. Presenters can provide flyers of the research if needed. Please note that during the poster session, the presenter must be around the bulletin board to present and answer questions. Some post-deadline papers (PDPs) will be presented during the poster

session on Tuesday afternoon.

Extended Paper Publication

The Special Section in the **SPIE Journal of Optical Microsystems (JOM)** will present some of the newest and most exciting research in optical microsystems in Taiwan. In collaboration with the Micro-Optics Conference (MOC2024), JOM are soliciting manuscripts on topics including, but not limited to:

- Nanophotonic Materials and Devices
- Information Photonics
- Quantum Photonics
- Green Photonics
- Optical Sensing and Imaging
- Optical Computing
- Display Technology
- Solid-state Lighting and Laser Technology

Participants in MOC2024 are encouraged to prepare journal-quality manuscripts and submit to the SPIE JOM, the sponsoring journal of the conference. JOM is a peer-reviewed Gold Open Access journal led by experts in optical and photonic microsystems. The conference should be mentioned both in the cover letter and as a footnote on the first page of the manuscript.

Publication Date: July-September 2025

Submission Deadline: 31 January 2025

Official Language

The official language of MOC2024 is English.

Photograph and Video

No photography or video recording is permitted during all technical sessions, including the special workshop sessions on Sunday and the poster session.

Social Events

Get Together Party (Cruise Excursion)

Get together party (Cruise Excursion) will be held in Kaohsiung port warehouse no.2 (KW2), on Sunday, 29 September. All the attendees of MOC2024 are cordially invited. There are only 120 seats available for the cruise excursion, and registration will be based on the first-come, first-served basis.

Microconcert

“Microconcert” will be performed by Machida Philharmony Baroque Ensemble (MPB) in Kwang-Chung Hall (2F) at 17:00, Monday, September 30, 2024. All the attendees of MOC2024 and their accompanying family members are invited to the Microconcert.

Sunset Beer & Conference Banquet

On the evening of Tuesday, October 01, 2024, we invite all participants to Sizihwan Sunset Beach Resort to enjoy beautiful sunset view at 17:30 (Sunset time is 18:00). Drink and beers will be provided. The conference banquet will begin at 18:30 at the same place. Participants who wish to attend the banquet are requested to register in advance. The online registration fee is NT\$1,500 per person, and the on-site registration fee is NT\$2,000 per person.

Award & Closing Ceremony

High school poster award ceremony will be held in WahLee Hall, 1F at 12:00, Sunday, September 30, 2024.

MOC award ceremony (including MOC paper award, MOC student paper award, MOC best poster award) will take place in Kwang-Chung Hall, 2F, at 16:00 on Wednesday, October 2, 2024.

Celebration Party

Celebration Party is the last social event of MOC2024 and will take place after Award & Closing Ceremony to be held at the 1F close to the registration desk. Light food and beers/drinks will be provided.

Technical Sessions

Sunday, September 29

10:30-12:00 Session HSE: High School Session Event

Venue: 1st floor, WahLee Hall

Chairs: Prof. Chin-Ping Yu, NSYSU/ Prof. Wei-Chun Lin, NSYSU

(HSE-1) Introduction to the Microoptics World (invited)

10:30 Prof. Hirochika Nakajima, Waseda University

(HSE-2) Light and electrons — Why do semiconductors emit light? (invited)

11:00 Prof. Gen-ichi Hatakoshi, Microoptics Group, JSAP

(HSE-3) Nanostructured semiconductor materials for solar energy conversion (invited)

11:30 Prof. Hyeonseok Lee, Faculty of Department of Photonics, NSYSU

13:00-13:30 Workshop Opening

Venue: 2nd floor, Kwang-Chung Hall

Chairs: Prof. Yi-Jen Chiu, NSYSU/ Prof. Kiichi Hamamoto, Kyushu University

13:30-16:15 Session A: Emerging Photonics

Venue: 2nd floor, Kwang-Chung Hall

Chairs: Prof. Yung-Jr Hung, NSYSU/ Dr. Rai Kou-Takahashi, AIST

Chairs: Prof. Tsung-Hsien Lin, NSYSU/ Prof. Taro Arakawa, Yokohama National University

(A-1) Lithium niobate photonics: Unlocking the electromagnetic spectrum (invited)

13:30 Dr. Andy Boes, The University of Adelaide, Australia

(A-2) Semiconducting Bismide-based microlasers: challenges and prospectives. (invited)

14:00 Dr. Renata Butkutė, Institute of Photonics and Nanotechnology (IPN), Vilnius university, Lithuania

(A-3) Study of ion implantation technology on blue micro-LEDs array applications (invited)

14:30 Prof. Ray-Hua Horng, National Yang Ming Chiao Tung University, Taiwan

15:00-15:15 Coffee Break

(A-4) Nano-carbon mode-locked lasers: 20 years anniversary (*invited*)

15:15 Prof. Sze Yun Set, The University of Tokyo, Japan

(A-5) Neuromorphic hardware with integrated spiking laser neurons (*invited*)

15:45 Prof. Weiming Yao, Eindhoven University of Technology, Netherlands

Get Together Party (Cruise Excursion)

Venue: Kaohsiung port warehouse no.2 (KW2)

Monday, September 30

08:30-09:00 MOC2024 Opening Remark

Venue: 2nd floor, Kwang-Chung Hall

Honorary Chairs:

Prof. Chih-Peng Li, President of NSYSU

Prof. Kenichi Iga, Tokyo Institute of Technology

Chairs: Prof. Yi-Jen Chiu, NSYSU/ Prof. Kiichi Hamamoto, Kyushu University

09:00-10:30 Plenary Session A

Venue: 2nd floor, Kwang-Chung Hall

Chairs: Prof. Yi-Jen Chiu, NSYSU/ Prof. Kiichi Hamamoto, Kyushu University

(PL-1) Integrated silicon photonic circuits (*invited*)

09:00 Prof. John E. Bowers, Distinguished Professor, Departments of Electrical and Computer Engineering and Materials at University of California, Santa Barbara, USA

(PL-2) Advanced VCSEL photonics: communication and sensing (*invited*)

09:45 Prof. Fumio Koyama, Professor Emeritus, Tokyo Institute of Technology, Japan

10:30-11:00 Coffee Break

11:00-12:30 Session B: Semiconductor lasers

Venue: 2nd floor, Kwang-Chung Hall

Chairs: Prof. Chin-Ping Yu, NSYSU/ Prof. Masakazu Arai, University of Miyazaki

(B-1) Heterogeneous integration technology towards future optical devices (*invited*)

11:00 Prof. Moataz Eissa, Tokyo Institute of Technology, Japan

(B-2) Over 140Gbps direct modulation of single-mode 1060nm metal aperture coupled cavity VCSELS

11:30 Hameeda R. Ibrahim^{1,2}, Ahmed Hassan^{1,3}, Chang Ge¹, Xiaodong Gu^{1, 4}, Babu D. Padullaparthi¹, and Fumio Koyama¹, ¹Inst. of Innovative Res., Tokyo Inst. of Tech. ²Dept. of Physics, Faculty of Science, Minia Univ. ³Dept. of Physics, Faculty of Science, Al-Azhar Univ. ⁴Ambition Photonics Inc. **(0117)**

(B-3) Unidirectional lasing in a ring resonator with an S-shaped waveguide

11:45 Zhiwei Dai¹, Wenbo Lin², Sangmin Ji¹, Hiroya Sakumoto³, Mitsuru Takenaka³ and Satoshi Iwamoto¹, ¹Res. Center of Advanced Science and Tech., Tokyo Univ., ²Inst. of Innovative Res., Tokyo Inst. Tech., ³Graduate School of Engineering, Tokyo Univ.**(0118)**

(B-4) 940 nm high power single-mode surface grating VCSEL array

12:00 Ahmed Hassan^{1,2}, Xiadong Gu^{1,3} and Fumio Koyama¹, ¹Inst.of Innovative Res., Tokyo Inst. Tech., ²Dept. of Physics, Faculty of Science, Al-Azhar Univ., ³Ambition Photonics Inc. **(0107)**

(B-5) High-power 1.55- μ m DFB Laser with below 100 kHz linewidth and 12 Gb/s PAM-4 transmission for advanced sensing and communication platform

12:15 Te-Hua Liu^{1,2} and Chao-Hsin Wu^{1,2,3,4}, ¹Graduate School of Advanced Tech., NTU, ²Center for Quantum Science and Engineering, NTU, ³Graduate Inst. of Electronics Engineering, NTU, ⁴Graduate Inst. of Photonics and Optoelectronics, NTU **(0123)**

12:30-13:30 Lunch (IR1001/IR1002)

13:30-15:00 Session C: Photonic communication systems & subsystems

Venue: 1st floor, WahLee Hall

Chairs: Prof. Yu-Han Hung, NSYSU/ Prof. Hiroshi Murata, Mie University

(C-1) Precise optical modulation technology for measurement applications (*invited*)

13:30 Prof. Tetsuya Kawanishi, Waseda University, Japan

(C-2) 16-channel, 100-GHz-spaced CW-WDM wavelength demultiplexer by employing MZI-assisted add-drop ring resonators on SOI

14:00 Po-Chou Hung¹, Yen-Ming Lee¹, Ruei-Shen Wang¹, Zong-Ming Chang¹, Chih-Hsien Chen¹ and Yung-Jr Hung^{1,2,3}, ¹Dept. of Photonics, NSYSU, ²College of Semiconductor and Advanced

Tech. Res., NSYSU, ³Heterogeneously integrated Silicon Photonic Integration Center, NYUST
(0004)

(C-3) FSK terahertz-wave communication using a high-speed wavelength tunable laser

14:15 Ryota Kaide¹, Naoto Masutomi¹, Shenghong Ye¹, Yuya Mikami¹, Yuta Ueda² and Kazutoshi Kato¹, ¹Graduate School of Info. Science and Electrical Engineering, Kyushu Univ. ²NTT Device Tech. Laboratories, NTT Corp. **(0114)**

(C-4) 1.27 Gbps white-Light system combining semipolar (20–21) blue micro-LED and organic blend

14:30 Annada Sankar Sadhu^{1,2}, Li-Yin Chen¹ and Hao-Chung Kuo^{1,3}, ¹Dept. of Photonics, Inst. of Electro-Optical Engineering, College of Electrical and Computer Engineering, NYCU, ²International Ph.D. Program in Photonics, College of Electrical and Computer Engineering, NYCU, ³Semiconductor Res. Center, Hon Hai Res. Inst. **(0041)**

(C-5) Demonstration of differential coding signal detection using optical phase modulator and optical fiber dispersion effect

14:45 Yamato Fujikata, Naoki Ueda, Yui Otagaki, and Hiroshi Murata Graduate School of Engineering, Mie Univ. **(0024)**

15:00-15:30 Coffee Break

15:30-17:00 Session PO: Poster Session 1

Venue: 2nd floor, The hallway outside Kwang-Chung Hall

(PO-1) 940 nm photonic crystal surface emitting laser for 3D sensing

Wei-Ta Huang^{1,2}, Kuo-Bing Hong², Chia-Hsun Chang^{1,2}, Hsiang-Chen Wang¹, Wen-Cheng Hsu^{1,2}, Yu-Heng Hong², Shu-Wei Chang^{1,3}, Yao-Wei Huang¹, and Hao-Chung Kuo^{1,2}, ¹Dept. of Photonics, NYCU ²Semiconductor Res. Center, Foxconn Res., ³Res. Center for Applied Sciences, Academia Sinica **(0076) (Poster Paper Award Candidate)**

(PO-2) High-performance long-wavelength InGaN-based micro-LEDs

Fu-He Hsiao^{1,2}, Wen-Chien Miao^{1,2}, Tzu-Yi Lee³, Chi-Wai Chow³, Gong-Ru Lin⁴, Kazuhiro Ohkawa⁵, Hao-Chung Kuo^{1,3}, and Yu-Heng Hong¹, ¹Semiconductor Res. Center, Foxconn Res., ²Dept. of Electrophysics, NYCU, ³Dept. of Photonics and Inst. of Electro-Optical Engineering, NYCU, ⁴Dept. of Electrical Engineering, NTU, ⁵Computer, Electrical and Mathematical Sciences

and Engineering Division, King Abdullah Univ. of Science and Tech. **(0034)** [\(Poster Paper Award Candidate\)](#)

(PO-3) Silicon photonics InGaAsP semiconductor optical amplifiers integrated high-speed electroabsorption modulators

Chun-Chia Su¹, Po-Ming Yen¹, Chih-Min Liao¹, Chen-Yu Yeh¹ and Yi-Jen-Chiu¹, ¹Dept. of Photonics, NSYSU **(0074)** [\(Poster Paper Award Candidate\)](#)

(PO-4) Mid-infrared GeSn waveguide photodetectors for integrated electronic-photonic circuits

Radhika Bansal¹ and Guo-En Chang¹, ¹Dept. of Mechanical Engineering and Advanced Inst. of Manufacturing with High-Tech Innovations (AIM- HI) CCU **(0132)** [\(Poster Paper Award Candidate\)](#)

(PO-5) Asymmetrically-apodized silicon waveguide gratings for sidelobe suppression

Chia-hsuan Chien¹, Chih-Hsien Chen¹, Chia-Ju Yu¹ and Yung-Jr Hung^{1,2,3}, ¹Dept. of Photonics, NSYSU, ²College of Semiconductor and Advanced Tech. Res., NSYSU, ⁽³⁾ Heterogeneously integrated Silicon Photonic Integration Center, NTUST **(0064)** [\(Poster Paper Award Candidate\)](#)

(PO-6) Heterogeneous integration of single-mode III-V laser on SiC substrate

Yu-Hao Tu¹, Lu-Kuan Du¹, Wei-Cheng Feng¹, Yang-Jeng Chen¹ and Yi-Jen Chiu¹, ¹Dept. of Photonics, NSYSU **(0060)** [\(Poster Paper Award Candidate\)](#)

(PO-7) 100Gb/s high-speed traveling-wave electroabsorption modulator (EAM) integrated with DFB laser

Rih-You Chen¹, Chen-Yu Yeh¹, Bo-Hong Chen², Chung-Wei Hsiao¹, Wei Lin², and Yi-Jen Chiu¹, ¹Dept. of Photonics, NSYSU, ²LandMark Optoelectronics Corp. **(0130)** [\(Poster Paper Award Candidate\)](#)

(PO-8) High-speed ground-to-satellite free space optical wireless communication at low earth orbit (LEO) range with varying receiver beam aperture

Shuangyi Zhao¹, ¹College of Optoelectronic Engineering, Chongqing Univ. **(0120)** [\(Poster Paper Award Candidate\)](#)

(PO-9) Silicon photonic gyroscope with small fiber coil

Yung-Ming Lin¹, Yu-Tong Lee¹, Po-Hui Huang¹, Wei-Xuan Chen¹, Chun-Ta Wang¹, and Yung-Jr Hung^{1,2,3}, ¹Dept. of Photonics, NSYSU, ²College of Semiconductor and Advanced Tech. Res.,

NSYSU, ³Heterogeneously integrated Silicon Photonic Integration Center, NTUST **(0078)** [\(Poster Paper Award Candidate\)](#)

(PO-10) Fiber refractometer based on Fabry-Pérot interferometer with a two-opening cavity

Jia-Yuan Liu and Chin-Ping Yu, Department of Photonics, Miniaturized Photonic Gyroscope Research Center, NSYSU **(0089)** [\(Poster Paper Award Candidate\)](#)

(PO-11) Hydrogenated TiO₂ nanotube photocatalysts equipped with Zinc indium sulfide nanoflakes for CO₂ conversion

Po-Wei Lai and Hyeonseok Lee, Dept. of Photonics, NSYSU **(0050)**

(PO-12) Early detection of disease of mango by fluorescence using blue LED and hyper spectral camera

Atsuhiko Ohkubo, Hikari Yoshioka, Kaito Makinose, and Masakazu Arai, Faculty of Engineering, Univ. of Miyazaki **(0044)**

(PO-13) Heterodyne interferometric fiber-optic gyroscope

Chih-Jen Yu, Graduate Inst. of Electro-Optical Engineering, CGU **(0021)**

(PO-14) Linear/sinusoidal dual-phase modulation microscope enhances image quality

Yi-Hsin Chan^{1,2} and Chih-Jen Yu³, ¹Cardiovascular Dept. Chang Gung Memorial Hospital Linkou, ²Microscopy Core Laboratory Chang Gung Memorial Hospital Linkou, ³Graduate Inst. of Electro-Optical Engineering, CGU **(0018)**

(PO-15) Investigations of thermal degradation effects on high-efficiency Perovskite solar cells through 3D depth profiles analysis via ToF-SIMS

Ming-Hao Lin¹, Wei-Te Liang¹, Ji-Zeng Wang¹, Sheng-Hsiung Chang², and Wei-Chun Lin¹, ¹ Dept. of Photonics, NSYSU, ²Dept. of Physics, CYCU **(0072)**

(PO-16) Insertion effects of InGaAs metamorphic buffer on 1.3- μ m range type-II quantum wells on GaAs substrate

Rikuto Takashima¹, Kazuki Usui¹, Koichiro Kunitake¹, Hidetoshi Suzuki¹ and Masakazu Arai¹, ¹Faculty of Engineering, Univ. of Miyazaki **(0047)**

(PO-17) Quasi-crystal film assisted fluorescence enhancement on a metal surface

Xiang-Fa Wu and Yu-Ju Hung, Department of Photonics, NSYSU **(0108)**

(PO-18) Annihilation of birefringent effect in a polarizing interferometric fiber-optic gyroscope via parallel polarizers configuration

Chih-Jen Yu, Graduate Inst. of Electro-Optical Engineering, CGU (0020)

(PO-19) High-resolution and flexible X-ray scintillation imaging of metal halides

Shuangyi Zhao¹, ¹College of Optoelectronic Engineering, Chongqing Univ. (0008)

(PO-20) Dislocation mapping of InGaAs multiple quantum wells by hyperspectral imaging with sub micrometer resolution

Augustas Vaitkevičius^{1,2}, Andrea Zelioli¹, Evelina Dudutienė¹, Aivaras Špokas¹, Bronislovas Čechavičius¹ and Renata Butkutė^{1,2}, ¹State Res. Inst. Center for Physical Sci. and Tech. ²Inst. of Photonics and Nanotechnology., Vilnius Univ. (0029)

(PO-21) Shaping the future of imaging with advanced metasurface optics

Pin Chieh Wu¹, ¹Dept. of Photonics, NCKU (0003)

(PO-22) High-speed wavelength switching on tunable distributed feedback laser array utilizing iterative learning control

Haolan Tang, Shenghong Ye, Bo Li, Chong Zhang, Naoto Masutomi, Yuya Mikami and Kazutoshi Kato Graduate School of Info. Sci. and Elec. Engineering, Kyushu Univ. (0109)

(PO-23) Edge coupler design for SiN/Si butt coupling integration

Ryo Sugano¹, Ryo Otake¹, Ryo Nishihata¹, Shun Fujii² and Takasumi Tanabe¹, ¹Dept. of Electronics and Electrical Engineering, Faculty of Sci. and Tech., Keio Univ., ²Dept. of Physics, Faculty of Sci. and Tech., Keio Univ. (0111)

(PO-24) High coupling performance design of hybrid integration active III-V/SOI platform based on GACC methods

Ika Novitasari¹ and San-Liang Lee², ^{1,2}Dept. of Graduate Inst. of Electro-Optical Engineering/Elec. and Computer Engineering, NTUST (0122)

(PO-25) Al-based nanorod plasmonic into the far-UVC spectral region

Chia-Yen Huang¹, Shing-Hong Hou¹, Hung-Chang Hsieh¹, Jhih-Sheng Wu¹, ¹Dept. of Electro-Optical Engineering, NYCU (0102)

(PO-26) High-rate chirp spread spectrum secured terahertz communication link

Shenghong Ye¹, Naoto Masutomi¹, Ryota Kaide¹, Bo Li¹, Ming Che¹, Yuya Mikami¹, Yuta Ueda²,

and Kazutoshi Kato¹, ¹Graduate School of Info. Sci. and Elec. Engineering, Kyushu Univ., ²NTT Device Tech. Laboratories, NTT Corp. **(0136)**

(PO-27) Long stand-off distance vibrometry and range-finding by self-mixing interferometry

Alfred Albert¹, Silvano Donati² and San-Liang Lee³, ¹Dept. of Elec. and Computer Engineering, NTUST, ²Dept. of Industrial Engineering, NTUST ³Dept. of Elec. and Computer Engineering, NTUST **(0063)**

(PO-28) Temperature-sensor-integrated laser-irradiative optical fiber probe and its application for tract ablation

Hideki Fukano¹, Kazuma Ooshima¹, Taiga Fukasaka², Noriyuki Umakoshi³, Toshihiro Iguchi⁴, Tomohiro Toji⁵ and Jun Sakurai⁶, ¹Graduate School of Natural Science and Technology, Okayama University, ²Graduate School of Environmental, Life, Natural Sci., and Tech., Okayama Univ., ³Dept. of Radiology, Okayama Univ. Hospital, ⁴Dept. of Radiological Tech., Faculty of Health Sci., Okayama Univ., ⁵Dept. of Pathology, Japanese Red Cross Okayama Hospital (6) Center for Innovative Clinical Medicine, Okayama Univ. Hospital **(0090)**

(PO-29) Efficient super-resolution of phase images encoded with random phase mask by machine learning techniques

Yu Yamada, Atsushi Okamoto and Akihisa Tomita, Graduate School of Info. Sci. and Tech., Hokkaido Univ. **(0012)**

(PO-30) Irregular microlens arrays with controlled crosstalk for the automotive adaptive high beam

Dmitrii Stefanidi^{1,2}, Leo M. Wilhelm¹, Peter Schreiber¹, Philipp Schleicher¹, Sylke Kleinle¹, Ralf Rosenberger¹, Felix Kraze¹, Robert Brüning¹ and Andreas Tünnermann^{1,2}, ¹Fraunhofer Inst. for Applied Optics and Precision Engineering, ²Inst. for Applied Physics, Friedrich-Schiller-Univ. **(0048)**

(PO-31) Highly sensitive optical hydrogen gas sensor based on Pt-WO₃/Si microring resonator

Yuta Eto, Shinji Okazaki, Yoshiaki Nishijima, Akio Higo†, and Taro Arakawa, Graduate School of Eng., Yokohama National Univ. **(0113)**

(PO-32) Suppression of cavity-length dependence of oscillation wavelength in vertical-short-cavity laser

Shogo Ura¹, Shunsuke Teranishi¹, Akari Watanabe¹, Keisuke Ozawa¹, Hongxu Chen¹, Junichi Inoue¹, Kenzo Nishio¹, and Kenji Kintaka², ¹Kyoto Inst. of Tech., ²National Inst. of Advanced Industrial Science and Tech. **(0010)**

(PO-33) Demonstration of group velocity dispersion compensation in radio-over-fiber transmission by using optical carrier phase shift

Ken Takebayashi¹ and Hiroshi Takahashi¹, ¹Graduate School of Sci. and Tech., Sophia Univ. **(0032)**

(PO-34) Miniaturized VCSEL array with Zn-diffusion apertures for high-speed and high-brightness performance

Cheng-Wei Lin¹, Zhe-Wei Hsu¹, Jian-Wei Tung¹, and Jin-Wei Shi¹, ¹Dept. of Elec. Engineering, NCU. **(0006)**

(PO-35) First emission of active nano-pixel waveguide using InGaAsP-MQW membrane

Zhesheng Lei¹, Islam Mohammad Shafiqul¹, Haisong Jiang¹, Ryota kuwahata¹, Eisaku Kato², and Kiichi Hamamoto¹, ¹Interdisciplinary Graduate School of Engineering Sci., Kyushu Univ., ²Dept. of Elec. Engineering and Info. Systems, School of Engineering, The Univ. of Tokyo **(0058)**

(PO-36) Experimental study on dynamical behavior of semiconductor lasers at period-one nonlinear dynamics with intensity-modulated optical injection

Guan-Ting Lu¹, Chin-Hao Tseng¹ and Sheng-Kwang Hwang^{1,2}, ¹Dept. of Photonics, NCKU, ²Advanced Optoelectronic Tech. Center, NCKU **(0039)**

(PO-37) Orthogonal circular polarized lasing emissions in a polymer-stabilized cholesteric liquid crystal with a bilayer helical structure

Ting-Wei Gu, Yu-Chieh Chang, Chun-Ta Wang, Dept. of Photonics, NSYSU **(0042)**

(PO-38) Tapered fiber grating liquid-index sensor

Cheng-En Tsai, Shian-Ming Liu and Wen-Fung Liu Dept. of Electrical Engineering, Feng-Chia Univ. **(0105)**

(PO-39) Hybrid zinc-based halides for flexible X-ray imaging

Meng Wang¹, Dehai Liang¹, Zhigang Zang¹, ¹Key Laboratory of Optoelectronic Tech. & Systems (Ministry of Education), Chongqing Univ. **(0031)**

(PO-40) Temperature compensation in Si-MIOC based fiber optic gyroscope

Ting-Hsuan Kuo¹, Wei-Xuan Chen¹, and Yung-Jr Hung^{1,2,3}, ¹Dept. of Photonics, NSYSU ² College of Semiconductor and Advanced Tech. Res., NSYSU ³Heterogeneously integrated Silicon Photonic Integration Center, NTUST **(0081)**

(PO-41) Vertical incidence optical modulator and photodetector with graphene/Si and Ge metasurface structures in near and mid infrared wavelengths

Hiroki Maeda¹, Rongyang Xu², Takuya Iwasaki³, Yodai Sato⁴, Makoto Ogo⁴, Satoshi Moriyama⁴, Kenji Watanabe³, Takashi Taniguchi⁵, Junichi Fujikata⁶, and Junichi Takahara^{2,7},

¹Graduate School of Sci. and Tech. for Innovation Tokushima Univ. ²Graduate School of Engineering, Osaka Univ., ³Res. Center for Materials Nanoarchitectonics, National Ins. for Materials Sci., ⁴Dept. of Electrical and Electronic Engineering, Tokyo Denki Univ., ⁵Res. Center for Elec. and Optical Materials, National Inst. for Materials Sci., ⁶Inst. of Post-LED Photonics, Tokushima Univ., ⁷Photonics Center, Graduate School of Engineering, Osaka Univ. **(0084)**

(PO-42) High accuracy vibration detection by using low complexity deep learning in distributed optical fiber sensing

Brian Pamukti¹, Shien-Kuei Liaw¹, I Putu Eka Widya Pratama², Sefi Novendra Patrialova², Agus Muhamad Hatta³, ¹Graduate Inst. of Electro-Optical Engineering, NTUST, ²Dept. of Instrumentation Engineering, ITS, ³Dept. of Engineering Physics, ITS **(0112)**

(PO-43) Application of neural network for dynamic driving cholesteric liquid crystal displays

Jun-Jie-Lu and Tsung-Hsien-Lin Dept. of Photonics, NSYSU **(0082)**

(PO-44) Mode analysis of supercontinuum generation within nonlinear waveguide

Li-Cheng Chuang¹, Shao-Long Gan¹, Guan-Hong Li¹, Yuan-Yao Lin¹, ChaoKuei Lee¹, Shuo-Yen Tseng² and Yi-Jen Chiu¹, ¹Dept. of Photonics, NSYSU, ² Dept. of Photonics, NCKU **(0085)**

(PO-45) Investigation of undersea optical wireless communication using Laguerre-Gaussian beams and correction filters in strong turbulence

Kurumi Takeuchi¹ and Kayo Ogawa¹, ¹Faculty of Science, Japan Women's Univ. **(0055)**

(PO-46) Dynamics of a swept light source for OCT

Maimi Shimura, Akira Takada, and Makoto Fujino, Eye Care Advanced Dev. Dept., Eye Care Business Division, Topcon Corp. **(0015)**

(PO-47) Surface-enhanced Raman spectroscopy for hemoglobin identification

Mehdi Feizpour, Sara Abbasi, and Heidi Ottevaere, Vrije Universiteit Brussel, Dept. of Applied Physics and Photonics, Brussels Photonics **(0124)**

(PO-48) 1 × 2 field splitter using nano-pixel toward compact optical mode switch

Yuzhuang Xie, Haisong Jiang, and Kiichi Hamamoto, Interdisciplinary Graduate School of Engineering Sci., Kyushu Univ. **(0116)**

(PO-49) Temperature-insensitive open-cavity FPI pressure sensor formed by using hollow-core fiber and triangularly-ground fibers

Ciao-Huei Chung and Chin-Ping Yu, Dept. of Photonics, Miniaturized Photonic Gyroscope Res. Center, NSYSU **(0104)**

(PO-50) Synchronization and data analysis algorithm of decoy state BB84 QKD

De-Wei Liao¹, Bo-Ming Chen¹, Yuan-Ren Yeh¹ and Yu-Hang Hung^{1,2}, ¹Dept. of Photonics, NSYSU, ²Miniaturized Photonic Gyroscope Res. Center, NSYSU **(0062)**

(PO-51) Pixel shift-based dual-phase modulation method for higher spatial resolution of LCOS wave shaper

Jianglian Wang¹, Atsushi Okamoto¹, Yuta Goto² and Akihisa Tomita¹, ¹Graduate School of Info. Sci. and Tech., Hokkaido Univ., ²NICT**(0016)**

(PO-52) Low-cost sensitivity-enhanced optical fiber acoustic sensor based on Phi-OTDR system for distributed acoustic sensing

Ting-Kuan Lin¹, Hung-Yi Chen¹, Jui-Ting Yu¹, and Yu-Han Hung^{1,2}, ¹Dept. of Photonics, NSYSU, ²Miniaturized Photonic Gyroscope Res. Center, NSYSU **(0125)**

(PO-53) Efficient optical coupling between dielectric waveguides and a coupled ribs plasmonic waveguide

Jia-Ren Wu², Chiashain Chuang^{2,3}, and Sheng Hsiung Chang^{1,2}, ¹Dept. of Physics, CYCU, ²Dept. of Electronic Engineering, CYCU, ³Res. Center for Semiconductor Materials and Advanced Optics, CYCU **(0026)**

(PO-54) Hyperspectral investigation of the micro-optical delivery of the phosphor-based white LED

Hung Ji Huang and Yan-Fang Lai, Dept. of Electro-Optical Engineering, National Formosa University **(0135)**

(PO-55) Optical characterizations of an n-type 4H-SiC wafer with transmittance and Raman scattering spectra

Anjali Chandel¹, Chii-Bin Wu^{1,2}, Jyh-Shyang Wang^{1,2}, and Sheng Hsiung Chang^{1,2}, ¹Dept. of Physics, CYCU, ²Res. Center for Semiconductor Materials and Advanced Optics, CYCU **(0046)**

(PO-56) ZnO microneedle photocatalysts decorated by ZIS nanoflakes for CO₂ conversion

Yu-Ting Wu and Hyeonseok Lee, Dept. of Photonics, NSYSU **(0040)**

(PO-57) Solid state triple wavelength illumination systems for diagnostic applications

Janis Spigulis, Edgars Kviesis-Kipge, Uldis Rubins, Ilze Oshina, Inga Saknite Inst. of Atomic Physics and Spectroscopy, Univ. of Latvia **(0014)**

17:00-18:30 Microconcert

Venue: 2nd floor, Kwang-Chung Hall

Chairs: Prof. Kenichi Iga, Tokyo Institute of Technology

Performed by Machida Philharmony Baroque Ensemble (MPB)

Solo Concertmaster: Takako Yoshii

Secretary & Stage Manager: Akio Yoshii

Assistant Manager: Hitomi Horinouchi

Violin: Takako Yoshii, Tomoko Iga, Mizuho Okada, Mizue Hoshi, Yoshikazu Karasawa, Akiko

Maehara, Shuho Hoshi

Viola: Yoko Miyazaki, Reiko Araki, Thomas Berg

Violoncello: Masamichi Ishikawa

Contrabass: Kenichi Iga

Cembalo: Naomi Hanzawa

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

Tuesday, October 01

08:30-09:00 Keynote Speech

Venue: 2nd floor, Kwang-Chung Hall

Chairs: Prof. Chao-Kuei Lee, NSYSU

(KS-1) Meta Lens: from imaging and sensing to quantum optical source (*invited*)

08:30 Prof. Din Ping Tsai, Chair Professor, Department of Electrical Engineering, City University of Hong Kong, Hong Kong

09:00-10:30 Plenary Session B

Venue: 2nd floor, Kwang-Chung Hall

Chairs: Prof. Yung-Jr Hung, NSYSU/ Dr. Rai Kou-Takahashi, AIST

(PL-3) Laser technology development in LandMark (*invited*)

09:00 Dr. Wei Lin, Vice Chairman, LandMark Optoelectronics Corporation, Taiwan

(PL-4) Opportunities and challenges in the commercialization of MicroLED display technology (*invited*)

09:45 Dr. Yun-Li (Charles) Li, Co-founder and CEO, PlayNitride Display Co., Ltd., Taiwan

11:00-12:30 Session D: Si photonics devices & applications

Venue: 2nd floor, Kwang-Chung Hall

Chairs: Prof. Chia-Chien Wei, NSYSU/ Prof. Satoshi Iwamoto, The University of Tokyo

(D-1) Ultrafast nonlinear optics on thin film lithium niobate (*invited*)

11:00 Prof. Mengjie Yu, University of Southern California, USA

(D-2) Quantum photonic chips and the application of integrated quantum random number generators

11:30 Chen-Han Chou¹, Wei-Kuan Li¹, Chien-Ming Wu¹, Ying-Ru Chen¹, Jyun-Ting Liu², Yun-Chih Liao², Hao-Chung Cheng², Ray-Kuang Lee¹, Ming-Chang M. Lee¹, ¹Inst. of Photonics Tech. and Dept. of Electrical Engineering, NTHU, ²Dept. of Electrical Engineering, NTU **(0011)**

(D-3) Investigation on spectrally-sliced Si-MIOC-driven multi-axial fiber optic gyroscope

11:45 Wei-Xuan Chen¹ and Yung-Jr Hung^{1,2,3}, ¹Dept. of Photonics, NSYSU ²College of Semiconductor and Advanced Tech. Res., NSYSU ³Heterogeneously integrated Silicon Photonic Integration Center, NTU **(0066)**

(D-4) THz transmitter using silicon photonics based two-wavelength tunable laser diode and ring modulator

12:00 Yuga Tomimura¹, Dohyeong Lee¹, Akira Satou², Taiichi Otsuji² and Tomohiro Kita¹, ¹School of Advanced Science and Engineering, Waseda Univ., ²RIEC, Tohoku Univ. **(0017)**

(D-5) Ferroelectric nematic liquid crystal incorporated silicon photonic modulator based on Pockels effect

12:15 Li-Yuan Chiang¹, Rih-You Chen², Gianlorenzo Masini¹, Chirag Patel¹, Pavel Savechenkov¹, Yi-Jen Chiu², Cory Pecinovsky¹, and Jason W. Sickler¹, ¹Polaris Electro-Optics, Inc., ² Dept. of Photonics, NSYSU **(0133)**

12:30-13:30 Lunch (IR1001/IR1002)

Chairs: Prof. Yi-Jen Chiu, NSYSU/ Prof. Kiichi Hamamoto, Kyushu University

Kenichi Iga



Optica, Advancing Optics and Photonics Worldwide, has named Kenichi Iga, Professor Emeritus and former President of Tokyo Institute of Technology, Japan the 2024 Frederic Ives Medal/Jarus W. Quinn Prize recipient. Iga is recognized for pioneering contributions and visionary leadership in the field of semiconductor lasers and optoelectronics and a dedication to training and educating future generations.

John Bowers



John Bowers, distinguished professor of electrical and computer engineering in the UC Santa Barbara College of Engineering (COE), the Fred Kavli Chair in Nanotechnology, and the director of the UCSB Institute for Energy Efficiency, has been selected to receive the 2024 Jun-ichi Nishizawa Prize from the Institute of Electrical and Electronics Engineers (IEEE) for his “contributions to photonic integrated circuit technologies.”

Fumio Koyama



Emeritus Professor Fumio Koyama of Tokyo Institute of Technology (Specially Appointed Professor at the Institute of Innovative Research) has been selected as the recipient of the 2024 IEEE Nick Holonyak Jr. Medal for pioneering contributions to vertical-cavity surface-emitting laser (VCSEL) and VCSEL-based photonics for optical communications and sensing.

15:00-15:30 Coffee Break (1F)

(PO-58) Optical meta-lens for imaging and sensing

Mu Ku Chen^{1,2}, Xiaoyuan Liu², Wuyang Li¹, Jialuo Cheng¹, Yin Zhou¹, and Zihan Geng³, ¹Dept. of Electrical Engineering, City Univ. of Hong Kong, ²The State Key Laboratory of Terahertz and Millimeter Waves, City Univ. of Hong Kong, ³Inst. of Data and Info., Tsinghua Shenzhen International Graduate School, Tsinghua Univ. **(0126) (Poster Paper Award Candidate)**

(PO-59) 3D-camera based optical wireless power transmission safety system for light beam scanning applications

Chen Zuo¹ and Tomoyuki Miyamoto¹, ¹FIRST, IIR, Tokyo Inst. of Tech. **(0087) (Poster Paper Award Candidate)**

(PO-60) Broadband tunable electro-optic switch in an integrated lithium niobate photonic chip

Aloysius Niko¹, Quan-Hsiang Tseng¹, Tien-Dat Pham¹, Hung-Pin Chung^{1,2}, Lin-Ming Deng¹, and Yen-Hung Chen^{1,2,3}, ¹Dept. of Optics and Photonics, NCU, ²Center for Astronautical Physics and Engineering, NCU, ³Quantum Tech. Center, NCU **(0035) (Poster Paper Award Candidate)**

(PO-61) OFC generation in cascaded injection semiconductor lasers

Hsu-Ting Tang¹, Yu-Han Hung^{1,2}, ¹Dept. of Photonics, NSYSU, ²Miniaturized Photonic Gyroscope Res. Center, NSYSU **(0095) (Poster Paper Award Candidate)**

(PO-62) Hybrid III-V and Si photonics template based on a SiC wafer

Zhi-Jie Wu¹, Zhong-En Zheng¹, Yang-Jeng Chen¹, Chen-Yu Yeh¹, Yi-Jen Chiu¹, ¹Dept. of Photonics, NSYSU **(0106) (Poster Paper Award Candidate)**

(PO-63) 2D phased array antenna integrated with arrayed photomixers for 2D terahertz wave beam steering

Hiroki Agemori¹, Ming Che¹, Ryo Doi¹, Yoshiki Kamiura¹, Hussein Ssali¹, Yuya Mikami¹, and Kazutoshi Kato¹, ¹Graduate School of Info. Sci. and Elec. Engineering, Kyushu Univ. **(0115) (Poster Paper Award Candidate)**

(PO-64) Quantum well optical modulator with circular patch antenna for radio over fiber system

R. Nakazawa¹, G. Sekiguchi¹, Y. Otagaki², H. Murata², A. Matsumoto³, and T. Arakawa¹,
¹Graduate School of Engineering, Yokohama National Univ., ²Graduate School of Engineering,
Mie Univ., ³National Inst. of Info. and Communications Tech. (NICT) **(0100)** [\(Poster Paper Award Candidate\)](#)

(PO-65) Enhancing interferometric fiber optic gyroscope performance through noise reduction and optical filtering

Min-Chi Chan, Bo-Yu Su, and Chia-Chien Wei, Dept. of Photonics, NSYSU **(0061)** [\(Poster Paper Award Candidate\)](#)

(PO-66) W-band FMCW signal generation using period one dynamics of optically injected semiconductor lasers

Chin-Hao Tseng¹ and Sheng-Kwang Hwang^{1,2}, ¹Dept. of Photonics, NCKU, ²Advanced Optoelectronic Tech. Center, NCKU **(0045)** [\(Poster Paper Award Candidate\)](#)

(PO-67) Compact polarization rotator using nano-pixel

Sara Bruhier, Haisong Jiang and Kiichi Hamamoto Interdisciplinary Graduate School of Engineering Sciences, Kyushu University **(0121)** [\(Poster Paper Award Candidate\)](#)

(PO-68) Rigorous solutions of Gaussian beams in planar optical waveguides

Gen-ichi Hatakoshi¹ and Shojiro Kawakami², ¹Microoptics Group, JSAP, ²Photonic Lattice, Inc. **(0028)**

(PO-69) Cavity-resonator-integrated guided-mode resonance filter for transverse-magnetic polarized incidence

Keisuke Ozawa¹, Aika Taniguchi¹, Souta Kimura¹, Yuya Yamanishi¹, Keisuke Sakatani¹, Junichi Inoue¹, Kenji Kintaka² and Shogo Ura¹, ¹Dept. of Electronics, Kyoto Inst. of Tech., ²Nanomaterials Res. Inst., National Inst. of Advanced Industrial Sci. and Tech. **(0051)**

(PO-70) Confirmation of the effectiveness of initial wavefront multiplexing multibeam in turbulent water

Taiga Manabe¹, Haruto Hirose¹, Ayana Oku¹ and Yoshihisa Takayama¹, ¹Graduate School of Info. and Telecommunication Engineering, Tokai Univ. **(0007)**

(PO-71) Enhancing Q factor in electrically-injected InGaN thin film microdisk laser by metallic undercut

W. Y. Fu¹ and H. W. Choi¹, ¹Dept. of Electrical and Electronic Engineering, the Univ. of Hong Kong

(0080)

(PO-72) Fabry-Pérot fiber optic interferometer based on TiO₂ nanoparticles for mid-infrared wavelength power measurement

Taeho Woo¹, Junha Jung¹, Suh-young Kwon¹, Kyungtaek Lee¹, Janghyun Ryu¹ and Ju Han Lee^{1,1}
School of Elec. and Computer Engineering, Univ. of Seoul **(0037)**

(PO-73) Proposal of ultralow-driving-voltage optical modulator based on quantum well microring resonator

Mika Aomi¹ and Taro Arakawa¹, ¹Graduate School of Eng., Yokohama National Univ. **(0101)**

(PO-74) Advanced polarization manipulation in high-period one-dimensional liquid photonic crystals

Ting-Jiun Ko and Tsung-Hsien Lin, Dept. of Photonics, NSYSU **(0097)**

(PO-75) Simultaneous measurement of gas pressure and temperature by using Vernier-effect-based fiber Fabry-Pérot sensor

Hao-Chien Cheng and Chin-Ping Yu, Dept. of Photonics, Miniaturized Photonic Gyroscope Res. Center, NSYSU **(0092)**

(PO-76) Polarization-insensitive smart windows through advanced photolithography techniques

Jia-Yu Cao, Kuan-Wu Lin, Ting-Mao Feng, and Chun-Ta Wang, Dept. of Photonics, NSYSU **(0013)**

(PO-77) Wavelength router structures with photonic integrated circuits in recursive wavelength routing networks

Kimio Oguchi^{1,2}, Chi-Chia Chung¹ and Bo-Shen Yang¹, ¹Dept. of Electronic and Computer Engineering, NTUST, ²HiSiPIC, NTUST **(0138)**

(PO-78) A dispersion-engineered liquid-core fiber Mach Zehnder interferometer using dual-side polished hollow core fibers

Yi-Hua Wu, Ying-Zhen Huang, Bo-Shen Chang, and Cheng-Ling Lee, Dept. of Electro-Optical Engineering, NUU **(0083)**

(PO-79) Demonstration of quantum-enhanced target detection by using temporal-correlated quantum photon pairs

Pin-Ju Tsai^{1,2} and Yen-Hung Chen^{1,2,3}, ¹Dept. of Optics and Photonics, NCU ²Quantum Tech. Center, NCU, ³Center for Astronautical Physics and Engineering, NCU **(0054)**

(PO-80) Fabrication of high-Q polymeric waveguide resonators on glass substrates

Yi Chang, Jia-Hao Cao, and Pei-Hsun Wang, Dept. of Optics and Photonics, NCU **(0019)**

(PO-81) Small-diameter sensing coil development for fiber optic gyroscope

Po-Hui Huang¹, Wei-Xuan Chen¹, Yung-Jr Hung^{1,2,3}, and Chun-Ta Wang¹, ¹Dept. of Photonics, NSYSU, ²College of Semiconductor and Advanced Tech. Res., NSYSU, ³Heterogeneously integrated Silicon Photonic Integration Center, NSTUST **(0103)**

(PO-82) Ultra-low voltage quantum well optical modulator with double microring resonator operated at Cryogenic temperature

Rei Yanagida¹ and Taro Arakawa¹, ¹Graduate School of Engineering, YNU. **(0099)**

(PO-83) Exploring the potential of metal mesh in transparent antenna for future generation communication applications

Ping-Chen Tsai, Yung-Han Ho, Tien-Lun Ting and Tsung-Hsien Lin, Dept. of Photonics, NSYSU **(0030)**

(PO-84) SDN enabled all-optical switching network for 6G edge cloud services

Yu-Huai Chang¹, Wei-Sheng Lin¹, Po-Kai Chuang³, Hsiu-Fang Hu³, Chin-Cheng Hu³, Yu-Ping Yu³ and Yu-Han Hung^{1,2}, ¹Dept. of Photonics, NSYSU, ²Miniaturized Photonic Gyroscope Res. Center, NSYSU, ³Broadband Networks Laboratory, Telecommunication Laboratories Chunghwa Telecom Co., Ltd. **(0071)**

(PO-85) Low-frequency fiber-optic hydrophone sensor simulation design

Ting-Kuan Lin¹, Hung-Yi Chen¹, Jui-Ting Yu¹, Yao-Ting Wang¹ and Yu-Han Hung^{1,2}, ¹Dept. of Photonics, NSYSU, ²Miniaturized Photonic Gyroscope Res. Center, NSYSU **(0086)**

(PO-86) Use of V4C3 MXene-coated etched fiber for humidity sensing

Janghyun Ryu, Taeho Woo, Jeehwan Kim, Jaehak Choi, Suckwoo Shin, Namwook Joe, Jungje Jo, Kyuho Choi, and Ju Han Lee, School of Elec. and Computer Engineering, Univ. of Seoul **(0036)**

(PO-87) Graphene modulator based on Benzocyclobutene dielectric material integrated on silicon photonics template

Era Budi Prayekti¹, Sheng-Jhe Tong¹, Rih-You Chen¹, Chun-Hu Chen² and Yi-Jen Chiu¹, ¹Dept. of Photonics, NSYSU, ²Dept. of Chemistry, NSYSU **(0022)**

(PO-88) Adiabaticity engineered silicon polarization independent directional coupler for the O-band

Yu-Fang Lo, Huai-Wei Tu, Hung-Ching Chung, Shuo-Yen Tseng, Dept. of Photonics, NCKU **(0070)**

(PO-89) Highly sensitive fiber-grating pressure sensor

Wei-Chen Li¹, Shian-Ming Liu², Wen-Fung Liu², and I-Nan Chang³, ¹Ph.D. Program of Electrical and Communications Engineering, FCU, ²Dept. of Electrical Engineering, FCU, ³Dept. of Electronic Engineering, FCU **(0088)**

(PO-90) Broadband electro-tunable linear polarization rotator

Jin-Yu Chen, Li-Min Chang, Tsung-Hsien Lin, Dept. of Photonics, NSYSU **(0075)**

(PO-91) Fill factor improvement using tunnel junction in InGaAsP photovoltaic device for 1.06- μ m range optical wireless power transmission

Takaya Oshimo¹, Yuga Motomura¹, Yukiko Suzuki², Natsuha Ochiai², Kazuto Kashiwakura², Youhei Toriumi², Kensuke Nishioka¹, and Masakazu Arai¹, ¹Faculty of Engineering, Univ. of Miyazaki, ²NTT Space Environment and Energy Laboratories **(0091)**

(PO-92) Fiber grating gas-pressure sensor

Chia-Cheng Cheng¹, Yi-Jhen Li², Wei-Chen Li¹, Wen-Fung Liu², and Kun-Huang Chen², ¹Ph.D. Program of Elec. and Communications Engineering, FCU, ² Dept. of Elec. Engineering, FCU **(0096)**

(PO-93) Improving in external quantum efficiency and conversion efficiency of GaAs solar cell based on plasmonic effects of Indium nanoparticles

Cheng-Jin He¹, Fong-En Cai¹, Yen-Ting Cheng¹, Lung-Chien Chen¹ and Wen-Jeng Ho^{1,2}, ¹Dept. of Electrical-Optical Engineering, NTPU. of Tech. ²Heterogeneously-integrated Silicon Photonic Integration Center, NTUST **(0069)**

(PO-94) Optimizing perovskite solar cells: exploring anti-solvent and thermal degradation effects for enhanced efficiency

Wei-Te Liang¹, Ming-Hao Lin¹, Ji-Zeng Wang¹, Sheng-Hsiung Chang² and Wei-Chun Lin¹, ¹ Dept. of Photonics, NSYSU, ²Dept. of Physics, CYCU **(0073)**

(PO-95) Optimization of detection area for detecting disease symptoms of mango stem-end rot using hyperspectral imaging

Hikari Yoshioka , Koudai Shimotabira, and Masakazu Arai, Dept. of Applied Physics and Elec. Engineering, Univ. of Miyazaki **(0043)**

(PO-96) GaAsBi quantum wells with AlGaAs graded barriers

Evelina Dudutienė¹, Aistė Butkutė¹, Monika Jokubauskaitė¹, Aivaras Špokas¹, Andrea Zelioli¹, Sandra Stanionytė² Bronislovas Čechavičius¹ and Renata Butkutė¹, ¹Dept. of Optoelectronics, SRI Center for Physical Sci. and Tech., ²Dept. of Characterisation of Materials Structure, SRI Center for Physical Sci. and Tech. **(0053)**

(PO-97) Rising time reduction by cascading Mach Zehnder interferometer optical switches

Toshio Watanabe, Shunsuke Taguchi, Tsutomu Nagayama, and Seiji Fukushima Dept. of Engineering, Kagoshima Univ. **(0038)**

(PO-98) Mode spectrum analysis of optical vortex beam propagated through underwater turbulence

Ayuka Nakamura¹, Hiroki Kishikawa¹, and Shien-Kuei Liaw², ¹Graduate School of Sci. and Tech. for Innovation, Tokushima Univ., ²Dept. of Elec. Engineering, NTUST **(0077)**

(PO-99) Threshold and wavelength modification of InP nanowire lasers on monolayer WS₂

Hung-Jung Shen¹, Yu-Wei Liao², Chuang Siang Yu², Kuo-Ping Chen¹, ¹Inst. of Photonics Technologies, NTHU, ²Inst. of Photonics, NYCU **(0127)**

(PO-100) Antimony composition control of type-II InGaAs/GaAsSb quantum wells and structural investigation to 1.3- μ m range laser on GaAs substrate

Koichiro Kunitake¹, Kazuki Usui¹, Rikuto Takashima¹, Masakazu Arai¹, Faculty of Engineering, Univ. of Miyazaki **(0052)**

(PO-101) Electrically tunable wavelength and beam steering laser of dielectric metasurface integrated with liquid crystal for bound states in the continuum

Wu-Wen Hsiang¹, Chi-Wen Chen, Mu-Rong Huang and Kuo-Ping Chen, ¹Inst. of Photonics Technologies, NTHU **(0128)**

(PO-102) Optimizing the temperature limited growth of GaAsBi for NIR emitters

Aivaras Špokas¹, Andrea Zelioli¹, Bronislovas Čechavičius¹, Augustas Vaitkevičius^{1,2}, Evelina Dudutienė¹, Renata Butkutė¹, ¹Center for Physical Sci. and Tech., Dept. of Optoelectronics, ²Inst. of Photonics and Nanotechnology, Faculty of Physics, Vilnius Univ. **(0033)**

(PO-103) Investigating time-dependent behavior of cholesteric liquid crystal using dielectric spectroscopy

Pin-Jui Su¹, Kuan-Wu Lin¹, Yi-Hsin Chou¹, Cheng-Chang Li² and Tsung-Hsien Lin¹, ¹Dept. of Photonics, NSYSU, ²Brilliant Optronics, Kaohsiung **(0098)**

15:30-17:00 Post-deadline papers (In Poster Presentation)

Venue: 2nd floor, The hallway outside Kwang-Chung Hall

(PDP-4) A scanning hyperspectral imaging microscope for surface profiling and internal structure analysis of optical elements

Guo-Hao Lu, Yu-Hsing Lin, Teng-I Yang, Chao-Feng Liu, Chun-Jen Weng, Taiwan Instrument Research Institute, National Applied Research Laboratories **(0140)**

(PDP-5) VCSEL with intra-cavity metalens for transverse-mode control

Zhirui Li¹ and Shanting Hu¹, ¹School of Information and Electronics, Beijing Institute of Technology **(0142)**

(PDP-6) Single mode VCSEL with circular Bragg gratings

Xingchen Zhang¹ and Shanting Hu², ¹School of Electronic Engineering, Beijing Univ. of Post and Telecommunications, ²School of Information and Electronics, Beijing Inst. of Tech. **(0145)**

(PDP-7) Reconnectable light-induced self-written optical waveguides

Makiko Ichioka¹, Hayato Kakurai¹, Hidetaka Terasawa², Shingo Tamesue¹², and Okihiro Sugihara¹²³, ¹Graduate School of Regional Development and Creativity, Utsunomiya Univ., ²School of Engineering, Utsunomiya Univ. ³Center for Optical Res. and Education, Utsunomiya Univ. **(0147)**

(PDP-8) ZrO₂-SiO₂ waveguide using SiO₂-capped core for suppressing blue-light-induced refractive index change

Yuji Fujiwara, Satomi Katayose, Junji Sakamoto, Takeshi Umeki, and Toshikazu Hashimoto NTT Device Tech. Labs., NTT Corporation **(0148)**

(PDP-9) Utilization of photoexcitation measurements for elucidating the inherent characteristics of light-emitting diodes

Changeun Park, Jong-In Shim, and Dong-Soo Shin, Dept. of Photonics and Nanoelectronics, Hanyang Univ. ERICA **(0150)**

(PDP-10) Fully-integrated silicon photonic multi-functional integrated optical chip for driving three-axis interferometric fiber optic gyroscope

Tzu-Jung Kuo^{1,2}, Wei-Xuan Chen¹, Michael Osborne², Philip Rowse², and Yung-Jr Hung¹, ¹Department of Photonics, NSYSU, ²Azimuth Avionics **(0151)**

(PDP-11) Sub-nanosecond wavelength switching in high-speed tunable laser enabled by optical injection locking

Naoto Masutomi¹, Shenghong Ye¹, Ryota Kaide¹, Yuya Mikami¹, Yuta Ueda², and Kazutoshi Kato¹, ¹Graduate School of Info. Science and Electrical Engineering, Kyusyu Univ., ²NTT Device Tech. Laboratories, NTT **(0153)**

(PDP-12) Sensitivity improvement in optical waveguide CRDS system using log-amplifier

Kenta Okawachi, Shumpei Noguchi, Haisong Jiang and Kiichi Hamamoto, Interdisciplinary Graduate School of Engineering Sciences, Kyushu Univ. **(0154)**

(PDP-13) Injection-position affection in asymmetric nano-pixel power-splitter

Takuma Haraguchi, Haisong Jiang and Kiichi Hamamoto, Interdisciplinary Graduate School of Engineering Sciences, Kyushu Univ. **(0155)**

17:30-18:30 Sunset & Beach Viewing

Venue: Sizihwan Sunset Beach Resort

We invite all participants to Sizihwan Sunset Beach Resort to enjoy beautiful sunset view at 17:30 (Sunset time is 18:00). Drink and beers will be provided.

18:30-20:00 Conference Banquet

Venue: Sizihwan Sunset Beach Resort

The conference banquet will begin at 18:30 at the same place. Participants who wish to attend the banquet are requested to register in advance. The online registration fee is NT\$1,500 per person, and the on-site registration fee is NT\$2,000 per person.

08:30-10:30 Session E: Advanced fiber, waveguide and optics design

Venue: 2nd floor, Kwang-Chung Hall

Chairs: Prof. Chun-Ta Wang, NSYSU/ Prof. Shogo Ura, Kyoto Institute of Technology

(E-1) Efficiency Drop in InGaN-Based MicroLEDs *(invited)*

08:30 Prof. Jong In Shim, Hanyang University, South Korea

(E-2) Nonlinear and topological photonics on a CMOS chip *(invited)*

09:00 Prof. Dawn Tan, Singapore University of Technology and Design, Singapore

(E-3) Machined hollow-core waveguide for extreme ultraviolet spectroscopy

09:30 Takashi Sukegawa¹, Masatsugu Koyama¹, Theodor Strobl^{2,3} and Akira Ozawa³, ¹Canon.Inc, ²Fakultät für Physik, Ludwig-Maximilians-Universität München, ³Max-Planck-Institut für Quantenoptik **(0023)**

(E-4) Sub-pixel-matched meta-collimator array capping with optimized air gap

09:45 Teng-Li Shao, Yu-Min Chang, Wen-Hsuan Hsieh, Yao-Wei Huang, Tien-Chang Lu, Chia-Yen Huang, Dept. of Photonics, NYCU **(0131)**

(E-5) 3D-Printed facet-attached micro-lens with striped Moth-eye anti-reflection structure for DFB-LD

10:00 Yasutaka Mizuno and Manabu Shiozaki, Transmission Devices Laboratory, Sumitomo Electric Ind., Ltd. **(0027)**

(E-6) Mode field managed fiber end cap composed of coreless and GI fibers for high power visible-light planar lightwave circuit module

10:15 Saki Nohara, Junji Sakamoto, and Toshikazu Hashimoto, NTT Device Tech. Labs., NTT Corp. **(0079)**

10:30-11:00 Coffee Break (1F)

Chairs: Prof. Yuan-Yao Lin, NSYSU/ Prof. Kazutoshi Kato, Kyushu University

(F-1) Photonic-crystal surface-emitting lasers for optical vortex beam generations (invited)

11:00 Prof. Kyoko Kitamura, Tohoku University, Japan

(F-2) Flip-chip bonded avalanche photodiode with cascaded multiplication-layers for 4-D FMCW LiDAR applications with ultra-high velocity sensitivity

11:30 Yu-Xiang Lin^{1,2}, Chia-Chien Wei², You-Chia Chang³, Tzyy-Sheng Horng⁴, and Jin-Wei Shi¹,
¹Dept. of Electrical Engineering, NCU, ²Dept. of Photonics, NSYSU, ³Dept. of Photonics, NYCU,
⁴Dept. of Electrical Engineering, NSYSU **(0005)**

(F-3) High-Speed THz Wave Beam Steering by Optical Frequency Switching of Tunable Laser using Chromatic Dispersion of Optical Fibers

11:45 Aoi Asano¹, Masato Kawano¹, Naoto Masutomi¹, Ryota Kaide¹, Ryo Doi¹, Yoshiki Kamiura¹, Yuya Mikami¹, Yuta Ueda² and Kazutoshi Kato¹, ¹Graduate School of Info. Sci. and Electrical Engineering, Kyushu Univ., ²NTT Device Tech. Labs, NTT Corp. **(0119)**

(F-4) Silicon-based frequency-modulated continuous-wave characterizations in ranging and velocity

12:00 Ting-Qing Liao, Jia-Yan Huang, Ming-Yang Hung, and Shih-Hsiang Hsu, NTUST **(0056)**

(F-5) Fast and linear beat frequency sweeper by tunable-DFB-laser-array based photomixing for terahertz FMCW radar

12:15 Chong Zhang¹, Shenghong Ye¹, Bo Li¹, Haolan Tang¹, Yuya Mikami¹ and Kazutoshi Kato¹, ¹ Graduate School of Info. Science and Electrical Engineering, Kyushu Univ. **(0110)**

12:30-13:30 Lunch (IR1001/IR1002)

Chairs: Prof. Yao-Ting Wang, NSYSU/ Prof. Toshio Watanabe, Kagoshima University

(G-1) Nanoparticles-doped blue-phase liquid crystals for emerging tunable photonic devices (invited)

13:30 Prof. Kamil Orzechowski, Warsaw University of Technology, Poland

(G-2) Reduced interface reflection in silicon photonics multi-function integrated optic circuit for fiber optic gyroscope applications

14:00 Yu-Yun Tzeng¹, Yu-Tong Lee¹, Wei-Xuan Chen¹, and Yung-Jr Hung^{1,2,3}, ¹Dept. of Photonics, NSYSU, ²College of Semiconductor and Advanced Tech. Res., NSYSU, ³ Heterogeneously integrated Silicon Photonic Integration Center, NTUST **(0065)**

(G-3) >200Gb/s two-channel mode division multiplexing integrated with SiGe EAMs on a silicon photonics platform

14:15 Rih-You Chen, Chen-Feng Huang, Yong-Kuan Guo, Chen-Yu Yeh, Wei-Cheng Feng, Yi-Jen Chiu, Dept. of Photonics, NSYSU **(0129)**

(G-4) Miniaturized silicon photonic gyroscope employing wavelength-sweeping VCSEL as the light source

14:30 Yu-Tong Lee¹, Yu-Yun Tzeng¹, Wei-Xuan Chen¹, and Yung-Jr Hung^{1,2,3}, ¹Dept. of Photonics, NSYSU, ²College of Semiconductor and Advanced Tech. Res., NSYSU, ³ Heterogeneously integrated Silicon Photonic Integration Center, NTUST **(0068)**

(G-5) Compact GeSn micro-ring lasers on silicon for mid-infrared silicon photonics

14:45 Wei-Cheng Hsu¹, Yu-Cheng Yeh¹, and Guo-En Chang¹, ¹Dept. of Mechanical Engineering, and Advanced Inst. of Manufacturing with High-Tech Innovations (AIM-HI), CCU **(0137)**

(G-6) Flexible microwave switching time control in phase-locked period-one nonlinear semiconductor laser dynamics

15:00 Hao-Wen Weng Lin¹, Chun-An Sung¹ and Yu-Han Hung^{1,2}, ¹Dept. of Photonics, NTSU, ²Miniaturized Photonic Gyroscope Res. Center, NSYSU **(0059)**

15:15-15:30 Coffee Break (1F)

15:30-16:15 Post deadline papers

Venue: 2nd floor, Kwang-Chung Hall

Chairs: Prof. Yung-Jr Hung, NSYSU/ Dr. Rai Kou-Takahashi, AIST

(PDP-1) 45-GHz bandwidth single-mode 1060nm intra-cavity metal aperture coupled cavity VCSELs

15:30 Hameeda R. Ibrahim^{1,2}, Ahmed Hassan^{1,3}, Chang Ge¹, Xiaodong Gu^{1,4} and Fumio Koyama¹,
¹Inst. of Innovative Res., Tokyo Inst. of Tech., ²Dept of Physics, Faculty of Science, Minia Univ.,
Egypt, ³Dept of Physics, Faculty of Science, Al-Azhar Univ., Assuit, Egypt, ⁴Ambition Photonics
Inc., Tokyo, Japan **(0158)**

(PDP-2) Spectrum-sliced silicon photonics for parallel convolutional processing

15:45 Zong-Ming Chang¹, Po-Hsiang Huang¹, Chwen-Pu Jou², Chua-Chin Wang³, and Yung-Jr
Hung^{1,4,5}, ¹Dept. of Photonics, NSYSU, ²Taiwan Semiconductor Manufacturing Company, ³Dept.
of Electrical Engineering, NSYSU, ⁴College of Semiconductor and Advanced Tech. Res., NSYSU,
⁵Heterogeneously integrated Silicon Photonic Integration Center **(0146)**

**(PDP-3) Topological edge state lasing by one-dimensional traveling wave resonance in
honeycomb membrane**

16:00 Ta-Kuan Liu, Jhih-Sheng Wu¹, Zhen-Ting Huang, Meng-Ting Han, Yen-Hsun Chen and Tien-
Chang Lu², ¹Department of Photonics, College of Electrical and Computer Engineering, NYCU
(0144)

16:15-16:30 Coffee Break (1F)

16:30-17:00 Award & Closing

Venue: 2nd floor, Kwang-Chung Hall

Award Chairs: Prof. Yung-Jr Hung, NSYSU/ Dr. Rai Kou-Takahashi, AIST

Closing Chairs: Prof. Yi-Jen Chiu, NSYSU/ Prof. Kiichi Hamamoto, Kyushu University

17:00-17:30 Celebration Party

Venue: 1st floor at registration desk

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