



**Takamatsu Symbol Tower,  
Takamatsu, Kagawa, Japan  
Nov. 19 - 22, 2023**

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## **WELCOME STATEMENT FROM THE ORGANIZING COMMITTEE CHAIRPERSON**

The 33rd ISOM (ISOM'23) will be held in a HYBRID style with both online and onsite meeting from Nov. 19 to Nov. 22, 2023 at the Takamatsu Symbol Tower, Kagawa, Japan.

On behalf of the ISOM organizing committee, I am delighted to welcome all of you to the ISOM'23.

The last ISOM meeting, held jointly with CLEO-PR2022 and ODF'22 in Sapporo, Japan, provided an opportunity to share the latest research results not only in the areas covered by ISOM, but also with researchers from a wide range of fields that have not previously participated in ISOM.

We believe that ISOM's activities have been very fruitful and have produced significant results. Since the first ISOM in 1987, many papers have been presented and discussed in depth at the conference, which has led to new developments and new applications in the field of optical memory. It has not only produced innovations in optical memory technology, but has also led to the economic development of optical memory-related industries.

In 2017, ISOM extended the conference scope to broader optical fields and applications, and changed the conference name as "International Symposium on Imaging, Sensing, and Optical Memory." The new ISOM includes the fields of image sensing, medical and bio-optics, nano photonics, information system, holographic technologies, as well as optical memory. We believe that the change of ISOM produces technological innovations and new applications in whole field related to this conference.

I sincerely ask all of ISOM'23 participants to discuss on new technologies of the next generation optical memory and new applications of optical memory technologies in coming ISOM'23.



志村 努

Tsutomu Shimura  
ISOM'23 Organizing Committee, Chairperson

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# ISOM'23 SYMPOSIUM SCHEDULE

|       | Nov. 19, Sun        | Nov. 20, Mon                                         | Nov. 21, Tue                                                     | Nov. 22, Wed                                    |       |
|-------|---------------------|------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------|-------|
| 8:40  |                     |                                                      |                                                                  |                                                 | 8:40  |
| 9:00  |                     | <b>Mo-A</b><br>Opening Remarks & Keynote             | <b>Tu-A</b><br>[Special Session]<br>Metamaterials and Plasmonics | <b>We-A</b><br>Materials and Devices for Optics | 9:00  |
|       |                     | Short Break                                          |                                                                  |                                                 |       |
| 10:00 |                     | <b>Mo-B</b><br>Computational Imaging                 | Break                                                            | <b>Break</b>                                    | 10:00 |
|       |                     | Break                                                | <b>Tu-B</b><br>Digital Holography                                | <b>We-B</b><br>Medical and Bio-systems          |       |
| 11:00 |                     |                                                      |                                                                  | Short Break                                     | 11:00 |
|       |                     | <b>Mo-C</b><br>Display                               | <b>Tu-C</b><br>Short Presentation for Poster Online              | <b>We-C</b><br>Holographic Memory I             |       |
| 12:00 |                     |                                                      | <b>ISOM'24 Announcement &amp; Photo</b>                          |                                                 | 12:00 |
|       |                     | <b>Lunch</b>                                         | <b>Lunch</b>                                                     | <b>Lunch</b>                                    |       |
| 13:00 |                     |                                                      |                                                                  |                                                 | 13:00 |
|       |                     | <b>Mo-D</b><br>Special Invited                       | <b>Tu-D</b><br>Optical System Design                             | <b>We-D</b><br>Holographic Memory II            |       |
| 14:00 |                     | Short Break                                          | Short Break                                                      |                                                 | 14:00 |
|       |                     | <b>Mo-E</b><br>Spectroscopy                          |                                                                  | <b>We-PD</b><br>Post Deadline                   |       |
|       |                     | <b>Mo-F</b><br>Optical Information Processing        | <b>Tu-E</b><br>Three-dimensional Sensing                         | <b>Award &amp; Closing</b>                      | 15:00 |
| 15:00 |                     | Break                                                | Break                                                            |                                                 |       |
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|       |                     | <b>Mo-G</b><br>[Special Session]<br>LiDAR Technology | <b>Tu-F</b><br>Poster Session                                    |                                                 |       |
| 17:00 |                     |                                                      |                                                                  |                                                 | 17:00 |
|       | <b>Get Together</b> |                                                      | Break<br>(Move to Banquet)                                       |                                                 | 18:00 |
| 18:00 |                     |                                                      |                                                                  |                                                 |       |
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17:00 - 19:00 Get Together

### Nov. 20, 2023 (Monday)

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#### Mo-A: Opening Remarks & Keynote

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**Presider:** Takayuki Shima (AIST, Japan)

**9:00 Opening Remarks**

Tsutomu Shimura (The University of Tokyo, Japan)

Yuichi Nakamura (Toyohashi Univ. of Tech., Japan)

**Mo-A-01 Keynote: Online**

**9:15 Deep-learning-enabled computational microscopy and diffractive imaging .....1**

Aydogan Ozcan

UCLA (USA)

**9:50 - 9:55 Short Break**

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#### Mo-B: Computational Imaging

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**Presiders:** Masanori Takabayashi (Kyushu Institute of Technology, Japan)

Ryota Kawamata (Hitachi, Ltd., Japan)

**Mo-B-01**

**9:55 Performance Improvement by Convolutional Neural Networks in Virtual Phase Conjugation-based Optical Tomography .....3**

Yu Yamada, Atsushi Okamoto, Yuki Oyama, and Akihisa Tomita

Hokkaido University (Japan)

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Jiachen Wu, Fangyu Liu, Yuchen Ma, and Liangcai Cao

Tsinghua University (P.R.China)

**Mo-B-03**

**10:35 Imaging through random scattering media.....7**

Jinpeng Liu<sup>1,2</sup>, Minda Qiao<sup>1</sup>, Linge Bai<sup>1</sup>, Yi Feng<sup>1</sup>, Meng Xiang<sup>1,2</sup>, Teli Xi<sup>1,2</sup>, Fei Liu<sup>1,2</sup>, and Xiaopeng Shao<sup>1,2</sup>

<sup>1</sup>Xidian University, <sup>2</sup>Xi'an Key Laboratory of Computational Imaging (P.R.China)

**10:55 - 11:15 Break**

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## Mo-C: Display

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**Presider:** Tetsuhiko Muroi (NHK, Japan)

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Hiroshi Yoshikawa  
Nihon University (Japan)

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Yasuhiro Takaki  
Tokyo University of Agriculture and Technology (Japan)

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Takeshi Yasui  
Tokushima University (Japan)

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**Presider:** Hiroshi Ohno (Toshiba Corporation, Japan)

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Hironori Ito<sup>1</sup>, Yoshinobu Otake<sup>1</sup>, Ryuta Watanabe<sup>1</sup>, Terumasa Saito<sup>2</sup>, Kyosuke Makino<sup>2</sup>, Hao-Keng Wei<sup>3</sup>, Chih-Wei Luo<sup>3</sup>, Kazuhiko Misawa<sup>2</sup>, and Satoshi Honma<sup>1</sup>  
<sup>1</sup>University of Yamanashi, <sup>2</sup>Tokyo University of Agriculture and Technology (Japan), <sup>3</sup>National Yang Ming Chiao Tung University (R.O.C.)

**Mo-E-02**

**14:25 Quantum-enhanced Spectroscopy .....17**

Michał Lipka<sup>1</sup>, and Michał Parniak<sup>1,2</sup>  
<sup>1</sup>University of Warsaw (Poland), <sup>2</sup>University of Copenhagen (Denmark)

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## Mo-F: Optical Information Processing

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**Presider:** Ryuichi Katayama (Fukuoka Institute of Technology, Japan)

**Mo-F-01**

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Jianglian Wang<sup>1</sup>, Atsushi Okamoto<sup>1</sup>, Nobuhiro Yamagishi<sup>1</sup>, Yuta Goto<sup>2</sup>, and Akihisa Tomita<sup>1</sup>  
<sup>1</sup>Hokkaido University, <sup>2</sup>National Institute of Information and Communications Technology (NICT) (Japan)

**Mo-F-02****15:05 Maximum multiplexing number of mode diffusion multiplex communication using progressive phase conjugation.....21**

Zeyu Shen, Atsushi Okamoto, and Akihisa Tomita  
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**Presiders:** Koichi Iiyama (Kanazawa University, Japan)  
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The University of Arizona (USA)

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# Nov. 21, 2023 (Tuesday)

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## Tu-A:[Special Session]Metamaterials and Plasmonics

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**Presiders:** Tsung Sheng Kao (National Yang Ming Chiao Tung University, R. O. C.)  
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<sup>1</sup>City University of Hong Kong (Hong Kong), <sup>2</sup>RIKEN Center for Advanced Photonics, <sup>3</sup>RIKEN Cluster for Pioneering Research, <sup>4</sup>Tokushima University (Japan)

**Tu-A-03**

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Atsushi Motogaito, Akitaka Harada, and Kazumasa Hiramatsu  
Mie University (Japan)

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Joel Berk<sup>1</sup>, Carl Paterson<sup>1</sup>, and Matthew R. Foreman<sup>2</sup>  
<sup>1</sup>Imperial College London (U.K.), <sup>2</sup>Nanyang Technological University (Singapore)

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<sup>1</sup>National Taiwan Normal University, <sup>2</sup>Chinese Culture University (R.O.C.)

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<sup>1</sup>National Institute of Technology, Ishikawa College, <sup>2</sup>National Institute of Advanced Industrial Science and Technology (Japan)

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<sup>1</sup>National Institute of Technology, Ariake College, <sup>2</sup>Fukushima University, <sup>3</sup>Fukushima College, <sup>4</sup>University of Tsukuba (Japan)

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**12:10 - 13:30 Lunch**

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**Presider:** Kimihiro Saito (Kindai University Technical College, Japan)

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Hiroshi Ohno  
Toshiba Corporation (Japan)

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Aika Taniguchi<sup>1</sup>, Keisuke Ozawa<sup>1</sup>, Kenji Kintaka<sup>2</sup>, Junichi Inoue<sup>1</sup>, and Shogo Ura<sup>1</sup>  
<sup>1</sup>Kyoto Institute of Technology, <sup>2</sup>National Institute of Advanced Industrial Science and Technology (Japan)

**14:10 - 14:15 Short Break**

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## Tu-E: Three-dimensional Sensing

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**Presiders:** Ryuichi Katayama (Fukuoka Institute of Technology, Japan)

Koichi Iiyama (Kanazawa University, Japan)

|                      |                                                                                                                                                                                                                                                                                                                                |           |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
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## **Tu-F: Poster Session**

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|                                                                                                                              |                                                                                                                                                             |           |
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| <b>Presiders:</b> Takayuki Shima (AIST, Japan)<br>Koichi Iiyama (Kanazawa University, Japan)<br>Tetsuhiko Muroi (NHK, Japan) |                                                                                                                                                             |           |
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Kyushu Institute of Technology (Japan)

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<sup>1</sup>Toyohashi University of Technology, <sup>2</sup>National Institute of Technology, Tokyo College (Japan)

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<sup>1</sup>National Central University, <sup>2</sup>National Yang Ming Chiao Tung University (R.O.C.)

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<sup>1</sup>Kyoto Institute of Technology, <sup>2</sup>Sumitomo Heavy Industries, Ltd. (Japan)

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<sup>1</sup>Tokushima University, <sup>2</sup>National Institute of Information and Communications Technology (Japan)

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**17:45 - 18:15   Break (Move to Banquet)**

**18:15 - 20:15   Banquet**

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## We-A: Materials and Devices for Optics

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**Presiders:** Minoru Takeda (Kyoto Institute of Technology, Japan)  
Yuichi Nakamura (Toyohashi Univ. of Tech., Japan)

**We-A-01 Invited**

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<sup>1</sup>Chuo University, <sup>2</sup>National Institute of Informatics (Japan)

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<sup>1</sup>Shizuoka University, <sup>2</sup>Japan Science and Technology Agency (Japan)

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<sup>1</sup>Kyoto Institute of Technology, <sup>2</sup>National Institute of Advanced Industrial Science and Technology (Japan)

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<sup>1</sup>Kyoto Institute of Technology, <sup>2</sup>National Institute of Advanced Industrial Science and Technology (Japan)

**10:05 - 10:25 Break**

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## We-B: Medical and Bio-systems

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**Presider:** Satoru Higashino (Sony Semiconductor Solutions, Japan)

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<sup>1</sup>Kyoto Institute of Technology, <sup>2</sup>Kyoto Prefectural University of Medicine (Japan)

**11:05 - 11:10 Short Break**

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## We-C: Holographic Memory I

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**Presiders:** Takanori Nomura (Wakayama University, Japan)  
Tetsuhiko Muroi (NHK, Japan)

**We-C-01**

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Fujian Normal University (P.R.China)

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