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The 24th RIES - HOKUDAI INTERNATIONAL SYMPOSIUM



Date

December 6th (Wed) – 7th (Thu), 2023

Venue

Akira Suzuki Hall

Contact (E-mail)

[inquiry_2023_es @ml.hokudai.ac.jp](mailto:inquiry_2023_es@ml.hokudai.ac.jp)

Organized by

Research Institute for Electronic Science (RIES), Hokkaido University

Registration

Deadline: November 8th (Wed)

Abstract submission

Deadline (extended): October 23rd (Mon)

Keynote Speaker



Prof. Hiroki R. UEDA

The University of Tokyo

Invited Speakers

Material and Molecular Sciences



Yen-Ju Cheng
National Yang
Ming Chiao
Tung
University



**Hirotaka
Koga**
Osaka
University



**Kuniharu
Takei**
Hokkaido
University

Mathematical Science



**Philippe
Marcq**
Sorbonne
Université



**Masayuki
Imai**
Tohoku
University



**Hideyuki
Miyahara**
Hokkaido
University

Biology and Life Sciences



**Georgina
Such**
The University
of Melbourne



**Takahisa
Anada**
Kyushu
University

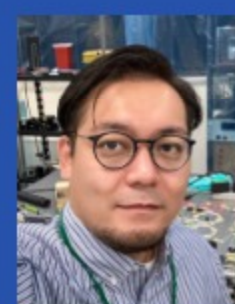


**Yusuke
Tomina**
Hokkaido
University

Photonics and Optical Science



Chi Chen
Academia
Sinica



**Yuuki
Uesugi**
Tohoku
University



**Yoshito
Tanaka**
Hokkaido
University

This symposium is a joint event with the 8th International Symposium of [Crossover Alliance to Create the Future with People, Intelligence and Materials \(Five-Star Alliance\)](#) and 5+2 International Joint Symposium, and it is partially linked to [the Network Joint Research Center \(NJRC\) for Materials and Devices](#).



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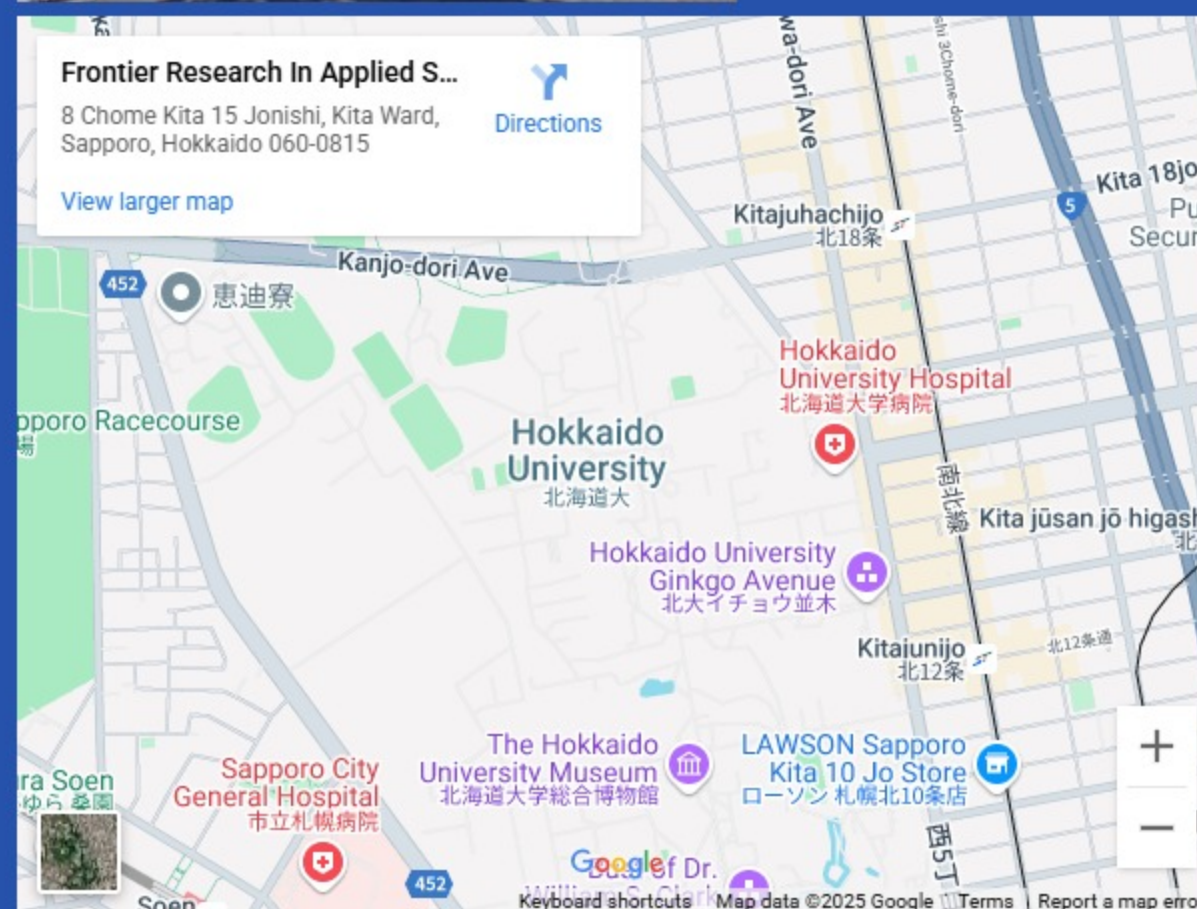
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Akira Suzuki Hall (Frontier Research in Applied Sciences Building)



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The 24th RIES - HOKUDAI INTERNATIONAL SYMPOSIUM



Preface

On behalf of the organizing committee of the 24th RIES-HOKUDAI International Symposium, I am honored to invite and welcome you to this multidisciplinary, as well as interdisciplinary, symposium from 6 to 7 December 2023. Your participation, presentation, and discussion are indispensable for the success of the symposium. Research Institute for Electronic Science (RIES) had started its voyage as “Research Institute of Ultrashort Waves” in 1943. RIES is now aiming to develop new interdisciplinary fields by conducting diverse research and education programs, including optical science, materials science, life science, and mathematical science. To promote the multidisciplinary and cross-disciplinary programs, we organize the RIES-HOKUDAI International Symposium every year.

Thus, the RIES-HOKUDAI International Symposium has been held annually in December since 1999. It is our tradition to select a Chinese character (Kanji) for, in a sense, unifying the multidisciplinary Symposium. The Kanji selected for the 2023 Symposium is “開” (Kai), meaning ‘open’ or ‘start’. It expresses our situation where the world is freed from the activity restrictions caused by the Covid-19 pandemic and the world opens up again.

Due to Covid-19 pandemic, the last symposium was held hybrid, but this year we are holding the 24th RIES-HOKUDAI International Symposium as an on-site symposium so that we can enjoy the face-to-face discussions as in the past. I hope this symposium will help us know the state-of-the-art technologies and current research frontiers.

We are pleased to support as many participants as possible by offering free-of-charge registrations and participations. I would like you to join the symposium, present your research outcomes, and actively participate in discussions. I am looking forward to having you all in the symposium.

On behalf of the Symposium organizing committee
The 24th RIES-HOKUDAI International Symposium “開”

Hideharu MIKAMI
Chairman, the 24th RIES-HOKUDAI International Symposium
Professor, Research Institute for Electronic Science
Hokkaido University

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The 24th RIES - HOKUDAI INTERNATIONAL SYMPOSIUM



Program

December 6th (Japan Standard Time)

Opening remarks

11:10 – 11:15	Opening talk Kuniharu Ijiro, Director of RIES
11:15 – 11:20	Intrductory talk Hideharu Mikami, Chair of the 24th RIES International Symposium

Session 1 Material and Molecular Sciences

Chair:Tsukasa Katayama

[Canceled]	
	Yen-Ju Cheng, National Yang Ming Chiao Tung University "Development of Organic Functional Materials for Organic Transistors and Photovoltaics"
11:20 – 11:50	Hiroataka Koga, Osaka University "Functions and Applications of Wood Nanocellulose-Based Devices"
11:50 – 12:10	Kuniharu Takei, Hokkaido University "Flexible sensor edge system"
12:10 –14:10	Lunch break

Session 2 Mathematical Science

Chair:Katsuhiko Sato

14:10 – 14:40	Masayuki Imai, Tohoku University "Synthetic Minimal Cells: Toward an understanding of living systems"
14:40 – 15:00	Hideyuki Miyahara, Hokkaido University "Cluster Phases in the Vicsek Model"
15:00 – 15:40	Online Philippe Marcq, Sorbonne Université "Inference of cell monolayer stress by Bayesian inversion"
15:40 –16:00	Coffee break

Plenary Lecture

Chair:Hideharu Mikami

16:00 – 17:00	Online Hiroki R. Ueda, The University of Tokyo "Towards Systems Biology of Human Sleep/Wake Cycles: Phosphorylation Hypothesis of Sleep"
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Photo shoot

17:00 – 17:05	Photo shoot
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Poster Session

17:05 – 18:30	Poster session
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December 7th (Japan Standard Time)

Session 3 Biology and Life Sciences

Chair:Hideyuki Mitomo

9:00 – 9:40	Georgina Such, The University of Melbourne "Stimuli-Responsive Nanoparticles – Understanding the Impact of Nanoparticle Structure for Improving Therapeutic Delivery"
9:40 – 10:10	Takahisa Anada, Kyushu University "A nucleic acid prodrug for increasing intracellular ATP levels"
10:10 – 10:30	Yusuke Tomina, Hokkaido University "Real-time whole-brain imaging of neuronal activity in freely behaving worms by high-speed light-sheet microscopy"
10:30 –10:45	Coffee break

Session 4 Photonics and Optical Science

Chair:Atsushi Taguchi

[Canceled]	
	Chi Chen, Academia Sinica "Near-field Spectroscopic Imaging of Mesoscopic Photophysics: 2D Semiconductors and Lipid Bilayers"
11:25 – 11:55	Yuuki Uesugi, Tohoku University "Femtosecond laser processing of free-standing nanofilms with sub-100 nanometer resolution"
11:55 – 12:15	Yoshito Tanaka, Hokkaido University "Light-driven plasmonic nanomotors by controlling light scattering"
12:15 – 12:20	Poster Award Ceremony
12:20 – 12:30	Remarks from the Directors of Crossover Alliance Institutes
12:30 – 12:35	Closing Remarks

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Poster Session

No. * Poster Award candidate		
1*	Alkaline Earth-ion Substituted Strontium Cobaltite Films as Solid-State Electrochemical Thermal Transistors	Ahrong Jeong, Zhiping Bian, Mitsuki Yoshimura, and Hiromichi Ohta
2	Recent advances in femtosecond X-ray laser imaging with liquid cells	Akhiro Suzuki, Yoshiya Niida, Yasumasa Joti, Yoshitaka Bessho, Yoshinori Nishino
3	Developing Visible-Light Activatable Drugs by Caging Bioactive Heterocycles	Ammathnadu S. Amrutha, Jiajun Qi, and Nobuyuki Tamaoki
4	Dorsoventral asymmetric membrane dynamics of pressure-driven amoeboid locomotion	Atsushi Taniguchi, Yukinori Nishigami, Hiroko Kajura-Kobayashi, Daisuke Takao, Daisuke Tamaoki, Toshiyuki Nakagaki, Shigenori Nonaka, Seiji Sonobe
5	Nonlinear optical trapping of VO ₂ particles: Phase transition and spin-to-orbital angular momentum conversion	Christophe Pin, Ryo Kakuta, Keiji Sasaki
6*	Development of ultrafast multiphoton microscopy for large-scale, single-cell-resolution neural activity recording in the mouse brain	Eisuke Takahashi, Yuki Yoneyama, Ayumu Ishijima, Atsushi Shibukawa, Hideharu Mikami
7*	Development of DUV reflective objective with NA 1.30 for high-resolution slit-scanning Raman microscope	Hikaru Takehara, Keiji Sasaki, Atsushi Taguchi
8	Advancing the Detection of Cancer Stem Cells Using Line Illumination Raman Microscopy and Hydrogel Substrates	Jean-Emmanuel Clément, Zannatul Ferdous, Masumi Tsuda, Shinya Tanaka, Jian Ping Gong†, Thomas Bocklitz, Fujita Katsumasa, Tamiki Komatsuzaki
9*	Caging Bioactive Imidazoles: a Photopharmacological Approach to Achieve Spatiotemporal Regulation on Drug Action	Jiajun Qi, Ammathnadu S. Amrutha, and Nobuyuki Tamaoki
10	9-compartment mathematical model and its parameter estimation for glucose-insulin dynamics	Junyong Eom, Yueyuan Gao, Sinji Nakaoka, Hiroshi Sulto, Hideki Katagiri, Masaharu Nagayama
11*	Whole-brain neural activity analysis of freely moving Caenorhabditis elegans by deep learning-based software	Kazuki Mukumoto, Yusuke Tomina, Hikaru Shishido, Yu Toyoshima, Manami Kanamori, Koyo Kuze, Chentao Wen, Yuko Murakami, Suzu Oe, Takeshi Ishihara, Yutchi Iino, Hideharu Mikami
12*	Comparison of clingfish-learning adhesive materials using nanoparticles or nanofilaments on adhesive properties	Kazuma Tsujioaka, Yuji Hirai, Masatsugu Shimomura, Yasutaka Matsuo
13	Study of Hair Follicle Morphogenesis Mechanism Using Mathematical Modeling	Keiichiro Kagawa, Makoto Okumura, Yasuaki Kobayashi, Duligengaawa Wuergzechen, Ritsuko Morita, Hironobu Fujiwara, Masaharu Nagayama
14	Photoconductive Bent-core Liquid Crystalline Radicals with a Paramagnetic Polar Switchable Phase	Killingaru I. Shivakumar, Damian Pocięcha, Jacek Szczytko, Szymon Kapuściński, Hirokato Monobe, Piotr Kaszyński
15*	Preparation and Thermoelectric Properties of Freestanding Ba _{1/3} CoO ₂ Single Crystalline Films	Kungwan Kang, Fumiaki Kato, Akitoshi Nakano, Ichiro Terasaki, Takashi Endo, Yasutaka Matsuo, Hyoungeen Jeen, and Hiromichi Ohta3
16*	Flexible Epitaxial BaTiO ₃ Films with Bulk-like Ferroelectricity and Piezoelectricity	Lizhikun Gong, Hiromichi Ohta, and Tsukasa Katayama
17	Detecting direct and indirect associations in collectively moving agents by employing a pairwise information flow metric	M. Mohiuddin, Sulmon Sattari, Udoy S. Basak, and Tamiki Komatsuzaki
18*	Analysis of Traction Forces in Migrating Arcella sp.	Matsumoto Genta, Yukinori Nishigami, katsuhiro Sato, Toshiyuki Nakagaki
19*	Thermal Conductivity of LnNiO ₃ (Ln = La, Pr, Nd, and Sm) Epitaxial Films – Towards High Performance Solid-State Electrochemical Thermal Transistors –	Mitsuki Yoshimura, Haobo Li, Zhiping Bian, Ahrong Jeong, Yusaku Magari, Hidekazu Tanaka, and Hiromichi Ohta
20*	Accelerating Atom Mapping with Ising Machines	Mohammad Ali, Yuta Mizuno, Seiji Akiyama, Yuuya Nagata, Tamiki Komatsuzaki
21*	Defect passivation and halide exchange in amphiphilic ligand-capped CsPbBr ₃ perovskite nanocrystals	Most Farida Khatun, Takuya Okamoto, Vasudevanpillai Biju
22*	Development of visible-light active "heteroaryl azo" photoswitches for photopharmacology applications	Nusaiba Madappuram Cheruthu, P.K Hashim, Hideyuki Mitomo, Kuniharu Ijro, Nobuyuki Tamaoki
23	Geometry-induced Oligomerization of Fluorine-substituted Phenylazothiazole Photoswitches	P. K. Hashim and Nobuyuki Tamaoki
24*	Preparation and Properties of Low-Dimensional Hybrid Metal Halide Crystals	Rahul Ghosh Dastidar, Takuya Okamoto, Ch. Subrahmanyam, and Vasudevanpillai Biju
25	TOWARDS MOLECULAR MULTIFERROICS BY SUPRAMOLECULAR ROTOR AND FERROMAGNETIC [MNCr(OXALATE)3]– SALTS	Rui-Kang Huang, Jia-bing Wu, Kiyonori Takahashi†1, Takayoshi Nakamura
26*	Development of Photo-functional Mesoscopic Quantum Dot Assemblies.	Rumana Akter, Yuta Takano, Nicholas Kirkwood, Paul Mulvaney, Vasudevan Pillai Biju
27*	Phenylazothiazoles as Visible-Light Photoswitches	Runze Lin, P.K. Hashim, Nobuyuki Tamaoki
28*	Visualization of Chemical Reaction Phase Space Using Supervised Dimensional Reduction Method	Ryoichi Tanaka, Yuta Mizuno, Takuro Tsutsumi, Mikito Toda, Tetsuya Taketsugu, Tamiki Komatsuzaki
29*	Use of Spatial Chemical Heterogeneity for Raman Histology: An Information Theoretical Analysis	Ryoya Kondo, J. Nicholas Taylor, Yuta Mizuno, Jean-Emmanuel Clement, Katsumasa Fujita, Yoshinori Harada, Tamiki Komatsuzaki
30*	Proposal of a Fast 3D Multi-Cell Search and Tracking Algorithm using Random Access Focusing and Its Validation by Numerical Simulation	Ryu Hirooka, Yuki Yoneyama, Ayumu Ishijima, Atsushi Shibukawa, Hideharu Mikami
31*	Nucleation Phenomena Based Designed Synthesis of ZnO Nanosheets in Ionic Layer Epitaxy	Ryunosuke Matsumura, Yuta Kazama, Narathon Khemasiri, Kazuki Nagashima
32	Photoswitchable auxin for spatiotemporal control of intracellular protein	Saugata Sahu†1, Koya Yoshizawa†2, Ryota Uehara†2, Nobuyuki Tamaoki†1*
33	A finite element / spectral mixed approximation for the Stokes problem	Shinya Uchiumi
34*	High-density liquid cell arrays by deep reactive ion etching for efficient X-ray laser imaging	Shunpei Nozaki, Yoshiya Niida, Akhiro Suzuki, Yoshinori Nishino
35	Selecting of adhering place by geometrical cues in the swimming ciliate, Stentor coeruleus	Syun Echigoya, Katsuhiko Sato, Osamu Kishida, Toshiyuki Nakagaki, Yukinori Nishigami
36	Control of Magnetic Nanoparticles Array by Surface Modification with Liquid-Crystalline Dendron	Takehiro Yachi, Masaki Matsubara, Xiangbing Zeng, Goran Ungar, Atsushi Muramatsu, Kiyoshi Kanie
37*	Methylammonium lead bromide perovskite supercrystals prepared by ligand exchange on nanocrystals	Tianci Wang, Takuya Okamoto, Vasudevanpillai Biju
38*	Protein Trapping into Inter-particle Area on Gap Distance Tunable SERS Substrate for Sensitive Protein Detection	Tianxu Gao, Hideyuki Mitomo, Xu Shi, Yusuke Yonamine, Kuniharu Ijro
39*	Directional movement of oil droplets in symmetric oscillatory shear	Tsubasa Yoneda, Yukinori Nishigami, Katsuhiko Sato, Hiroshi Orihara and Toshiyuki Nakagaki
40*	A new type of Two-Dimensional PhotoRecepto-Conversion Scheme (2DPRCS)-based Solar Cells	Wu Dan, N. Sawamura, Akira Ishibashi
41	Bifurcation analysis of a chemically driven elastic sheet	Yasuaki Kobayashi, Akinori Yoshimoto
42*	Surface coating of an algal cell with elongated DNA strands via a DNA polymerase for functionalization with cationic materials and examined by confocal laser microscopy	Yingqi Mu, Yusuke Yonamine, Hideyuki Mitomo, Kuniharu Ijro
43*	Analysis of flow and mass transport characteristics throughout a whole cell during the formation of cytoplasmic network in a true slime mold, Physarum polycephalum	Yo Sato, Charles Fosseprez, Yukinori Nishigami, Katsuhiko Sato, Hiroshi Orihara and Toshiyuki Nakagaki
44	Numerical computations of split Bregman method for fourth order total variation flow	Yuki Ueda
45*	Exploring A Way to Break Surface Area Limit on Hydrothermally Grown ZnO Nanowire Array	Yuta Kazama, Ryunosuke Matsumura, Narathon Khemasiri, Kazuki Nagashima
46*	Modulation of Electron Transport Properties of Amorphous In–Zn–O Films with Varied Zn Concentrations	Yuzhang Wu, Yusaku Magari, Prashant Ghediya, and Hiromichi Ohta
47*	Research for sleep in a high air quality nap box based on Clean Unit System Platform (CUSP)	Z. Zhou, H. Wu, T. Hsieh, S. Liang, H. Yamaguchi, and A. Ishibashi
48	Raman imaging in cancer: applications in brain cancer diagnosis model	Zannatul Ferdous, Jean-Emmanuel Clement
49*	Solid-State Electrochemical Thermal Transistors with Perovskite Cobaltate-based Solid Solutions as the Active Layers	Zhiping Bian, Mitsuki Yoshimura, Qian Yang, Hai Jun Cho, Joonhyuk Lee, Hyoungeen Jeen, Takashi Endo, Yasutaka Matsuo, and Hiromichi Ohta
50*	Preparation of gold nanoparticle vesicles using oligo(ethylene glycol) ligands with amino group	Honoka Watanabe, Ryo Sugiyama, Hideyuki Mitomo, Yusuke Yonamine, Kuniharu Ijro

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Instructions

● For oral presenters (Keynote & Invited speakers):

- Please bring your own PC. You can also use our spare Windows or MAC PC if you bring your presentation data.
- HDMI and USB-C terminals can be used.
- The recommended slide size is 16:9.
- The time allotted for the Q&A session will be as follows according to the allotted presentation time.
 - Keynote speaker with 60 mins: 10 mins
 - Invited speakers with 40 mins: 5 mins
 - Invited speakers with 30 mins: 5 mins
 - Invited speakers with 20 mins: 3 mins

● For poster presenters:

1) How to make and size posters

- Please make your poster in English.
- The poster size should be around 85 cm (width) X 120 cm

2) Posting of Posters

- Please post your poster on the panel with your poster number. Poster numbers (P1, P2, P3...) will be provided in the panel's upper left corner.
- The poster must be pinned to the panel. Pins are available at the venue.
- Posters are encouraged to be displayed posted between 1pm and 4pm on December 6 so that they will be available for viewing before the poster session starting from 5 pm.

3) Removal of posters

- Please remove your poster by yourself after the poster session.
- Posters that have yet to be removed by the end of the poster session may be discarded by the staff.

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- SATO Katsuhiko
- MITOMO Hideyuki
- TAGUCHI Atsushi
- SUZUKI Akihiro
- KATAYAMA Tsukasa
- ISHIJIMA Ayumu
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