APES-SEST 2026

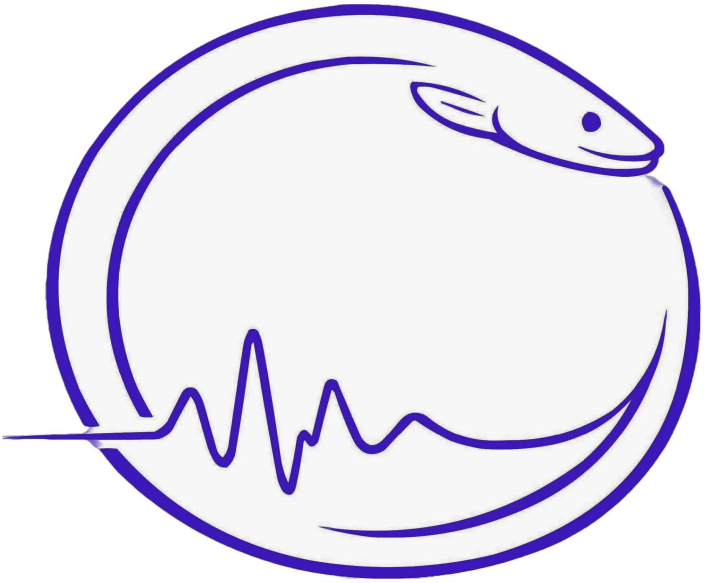
Asia-Pacific EPR/ESR & SEST 2026 (APES-SEST 2026)

-Program book-

October 18-22 2026
Saitama Hall in Urawa,
Saitama City



sest-nenkai.org/APES2026/



APES-SEST 2026

Asia-Pacific EPR/ESR & SEST 2026 (APES-SEST 2026)

-Program book-

October 18-22 2026
Saitama Hall in Urawa,
Saitama City

Committee

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Prof. Hisao Murai

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Dear Colleagues,

It is my great pleasure, on behalf of the Asia-Pacific EPR/ESR Society (APES), the Society of Electron Spin Science and Technology (SEST) and the Local Organising Committee, to welcome you to Saitama for the APES-SEST 2026 symposium.

This year's symposium is particularly significant, as both societies are marking important milestones. Founded in 1997, APES is celebrating nearly three decades of advancing electron paramagnetic resonance research and fostering collaboration across the Asia-Pacific region. Since its first meetings in Hong Kong, followed by subsequent gatherings in cities such as Hangzhou, Kobe, Bangalore, Novosibirsk, Cairns, Jeju, Beijing, Nara, Lake Baikal, and Brisbane, as well as virtual meetings on Zoom, and Hangzhou again, APES has evolved into a dynamic international community, uniting researchers from various disciplines, including physics, chemistry, materials science, and life sciences.

SEST, established in 2002, is also marking an important milestone this year: its 25 th anniversary. Born from the combined efforts of Japan’s magnetic resonance communities, including the Physical Society of Japan, the ESR Discussion Group, the Magnetic Resonance Medical Society, the Japan Free Radical Society, the In Vivo ESR Research Group and the Applied Measurement Society, SEST has become a central hub for electron spin science and technology in Japan. It supports interdisciplinary research ranging from biological radicals to quantum spin phenomena.

Therefore, joint APES and SEST in 2026 is not only scientifically logical, but also of great historical significance. This joint symposium celebrates the shared heritage of the two societies devoted to electron spin science, while also highlighting the growing internationalisation of research networks that extend far beyond Asia.

The scientific programme reflects this breadth. The contributions in this book demonstrate the wide range of topics covered by APES-SEST 2026, including high-field and pulsed EPR, ODMR, spin chemistry, quantum coherence, spin-dependent reaction dynamics, spintronic materials, biological radical processes, hyperpolarisation, molecular qubits and quantum sensing. We are especially pleased to welcome many students and early career researchers, whose creativity and enthusiasm will shape the future of our field.

To commemorate this special year, APES-SEST 2026 will feature anniversary lectures, including the APES–SEST anniversary lecture by Prof. Hitoshi Ohta, which celebrates the long-standing contributions of both societies to the advancement of electron spin science.

Beyond the scientific sessions, Saitama and the wider Tokyo area provide a rich cultural backdrop. From historic shrines and museums to modern districts, participants can experience Japan's unique blend of tradition and innovation. The UNESCO-listed Kawagoe Festival will also take place during the symposium. The social programme, which includes a special evening event at the Railway Museum, has been designed to encourage informal discussions from which new ideas and future collaborations often emerge.

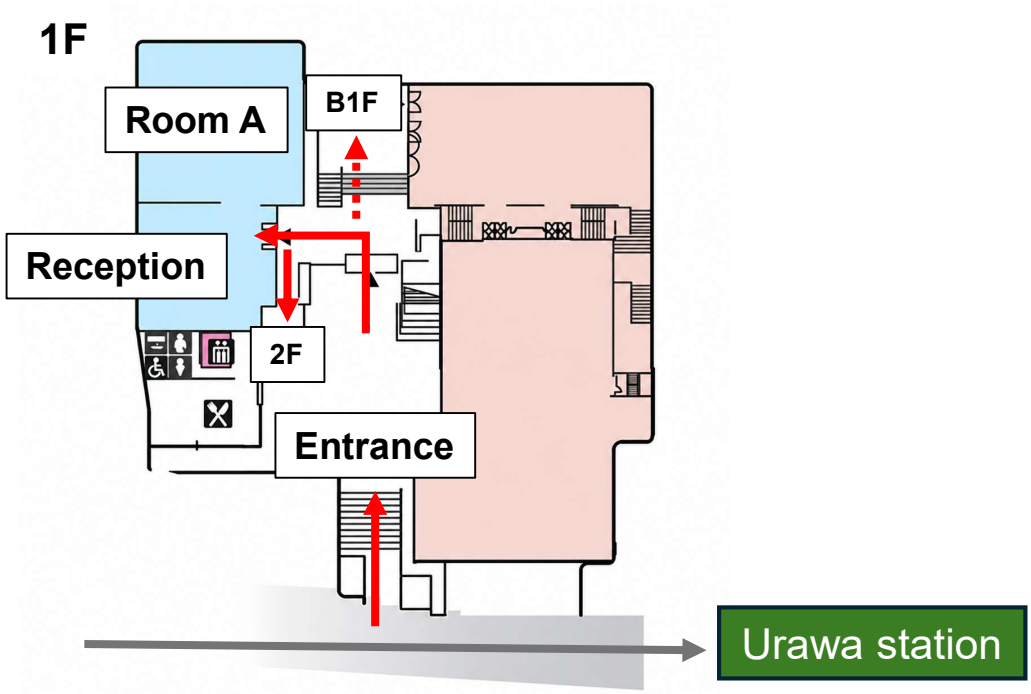
We hope that APES SEST 2026 will provide an inspiring environment in which to advance spin science and strengthen our international community.

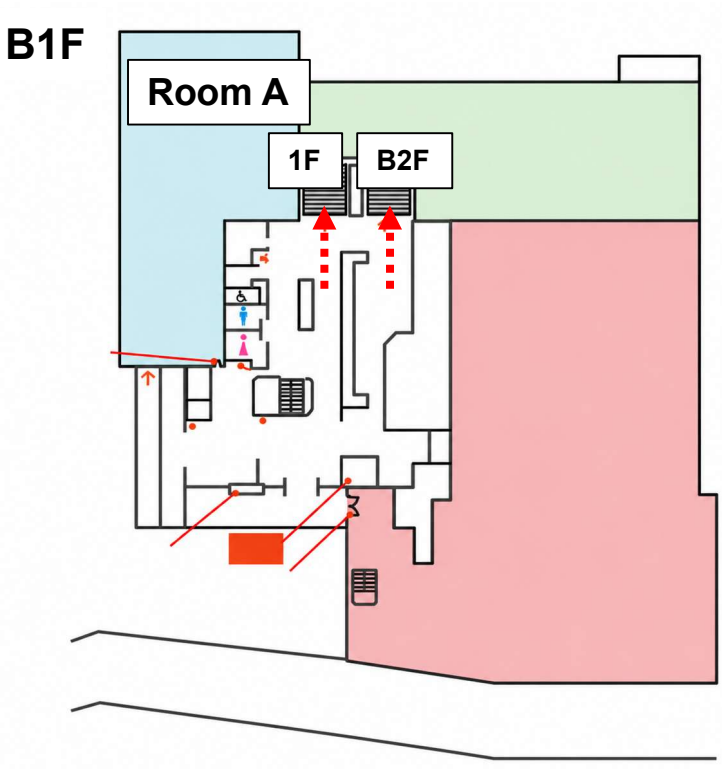
Enjoy the symposium!

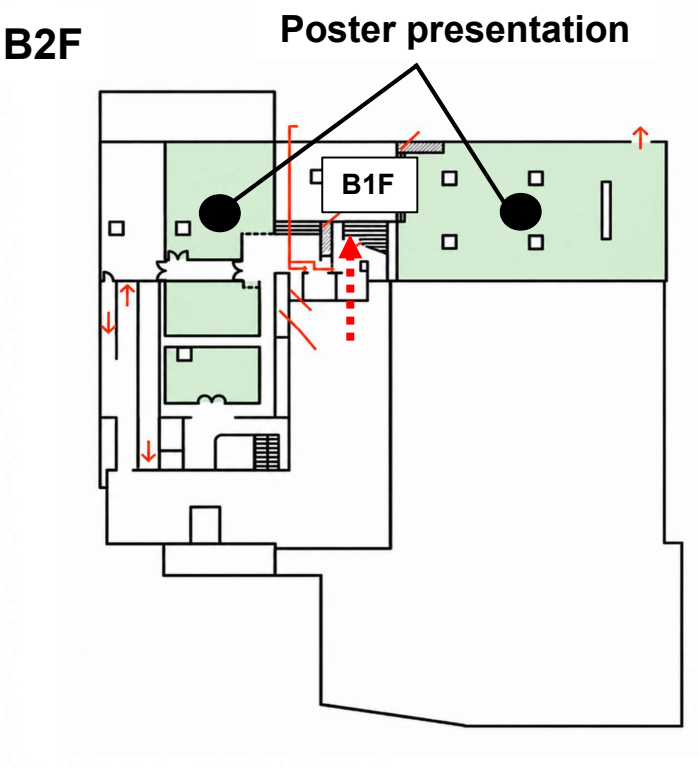
Kiminori Maeda Chair, APES-SEST 2026

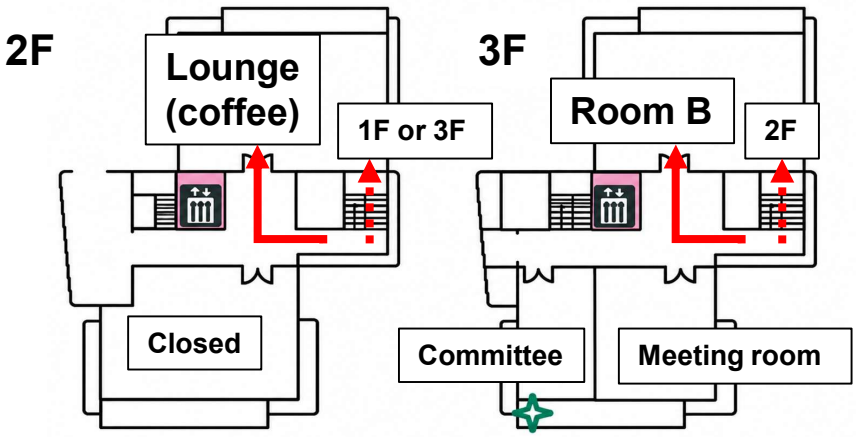


Venue Floor Map









For Participants

General Guidelines

- Please keep your mobile phone on silent mode.
- Photography, video recording, and audio recording are prohibited in the conference venue.
- Smoking is strictly prohibited in all areas, including the foyer, stairwells, garden, and esplanade.

Eating and Drinking

- Eating and drinking are permitted only in designated areas. Alcoholic beverages are permitted only in the Lounge.
- Please do not eat or drink in other areas of the conference venue.
- Eating and drinking are prohibited in the poster rooms, except for the tea and water provided. Please use the lounge before or after viewing the posters.

For Presenters

Poster Presentations

- Each poster board measures 210 cm wide × 180 cm high.
- Please prepare your poster in A0 size, in portrait orientation.
- Display your poster on the board bearing your assigned poster number.
- Please keep your poster on display at times other than your scheduled presentation session so that participants can view it.
- Please use only the pushpins provided by the Organizing Committee.

Oral Presentations

- Please bring your own laptop for your presentation.
- Please ensure that your laptop can connect via HDMI and bring any necessary adapters.

Self Tour to Kawagoe

- After the welcome reception party, visitors may also enjoy the Kawagoe Festival, one of the best-known traditional festivals in the Saitama area.
- Please refer to the information provided in this program book for details. → **p.44**

Date: October 18, 2026 (Sunday)
Venue: Kawagoe City, Saitama



Official English website

Banquet & Excursion

- The excursion and banquet will take place on the evening of 21 October as a special night museum event at the Railway Museum .
- Please refer to the information provided in this program book for details. → **p.45**

Venue: The Railway Museum
Address: 3-47 Onari-cho, Omiya-ku, Saitama City, Saitama 330-0852



Official English website

	10/18		10/19		10/20		10/21		10/22	
	Room A	Room B	Room A	Room B	Room A	Room B	Room A	Room B	Room A	Room B
09:30			PL001 09:30 Periannan Kuppusamy		PL003 09:30 Marina Bennati		PL004 09:30 Hiroshi Hirata		PL007 09:30 Matvey Fedin	
45										
10:00										
15			Coffee Break Lounge		Coffee Break Lounge		Coffee Break Lounge		Coffee Break Lounge	
30										
45			T001 10:40 Masaki Horitani	T013 10:40 Kazunobu Sato	T023 10:40 Hitoshi Ohta		PL005 10:40 Fazhan Shi		T052 10:40 Leonid Kulik	T061 10:40 Jonathan R. Woodward
11:00										
15			T002 11:05 Yun-Wei Chiang	T014 11:05 Susumu Okubo					T053 11:05 Hideto Matsuoka	T062 11:05 Motoko Asano
30			T003 11:30 Hiroyuki Mino	T015 11:30 Yutaka Fujii	T024 11:35 Sun Hee Kim		T051 11:30 Elena Bagryanskaya		T054 11:30 Nobuhiro Yanai	T063 11:30 Yoshio Teki
45										
12:00			Lunch break/Free poster session	Luncheon Seminnar CIQTEK Lounge	Lunch break/Free poster session	Luncheon Seminnar Bruker Lounge	Lunch break/Free poster session		T055 11:55 Olesya Krumkacheva	T064 11:55 Tsubasa Okamoto
15										
30	SEST member's meeting (Japanese)								Lunch break/Free poster session	
45										
13:00	SEST Award Ceremony (English)									
15	Short Break Lounge									
30	AW001 13:30 SEST Award Lecture Hiroyuki Nojiri	Registration Opens (12:00) Poster displaying untill 17:00	PL002 13:30 J. Krzystek		T025 13:30 Stefan Weber	T038 13:30 Susumu Takahashi	PL006 13:30 Olav Schiemann		PL008 13:30 Yasuhiro Kobori	
45					T026 13:55 Fuminori Hyodo	T039 13:55 Hitoshi Ishiwata				
14:00										
15	Short Break Lounge						Conference Photo		T056 14:20 Toru Sakai	T065 14:20 Kirill Larionov
30	AW002 14:30 SEST Academic Award Lecture Hironori Yamaguchi		T004 14:20 Tomoyasu Mani	T016 14:25 Kazuhiro Marumoto	T027 14:20 Takayuki Kumada	T040 14:20 Toshikazu Nakamura	APES general meeting		T057 14:40 Nikolay Isaev	T066 14:40 Seiichi Saiki
45			Coffee Break Lounge	Coffee Break Lounge	T028 14:45 Hideo Utsumi	T041* 14:45 Anatoly Melnikov				
15:00							Cofee Break Lounge		Coffee Break Lounge	
15	AW003 15:10 SEST Young Investigator Award Shoya Shiromizu		T005 15:05 Ikuko Akimoto	T017* 15:10 Yuma Igo	Coffee Break Lounge					
30			T006 15:30 Akio Kawai	T018* 15:30 Mikaru Masuda	T029 15:30 Ryutaro Komatsu	T042 15:30 Balachandra G. Hegde	AW004 15:20 SEST Award Lecture Masaichi-Chang-il Lee		T058 15:20 Alex Smirnov	T067 15:20 Hirokazu Kobayashi
45	Break Lounge								T059 15:40 Tatyana Smirnova	T068 15:40 Xinyi Shen
16:00			T007 15:55 Yoshiaki Uchida	T019* 15:50 Shinya Kosaki	T030 15:55 Tadaaki Ikoma	T043 15:55 Jeffrey R. Harmer			T060 16:00 Troy Borneman	T069 16:00 Tomoaki Miura
15				T020* 16:10 Wakaba Somiya						
30	Welcome reception / HiGeps special poster session Lounge		T008 16:20 Christopher W. M. Kay	T021* 16:30 Shogo Soga	T031* 16:20 Yi-Shan Lu	T044 16:20 Toshiaki Arata			Closing and Prize presentation	
45					T032* 16:40 Aleksandr S. Tomilov	T045* 16:45 Prithvi Moharana				
17:00			T009 16:45 Xun-Cheng Su	T022* 16:50 Wenhao He						
15			P001 17:10 Poster Session 1 Lounge Poster Room		P002 17:10 Poster Session 2 Lounge Poster Room					
30										
45										
18:00							Excursion (Railway museum) and Banquet			
15										
30										
45			Short break Lounge		Short break Lounge					
19:00	Self Tour to Kawagoe		T010* 19:00 Iana Albrekht	SEST Young Scientist meeting	T033* 19:00 Kevin Lars Kopp	T046* 19:00 Ivan Kurganskii				
15			T011* 19:20 Yanqiu Yang		T034* 19:20 Liqi Liu	T047* 19:20 Haoyu Ding				
30										
45			T012* 19:40 Artem Poryvaev		T035* 19:40 Aleksandra Borodulina	T048* 19:40 D.A. Kuznetsov.				
20:00										
15					T036* 20:00 Arkady Samsonenko	T049* 20:00 Alexey Matyash				
30					T037* 20:20 Sebastian Gorgon	T050* 20:20 Konstantin Zaitsev				

APES SEST 2026 Scientific Program

Sunday, 18 Oct., Room A

12:20–12:55 SEST member's meeting (Japanese)

13:00–13:20 SEST Award Ceremony (English)

13:20–13:30 Short Break (at Lounge)

AW001 13:30–14:20 SEST Award Lecture

Investigation of Quantum Magnetism and Instrumentations for Pulsed High Magnetic Fields

Hiroyuki Nojiri[1]

[1]Institute for Materials Research, Tohoku University, Katahira 2-1-1, Aobaku Sendai 980-8577, Japan

14:20–14:30 Short Break (at Lounge)

AW002 14:30–15:10 SEST Academic Award Lecture

Exploring novel quantum phenomena in organic radical systems through multifrequency ESR / 多周波 ESR を活用した有機ラジカル系における新奇量子物性開拓

Hironori Yamaguchi[1]

[1]Department of Physics, Osaka Metropolitan University, Osaka, 558-8585, Japan

AW003 15:10–15:40 SEST Young Investigator Award

Application of quantum technologies based on electron spin-driven dynamic nuclear polarization (DNP) to visualize invisible biological processes

Shoya Shiromizu[1]

[1]Department of Pharmacology, Graduate School of Medicine, Gifu University, 1-1 Yanagido, Gifu 501-1194, Japan

15:40–16:00 Break (at Lounge)

16:00–18:00 Welcome reception / HiGeps special poster session (at Lounge)

HP-1 16:00–18:00 HiGEPS Special Poster Session (at Lounge)

A Tall Tree Catches Much Sunlight. ~ "HiGEPS-STAR": A Science Education Program for High School Students in Saitama University ~

Shin Kore-eda[1]

[1]Grad. Sch. Sci. Eng. Saitama University

18:00–20:20 Self Tour to Kawagoe

Sunday, 18 Oct.

12:00–15:40 Registration Opens (12:00) Poster displaying untill 17:00 (at Reception / Poster Room)

15:40–16:00 Break (at Lounge)

16:00–18:00 Welcome reception / HiGeps special poster session (at Lounge)

HP-1 16:00–18:00 HiGEPS Special Poster Session (at Lounge)

A Tall Tree Catches Much Sunlight. ~ "HiGEPS-STAR": A Science Education Program for High School Students in Saitama University ~

Shin Kore-eda[1]

[1]Grad. Sch. Sci. Eng. Saitama University

18:00–20:20 Self Tour to Kawagoe

Monday, 19 Oct., Room A

PL001 09:30–10:20

Following Oxygen: Translational Advances in EPR Oximetry—From Molecular Probes to Clinical Applications

Periannan Kuppusamy[1]

[1]Geisel School of Medicine at Dartmouth College, 1 Medical Center Drive, Lebanon, New Hampshire, NH 03755, USA

10:20–10:40 Coffee Break (at Lounge)

T001 10:40–11:05

How glucokinase from psychrophilic bacterium acquires both cold adaptation and thermal stability

Akane Yato[1], Masaki Horitani[2,1]

[1]The United Graduate School of Agricultural Science, Kagoshima University

[2]Department of Applied Biochemistry and Food Science, Faculty of Agriculture, Saga University

T002 11:05–11:30

Structural and Functional Features of the Diiron Protein ScdA

Yun-Wei Chiang[1]

[1]Department of Chemistry, National Tsing Hua University, Hsinchu, 300-044, Taiwan

T003 11:30–11:55

EPR Spin Mapping of the Photosynthetic Manganese Cluster from S_0 to S_3 States

Hiroyuki Mino[1], Shinya Kosaki[1], Yoshiki Nakajima[2], Jian-Ren Shen[2]

[1]Department of Physics, Graduate School of Science, Nagoya University

[2]Research Institute for Interdisciplinary Science, Advanced Research Field, and Graduate School of Environmental, Life, Natural Science and Technology, Okayama University

11:55–13:30 Lunch break/Free poster session (at Urawa Area)

PL002 13:30–14:20

Synergy between field- and frequency-domain EPR at high fields and frequencies: applications to single-ion magnets and catalytic systems

J. Krzystek[1]

[1]National High Magnetic Field Laboratory, Florida State University, Tallahassee, FL 32310 USA

Monday, 19 Oct., Room A

T004 14:20–14:45

Synthetic Spin Chemistry: Extending Magnetic Control from Radical Pairs to Diverse Molecular Emissions

Tomoyasu Mani[1]

[1]Department of Chemistry, University of Connecticut, Storrs, Connecticut 06269, USA

14:45–15:05 Coffee Break (at Lounge)

T005 15:05–15:30

UV-induced paramagnetic centers in doped $BaZrO_3$ solid electrolyte

Ikuko Akimoto[1], Kana Harada[1], Kota Yamaji[1], Yusuke Maki[1], Masaya Nagai[2], Yuji Okuyama[3], Hideto Matsuoka[4]

[1]Faculty of Systems Engineering, Wakayama University

[2]Graduate School of Engineering Science, The University of Osaka

[3]Faculty of Engineering, University of Miyazaki

[4]Faculty of Education, Hokkaido University of Education

T006 15:30–15:55

Elementary Reaction Rate Constants of Radicals Measured by Spin Echo and Free Induction Decays using Pulsed ESR Spectroscopy

Hiroki Hirano[1], Masatoshi Katoh[1,2], Ikuo Nakanishi[2], Akio Kawai[1,2]

[1]Department of Chemistry, Graduate School of Science, Kanagawa University

[2]Institute for Quantum Life Science, National Institutes for Quantum Science and Technology

T007 15:55–16:20

Liquid-crystalline radicals as interacting mobile molecules with spins

Yoshiaki Uchida[1]

[1]The University of Osaka

T008 16:20–16:45

Synthesis and Characterization of Unfamiliar Radicals and Chromophores for Applications in Spin Chemistry

Jonas Bach[1], Maxim Neuberger[1], Christopher W. M. Kay[1,2]

[1]Physical Chemistry and Chemistry Education, Saarland University, Saarbücken, Germany

[2]London Centre for Nanotechnology, University College London, London, UK

Monday, 19 Oct., Room A

T009 16:45–17:10

Nitroxide-based in-cell DEER measurements reveal compact conformations of linear diubiquitin in mammalian cells

Ya-Xin Xie[1], He Chen[1], Xing Zhang[1], Yin Yang[1], Xun-Cheng Su[1]

[1]State Key Laboratory of Elemento-Organic Chemistry, College of Chemistry, Nankai University, Tianjin 300071, China

17:10–18:50 Poster Session 1 (at Poster room / Lounge)

18:50–19:00 Short break (at Lounge)

T010 19:00–19:20

Water diffusion in UiO-66 probed by in situ EPR of encapsulated TEMPO

Iana Albrekht[1], Kirill Larionov[1], Artem Poryvaev[1], Matvey Fedin[1]

[1]International Tomography Center, Siberian Branch of the Russian Academy of Sciences

T011 19:20–19:40

ESR investigation of photoinduced charge states in PM6:Y18 perovskite heterojunctions

Yanqiu Yang[1], Tsubasa Okamoto[1,2], Yukihiro Shimoi[1,2], Kazuhiro Marumoto[1,2,3]

[1]Dep. of Mater. Sci., Univ. of Tsukuba

[2]OIQSST, Univ. of Tsukuba

[3]TREMS, Univ. of Tsukuba

T012 19:40–20:00

Study of Metal–Organic Frameworks Using the Encapsulated Spin Probe Method

Artem Poryvaev[1], Aleksandr Efremov[1,2], Anastasiya Yazikova[1,2], Yana Albrekht[1,2], Kirill Larionov[1], Ramis Zhitkeyev[1], Dmitrii Syrtsov[1], Aleksandr Tomilov[1,2], Kanstantsin Livanovich[3], Matvey Fedin[1]

[1]International Tomography Center SB RAS, 3A, Institutskaya Str., Novosibirsk 63090, Russia

[2]Novosibirsk State University, 2, Pirogova Str., Novosibirsk 630090, Russia

[3]Institute of Chemistry of New Materials, National Academy of Sciences of Belarus, Minsk 220141, Belarus

Monday, 19 Oct., Room B

10:20–10:40 Coffee Break (at Lounge)

Monday, 19 Oct., Room B

T013 10:40–11:05

Spin Properties of High-Spin Mn(II) Qubit Doped into a Metal-Organic Framework

Kazunobu Sato[1], Takeshi Yamane[1], Shraddha Gupta[2], Masanori Wakizaka[3], Masahiro Yamashita[4,5]

[1]Graduate School of Science, Osaka Metropolitan University, Osaka, Japan

[2]Graduate School of Science, Tohoku University, Sendai, Japan

[3]Chitose Institute of Science and Technology, Chitose, Japan

[4]Institute for Materials Research, Tohoku University, Sendai Japan

[5]School of Chemical Science and Engineering, Tongji University, Shanghai, PR China

T014 11:05–11:30

Broadband THz High-Field ESR Studies on Quantum Spin Systems

Susumu Okubo[1,2], Takaya Matsumura[2], Shigeo Hara[3], Mitsuru Akaki[3], Takahiro Sakurai[4], Eiji Ohmichi[2], Hitoshi Ohta[1,5], Fusako Kon[6], Hiroyuki Yoshida[6]

[1]Center for Life Photonic Innovation, Kobe University

[2]Graduate School of Science, Kobe University

[3]Core Facility Center, ARC, Kobe University

[4]Cryogenics Support Division, Core Facility Center, The University of Osaka

[5]Research Center for Development of Far-Infrared Region, University of Fukui

[6]School of Science, Hokkaido University

T015 11:30–11:55

Advances in cryogenic millimeter-wave ESR instrumentation and applications for donor spins in silicon

Yutaka Fujii[1], Yuya Ishikawa[1], Akira Fukuda[2]

[1]Research Center for Development of Far-Infrared Region, University of Fukui, Fukui 910-8507, Japan

[2]Departnebt of Physics, School of Medicine, Hyogo Medical University, Nishinomiya 663-8501, Japan

12:00–13:00 Luncheon Seminnar CIQTEK (at Lounge)

T016 14:25–14:50

Unraveling Molecular Orientation and Degradation Dynamics in Organic Solar Cells via Operando Microscopic EPR Spectroscopy

Kazuhiro Marumoto[1,2,3]

[1]Dep. of Materials Science, Univ. of Tsukuba, 1-1-1 Tennodai, Tsukuba, Ibaraki 305-8573, Japan

[2]OIQSST, Univ. of Tsukuba, 1-1-1 Tennodai, Tsukuba, Ibaraki 305-8573, Japan

[3]TREMS, Univ. of Tsukuba, 1-1-1 Tennodai, Tsukuba, Ibaraki 305-8571, Japan

14:50–15:10 Coffee Break (at Lounge)

Monday, 19 Oct., Room B

T017 15:10–15:30

Design and characterization of disk-shaped dielectric resonators for THz ESR measurements

Yuma Igo[1], Eiji Ohmichi[1]

[1]Graduate School of Science, Kobe University

T018 15:30–15:50

Spin Polarization in Excited Triplet State of TIPS-Heptacene

Mikaru Masuda[1], Shinjiro Suzuki[2], Hironobu Hayashi[3], Hiroko Yamada[2], Tadaaki Ikoma[1,4]

[1]Graduate School of Science and Technology, Niigata University

[2]Institute for Chemical Research, Kyoto University

[3]Center for Basic Research on Materials, National Institute for Materials Science

[4]Center for Coordination of Research Facilities, Institute for Research Administration, Niigata University

T019 15:50–16:10

Insights into the Electronic Structure of the S_0 State Mn_4CaO_5 Cluster from Multi-Frequency EPR

Shinya Kosaki[1], Yoshiki Nakajima[2], Jian-Ren Shen[2], Hiroyuki Mino[1]

[1]Graduate School of Science, Nagoya University

[2]Research Institute for Interdisciplinary Science, Advanced Research Field, and Graduate School of Environmental, Life, Natural Science and Technology, Okayama University

T020 16:10–16:30

Microscopic elucidation of structural isomer-dependent charge states in organic transistors by low-temperature operando ESR method

Wakaba Somiya[1], Wenhao He[1], Yukihiro Shimoi[1,2], Kazuhiro Marumoto[1,2,3]

[1]Dep. of Mater. Sci., Univ. of Tsukuba

[2]OIQSST, Univ. of Tsukuba

[3]TREMS, Univ. of Tsukuba

T021 16:30–16:50

EPR characterization of the electronic state of mononuclear iron associated with the magnetic field response of ISCA1

Shogo Soga[1], Suguru Sato[1], Shin Hatakeyama[1], Kiminori Maeda[1], Shigeki Arai[2], Hiroki Nagashima[1,2]

[1]Graduate School of Science and Engineering, Saitama University, 255, Shimo-Okubo, Sakura-ku, Saitama 338-8570, Japan

[2]National Institutes for Quantum Science and Technology, 4-9-1, Anagawa, Inage-ku, Chiba 263-8555, Japan

Monday, 19 Oct., Room B

T022 16:50–17:10

ESR investigation on the roles of ascorbic acid in organic electrochemical transistors and organic photoelectrochemical transistors

Wenhao He[1], Jiaxi Wang[1], Yukihiro Shimoi[1,2], Kazuhiro Marumoto[1,2,3]

[1]Dep. of Mater. Sci., Univ. of Tsukuba, Tsukuba

[2]OIQST, Univ. of Tsukuba

[3]TREMS, Univ. of Tsukuba

17:10–18:50 Poster Session 1 (at Poster room / Lounge)

18:50–19:00 Short break (at Lounge)

19:00–20:05 SEST Young Scientist meeting

Tuesday, 20 Oct., Room A

PL003 09:30–10:20

ENDOR spectroscopy for distance measurements in biomolecules

Marina Bennati[1,2]

[1]Max Planck Institute for Multidisciplinary Sciences , Göttingen, Germany

[2]Institute of Physical Chemistry, University of Göttingen, Göttingen, Germany

10:20–10:40 Coffee Break (at Lounge)

T023 10:40–11:35 Special Lecture

A look back at the history of APES and SEST, celebrating their 30th and 25th anniversaries

Hitoshi Ohta[1,2], Czesław Rudowicz[3]

[1]Center for Life Photonic Innovation, Kobe University

[2]Research Center for Development of Far-Infrared Region, University of Fukui

[3]Faculty of Chemistry, Adam Mickiewicz University

T024 11:35–12:00

Expanding the Frontier of EPR Spectroscopy: From Metalloproteins to Molecular Qubits

Sun Hee Kim[1]

[1]Metropolitan Seoul Center, Korea Basic Science Institute, Seoul, Korea

12:00–13:30 Lunch break/Free poster session (at Urawa Area)

T025 13:30–13:55

Electron and Nuclear Hyperpolarization in Blue-Light Activated Proteins: A Radical Pair Perspective

Stefan Weber[1]

[1]University of Freiburg, Institute of Physical Chemistry, Albertstr. 21, 79104 Freiburg, Germany

T026 13:55–14:20

Exploring Redox and Metabolic Dynamics in Disease Using In Vivo Dynamic Nuclear Polarization MRI

Fuminori Hyodo[1,2,3]

[1]Graduate School of Medicine, Gifu University, Gifu, Japan

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Tuesday, 20 Oct., Room A

T027 14:20–14:45

Nanostructure analysis using dynamically polarized protons and neutrons

Takayuki Kumada[1]

[1]Materials Sciences Research Center and J-PARC Center, Japan Atomic Energy Agency, Shirakata, Tokai, Ibaraki 319-1195, Japan

T028 14:45–15:10

Visualization of ESR-Controlled Spin-Transition Dynamics in Overhauser DNP-MRI

Hideo Utsumi[1]

[1]School of Pharmaceutical Sciences, University of Shizuoka, Yada 52-1, Suruga-ku, Shizuoka 422-8526, Japan

15:10–15:30 Coffee Break (at Lounge)

T029 15:30–15:55

Directional Sensing of Weak Magnetic Fields by Exciplex Emission via Spin-Correlated Radical-Pair Dynamics

Ryutaro Komatsu[1,2], Hiroki Nagashima[3], Ngoc Lam Huong Hoang[1], Guanhao Liu[1], Kazushi Enomoto[1], Tuana Telhan[1], Youngmin You[4], Kiminori Maeda[3], Yong-Jin Pu[1,4]

[1]RIKEN Center for Emergent Matter Science (CEMS)

[2]Department of Chemical Systems Engineering, Graduate School of Engineering, Nagoya University

[3]Department of Chemistry, Graduate School of Science and Engineering, Saitama University

[4]Department of Chemical and Biomolecular Engineering, Yonsei University

T030 15:55–16:20

Hetero-Triplet Fusion between Sensitizer and Emitter Enabling Rapid Photon Upconversion

Nanami Iwaya[1], Akane Umemiya[1], Yoshihiro Matano[2], Tadaaki Ikoma[1,3]

[1]Graduated School of Science and Technology, Niigata University

[2]Faculty of Science, Niigata University

[3]Center for Coordination of Research Facilities, Niigata University

T031 16:20–16:40

Cavity-Controlled Porphyrin Photochemistry in Bacterial Transmembrane Protein TSPO

Yi-Shan Lu[1], Yun-Wei Chiang[1]

[1]Department of Chemistry, National Tsing Hua University, Taiwan

Tuesday, 20 Oct., Room A

T032 16:40–17:00 Oral

Enhancing Photosensitizer@MOF Performance through Fine-Tuning of the Pore Microenvironment

Aleksandr S. Tomilov[1,2], Anastasiya A. Yazikova[1,2], Darya D. Klyamer[3], Kristina A. Aidakova[1,2], Artem S. Poryvaev[1], Matvey V. Fedin[1]

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17:10–18:50 Poster Session 2 (at Poster room / Lounge)

18:50–19:00 Short break (at Lounge)

T033 19:00–19:20

How Spin Conductive are Oligo(p-phenylenes) in Trityl-Based Diradicals?

Kevin Lars Kopp[1,2], Andrea Pellegrini[3], Stefan Grimme[1], Olav Schiemann[1]

[1]Clausius-Institute for Physical and Theoretical Chemistry, University of Bonn, 53115 Bonn, Germany

[2]Center for Life Photonic Innovation, Kobe University, 1-1, Rokkodai*cho, Nada-ku, Kobe 657-8501, Japan

[3]Department of Industrial Chemistry “Toso Montanary”, University of Bologna, 40129 Bologna, Italy

T034 19:20–19:40

Light-induced ESR study on charge states in PEAI-passivated perovskite solar cells

Liqi Liu[1], Yizhou Chen[1], Atsushi Sato[1], Kazuhiro Marumoto[1,2,3]

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[3]TREMS, Univ. of Tsukuba, Tsukuba, Ibaraki, 305-8571, Japan

T035 19:40–20:00

Detecting Thermal Spin-State Switching in Fe(II) Complex Using FT EPR and Trityl Radical as Local Magnetic Field Sensor

Aleksandra Borodulina[1], Anatoly Melnikov[1], Arkady Samsonenko[1], Olga Rogozhnikova[2], Viktor Tormyshev[2], Sergey Veber[1], Matvey Fedin[1]

[1]International Tomography Center, Siberian Branch of the Russian Academy of Sciences

[2]N.N. Vorozhtsov Novosibirsk Institute of Organic Chemistry, Siberian Branch of the Russian Academy of Sciences

T036 20:00–20:20

A high-performance Python framework for stationary and time-resolved EPR simulations

Arkady Samsonenko[1], Ivan Kurganskii[1], Matvey Fedin[1]

[1]International Tomography Center of the Siberian Branch of the Russian Academy of Sciences, 3a, Institutskaya Str., Novosibirsk 630090, Russia

Tuesday, 20 Oct., Room A

T037 20:20–20:40 Oral

Spin addressability in luminescent and non-luminescent radicals

Sebastian Gorgon[1], Masanori Uji[1], Subhrajyoti Ghosh[1], Wataru Ishii[1], Takuya Shimajiri[1], Dan Congrave[2], Petri Murto[3], Hiroki Nagashima[4,5], Nobuhiro Yanai[1]

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[2]Department of Chemistry, University of Oxford, 12 Mansfield Rd, Oxford OX1 3TA, UK

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[5]Institute for Quantum Life Science, National Institutes for Quantum Science and Technology (QST), 4-9-1 Anagawa, Inage-ku, Chiba 263-8555, Japan

Tuesday, 20 Oct., Room B

10:20–10:40 Coffee Break (at Lounge)

12:00–13:00 Luncheon Seminnar Bruker (at Lounge)

T038 13:30–13:55

Controlling the Charge States of SiV and NV Centers Using Nanosecond High-Voltage Discharge Pulses

Susumu Takahashi[1,2]

[1]Department of Chemistry, University of Southern California, Los Angeles, CA 90089, USA

[2]Department of Physics & Astronomy, University of Southern California, Los Angeles, CA 90089, USA

T039 13:55–14:20

Development of Multiplatform Quantum Sensing Methods for Biofunctional Imaging

Hitoshi Ishiwata[1,2]

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[2]The Center of Quantum Life Science for Structural Therapeutics (cQUEST), Chiba University, Chiba, Japan

Tuesday, 20 Oct., Room B

T040 14:20–14:45

What governs spin decoherence in spin dilution systems?

Mizue Asada[1], Toshikazu Nakamura[1,2], Toshiharu Ishizaki[3,4], Tomoji Ozeki[3], Natsuki Hayashi[5], Asato Mizuno[5], Tetsuro Kusamoto[5], Miku Inoue[6], Akio Yamauchi[6], Nobuhiro Yanai[6]

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[4](Present Address) Faculty of Science, Tokyo University of Science, 1-3 Kagurazaka, Shinjuku-ku, Tokyo 162-8601, Japan

[5]Graduate School of Eng. Sci., The Univ. of Osaka, Suita, Osaka 565-0871, Japan

[6]Graduate School of Science, The University of Tokyo, Tokyo 113-0033, Japan.

T041 14:45–15:10

Optical control of magnetization in Co(II)-based single-molecule magnets via resonant pulsed THz excitation

Anatoly Melnikov[1], Anastasia Ishchenko[1,2], Yaroslav Getmanov[3], Alexandra Samulionis[4], Dmitriy Yambulatov[4], Stanislav Nikolaevskii[4], Matvey Fedin[1], Sergey Veber[1]

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[3]Budker Institute of Nuclear Physics of the Siberian Branch of the Russian Academy of Sciences, 11, Acad. Lavrentieva Ave., Novosibirsk 630090, Russian Federation

[4]Kurnakov Institute of General and Inorganic Chemistry of the Russian Academy of Sciences, 31, Leninsky Ave., Moscow 119991, Russian Federation

15:10–15:30 Coffee Break (at Lounge)

T042 15:30–15:55

Different Ramifications of Magnetic Field on Berezinskii-Kosterlitz-Thouless Correlations: EPR Evidences an Uncommon Example of $T_{BKT} > T_N$ in Multiferroic $TbMnO_3$

Narmada Hegde[1], Balachandra G. Hegde[1], S. V. Bhat[2]

[1]Department of Physics, Rani Channamma University, Belagavi-591156, India

[2]Department of Physics, Indian Institute of Science, Bengaluru-560012, India

Tuesday, 20 Oct., Room B

T043 15:55–16:20

Gd-DOTA Spin Labels for DEER by Catalyst-Free Nitrile-Aminothiol ligation of a Genetically Encoded Non-canonical Amino Acid

Vishal Bayya[1], Jennifer Naughton[1], Rhia Stone[1], Theo Crawford[1], Tom Reinhold[1], Andrew George[2], Haocheng Qianzhu[2], Elwy Abdelkader[2], Nick Cox[2], Craig A. Bell[1], Thomas Huber[2], Jeffrey R. Harmer[1]

[1]Australian Institute for Bioengineering and Nanotechnology, The University of Queensland, St Lucia Campus, Brisbane, QLD 4072, Australia

[2]Research School of Chemistry, Australian National University, Canberra, ACT 0200, Australia

T044 16:20–16:45

Probing intrinsically disordered proteins using site-directed spin labeling electron paramagnetic resonance spectroscopy

Toshiaki Arata[1,2,3,4], Kazunobu Sato[3], Toshiki Takei[1], Tomoaki Sugishita[1], Hironobu Hojo[1], Yoh Matsuki[1], Toshimichi Fujiwara[1], Takeji Takui[3], Makoto Miyata[3], Isao Suetake[1,2]

[1]Institute for Protein Research, University of Osaka

[2]Faculty of Home Economics, Kobe Women's University

[3]Graduate School of Science, Osaka Metropolitan University

[4]Department of Pharmacology, Wakayama Medical University

T045 16:45–17:05

Integrating Pulse Dipolar EPR Spectroscopy and Molecular Dynamics to Investigate the Structural Dynamics of XRCC4-SUMO Protein System

Prithvi Moharana[1,2,3], Benjamin M. Foster[2], Lubomir Loci[1], Adam Brookfield[1], Christine K. Schmidt[2], Sam Hay[3], Alice M. Bowen[1,3]

[1]The National Research Facility for Electron Paramagnetic Resonance, Department of Chemistry and Photon Science Institute, The University of Manchester.

[2]Manchester Cancer Research Centre (MCRC), Division of Cancer Sciences, School of Medical Sciences, Faculty of Biology, Medicine and Health, The University of Manchester

[3]Department of Chemistry, The University of Manchester

17:10–18:50 Poster Session 2 (at Poster room / Lounge)

18:50–19:00 Short break (at Lounge)

T046 19:00–19:20

Disentangling Ionic-State EPR Spectra of ABPX-NDI Donor-Acceptor Molecules

Ivan Kurganskii[1], Kaiyue Ye[2], Jianzhang Zhao[2], Matvey Fedin[1]

[1]International Tomography Center SB RAS, Institutskaya Str., 3A, 630090 Novosibirsk, Russia

[2]State Key Laboratory of Fine Chemicals, Frontiers Science Center for Smart Materials, School of Chemical Engineering, Dalian University of Technology, 2 Ling Gong Road, 116024 Dalian, P. R. China

Tuesday, 20 Oct., Room B

T047 19:20–19:40

ESR Analysis of Polaron States and Acid-Induced Doping Mechanisms in PEDOT:PSS

Haoyu Ding[1], Kaho Miyata[1], Tsubasa Okamoto[1,2], Yanqiu Yang[1], Liqi Liu[1], Kazuhiro Marumoto[1,2,3]

[1]Dep. of Mater. Sci., Univ. of Tsukuba

[2]OIQSST, Univ. of Tsukuba

[3]TREMS, Univ. of Tsukuba

T048 19:40–20:00

Study of potential polarizing DPA agents based on nitroxyl and trityl radicals using stationary and pulse EPR spectroscopy

D.A. Kuznetsov.[1,2], C.Z. Vatsadze[3], S.A. Dobrynin[1], I.A. Kirilyuk[1], E.G. Bagryanskaya[1], V.M. Tormyshev[1]

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[2]Physical Department, Novosibirsk State University, Novosibirsk 630090, Russia

[3]N.D. Zelinsky Institute of Organic Chemistry, Moscow, Russian Federation

T049 20:00–20:20

Comparing experimental and Redfield-limit calculated T_2 values for ^{13}C-isotopomers of the Finland trityl radical

Alexey Matyash[1], Alexandra Borodulina[1], Anatoly Melnikov[1], Olga Rogozhnikova[2], Victor Tormyshev[2], Sergey Veber[1]

[1]International Tomography Center, Institutskaya Str., 3a, Novosibirsk, Russia

[2]Novosibirsk Institute of Organic Chemistry, Lavrentiev Ave., 9, Novosibirsk, Russia

T050 20:20–20:40

EPR Spectroscopy Based Analysis of Metastable Spin States in Copper(II)-Nitroxide Switchable Molecular Magnets

Konstantin Zaitsev[1,2], Svyatoslav Tolstikov[1], Kseniia Maryunina[1], Artem Bogomyakov[1], Anatoly Melnikov[1,2], Sergey Veber[1,2], Matvey Fedin[1,2]

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[2]Novosibirsk State University, 1, Pirogova str., Novosibirsk, 630090, Russia

Wednesday, 21 Oct., Room A

PL004 09:30–10:20

EPR spectroscopic mapping techniques for tumor microenvironment research

Hiroshi Hirata[1]

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10:20–10:40 Coffee Break (at Lounge)

PL005 10:40–11:30

Magnetic Quantum Sensing for Life Science with an optimal sensitivity spin sensor in diamond

Fazhan Shi[1]

[1]Laboratory of Spin Magnetic Resonance, School of Physical Sciences, University of Science and Technology of China, Hefei 230026, China

T051 11:30–11:55

In-cell measurement of pH using pH-sensitive cell penetrated highly stable nitroxide

Elena Bagryanskaya[1], Arthur Raizvich[1,2], Igor Kirilyuk[1], Victor Tormyshev[1], Maya Dymova[3]

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[3]Institute of Chemical Biology and Fundamental Medicine, Siberian Branch of the Russian Academy of Sciences, 8 Lavrentyev Ave., Novosibirsk, 630090

11:55–13:30 Lunch break/Free poster session (at Urawa Area)

PL006 13:30–14:20

Unravelling the Conformational Landscape of CRISPR/Cas13a during Function

Olav Schiemann[1]

[1]Clausius-Institute for Physical and Theoretical Chemistry, University of Bonn, Germany

14:20–14:35 Conference Photo

14:35–15:00 APES general meeting

15:00–15:20 Cofee Break (at Lounge)

Wednesday, 21 Oct., Room A

AW004 15:20–16:10 SEST Award Lecture

Biomedical Applications of Electron Spin Resonance (ESR) Spectroscopy: From Reactive Oxygen Species to Clinical Redox Assessment and Future Medicine 電子スピン共鳴（ESR）法の生物医学応用研究 — 活性酸素種から臨床レドックス評価、そして未来医療へ —

Masaichi-Chang-il Lee[1,2]

[1]Department of Disaster-Related Oral Health & Oxidative Stress/ESR Laboratories, Kanagawa Dental University

[2]Department of Stomatology, Graduate School of Dentistry, Kanagawa Dental University, Kanagawa, Japan

17:30–20:30 Excursion（Railway museum）and Banquet (at Railway museum)

Wednesday, 21 Oct.

10:20–10:40 Coffee Break (at Lounge)

17:30–20:30 Excursion（Railway museum）and Banquet (at Railway museum)

Thursday, 22 Oct., Room A

PL007 09:30–10:20

Exploring and Employing Porous Materials: New EPR Approaches and Applications

Matvey Fedin[1], Artem Poryvaev[1]

[1]International Tomography Center SB RAS

10:20–10:40 Coffee Break (at Lounge)

T052 10:40–11:05

Direct optical generation of interfacial charge-transfer states in polymer donor/non-fullerene acceptor blends: What is the difference from exciton-mediated generation?

Natalia Kravets[1], Elena Kobeleva[1], Victoria Streltsova[1], Leonid Kulik[1]

[1]V. V. Voevodsky Institute of Chemical Kinetics and Combustion of the Siberian Branch of the Russian Academy of Sciences, Institutskaya st.3, Novosibirsk 630090, Russian Federation

T053 11:05–11:30

Spin dynamics of fused π-systems investigated by time-resolved EPR, optical spectroscopy, and quantum chemical calculations

Hideto Matsuoka[1], Kazuki Shichida[1], Koki Tachibana[2], Genki Wasano[2], Hideji Osuga[2]

[1]Faculty of Education, Hokkaido University of Education, Japan

[2]Faculty of Systems Engineering, Wakayama University, Japan

T054 11:30–11:55

Molecular Quantum Sensors Enabled by Materials Chemistry

Nobuhiro Yanai[1]

[1]Department of Chemistry, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan

T055 11:55–12:15

Pulsed EPR of Structurally Heterogeneous Biomolecular Complexes with Photoactive Ligands

Olesya Krumkacheva[1], Natalya Sannikova[1], Mikhail Kolokolov[1], Sergei Dementev[1], Roman Podarov[1], Matvey Fedin[1]

[1]International Tomography Center SB RAS, Novosibirsk, Russia

12:15–13:30 Lunch break/Free poster session (at Urawa Area)

PL008 13:30–14:20

Manipulation of Molecular Spin Toward Biological Quantum Sensing

Yasuhiro Kobori[1,2]

[1]Center for Life Photonic Innovation, Kobe University

[2]Graduate School of Science, Kobe University

Thursday, 22 Oct., Room A

T056 14:20–14:40

Selection Rules for ESR Transition of the Spin Gap

Toru Sakai[1,2]

[1]Graduate School of Science, University of Hyogo, Kamigori, Hyogo 678-1297, Japan

[2]National Institutes for Quantum Science and Technology (QST), SPring-8, Sayo, Hyogo 679-5148, Japan

T057 14:40–15:00

Highly efficient 3-in-1 FPGA-based unit combining an ADC, DAC, and multi-channel pulse generator for pulsed EPR spectroscopy

Nikolay Isaev[1], Anatoly Melnikov[1,2], Anton Vedkal[2], Anastasia Ishchenko[1], Sergey Veber[1,2]

[1]International Tomography Center SB RAS, 3a Institutskaya Str., Novosibirsk 630090, Russia

[2]Synchrotron Radiation Facility – Siberian Circular Photon Source “SKIF”, 2 Morskoy Ave., Novosibirsk 630090, Russia

15:00–15:20 Coffee Break (at Lounge)

T058 15:20–15:40

Large Volume High-Q Photonic Band Gap Resonators Enable Major Sensitivity Gains in Pulsed EPR

Alex Smirnov[1], Sergey Milikisiyants[1], Hank Schmidt[1], Alexander Nevzorov[1]

[1]Department of Chemistry, North Carolina State University, 2620 Yarbrough Drive, Raleigh, North Caroline, 27695-8204, USA

T059 15:40–16:00

Mapping Electrostatic Environment of Phospholipid Vesicles by EPR of pH-sensitive Probes

Ngan Nguyen[1], Maxim Voinov[1], Alex Smirnov[1], Tatyana Smirnova[1]

[1]North Carolina State University

T060 16:00–16:20

Biophysical EPR Using Superconducting Resonators

Troy Borneman[1]

[1]High Q Technologies

16:25–17:15 Closing and Prize presentation

Thursday, 22 Oct., Room B

10:20–10:40 Coffee Break (at Lounge)

Thursday, 22 Oct., Room B

T061 10:40–11:05

Microspectroscopic Studies of Magnetic Field Sensitive Radical Pair Reactions in Biology

Jonathan R. Woodward[1], Noboru Ikeya[1], Shogo Ono[1]

[1]Graduate School of Arts and Sciences, The University of Tokyo, Tokyo 153-8903, Japan.

T062 11:05–11:30

X and Q bands Time-Resolved EPR Spectra of Dyads Consisting of Zn(II) Porphyrin and Re(I) Diamine Complexes: Connecting Position Dependence

Motoko Asano[1], Tomohiro Suzuki[1], Yusuke Kuramochi[2]

[1]Gunma University

[2]Kindai University

T063 11:30–11:55

DEP Generation and ESPT of Photogenerated Organic Multi-Spin π-Systems

Yoshio Teki[1,2], Akihiro Shimizu[2], Nobutoshi Kimura[3], Ken Kato[4], Akitaka Ito[5]

[1]Graduate School of Science, Osaka Metropolitan University

[2]Graduate School of Science, Osaka City University

[3]Faculty of Science, Osaka City University

[4]Core for Spin Life Sciences, Okazaki Collaborative Platform, National Institutes of Natural Sciences

[5]School of Engineering Science, Kochi University of Technology

T064 11:55–12:15 Oral

Operando ESR investigation of electron spins generated at Al/organic interfaces in upconversion OLED structures

Tsubasa Okamoto[1,2], Takehisa Isozumi[1], Shintaro Kiyofuji[1], Ryohei Yoshino[3], Seiichiro Izawa[3], Kazuhiro Marumoto[1,2,4]

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[2]OIQSST, University of Tsukuba

[3]Materials and Structures Laboratory, Institute of Science Tokyo

[4]TREMS, University of Tsukuba

T065 14:20–14:40

EPR Evidence for Wavelength-Selective Generation of Intrinsic and Defect-Associated Ti^{3+} Centers in the MUV-10(Ca) framework

Kirill Larionov[1], Ramis Zhitkeev[1], Dmitry Syrtsov[1], Dudari Burueva[1], Kristina Aidakova[1], Artem Poryvaev[1], Liuyang Zhang[2], Matvey Fedin[1]

[1]International Tomography Center SB RAS

[2]China University of Geosciences

Thursday, 22 Oct., Room B

T066 14:40–15:00 Oral

Formation of ensemble NV^- centers by electron irradiation for quantum sensing applications

Seiichi Saiki[1], Nobumasa Miyawaki[1], Yuichi Yamazaki[1], Takeshi Ohshima[1]

[1]Takasaki Institute for Advanced Quantum Science, National Institutes for Quantum Science and Technology (QST)

15:00–15:20 Coffee Break (at Lounge)

T067 15:20–15:40

Free radicals caused by reducing agents trapped in pores of a simplified light-curing resin prepared with triethyleneglycoldimethacrylate used as monomers

Hirokazu Kobayashi[1], Fumiyasu Iwahori[2], Hidehiko Honda[1], Masato Yamamoto[1], Yoshinobu Hosoi[3], Yuki Odanaka[4], Takashi Takaki[5], Reina Tanaka[6], Yo Shibata[6]

[1]Faculty of Arts and Sciences at Fujiyoshida, Showa Medical University

[2]College of Humanities and Sciences, Nihon University

[3]Rigaku Corporation

[4]School of Pharmacy, Showa Medical University

[5]Center for Electron Microscopy, Showa Medical University

[6]School of Dentistry, Showa Medical University

T068 15:40–16:00

Symmetry-Breaking Modulation of Platinum Sites in Multicomponent Alloy for Efficient Oxygen Reduction Reaction

Xinyi Shen[1,2], Xue Zhang[1], Wenfeng Hu[3], Xiaolin Tai[1], Wenzhi Li[1], Yuwen Chen[3], Mengzhao Zhu[1], Huijuan Zhang[1], Qinghua Zhang[4], Lin Gu[5], Yue Lin[1], Yuen Wu[1], Mei Sun[1], Li-Ming Yang[3], Xiaokang Liu[1], Linlin Cao[1], Tao Yao[1]

[1]State Key Laboratory of Precision and Intelligent Chemistry, National Synchro-tron Radiation Laboratory, University of Science and Technology of China, Hefei 230029, China

[2]School of Biomedical Engineering and Suzhou Institute for Advanced Research, University of Science and Technology of China, Suzhou 215123, China

[3]School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology, Wuhan 430074, China

[4]Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing 100190, China

[5]Beijing National Center for Electron Microscopy and Laboratory of Advanced Ma-terials, Department of Materials Science and Engineering, Tsinghua University, Beijing 100084, China

T069 16:00–16:25

Triplet-Channel Carrier Generation in PTB7:$PC_{71}BM$ Photovoltaic Films Studied by Magnetic Field Effect

Tomoaki Miura[1]

[1]Department of Science, Niigata University, 950-2181, Niigata, Japan.

Poster presentations

P-001

Mapping Conformational Gating in the Phosphatase PhoD Using DEER Spectroscopy

Hsing-Hui Chu[1], Yun-Wei Chiang[1]

[1]Department of Chemistry, National Tsing Hua University, Taiwan

P-002

Understanding Guest Molecule Incorporation and Release in ZIF-8 and MOF-808: Insights from Nitroxyl Radicals and EPR Spectroscopy

Anastasiia Iazikova[1,2], Aleksandr Tomilov[1,2], Kanstantsin Livanovich[3], Artem Poryvaev[1], Matvey Fedin[1,2]

[1]International Tomography Center SB RAS, 3A, Institutskaya Str., Novosibirsk 63090, Russia

[2]Novosibirsk State University, 2, Pirogova Str., Novosibirsk 630090, Russia

[3]Institute of Chemistry of New Materials, National Academy of Sciences of Belarus, Minsk 220141, Belarus

P-003

Proton pathway derived by tyrosine radical Y_Z in Photosystem II

Yui Takahashi[1], Shinya Kosaki[1], Hiroyuki Mino[1]

[1]Graduate School of Science, Nagoya University

P-004

Orientation Dependence of Out-of-Phase Echo Decay in a PM6:Y6 Donor:Acceptor Composite

Natalia Kravets[1], Leonid Kulik[1]

[1]V. V. Voevodsky Institute of Chemical Kinetics and Combustion of the Siberian Branch of the Russian Academy of Sciences

P-005

The linewidth of ESR spectra of alanine dosimeter depending on radiation source

Seiko Nakagawa[1], Kaiji Uchida[1]

[1]Tokyo Metropolitan Industrial Technology Research Institute

P-006

ESR spectra and saturation behavior of spin species arising from strained π-conjugated organic compounds

Yusuke Kawada[1], Yuta Makihara[2], Tomohiko Nishiuchi[2], Takashi Kubo[2], Kazunobu Sato[1]

[1]Department of Chemistry, Faculty of Science, Osaka Metropolitan University

[2]Graduate School of Science, The University of Osaka

Poster presentations

P-007

ESR Analysis of Radical Formation and Carrier Generation in Doped Charge Transport Layers

Kosuke Higashi[1], Takatoshi Sawai[1], Takahiko Ikarashi[1], Junichi Tsuji[1], Hin-Wai Mo[2], Hiroshi Fujimoto[2], Kentaro Harada[2]

[1]Toray Research Center, Inc.

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P-008

Operando ESR observation of charge states in TADF- and TADF-sensitized-fluorescence-based light-emitting electrochemical cells

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P-009

Direct ESR observation of charge accumulation in ambipolar organic electrochemical transistors using blended semiconductor

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P-010

Type-III Porous Liquid ZIF-8/perfluorodecalin for Biomedical Gas transport: EPR-spectroscopy Study

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P-011

Oxygen detection by EPR spectroscopy using metal-organic frameworks with encapsulated stable organic radicals

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Poster presentations

P-012

Development of a Digital Control System for Frequency-Swept CW EPR Spectrometers in Biological Applications

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P-013

High magnetic field effects on radical-triplet pairs

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P-014

Unveiling the Unusual Antiferromagnetic Resonance in Multiferroic $YCrO_3$ via Broadband THz ESR Spectroscopy

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P-015

Light-Induced RIDME versus LITTER in Photosensitizer–DNA and Photosensitizer–Protein Complexes

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P-016

Pulsed EPR reveals protonation and J-aggregation of a cationic porphyrin on the AS1411 G-quadruplex

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Poster presentations

P-017

EPR study of defects in MOF-derived catalysts for solar-driven methanol production

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P-018

EPR Study of Gas Sorption into Porous Liquids under Pressure

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P-019

Visualization of In Vivo Carboxylesterase Activity in Mouse Brain Using an Acetoxymethyl Nitroxide Probe and Fast Field-Swept Digital EPR Imaging

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P-020

ESR-PT: Novel approach for photosafety evaluation of chemicals based on detection of singlet oxygen and free radical formation using ESR spectroscopy

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P-021

Effect of Crystal Size on Triplet Pair Dynamics during the Singlet Fission in Orthorhombic Rubrene Crystals

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Poster presentations

P-022

Development of a 750 MHz CW Saturation Recovery EPR Spectrometer for In Vivo Oximetry

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P-023

Additivity-Based Linearity Evaluation of a Sub-Terahertz Detector for Quantitative Power-Dependent Measurements in High-Frequency ESR

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P-024

Electronic Structures of Stable Hydrocarbons with Olympicene Radical Moieties as Studied by CW/Pulsed-ESR Spectroscopy

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P-025

ESR study of molecular orientation in electric double-layer transistors using S-shaped organic semiconductor S–DNTT–10

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P-026

Theoretical Prediction of Frequency-Dependent Breit–Rabi-Type Transitions in Low-Field EPR of Isotropic Nitroxide Radicals

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Poster presentations

P-027

Elaborating the advantages of synchrotron-based light source for FD-FT THz-EPR spectroscopy

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P-028

A model-based deep learning (MoDL) framework for sparse-view 3D CW-EPR image reconstruction

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P-029

X-Band ESR Study of Natural Chrysoprase with Different Nickel Contents

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P-030

Oxygen partial pressure assessment using saturation characteristics of OX071 and 750 MHz CW-EPR

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P-031

Kinetic Study of the Reactions of Photogenerated Radicals with Trithiocarbonate-Type RAFT Agents by Laser-Synchronized Pulsed ESR Spectroscopy

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Poster presentations

P-032

Maximization of Signal Sensitivity and Minimization of Linewidth Error in Multi-Harmonic Detection EPR Spectroscopy

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P-033

Dynamic Electron Polarization Induced by the Interaction between Photo Excited Anthraquinone derivative and Radical in Aqueous Solutions

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P-034

Effects of additives on perovskite solar cells: Direct ESR observation of charge transfer in model thin films

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P-035

A Ratiometric MRI Probe for Quantitative Imaging of Physiological pH

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P-036

ESR studies on quasi-one-dimensional halogen-bridged Ni-chain compounds

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Poster presentations

P-037

Quantum Geometric Tensor Reconstruction from Polarization-Resolved Electron Spin Resonance

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P-038

Optimization of ESR Measurement Conditions for High-Sensitivity Dosimetry Using 2-Methylalanine

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P-039

Development of force-detected nanomembrane ESR spectroscopy integrated with a Fabry-Perot cavity

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P-040

Molecular Alignment in Liquid Crystals for Improving Gate Fidelity in Molecular Electron Spin Qubits

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P-041

Development of a diabolo-type micro resonator for ESR around 10 GHz

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Poster presentations

P-042

GPU-Accelerated Algebraic Image Reconstruction for Four-Dimensional Spectral–Spatial EPR Imaging

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P-043

Substituent Effects of Aromatic Ring at C2 Position of TEMPO-type Nitroxides: ESR Spectral Analysis and Control of Ascorbate Reduction Reactivity

Toshihide Yamasaki[1], Karin Nagahama[1], Koki Omoto[1], Kohei Sano[1], Takahiro Mukai[1]

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P-044

Spin dynamics and magnetic field effects in dye-doped polyvinylcarbazole nanoparticle

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P-045

Magnetic Field Effect on the Photoreaction Dynamics of Carbazole and Perylenediimide Embedded in Bilayer Membrane Capsules

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P-046

Enhancing signal-to-noise ratio in EPR absorption spectra with modified multi-harmonic detection

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P-047

Development of a near-infrared fluorescent nitroxide probe for imaging of lipid radicals in living organisms

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Poster presentations

P-048

The T1 relaxation shortening effect of excitons on solvent molecules

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P-049

Applications of Thermally Detected Terahertz ESR Spectroscopy to Metalloprotein Solutions

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P-050

Development of multi-frequency spin current measurement system using compact gyrotron

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P-051

Development of an RF resonator for solid-state high-resolution MACS-NMR using SBG printing

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Poster presentations

P-052

Anisotropic Spin Dynamics in Thermally Activated Delayed Fluorescence Materials

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P-053

Computational Analysis of Correlation and Conformational Effects on Small Exchange Couplings in Trimethylenemethane-Type Biradicals

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P-054

Towards Room-Temperature Quartet Spin Qudits in Chromophore-Radical Systems: An EPR and MD Study on Coherence Mechanisms

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P-055

Nonlinear Model-Based Parametric Reconstruction for 4D Spectral-Spatial EPR Imaging

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P-056

Optimization of Short-Pulse EPR Excitation toward Reduced RF Heating in in vivo OMRI

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Poster presentations

P-057

Competitive-ligand effects on photoinduced radical-pair formation in bovine serum albumin-anthraquinone complex

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P-058

Observation of Rabi Oscillations Using a Gyrotron-Based Millimeter-Wave Pulsed ESR System

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P-059

Evaluation of the Local Environment of α-Synuclein in Frozen Solution Using Radical Species with Different Hydrophobicities

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P-060

Chirality-Induced Triplet Spin Polarization in Porphyrin Inclusion Complexes Studied by Time-Resolved EPR

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P-061

Estimation of the Reaction Rate Constant between a Dithiocarbamate-Type RAFT Agent and Diphenylphosphynoyl Radical by Pulsed ESR

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Poster presentations

P-062

Zeeman–Far–Infrared Double Resonance in Practice: FEL-Pumped, Pulsed-EPR-Detected Spin Polarization in a Co(II) Single–Molecule Magnet

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P-063

Development of a simultaneous millimeter-wave ESR and EDMR measurement technique for phosphorus-doped silicon

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P-064

Magnetic Field Effect Mechanism on Porphyrin-Quinone Triplet-Radical-Pair Embedded in Different Capsule Structures

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P-065

Development of a highly sensitive and rapid detection system for fluorine-containing molecules using photochemically induced dynamic nuclear polarization (photo-CIDNP) toward biomedical applications

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P-066

Kinetic Analysis of the Giant Magnetic Field Effect in MagLOV

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Poster presentations

P-067

Coherent singlet-triplet spin mixing in low magnetic fields detected by pump-push spectroscopy and a switched external magnetic field.

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P-068

Angular dependence of UV-induced hole echo signals in $BaZrO_3$ crystal

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P-069

Paramagnetic centers with long spin relaxation times in non-doped CeO_2 sintered pellets

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[3]Faculty of Engineering, University of Miyazaki

P-070

Development of a Reaction-Intermediate Trapping Method Using Photolabile Caged Compounds by Advanced Magnetic Resonance

Natsuru Muta[1], Yuna Koga[1], Akane Yato[2], Masaki Horitani[1,2]

[1]Faculty of Agriculture, Saga University, Saga, Japan

[2]The United Graduate School of Agricultural Sciences, Kagoshima University, Kagoshima, Japan

P-071

Magnetic field effect measurements of cryptochromes using super continuum light source based cavity ringdown Spectroscopy

Yuya Nakamura[1], Tsubasa Kimura[1], Ayane Kannuki[1], Sae Fukui[1], Shota Hosono[2], Keiko Okano[2], Toshiyuki Okano[2], Kiminori Maeda[1]

[1]Graduate School of Science and Engineering, Saitama University

[2]Department of Electrical Engineering and Bioscience, Graduate School of Sciences and Engineering, Waseda University

Poster presentations

P-072

Time-Resolved EPR Study of Photoinduced Spin Polarization in Tropolone–1,4-diazabicyclo[2.2.2]octane Crystals

Jinta Kano[1], Hideki Saitoh[1], Hiroki Nagashima[1,2], Kiminori Maeda[1]

[1]Department of Chemistry, Graduate School of Science and Engineering, Saitama University

[2]National Institutes for Quantum Science and Technology, 4-9-1, Anagawa, Inage-ku, Chiba 263-8555, Japan

P-073

Simultaneous measurements of fluorescence lifetime and magnetic field effect in biomolecular system

Shohei Hara[1], Kento Wakamura[1], Kiminori Maeda[1]

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P-074

Thermally Induced Monomer–Dimer Phase Transition in 5-Methyl-1,3-phenylene Bis(tert-butyl Nitroxide)

Mahiro Somei[1], Shota Tsukii[1], Takayuki Ishida[1]

[1]Department of Engineering Science, The University of Electro-Communications

P-075

Alkyl Chain Length-Controlled Anisotropic Lattice Contraction and Ferromagnetic Enhancement in Bis(p-biphenylyl) Nitroxides

Akane Hase[1], Takayuki Ishida[1]

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P-076

Optically Detected Magnetic Resonance of a Quintet Multiexciton in a Macrocyclic Rubrene Dimer at Room Temperature

Masaaki Fuki[1], Wataru Ishii[2], Maria Psarra[3], Mateja Smitran[4], Shunsuke Sato[5], Koichiro Ishibashi[5], Go Watanabe[5], Bhavesh Parmar[2], Harumi Sato[6], James Pidgeon[4], Jenny Clark[4], Sam Bayliss[3], Nobuhiro Yanai[2,7], Yasuhiro Kobori[1,7]

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[3]James Watt School of Engineering, University of Glasgow, Glasgow, United Kingdom

[4]Department of Physics and Astronomy, The University of Sheffield, UK

[5]Department of Physics, School of Science, Kitasato University, Japan

[6]Graduate School of Human Development and Environment, Kobe University, Japan

[7]CREST, JST, Japan

Poster presentations

P-077

A water-soluble 2-tetrazene radical cation as a radical probe for evaluating antioxidant activity

Ayari Oshiro[1,2], Yoshimi Shoji[2], Hiromu Ito[2], Yuri Terashima[2,3], Kei Ohkubo[2,4], Yoshiharu Iwabuchi[1], Ikuo Nakanishi[2], Yusuke Sasano[1,2]

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[3]Radioecology and Biosphere Research Group, Department of Radiation Measurement and Dose Assessment Group, Institute for Radiological Science (NIRS), National Institutes for Quantum Science and Technology (QST), 4-9-1 Anagawa, Inage-ku, Chiba 263-8555, Japan

[4]Institute for Open and Transdisciplinary Research Initiatives (OTRI), The University of Osaka, 1-6 Yamadaoka, Suita, Osaka 565-0871, Japan

P-078

ESR study of a field-induced phase transition in a spin-(1/2,1) Kondo necklace

Yuko Hirota[1], Takanori Kida[2], Masayuki Hagiwara[2], Koji Araki[3], Shunsuke Furuya[4,5], Hironori Yamaguchi[1]

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[2]Center for Advanced High Magnetic Field Science (AHMF), Graduate School of Science, The University of Osaka, Osaka 560-0043, Japan

[3]Department of Applied Physics, National Defense Academy, Kanagawa 239-8686, Japan

[4]Department of Liberal Arts, Saitama Medical University, Moroyama, Saitama 350-0495, Japan

[5]Institute for Solid State Physics, the University of Tokyo, Chiba, 277-8581, Japan

P-079

Magnetic field effects on triplet pairs in organic crystals

Tomoaki Yago[1]

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P-080

^{13}C-Labeled Triarylmethyl Radicals as Intracellular Probes for Physiological Parameters

Arthur Raizvikh[1,2], Sergey Ovcherenko[1], Olga Kartina[3], Dmitriy Trukhin[1], Olga Rogozhnikova[1], Victor Tormyshev[1], Vladimir Koval[3], Elena Bagryanskaya[1]

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Poster presentations

P-081

SOMO–HOMO Inversion of Cage Radical Cations Elucidated by Theoretical Calculations and Time-resolved Spectroscopy

Kanata Wada[1], Kento Nakaya[1], Takuya Ogaki[1,2], Yasunori Matsui[1,2], Masaaki Fuki[3,4], Yasuhiro Kobori[3,4,5], Toshio Asada[2,6], Hiroshi Ikeda[1,2]

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[3]CLiPI, Kobe Univ.

[4]Grad. Sch. of Sci., Kobe Univ.

[5]CREST JST

[6]Grad. Sch. of Sci., Osaka Metro. Univ.

P-082

Influence of Iridium(III) Coordination on the Electron Spin Properties of Nitronyl Nitroxide Radical Ligands

Ichito Moriya[1], Hiroki Nagashima[1], Sumio Kaizaki[2], Takashi Fujihara[1]

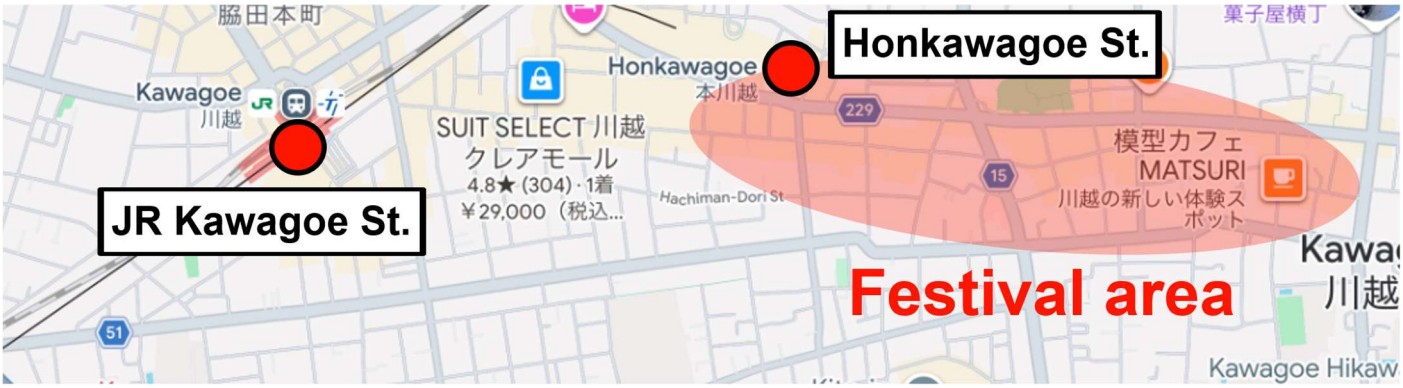
[1]Graduate School of Science and Engineering, 255, Shimo-Okubo, Sakura-ku, Saitama 338-8570, Japan

[2]Graduate School of Science, The University of Osaka, 1-1 Machikaneyama-cho, Toyonaka, Osaka 560-0043, Japan

KAWAGOE FESTIVAL



Date: October 18, 2026 (Sunday)
Venue: Kawagoe City, Saitama



About Kawagoe festival

- A traditional Edo-style float festival in Kawagoe City, Saitama.
- Famous for its ornate “**Dashi**” floats, traditional festival music, and lively atmosphere.

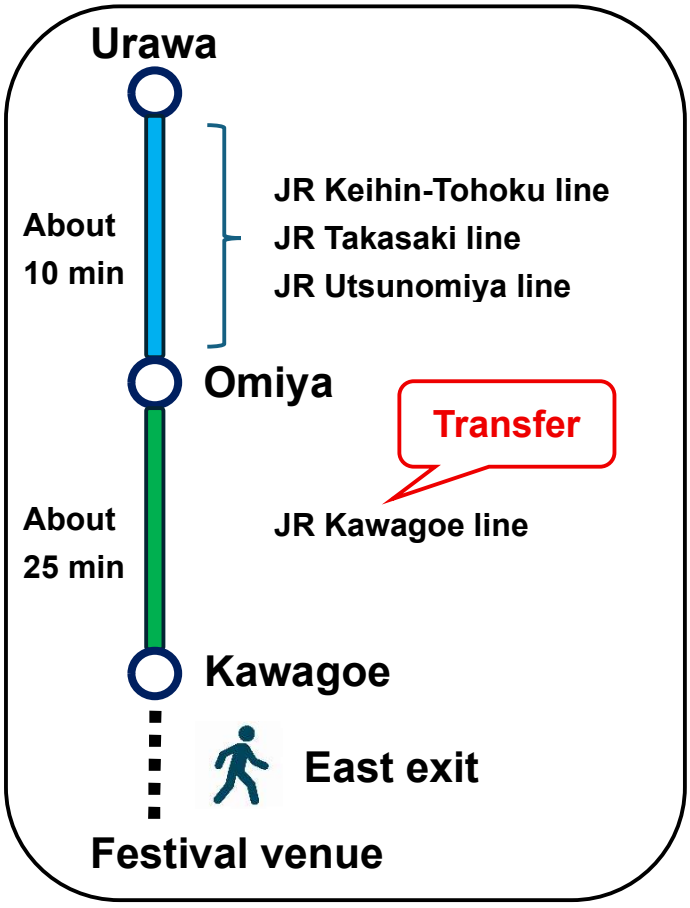
Dashi



Cultural significance

- More than **370** years of history
- Important Intangible Folk Cultural Property of Japan
- **UNESCO** Intangible Cultural Heritage

Access from Urawa



Recommended

- **COEDO beer** is a Japanese craft beer brand with roots in Kawagoe. COEDO offers a wide variety of beers, but if you are not sure which one to try, we recommend **Beniaka**, a unique beer brewed with sweet potatoes from Kawagoe.



COEDO beer

Official Website **https://kawagoematsuri.jp/index.html**

The Railway Museum

Omiya, Saitama

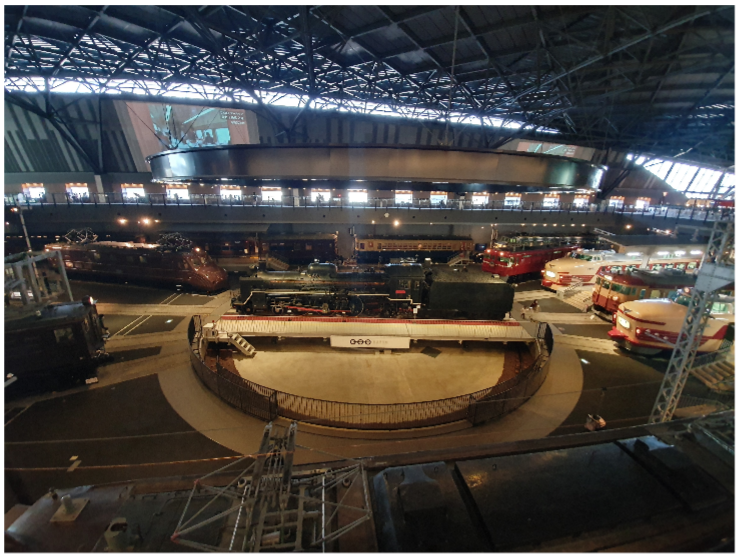


Photo: Syced / Wikimedia Commons (CC0 1.0)

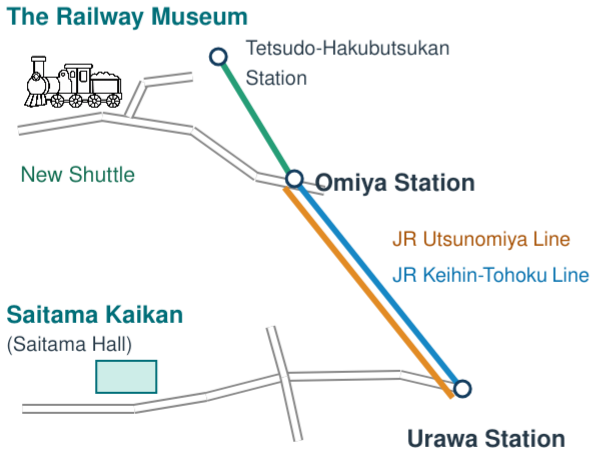
Discover Japan through its railways

From historic locomotives to Shinkansen bullet trains, explore how railways have shaped travel, technology and everyday life in Japan. A visit offers an engaging introduction to Japanese engineering and railway culture. Explore historic vehicles and hands-on exhibits at your own pace.

Highlights

Historic trains	See full-size railway vehicles up close, from early locomotives to Shinkansen trains.
Science and engineering	Discover the principles that keep trains moving and railway systems operating safely.
People and history	Learn about railway professionals and the development of rail transport in Japan.

Location map



Schematic map; not to scale.

Official English website

www.railway-museum.jp/e/

Check current dates, prices and activity reservations before visiting.

Getting there from Urawa

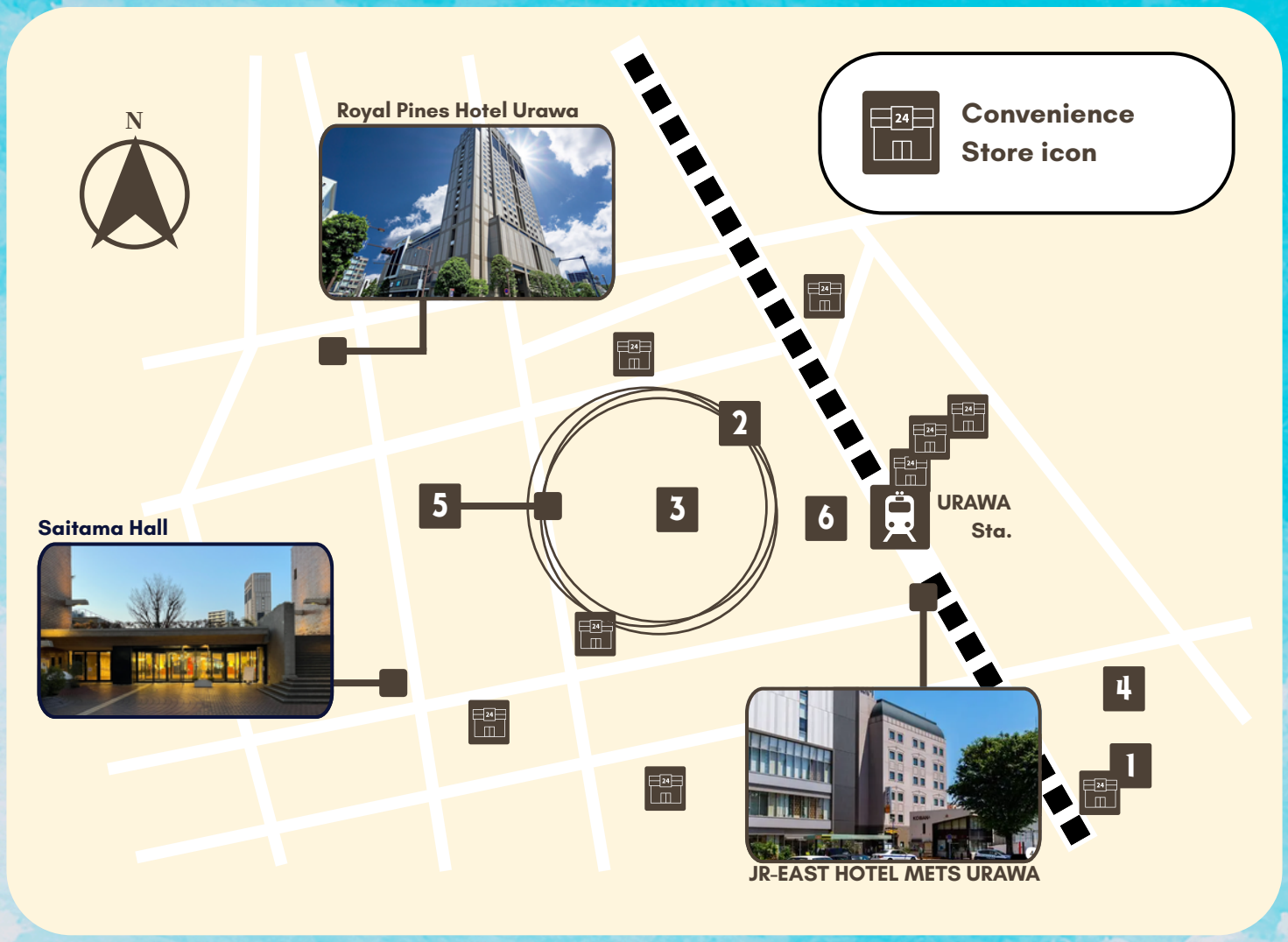
Take the JR Utsunomiya Line (JU) or JR Keihin-Tohoku Line (JK) toward Omiya. Exit the JR ticket gates and follow signs for the New Shuttle.

Ride one stop to Tetsudo-Hakubutsukan Station (about 3 minutes), then walk 1 minute to the museum.

Plan your visit

Hours: 10:00–17:00 (last entry 16:30)
Closed: Generally Tuesdays and New Year holidays. Check the calendar.
Adults: ¥1,600; ¥1,500 if purchased by the previous day.
Allow 2–3 hours. English explanations are available in the museum app.

~ URAWA LUNCH GOURMET MAP ~





1 torisoba Issa

Ramen restaurant. This is pretty much the place locals recommend around Urawa Station.



2 McDonald's

Fast Food. The limited-time Tsukimi Burger is now on sale and proving very popular.



3 toukyou aburagumi souhonten

Ramen restaurant. You should try it at least once in your life.



4 Saizeriya

A popular Italian restaurant chain that our country is proud of. A lifesaver for cash-strapped college students.



5 Karaoke & Bar District

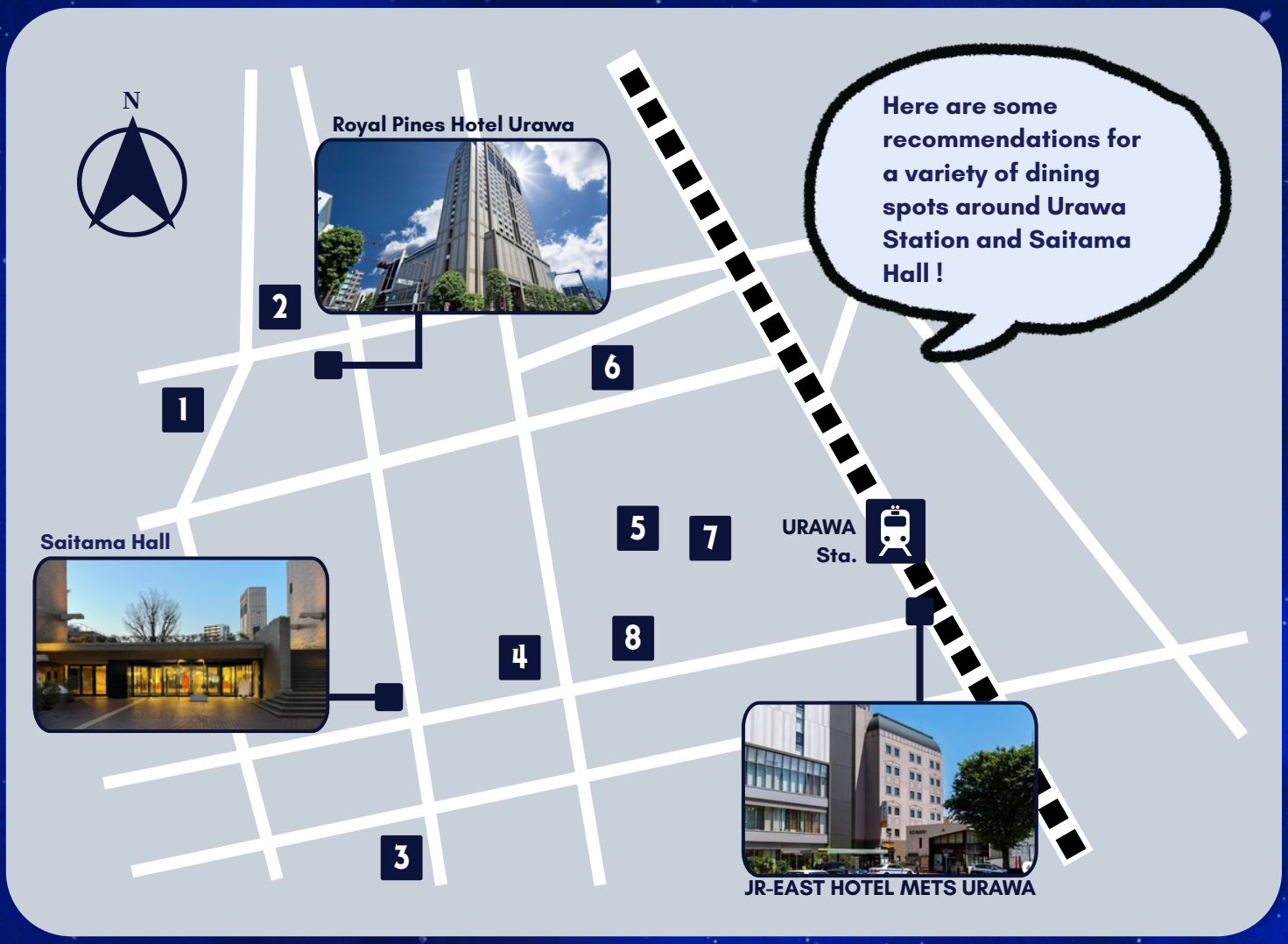
In addition to the bars featured here, there are plenty of other great bars in this area. After having a drink, we also recommend checking out a karaoke bar.



6 Isetan Urawa store

Department store in Saitama.In addition to the restaurant district, there are also many stores carrying global fashion brands.

~ URAWA DINNER GOURMET MAP ~





1 EVEREST KITCHEN

Indian and Nepalese restaurant. I love this restaurant's cheese naan.



2 spaghetti pino

Italian restaurant. I went to this restaurant when I had lunch with my childhood friend's family.



3 Masuya

Unagi restaurant. I went there with my family when I was little, and the unaju was really delicious.



4 NICOLA PIZZA

Italian restaurant. Pizza is this restaurant's signature dish.



5 yakiniku futago Urawa

Yakiniku. "Futagomori" on this restaurant's menu is really delicious.



6 carnegico

Steak house.
Kiminori's Recommendations.



7 Hoshino Coffee

Cafe. My grandmother used to take me there often.



8 Qibao Malatang

Malatang restaurants.
By the way, 0.5 on the spice scale was my limit.

We gratefully acknowledge the generous sponsorship and support of the companies listed below in the preparation and organization of this conference. We extend our sincere appreciation for their contributions.

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- The Naito Foundation
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- Saitama Tourism and International Relations Bureau

The Compact-Q DEER and Magnettech ESR5000: A Powerful Duo

Distance measurements on spin-labeled biomolecules using pulsed EPR spectroscopy provide critical insights into conformational dynamics, which are essential for understanding protein structure and function. Double Electron-Electron Resonance (DEER) is the method of choice for these studies, enabling routine distance measurements in the 2–10 nm range. Before performing a DEER experiment, it is important to verify the efficiency of the spin-labeling process to ensure success in the subsequent pulsed EPR measurement. This typically involves a simple CW-EPR check of the spin-labeled sample—a step that should be quick and straightforward on the way to DEER. The Bruker Magnettech ESR5000 benchtop spectrometer provides an efficient and reliable solution to screen spin-labeled biomolecules. Together, the Compact-Q DEER and ESR5000 are the ultimate combination of EPR instruments to streamline workflows in structural biology.

The **Magnettech ESR5000** is Bruker's premier benchtop EPR spectrometer. It features:

- Fast, automated tuning procedure
- Intuitive, all-in-one acquisition and data processing software
- Autosave for all data collected
- **SpinFit Liquids** module for extracting magnetic parameters and rotational correlation times
- Reference-free Spin quantitation module, **SpinCount**

The ESR5000 provides users with a quick tool to screen proteins and nucleotides with spin labels. This typically involves a measurement, quantitation of the spin label, and a known biomolecule concentration. From this information, the user can then determine the labeling efficiency.

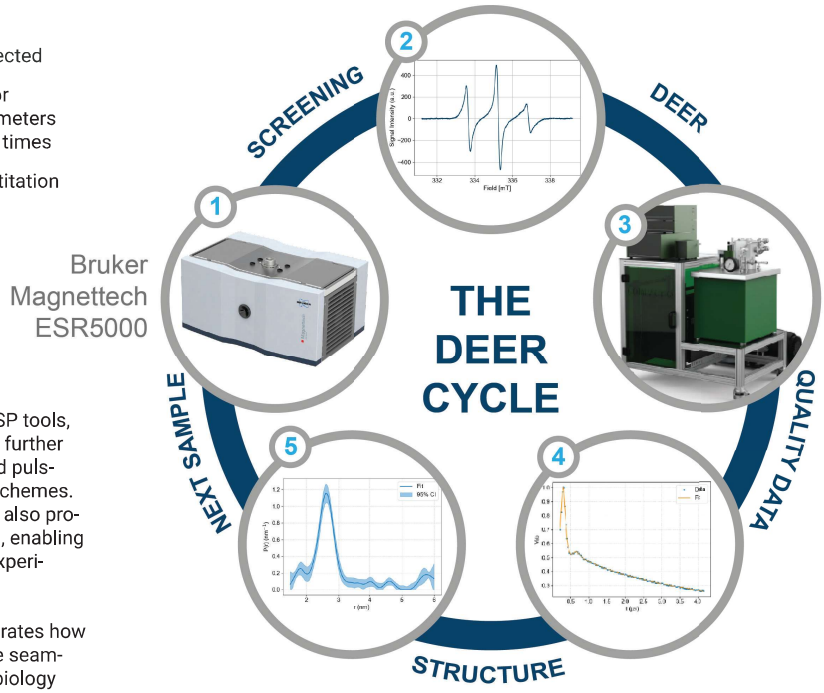


Fig. 1: The DEER Cycle: **1.** Place sample into the ESR5000 for measurement. **2.** Perform SpinCount for spin label concentration. **3.** Move to Compact-Q DEER for distance measurements. **4.** Collect high quality data. **5.** Extract distance distribution, which answers your question or requires new samples.

The **Compact-Q DEER** is a realization of a state-of-the-art pulse EPR spectrometer featuring:

- Modern microwave technology
- Cryogen-free superconducting magnet
- Integrated Variable Temperature Insert (iVTI)
- Fast Arbitrary Waveform Generator (AWG)
- Autosave for all data collected
- Digital Signal Processing (DSP)

With AWG technology and DSP tools, all these experiments can be further improved by usage of shaped pulses and advanced detection schemes. The SpecMan4EPR software also provides options for automation, enabling hands-free optimization of experiments.

The DEER Cycle (Fig. 1) illustrates how both spectrometers integrate seamlessly into typical structural biology workflows. With their strong performance, ease of use, and compact footprints (Fig. 2), this combination fits naturally into any lab environment and streamlines the path from spin-labeled samples to meaningful structural insights.

The Compact-Q DEER is tuned for optimal performance in distance measurement experiments, commonly referred to as Pulsed Dipolar Spectroscopy (PDS). The SpecMan4EPR software contains preloaded scripts for DEER, DQC, SIFTER and RIDME, providing the user with options that best fit the system under study.

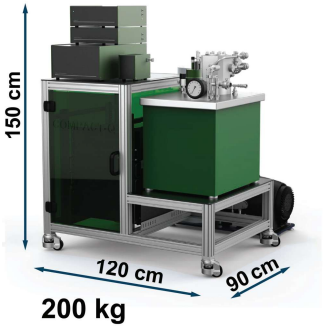




Fig. 2: The Compact-Q DEER and Magnettech ESR5000 spectrometers with their respective dimensions.

ESR5000 Brochure

Compact-Q Brochure

Conclusion

- ESR5000 provides fast screening of spin-labeled samples
- High performance from Compact-Q yields valuable, reproducible results in distance measurements
- Workflow for PDS is sped up by a combination of the two instruments

EPR200M

ベンチトップ型　ESR（EPR）装置

New Product

- CIQTEK EPR200M は、ポータブルで使いやすいベンチトップ型電子スピン共鳴（電子常磁性共鳴）分光計です。
- 軽量、コンパクトながら感度と安定性を確保し、メンテナンスコストも少なく、コストパフォーマンスに優れた製品設計になっています。
- ESRテストを必要とするすべての研究者、および産業界のユーザーに、シンプルでフレンドリーな測定環境を提供します。
- 自動化ソフトウェアを搭載、スムーズな実験操作と、高速で正確な定量分析が可能です。

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ワイドレンジの測定範囲

230～2050nm（FS5 v2）

115～5500nm（FLS1000）



特長

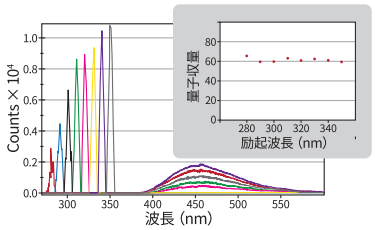
- 水のラマン計測：SNR 12,000：1以上（FS5 v2）　SNR 35,000：1以上（FLS1000）
- ワイドレンジの測定範囲：230 ～ 2050 nm（FS5 v2）　115 ～ 5500 nm（FLS1000）
- 最大5つの光源や検出器を同時搭載

  450Wキセノン光源、フラッシュランプ、半導体レーザーやスーパーコンティニュアム光源など

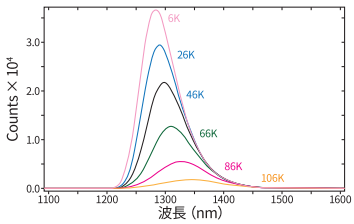
  フォトンカウンティングタイプの高感度検出器 （紫外 - 可視 - 近赤外 - 中赤外域で選択可能）
- シングルまたはダブルモノクロメータを選択可能（FLS1000）
- 様々なサンプル形状、温度（室温・加熱・冷却）に対応可能なサンプルホルダー

測定例

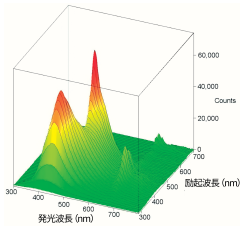
量子収率測定



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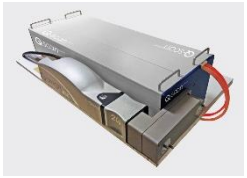
- 可視から赤外まで可変
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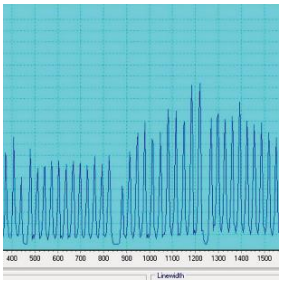
- 高出力・高性能
- 紫外から赤外まで可変
- 精密な波長制御



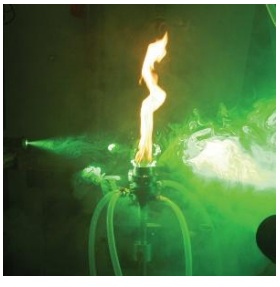




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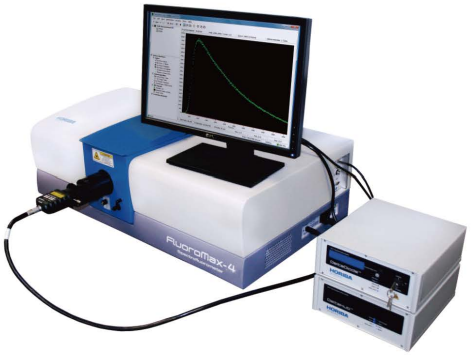
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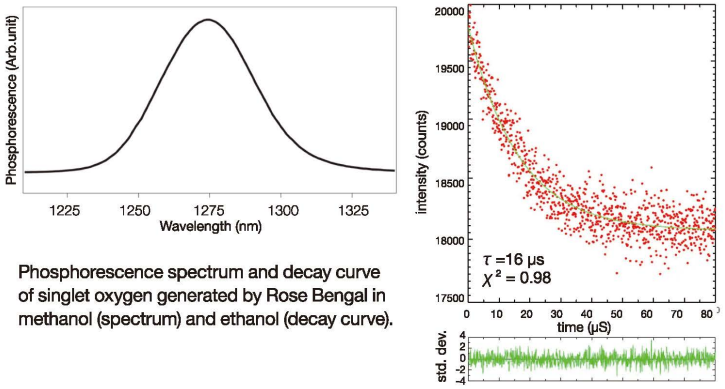


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Evaluation of Singlet Oxygen Phosphorescence Properties



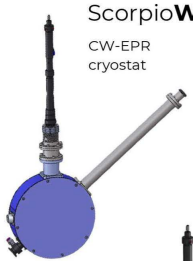
Phosphorescence spectrum and decay curve of singlet oxygen generated by Rose Bengal in methanol (spectrum) and ethanol (decay curve).

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