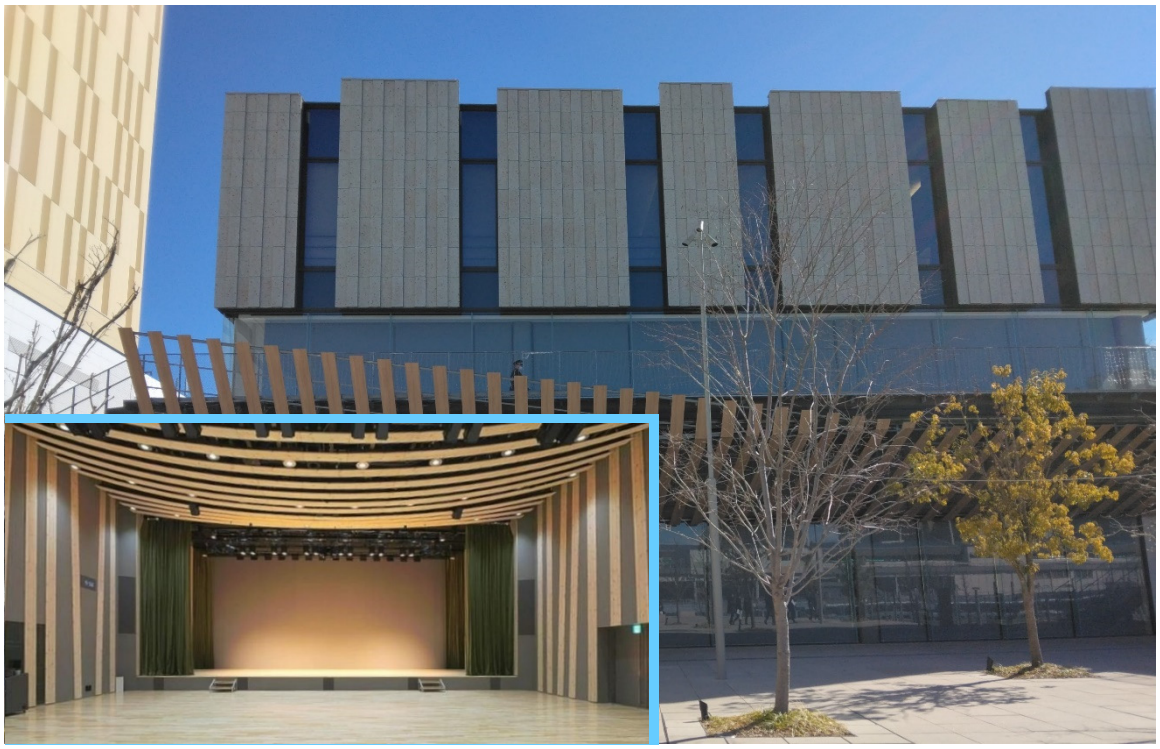
MOC2025 Satellite Conference

High School Session
Advance Program



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In Cooperation with Microoptics Group, JSAP
Financial Support from Japan Tourism Agency

宇都宮大学
UTSUNOMIYA UNIVERSITY

UTSUNOMIYA CONVENTION & VISITORS BUREAU
(一社)宇都宮観光コンベンション協会

Microoptics Group MOC since 1980

Japan Tourism Agency
Ministry of Land, Infrastructure, Transport and Tourism

October 12, 2025
LIGHT CUBE UTSUNOMIYA, Tochigi, Japan

Printed in Japan, 2025

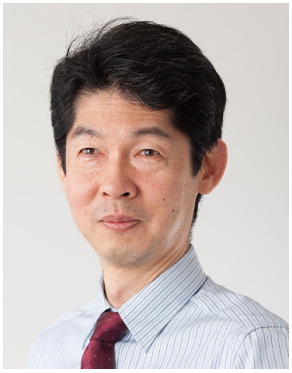
Financial support was gratefully received from Japan Tourism Agency.

Foreword

The Microoptics conference has organized its first “High-School Poster Competition” at Kaohsiung, Taiwan in October 2024. We were able to see attractive research results and outstanding presentation by young initiative-taking high-school students. The conference venue was filled with huge passion and enthusiasm with highly active discussion. This experience deeply moved us, and we have decided to hold this event again in Utsunomiya, Japan.

In 2025, the "High school session" including poster presentation, tutorial talks, and award ceremony has been organized as a satellite conference of the 30th Microoptics conference, following the remarkable success of MOC2024.

All the MOC2025 attendees are highly welcome to join this special event. We are convinced that all the attendees will develop students' scientific and technological literacy as well as their interest and ability to explore issues related to Microoptics.



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Agenda

Venue: 3rd floor, Sub-Hall, Light Cube Utsunomiya

Light Cube Utsunomiya

High School Session

October 12, 2025 (Sun)

09:00-09:30
Registration

09:30-11:00
Poster session

11:00-12:30
Tutorial talk

12:30-13:00
Award Ceremony

13:00-14:00
Lunch

14:00-17:00
Special Event (LRT Tour, Optional)

17:00-19:00
MOC2025 Welcome Party (Optional)

Excursion (option): Toshogu Shrine Tour

October 13, 2025 (Mon)

08:30
Departure

09:30-11:30
Toshogu Visit

12:30
Drop-off at Nikko Sta.

13:00
Drop-off at JR Utsunomiya Sta./ Conference Venue

* Lunch at a restaurant is included in the tour.

Program

Sunday, 12 October
09:30-11:00 Poster session
Venue: 3rd floor, Sub-Hall

P-1 Compact optical power splitter design using machine learning
Yuzuki Kinoshita, *Miyako High School*

P-2 Development of an animal track identification system using machine learning
Ui Umemoto, *Ritsumeikan Keisho Junior and Senior High School*

P-3 Distance estimation using ML with monocular camera
Yuya Maruoka, Haru Furuichi, and Tatsuki Yamamoto, *Hyogo Prefectural Sanda Shounkan High School*

P-4 Adaptive software-defined parametric speaker system using a spresense microcontroller
Shoma Aoki and Kairi Saito, *National Institute of Technology (KOSEN), Oyama College*

P-5 A Study on the relationship between particle size and light scattering characteristics, and its geometrical polarization
Kasumi Koita, Karin Kuwata, and Rio Kobayashi, *Japan Women's Univ. Senior High School*

P-6 Measurement of optical loss due to bending in optical fibers
Saeri Kawada and Sanae Matsumoto, *Utsunomiya Junior College Attached High School*

P-7 Scattering phenomena: Why the sky is blue and the sunset is red
Haruki Urushihara, Hiromichi Kishi, and Takeru Kitamura, *Utsunomiya Kita High School*

P-8 How does different colors of light affect the germination of mung bean
Ching-Fan Lin and Hsin-Ling Shen, *I-Shou International School*

P-9 Experimental investigation of light–matter interactions: Effects of solution composition and electric field on refractive index
Mahoro Miura, *Japan Women's Univ. Senior High School*

P-10 How to effectively find a rainbow
Ayuna Kato, Hiroki Tajima, and Yu Saito, *Utsunomiya Junior College Attached High School*

P-11 Properties of polarization and their visual effects
Riku Yamamoto, Yusei Okamoto, and Itsuki Kono, *Chikuyo Gakuen High School*

P-12 Optical interference and the proposed application
Shan-Shiuan Chang, *Kaohsiung Municipal Kaohsiung Girls' Senior High School*

P-13 Potential of the spectroscopy
Sota Koike, Yuri Harata, and Nana Morita, *Sakushin Gakuin High School*

P-14 Mechanism of blue spectral emission in adiabatic compressed ignition _The atmosphere really burns?
Akari Kashimura and Otoha Takahashi, *Japan Women's Univ. Senior High School*

P-15 The optical art of glass: Unveiling the aesthetic mechanism created by a glass
Moa Matsumoto and Chiharu Tsuchida, *Kumamoto Prefectural Uto Junior and Senior High School*

P-16 The optical principle behind colorful patterns on CDs
You-Cen Lu[1] and Pei-Chia Kao[2], [1]*The Affiliated Senior High School of National Kaohsiung Normal Univ.,* [2]*Kaohsiung Municipal Kaohsiung Girls' Senior High School*

P-17 Why do clouds and milk look white?
Kaede Oya, Mamiko Takagi, and Kanon Kageyama, *Utsunomiya Kita High School*

11:00-12:30 Tutorial Talk
Venue: 3rd floor, Sub-Hall

11:00 **TU-1 Photonics integration and devices by semiconductor material**

Yi-jen Chiu, Professor
Department of Photonics (DOP), National Sun Yat-sen Univ., Taiwan
Ph.D. ECE, Univ. of California, Santa Barbara
Fellow of the Taiwan Photonics Society

11:45 **TU-2 A thousand-year history of telescope and binocular**

Toyohiko Yatagai, Professor Emeritus
Utsunomiya Univ. and Univ. of Tsukuba, Japan
Honorary Local Steering Committee Chair of MOC2025
Former President of SPIE

12:30-13:00 Award Ceremony
Venue: 3rd floor, Sub-Hall

High School Session Committee Members

Co-chairs

Okihiro Sugihara	(Utsunomiya Univ.)
Kiichi Hamamoto	(Kyushu Univ.)

Members

Gen-ichi Hatakoshi	(Microoptics Group)
Keisuke Kondo	(Utsunomiya Univ.)
Rai Kou	(AIST)
Kota Kumagai	(Utsunomiya Univ.)
Hirochika Nakajima	(Waseda Univ.)
Tomoko Nakayama	(Utsunomiya Univ.)
Jessica Onaka	(Utsunomiya Univ.)
Takamitsu Otsuka	(Utsunomiya Univ.)
Xiangyu Quan	(Utsunomiya Univ.)
Hidetaka Terasawa	(Utsunomiya Univ.)

International Members

Yi-jen Chiu	(National Sun Yat-sen Univ.)
Wei-Chun Lin	(National Sun Yat-sen Univ.)
Chin-Ping Yu	(National Sun Yat-sen Univ.)
Chun-Ta Wang	(National Sun Yat-sen Univ.)