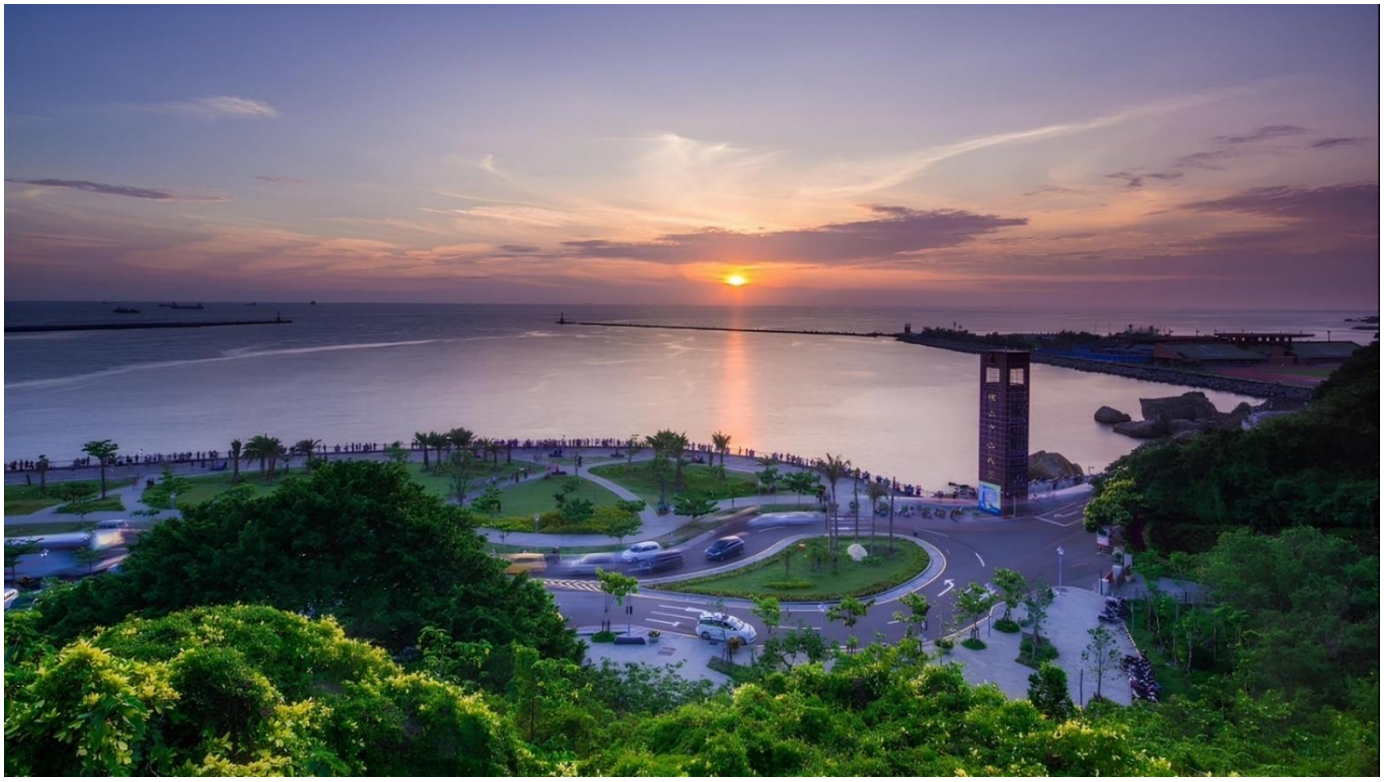
THE TWENTY-NINTH MICROOPTICS CONFERENCE

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 metal 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

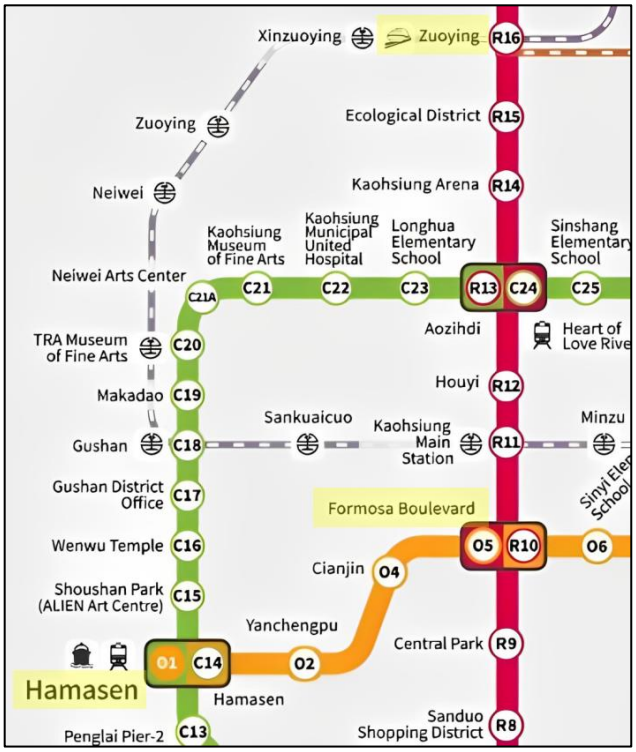
Yung-Jr Hung
National Sun Yat-sen University
Co-chair

Rai Kou-Takahashi
National Institute of Advanced Industrial Science and Technology
Co-chair

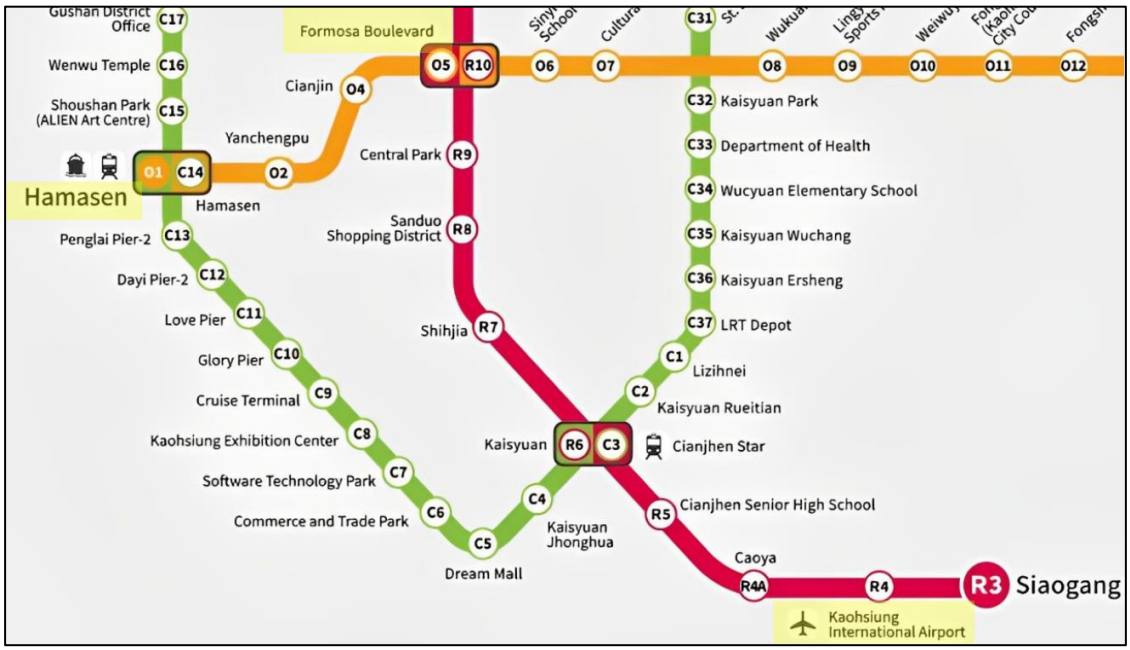
Conference Venue

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

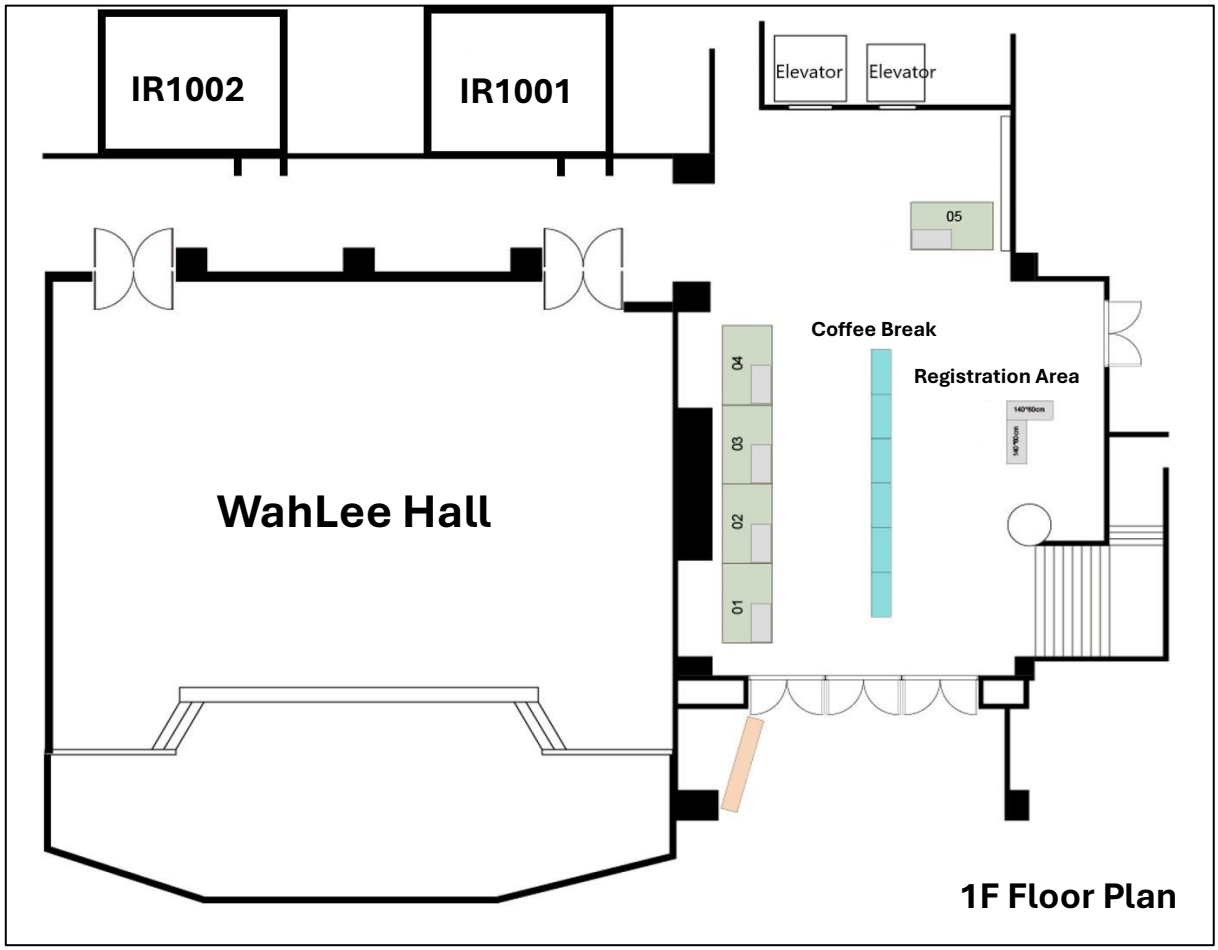
From Taoyuan International Airport:

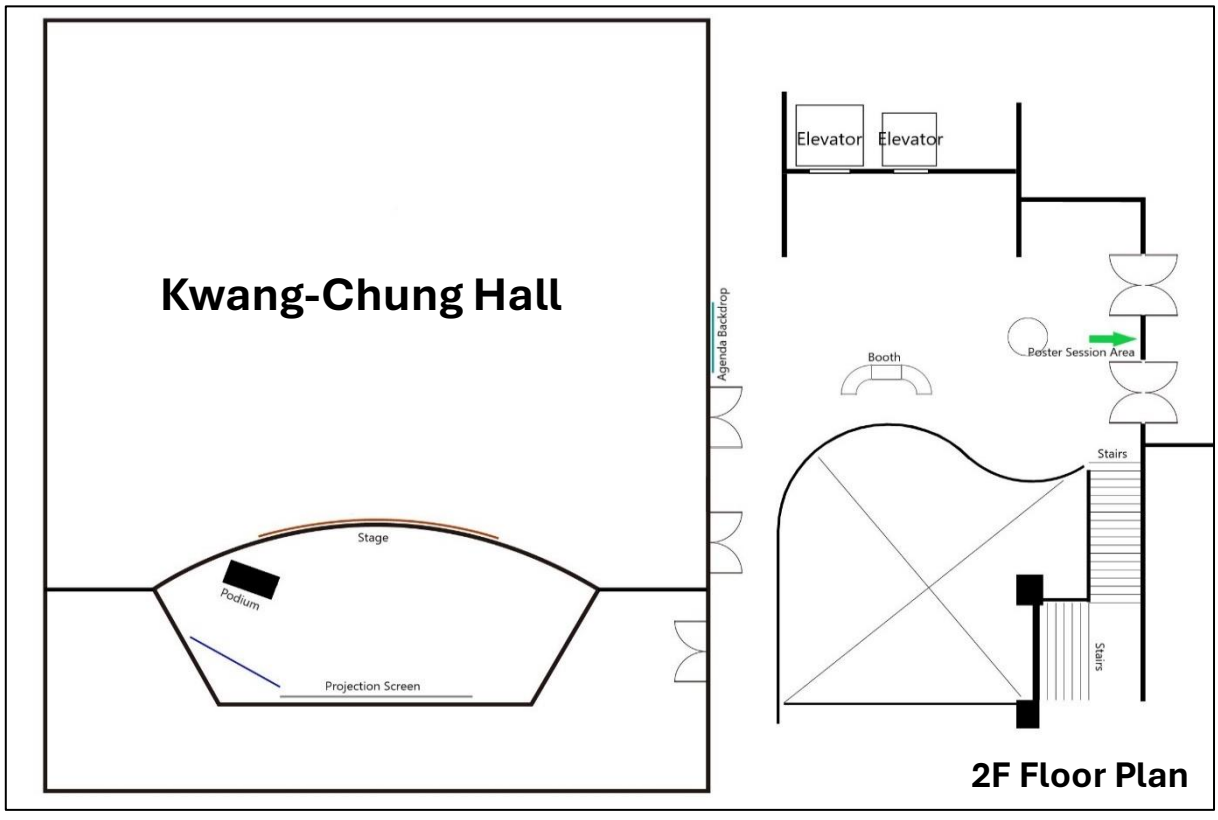
<table>
<tr><td>Step1.</td><td>Take Taoyuan metro to Taoyuan HSR Station (A18): 17 mins</td></tr>
<tr><td>Step2.</td><td>High Speed Rail (HSR) from Taoyuan to Zuoying: 95 mins</td></tr>
<tr><td>Step3.</td><td>Take Kaohsiung Metro from R16 Zuoying Station to R10/O5 Formosa Boulevard (Red line) and then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

From Kaohsiung International Airport (Siaogang Station):

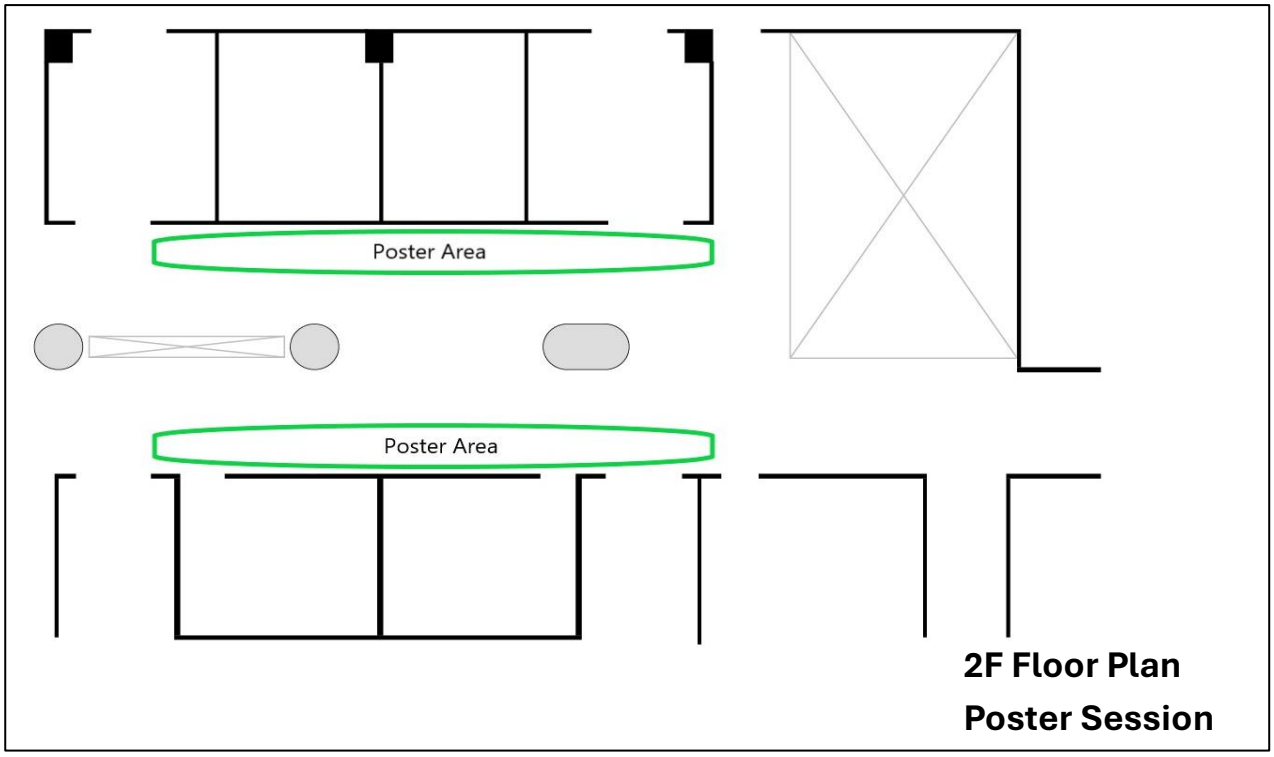
<table>
<tr><td>Step1.</td><td>Take Kaohsiung Metro from R4 Kaohsiung International Airport Station to R10/O5 Formosa Boulevard (Red line), and then transfer to (Orange line) go to O1 Sizihwan Station (Exit 2): 23 mins
 
</td></tr>
<tr><td>Step3.</td><td>There are three ways you can choose:</td><td>Walking: 12mins
Bus (Orange 1 C): 5 mins
U-bike: 8 mins
Taxi (Car): 3 mins</td></tr>
</table>

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	**High School Poster Session (2F)** 09:30-10:30			
09:45				
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		**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
11:15				
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	Coffee Break (1F) 15:15-15:30
15:15	**Session A: Emerging Photonics 2** 15:15-16:15			
15:30		**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				
16:00				
16:15	**Get Together Party** (Cruise Excursion) 16:15-18:00			Coffee Break (1F) 16:15-16:30
16:30				**Award & Closing** 16:30-17:00
16:45				
17:00		**Micro Concert** 17:00-18:30	**Sunset Beer** 17:00-18:30	**Celebration Party** 17:00-17:30
17:15				
17:30				
17:45				
18:00				
18:15				
18:30			**Conference Banquet** 18:30-20:00	
18:45				
19:00				
19:15				
19:30				
19:45				
20:00				

International Research Building, NSYSU	1st floor, “WahLee Hall”
	2nd floor, “Kwang-Chung Hall”
	2nd 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 Løvland : "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 WahLee Hall (1F) 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: 1st floor, WahLee 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 Ge[1], Xiaodong Gu[1, 4], Babu D. Padullaparthi[1], and Fumio Koyama[1], [1]Inst. of Innovative Res., Tokyo Inst. of Tech. [2]Dept. of Physics, Faculty of Science, Minia Univ. [3]Dept. of Physics, Faculty of Science, Al-Azhar Univ. [4]Ambition Photonics Inc. **(0117)**

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

11:45 Zhiwei Dai[1], Wenbo Lin[2], Sangmin Ji[1], Hiroya Sakumoto[3], Mitsuru Takenaka[3] and Satoshi Iwamoto[1], [1]Res. Center of Advanced Science and Tech., Tokyo Univ., [2]Inst. of Innovative Res., Tokyo Inst. Tech., [3]Graduate 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 Koyama[1], [1]Inst.of Innovative Res., Tokyo Inst. Tech., [2]Dept. of Physics, Faculty of Science, Al-Azhar Univ., [3]Ambition Photonics Inc. **(0107)**

(B-5) High-power 1.55-μm 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], [1]Graduate School of Advanced Tech., NTU, [2]Center for Quantum Science and Engineering, NTU, [3]Graduate Inst. of Electronics Engineering, NTU, [4]Graduate 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 Hung[1], Yen-Ming Lee[1], Ruei-Shen Wang[1], Zong-Ming Chang[1], Chih-Hsien Chen[1] and Yung-Jr Hung [1,2,3], [1]Dept. of Photonics, NSYSU, [2]College of Semiconductor and Advanced

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

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

14:15 Ryota Kaide[1], Naoto Masutomi[1], Shenghong Ye[1], Yuya Mikami[1], Yuta Ueda[2] and Kazutoshi Kato[1], [1]Graduate School of Info. Science and Electrical Engineering, Kyushu Univ. [2]NTT 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 Chen[1] and Hao-Chung Kuo[1,3], [1]Dept. of Photonics, Inst. of Electro-Optical Engineering, College of Electrical and Computer Engineering, NYCU, [2]International Ph.D. Program in Photonics, College of Electrical and Computer Engineering, NYCU, [3]Semiconductor 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 Hong[2], Chia-Hsun Chang[1,2], Hsiang-Chen Wang[1], Wen-Cheng Hsu[1,2], Yu-Heng Hong[2], Shu-Wei Chang[1,3], Yao-Wei Huang[1], and Hao-Chung Kuo[1,2], [1]Dept. of Photonics, NYCU [2]Semiconductor Res. Center, Foxconn Res., [3]Res. 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 Lee[3], Chi-Wai Chow[3], Gong-Ru Lin[4], Kazuhiro Ohkawa[5], Hao-Chung Kuo[1,3], and Yu-Heng Hong[1], [1]Semiconductor Res. Center, Foxconn Res., [2]Dept. of Electrophysics, NYCU, [3]Dept. of Photonics and Inst. of Electro-Optical Engineering, NYCU, [4]Dept. of Electrical Engineering, NTU, [5]Computer, 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 Su[1], Po-Ming Yen[1], Chih-Min Liao[1], Chen-Yu Yeh[1] and Yi-Jen-Chiu[1], [1]Dept. of Photonics, NSYSU **(0074)** **(Poster Paper Award Candidate)**

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

Radhika Bansal[1] and Guo-En Chang[1], [1]Dept. 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 Chien[1], Chih-Hsien Chen[1], Chia-Ju Yu[1] and Yung-Jr Hung[1,2,3], [1]Dept. of Photonics, NSYSU, [2]College 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 Tu[1], Lu-Kuan Du[1], Wei-Cheng Feng[1], Yang-Jeng Chen[1] and Yi-Jen Chiu[1], [1]Dept. 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 Chen[1], Chen-Yu Yeh[1], Bo-Hong Chen[2], Chung-Wei Hsiao[1], Wei Lin[2], and Yi-Jen Chiu[1], [1]Dept. of Photonics, NSYSU, [2]LandMark 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 Zhao[1], [1]College of Optoelectronic Engineering, Chongqing Univ. **(0120)** **(Poster Paper Award Candidate)**

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

Yung-Ming Lin[1], Yu-Tong Lee[1], Po-Hui Huang[1], Wei-Xuan Chen[1], Chun-Ta Wang[1], and Yung-Jr Hung[1,2,3], [1]Dept. of Photonics, NSYSU, [2]College of Semiconductor and Advanced Tech. Res.,

NSYSU, [3]Heterogeneously 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 TiO_2 nanotube photocatalysts equipped with Zinc indium sulfide nanoflakes for CO_2 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

Atsuhiro 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 Yu[3], [1]Cardiovascular Dept. Chang Gung Memorial Hospital Linkou, [2]Microscopy Core Laboratory Chang Gung Memorial Hospital Linkou, [3]Graduate 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 Lin[1], Wei-Te Liang[1], Ji-Zeng Wang[1], Sheng-Hsiung Chang[2], and Wei-Chun Lin[1], [1] Dept. of Photonics, NSYSU, [2]Dept. of Physics, CYCU **(0072)**

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

Rikuto Takashima[1], Kazuki Usui[1], Koichiro Kunitake[1], Hidetoshi Suzuki[1] and Masakazu Arai[1], [1]Faculty 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 Zhao[1], [1]College 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 Zelioli[1], Evelina Dudutienė[1], Aivaras Špokas[1], Bronislovas Čechavičius[1] and Renata Butkutė[1,2], [1]State Res. Inst. Center for Physical Sci. and Tech. [2] Inst. of Photonics and Nanotechnology., Vilnius Univ. **(0029)**

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

Pin Chieh Wu[1], [1]Dept. of Photonics, NSKU **(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 Sugano[1], Ryo Otake[1], Ryo Nishihata[1], Shun Fujii[2] and Takasumi Tanabe[1], [1]Dept. of Electronics and Electrical Engineering, Faculty of Sci. and Tech., Keio Univ., [2]Dept. 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 Novitasari[1] and San-Liang Lee[2], [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 Huang[1], Shing-Hong Hou[1], Hung-Chang Hsieh[1], Jhih-Sheng Wu[1], [1]Dept. of Electro-Optical Engineering, NYCU **(0102)**

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

Shenghong Ye[1], Naoto Masutomi[1], Ryota Kaide[1], Bo Li[1], Ming Che[1], Yuya Mikami[1], Yuta Ueda[2],

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

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

Alfred Albert[1], Silvano Donati[2] and San-Liang Lee[3], [1]Dept. of Elec.and Computer Engineering, NTUST, [2]Dept. of Industrial Engineering, NTUST [3]Dept. of Elec. and Computer Engineering, NTUST **(0063)**

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

Hideki Fukano[1], Kazuma Ooshima[1], Taiga Fukasaka[2], Noriyuki Umakoshi[3], Toshihiro Iguchi[4], Tomohiro Toji[5] and Jun Sakurai6, [1]Graduate School of Natural Science and Technology, Okayama University, [2]Graduate School of Environmental, Life, Natural Sci., and Tech., Okayama Univ., [3]Dept. of Radiology, Okayama Univ. Hospital, [4]Dept. of Radiological Tech., Faculty of Health Sci., Okayama Univ., [5]Dept. 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. Wilhelm[1], Peter Schreiber[1], Philipp Schleicher[1], Sylke Kleinle[1], Ralf Rosenberger[1], Felix Kraze[1], Robert Brüning[1] and Andreas Tünnermann[1,2], [1]Fraunhofer Inst. for Applied Optics and Precision Engineering, [2]Inst. for Applied Physics, Friedrich-Schiller-Univ. **(0048)**

(PO-31) Highly sensitive optical hydrogen gas sensor based on Pt-WO_3/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

Chong Zhang[1], Shenghong Ye[1], Bo Li[1], Haolan Tang[1], Yuya Mikami[1] and Kazutoshi Kato[1], [1] Graduate School of Info. Sci. and Elec. Engineering, Kyushu Univ. **(0010)**

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

Ken Takebayashi[1] and Hiroshi Takahashi[1], [1]Graduate 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 Lin[1], Zhe-Wei Hsu[1], Jian-Wei Tung[1], and Jin-Wei Shi[1], [1]Dept. of Elec. Engineering, NCU. **(0006)**

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

Zhesheng Lei[1], Islam Mohammad Shafiqul[1], Haisong Jiang[1], Ryota kuwahata[1], Eisaku Kato[2], and Kiichi Hamamoto[1], [1]Interdisciplinary Graduate School of Engineering Sci., Kyushu Univ., [2]Dept. 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 Lu[1], Chin-Hao Tseng[1] and Sheng-Kwang Hwang[1,2], [1]Dept. of Photonics, NCKU, [2]Advanced 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 Wang[1], Dehai Liang[1], Zhigang Zang[1], [1]Key Laboratory of Optoelectronic Tech. & Systems (Ministry of Education), Chongqing Univ. **(0031)**

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

Ting-Hsuan Kuo[1], Wei-Xuan Chen[1], and Yung-Jr Hung[1,2,3], [1]Dept. of Photonics, NSYSU [2] College

of Semiconductor and Advanced Tech. Res., NSYSU [3]Heterogeneously 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 Maeda[1], Rongyang Xu[2], Takuya Iwasaki[3], Yodai Sato[4], Makoto Ogo[4], Satoshi Moriyama[4], Kenji Watanabe[3], Takashi Taniguchi[5], Junichi Fujikata[6], and Junichi Takahara[2,7],

[1]Graduate School of Sci. and Tech. for Innovation Tokushima Univ. [2]Graduate School of Engineering, Osaka Univ., [3]Res. Center for Materials Nanoarchitectonics, National Ins. for Materials Sci., [4]Dept. of Electrical and Electronic Engineering, Tokyo Denki Univ., [5]Res. Center for Elec. and Optical Materials, National Inst. for Materials Sci., [6]Inst. of Post-LED Photonics, Tokushima Univ., [7]Photonics 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 Pamukti[1], Shien-Kuei Liaw[1], I Putu Eka Widya Pratama[2], Sefi Novendra Patrialova[2], Agus Muhamad Hatta[3], [1]Graduate Inst. of Electro-Optical Engineering, NTUST, [2]Dept. of Instrumentation Engineering, ITS, [3]Dept. 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 Chuang[1], Shao-Long Gan[1], Guan-Hong Li[1], Yuan-Yao Lin[1], ChaoKuei Lee[1], Shuo-Yen Tseng[2] and Yi-Jen Chiu[1], [1]Dept. 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 Takeuchi[1] and Kayo Ogawa[1], [1]Faculty 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 Liao[1], Bo-Ming Chen[1], Yuan-Ren Yeh[1] and Yu-Hang Hung[1,2], [1]Dept. of Photonics, NSYSU, [2]Miniaturized Photonic Gyroscope Res. Center, NSYSU **(0062)**

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

Jianglian Wang[1], Atsushi Okamoto[1], Yuta Goto[2] and Akihisa Tomita[1], [1]Graduate School of Info. Sci. and Tech., Hokkaido Univ., [2]NICT**(0016)**

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

Ting-Kuan Lin[1], Hung-Yi Chen[1], Jui-Ting Yu[1], and Yu-Han Hung[1,2], [1]Dept. of Photonics, NSYSU, [2]Miniaturized Photonic Gyroscope Res. Center, NSYSU **(0125)**

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

Jia-Ren Wu[2], Chiashain Chuang[2,3], and Sheng Hsiung Chang[1,2], [1]Dept. of Physics, CYCU, [2]Dept. of Electronic Engineering, CYCU, [3]Res. 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 Chandel[1], Chii-Bin Wu[1,2], Jyh-Shyang Wang[1,2], and Sheng Hsiung Chang[1,2], [1]Dept. of Physics, CYCU, [2]Res. Center for Semiconductor Materials and Advanced Optics, CYCU **(0046)**

(PO-56) ZnO microneedle photocatalysts decorated by ZIS nanoflakes for CO_2 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 Chou[1], Wei-Kuan Li[1], Chien-Ming Wu[1], Ying-Ru Chen[1], Jyun-Ting Liu[2], Yun-Chih Liao[2], Hao-Chung Cheng[2], Ray-Kuang Lee[1], Ming-Chang M. Lee[1], [1]Inst. of Photonics Tech. and Dept. of Electrical Engineering, NTHU, [2]Dept. of Electrical Engineering, NTU **(0011)**

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

11:45 Wei-Xuan Chen[1] and Yung-Jr Hung[1,2,3], [1]Dept. of Photonics, NSYSU [2]College of Semiconductor and Advanced Tech. Res., NSYSU [3]Heterogeneously 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 Tomimura[1], Dohyeong Lee[1], Akira Satou[2], Taiichi Otsuji[2] and Tomohiro Kita[1], [1]School of Advanced Science and Engineering, Waseda Univ., [2]RIEC, Tohoku Univ. **(0017)**

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

12:15 Li-Yuan Chiang[1], Rih-You Chen[2], Gianlorenzo Masini[1], Chirag Patel[1], Pavel Savechenkov[1], Yi-Jen Chiu[2], Cory Pecinovsky[1], and Jason W. Sickler[1], [1]Polaris Electro-Optics, Inc., [2] Dept. of Photonics, NSYSU **(0133)**

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

13:30-15:00 Meet IEEE/Optica Award Winners **Venue: 1st floor, WahLee Hall**

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)

15:30-17:00 Session PO: Poster Session 2

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

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

Mu Ku Chen[1,2], Xiaoyuan Liu[2], Wuyang Li[1], Jialuo Cheng[1], Yin Zhou[1], and Zihan Geng[3], [1]Dept. of Electrical Engineering, City Univ.of Hong Kong, [2]The State Key Laboratory of Terahertz and Millimeter Waves, City Univ. of Hong Kong, [3]Inst. 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 Zuo[1] and Tomoyuki Miyamoto[1], [1]FIRST, 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 Niko[1], Quan-Hsiang Tseng[1], Tien-Dat Pham[1], Hung-Pin Chung[1,2], Lin-Ming Deng[1], and Yen-Hung Chen[1,2,3], [1]Dept. of Optics and Photonics, NCU, [2]Center for Astronautical Physics and Engineering, NCU, [3]Quantum Tech. Center, NCU **(0035)** **(Poster Paper Award Candidate)**

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

Hsu-Ting Tang[1], Yu-Han Hung[1,2], [1]Dept. of Photonics, NSYSU, [2]Miniaturized 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 Wu[1], Zhong-En Zheng[1], Yang-Jeng Chen[1], Chen-Yu Yeh[1] , Yi-Jen Chiu[1], [1]Dept. 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 Agemori[1], Ming Che[1], Ryo Doi[1], Yoshiki Kamiura[1], Hussein Ssali[1], Yuya Mikami[1], and Kazutoshi Kato[1], [1]Graduate 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. Nakazawa[1], G. Sekiguchi[1], Y. Otagaki[2], H. Murata[2], A. Matsumoto[3], and T. Arakawa[1], [1]Graduate School of Engineering, Yokohama National Univ., [2]Graduate School of Engineering, Mie Univ., [3]National 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 Tseng[1] and Sheng-Kwang Hwang[1,2], [1]Dept. of Photonics, NCKU, [2]Advanced 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 Hatakoshi[1] and Shojiro Kawakami[2], [1]Microoptics Group, JSAP, [2]Photonic Lattice, Inc. **(0028)**

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

Keisuke Ozawa[1], Aika Taniguchi[1], Souta Kimura[1], Yuya Yamanishi[1], Keisuke Sakatani[1], Junichi Inoue[1], Kenji Kintaka[2] and Shogo Ura[1], [1]Dept. of Electronics, Kyoto Inst. of Tech., [2]Nanomaterials 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 Manabe[1], Haruto Hirose[1], Ayana Oku[1] and Yoshihisa Takayama[1], [1]Graduate 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. Fu[1] and H. W. Choi[1], [1]Dept. of Electrical and Electronic Engineering, the Univ. of Hong Kong

(0080)

(PO-72) Fabry-Pérot fiber optic interferometer based on TiO_2 nanoparticles for mid-infrared wavelength power measurement

Taeho Woo[1], Junha Jung[1], Suh-young Kwon[1], Kyungtaek Lee[1], Janghyun Ryu[1] 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 Aomi[1] and Taro Arakawa[1], [1]Graduate 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 Chung[1] and Bo-Shen Yang[1], [1]Dept. of Electronic and Computer Engineering, NTUST, [2]HiSiPIC, 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], [1]Dept. of Optics and Photonics, NCU [2]Quantum Tech. Center, NCU, [3]Center 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 Huang[1], Wei-Xuan Chen[1], Yung-Jr Hung[1,2,3], and Chun-Ta Wang[1], [1]Dept. of Photonics, NSYSU, [2]College of Semiconductor and Advanced Tech. Res., NSYSU, [3]Heterogeneously 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 Yanagida[1] and Taro Arakawa[1], [1]Graduate 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 Chang[1], Wei-Sheng Lin[1], Po-Kai Chuang[3], Hsiu-Fang Hu[3], Chin-Cheng Hu[3], Yu-Ping Yu[3] and Yu-Han Hung[1,2], [1]Dept. of Photonics, NSYSU, [2]Miniaturized Photonic Gyroscope Res. Center, NSYSU, [3]Broadband Networks Laboratory, Telecommunication Laboratories Chunghwa Telecom Co., Ltd.**(0071)**

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

Ting-Kuan Lin[1], Hung-Yi Chen[1], Jui-Ting Yu[1], Yao-Ting Wang1 and Yu-Han Hung[1,2], [1]Dept. of Photonics, NSYSU, [2]Miniaturized 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 Prayekti[1], Sheng-Jhe Tong[1], Rih-You Chen[1], Chun-Hu Chen[2] and Yi-Jen Chiu[1], [1]Dept. of Photonics, NSYSU, [2]Dept. 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 Li[1], Shian-Ming Liu[2], Wen-Fung Liu[2], and I-Nan Chang[3], [1]Ph.D. Program of Electrical and Communications Engineering, FCU, [2]Dept. of Electrical Engineering, FCU, [3]Dept. of Electronic Engineering, FCU **(0088)**

(PO-90) Broadband electrotuneable 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-μm range optical wireless power transmission

Takaya Oshimo[1], Yuga Motomura[1], Yukiko Suzuki[2], Natsuha Ochiai[2], Kazuto Kashiwakura[2], Youhei Toriumi[2], Kensuke Nishioka[1], and Masakazu Arai[1], [1]Faculty of Engineering, Univ. of Miyazaki, [2]NTT Space Environment and Energy Laboratories **(0091)**

(PO-92) Fiber grating gas-pressure sensor

Chia-Cheng Cheng[1], Yi-Jhen Li[2], Wei-Chen Li[1], Wen-Fung Liu[2], and Kun-Huang Chen[2], [1]Ph.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 He[1], Fong-En Cai[1], Yen-Ting Cheng[1], Lung-Chien Chen[1] and Wen-Jeng Ho[1,2], [1]Dept. of Electrical-Optical Engineering, NTPU. of Tech. [2]Heterogeneously-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 Liang[1], Ming-Hao Lin[1], Ji-Zeng Wang[1], Sheng-Hsiung Chang2 and Wei-Chun Lin[1], [1] Dept. of Photonics, NSYSU, [2]Dept. 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 Dudutienė[1], Aistė Butkutė[1], Monika Jokubauskaitė[1], Aivaras Špokas[1], Andrea Zelioli[1], Sandra Stanionytė2 Bronislovas Čechavičius[1] and Renata Butkutė[1], [1]Dept. of Optoelectronics, SRI Center for Physical Sci. and Tech., [2]Dept. 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 Nakamura[1], Hiroki Kishikawa[1], and Shien-Kuei Liaw[2], [1]Graduate School of Sci. and Tech. for Innovation, Tokushima Univ., [2]Dept. of Elec. Engineering, NTUST **(0077)**

(PO-99) Threshold and wavelength modification of InP nanowire lasers on monolayer WS_2

Hung-Jung Shen[1], Yu-Wei Liao[2], Chuang Siang Yu[2], Kuo-Ping Chen[1], [1]Inst. of Photonics Technologies, NTHU, [2]Inst. of Photonics, NYCU **(0127)**

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

Koichiro Kunitake[1], Kazuki Usui[1], Rikuto Takashima[1], Masakazu Arai[1], 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 Hsiang[1], Chi-Wen Chen, Mu-Rong Huang and Kuo-Ping Chen, [1]Inst. of Photonics Technologies, NTHU **(0128)**

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

Aivaras Špokas[1], Andrea Zelioli[1], Bronislovas Čechavičius[1], Augustas Vaitkevičius[1,2], Evelina Dudutienė[1], Renata Butkutė[1], [1]Center for Physical Sci. and Tech., Dept. of Optoelectronics, [2]Inst. 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 Su[1], Kuan-Wu Lin[1], Yi-Hsin Chou[1], Cheng-Chang Li[2] and Tsung-Hsien Lin[1], [1]Dept. of Photonics, NSYSU, [2]Brilliant 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 Li[1] and Shanting Hu[1], [1]School of Information and Electronics, Beijing Institute of Technology **(0142)**

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

Xingchen Zhang[1] and Shanting Hu[2], [1]School of Electronic Engineering, Beijing Univ. of Post and Telecommunications, [2]School of Information and Electronics, Beijing Inst. of Tech. **(0145)**

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

Makiko Ichioka[1], Hayato Kakurai[1], Hidetaka Terasawa[2], Shingo Tamesue[12], and Okihiro Sugihara[123], [1]Graduate School of Regional Development and Creativity, Utsunomiya Univ., [2]School of Engineering, Utsunomiya Univ. [3]Center for Optical Res. and Education, Utsunomiya Univ. **(0147)**

(PDP-8) ZrO_2-SiO_2 waveguide using SiO_2-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 Chen[1], Michael Oborne[2], Philip Rowse[2], and Yung-Jr Hung[1], [1] Department of Photonics, NSYSU, [2]Azimuth Avionics **(0151)**

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

Naoto Masutomi[1], Shenghong Ye[1], Ryota Kaide[1], Yuya Mikami[1], Yuta Ueda[2], and Kazutoshi Kato[1], [1]Graduate School of Info. Science and Electrical Engineering, Kyusyu Univ., [2]NTT 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.

Wednesday, October 02

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 Sukegawa[1], Masatsugu Koyama[1], Theodor Strobl[2,3] and Akira Ozawa[3], [1]Canon.Inc, [2]Fakultät für Physik, Ludwig-Maximilians-Universität München, [3]Max-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)

11:00-12:30 Session F: Photonic sensing and beam steering technology

Venue: 2nd floor, Kwang-Chung Hall

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 Wei[2], You-Chia Chang[3], Tzyy-Sheng Horng[4], and Jin-Wei Shi[1], [1]Dept. of Electrical Engineering, NCU, [2]Dept. of Photonics, NSYSU, [3]Dept. of Photonics, NYCU, [4]Dept. 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 Asano[1], Masato Kawano[1], Naoto Masutomi[1], Ryota Kaide[1], Ryo Doi[1], Yoshiki Kamiura[1], Yuya Mikami[1], Yuta Ueda[2] and Kazutoshi Kato[1], [1]Graduate School of Info. Sci. and Electrical Engineering, Kyushu Univ., [2]NTT 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 Zhang[1], Shenghong Ye[1], Bo Li[1], Haolan Tang[1], Yuya Mikami[1] and Kazutoshi Kato[1], [1] Graduate School of Info. Science and Electrical Engineering, Kyushu Univ. **(0110)**

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

13:30-15:15 Session G: Advanced Photonics devices & signal processing

Venue: 2nd floor, Kwang-Chung Hall

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 Tzeng[1], Yu-Tong Lee[1], Wei-Xuan Chen[1], and Yung-Jr Hung[1,2,3], [1]Dept. of Photonics, NSYSU, [2]College 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, Depat. of Photonics, NSYSU **(0129)**

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

14:30 Yu-Tong Lee[1], Yu-Yun Tzeng[1], Wei-Xuan Chen[1], and Yung-Jr Hung[1,2,3] , [1]Dept. of Photonics, NSYSU, [2]College 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 Hsu[1], Yu-Cheng Yeh[1], and Guo-En Chang[1], [1]Dept. 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 Lin[1], Chun-An Sung[1] and Yu-Han Hung[1,2], [1]Dept. of Photonics, NSTSU, [2]Miniaturized 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 Ge[1], Xiaodong Gu[1,4] and Fumio Koyama[1], [1]Inst. of Innovative Res., Tokyo Inst. of Tech., [2]Dept of Physics, Faculty of Science, Minia Univ., Egypt, [3]Dept of Physics, Faculty of Science, Al-Azhar Univ., Assuit, Egypt, [4]Ambition Photonics Inc., Tokyo, Japan **(0158)**

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

15:45 Zong-Ming Chang[1], Po-Hsiang Huang[1], Chwen-Pu Jou[2], Chua-Chin Wang[3], and Yung-Jr Hung[1,4,5], [1]Dept. of Photonics, NSYSU, [2]Taiwan Semiconductor Manufacturing Company, [3]Dept. of Electrical Engineering, NSYSU, [4]College of Semiconductor and Advanced Tech. Res., NSYSU, [5]Heterogeneously 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 Wu[1], Zhen-Ting Huang, Meng-Ting Han, Yen-Hsun Chen and Tien-Chang Lu[2], [1]Department 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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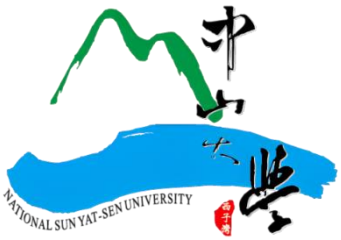
Organized by	
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	高雄市政府經濟發展局 Economic Development Bureau Kaohsiung City Government	
	Keysight Technologies, Inc.	
	KEYSIGHT	
	BizLink Holding Inc.	
	BizLink	
	Wistron Corporation	
	wistron®	
	BE Epitaxy Semiconductor Technology Co., Ltd.	
	元澄半導體科技股份有限公司 BE Epitaxy Semiconductor Technology Co. Ltd	
	PlayNitride Inc.	
	PLAYNITRIDE	
	CHAIN LOGIC INTERNATIONAL CORP.	
	MPI CORPORATION 長洛國際股份有限公司 CHAIN-LOGIC INTERNATIONAL CORP.	