

Oral Presentation

Nov. 2 (Sat) Room A

9:20 Opening

9:30 【Presentation Award Candidates】 (Chair : Kiminori Maeda)

J-01 Development of radical-based particles to establish MRI quantitative for Ascorbic Acid

Naoko Iizuka¹, Yuika Akizuki¹, Tomohiro Umeno², Kazuteru Usui¹, Daisuke Yoshihara³, Tatsuya Naganuma⁴, Satoru Karasawa¹

¹Grad. Sch. Pharm. Sci., Showa Pharm. Univ.; ²Kyoto Pref. Uni. Med.; ³ISIT; ⁴Japan REDOX.

J-02 Design and Synthesis of Nitroxyl Radicals in CPP Skeleton with SOMO-HOMO Conversion

Ayaka Itaska, Ryo Murata, Manabu Abe

Advanced Science and Engineering, Hiroshima Univ.

J-03 Excited Triplet State of Photogenerated Higher Acene

○Mikaru Masuda¹, Joel H. Jorolan^{1,2}, Hironobu Hayashi³, Hiroko Yamada⁴, Tomoaki Miura¹, Tadaaki Ikoma^{1,5}

¹Grad. Sch. of Sci. & Tech., Niigata Univ.; ²MSU-IIT; ³CBRM, NIMS; ⁴ICR, Kyoto Univ.; ⁵CCRF, Niigata Univ.

J-04 Random acquisition of spectral projections accelerates four-dimensional spectral-spatial EPR imaging

Misa Oba¹, Mai Taguchi¹, Shingo Matsumoto², Hiroshi Hirata²

¹Grad. Sch. of Info. Sci. and Tech., Hokkaido Univ.; ²Facul. of Info. Sci. and Tech., Hokkaido Univ.

J-05 Equilibrium and Structural Analysis of S₂ High Spin States of the Mn Cluster in Photosystem II using multi-frequency EPR

○Shinya Kosaki¹, Yoshiki Nakajima², Jian-Ren Shen², Hiroyuki Mino¹

¹Grad. Sch. Sci., Nagoya Univ.; ²Res. Inst. Interdiscip. Sci., Okayama Univ.

J-06 Measurement of structural flexibility of enzymes using spin labeling-ESR

○Akane Yato¹, Rio Asaka², Masaki Horitani^{1,2}

¹Unit. Grad. Sch. of Agri., Kagoshima Univ.; ²Fac. of Agri., Saga Univ.

Lunch Time (11:30 ~ 12:40)

12:40 【Plenary Lecture 1】 (Chair: Yutaka Fujii)

PL-01 Dynamic nuclear polarization in silicon at ultra-low temperatures

Sergey Vasiliev

Department of Physics and Astronomy, University of Turku, Finland

13:50 【Plenary Lecture 2】 (Chair: Yasuhiro Kobori)

PL-02 Influence of topology, architecture, and environment on spin polarization transfer: implications for quantum information science

Malcolm Forbes

Bowling Green State University, USA

Nov. 2 (Sat) Room B

12:40 (Chair: Ken-ichiro Matsumoto)

1B-01 Phosphorylation and histone peptides reduce side- and main-chain dynamics of HP1 during phase separation, as studied by conventional and TOAC spin labels

I. Suetake^{2,3}, T. Takei², K. Sato¹, T. Sugishita², T. Kawakami², S. Ito³, A. Nishimoto², K. Muraoka², Y. Mishima², M. Miyata¹, T. Takui¹, T. Fujiwara², Y. Matsuki², H. Hojo¹, T. Arata^{1,2}

¹Grad. Sch. Sci., Osaka Met. Univ.; ²IPR, Osaka. Univ.; ³Grad. Sch. Nutr. Sci., Nakamura Gakuen Univ.

1B-02 Detection of oxidative-stress-induced inactivated-aconitase and intracellular free iron ions in HeLa cells by ESR

Osamu Inanami¹, Hironobu Yasui¹, Wakako Hiraoka², Takahiro Sakurai³, Susumu Okubo⁴, Hitoshi Ohta^{5,6}

¹Grad. Sch. of Vet. Med., Hokkaido Univ.; ²Grad. Sch. of Sci & Tech., Meiji Univ.; ³Res. Fac. Center for Sci. & Tech., Kobe Univ.; ⁴Grad. Sch. of Sci., Kobe Univ.; ⁵Mol. Photosci. Res. Center, Kobe Univ.; ⁶Res. Center for Dev. of Far-Infrared Region, Fukui Univ.

1B-03 Early detection of the oxidative stress change in Alzheimer's disease model mice by Tempone with EPR imaging system

Miho C Emoto¹, Hideo Sato-Akaba², Hirotada Fujii³ ¹ School of Med. Tech., Health Sci. Univ. of Hokkaido; ²Grad. Sch. of Eng., Shizuoka Univ.; ³Advanced Research Promotion Center, Health Sci. Univ. of Hokkaido

1B-04 Development of target selective DNP-NMR polarizing agent with high reduction resistance for intracellular measurement

Ken Kato¹, Hajime Tamaki¹, Toshimichi Fujiwara¹, Yoh Matsuki^{1,2}

¹ Institute for Protein Research, Osaka Univ.; ² IQB Osaka Univ.

1B-05 Micropores in light curing composite resin studied ESR spin probe technique

Hirokazu Kobayashi¹, Fumiyasu Iwahori², Hidehiko Honda¹, Masato Yamamoto¹, Yoshinobu Hosoi³, Yuki Odanaka⁴, Takashi Takaki⁵, Reina Tanaka⁶, Yo Shibata⁶

¹Fac. of Arts and Sci., Showa Univ. at FY; ²Col. of Humanities and Sci., Nihon Univ.; ³Rigaku Corporation; ⁴Sch. of Pharm., Showa Univ.; ⁵Center for Electron microscopy, Showa Univ.; ⁶Sch. of Dent., Showa Univ.

1B-06 Relationship between the intermolecular interactions of ISCA1 and the EPR signal exhibited by mononuclear irons responsible for its magnetism

Hiroki Nagashima^{1,2}, Shogo Soga¹, Kiminori Maeda¹, Shigeki Arai²

¹Grad Sch. Sci. Engineer, Saitama Univ.; ²QST

1B-07 Towards Time-Resolved Radical Pair Detection in Living Cells

Noboru Ikeya

Graduate school of Arts and Sciences, University of Tokyo

Nov. 3 (Sun) Room A

9:00 【Mini Symposium on “High power light sources pioneer the frontier of magnetic resonance.”】
(Chair: Yuya Ishikawa)

2S-00 Introduction

Yuya Ishikawa

FIR, Univ. Fukui

2S-01 State-of-the-art of development of high-power, high-frequency gyrotrons

Yoshinori Tatematsu

FIR, Univ. Fukui

2S-02 Current status of the development of high-frequency pulsed ESR systems

Seitaro Mitsudo

Univ. Fukui

2S-03 High-frequency and high-field ESR studies on metalloproteins by using high power gyrotron

○Masaki Horitani

Fac. of Agri., Saga Univ.

Break (10:20 ~ 10:30)

2S-04 Electrical detection of antiferromagnetic dynamics

Takahiro Moriyama

Department of Materials Physics, Nagoya Univ.

2S-05 Methods and Instruments for High-Field MAS DNP toward Intracellular Structural Biology

Yoh Matsuki

IPR, Osaka Univ.

Lunch (11:30 ~ 12:30)

(Afternoon sessions will be held in Room C)

Nov. 3 (Sun) Room B

9:00 (Chair: Motoko Asano)

2B-01 Pulse ESR study of the spin coupler dependence on the multi-spin photo-excited state of the anthracene-radical linked system

○Yoshio Teki^{1,2}, Akihito Shimizu¹, Nobutoshi Kimura¹, Ken Kato^{1,3}, Akitaka Ito⁴

¹Grad. Sch. of Sci., Osaka City Univ.; ²Grad. Sch. of Eng., Osaka Metropolitan Univ.; ³Inst. for Protein Res., Osaka Univ.; ⁴Grad. Sch. of Eng., Kochi Univ. of Tech.

2B-02 Correlation between π -conjugated networks and phosphorescent properties

○Hideto Matsuka^{1,2}, Hiroki Matsuoka², Kazuki Shichida¹, Koki Tachibana³, Hideji Osuga³

¹Hokkaido Univ. Edu.; ²Osaka Metro. Univ.; ³Wakayama Univ.

2B-03 Radical reaction mechanism for RAFT agent containing cyano and carboxylic acid groups

○Yusuke Miyake, Sana Kadono, Kenji Kanaori

Fac. Mol. Chem. Eng., Kyoto Tech.

2B-04 Triplet Pair Dynamics of Singlet Fission in Orthorhombic Powder of Rubrene

○Yusuke Wakikawa¹, Tadaaki Ikoma^{2,3}

¹Shizuoka Inst. of Sci. and Tech.; ²Grad. Sch. of Sci., Niigata Univ.; ³CCRF, Niigata Univ.

2B-05 Water inclusion effects on EPR of F center in solid electrolyte BaZrO₃:M (M=Sc, Y)

○Ikuko Akimoto¹, Kota Yamaji¹, Masaya Nagai², Yuji Okuyama³, Hideto Matsuoka⁴

¹Wakayama Univ.; ²Osaka Univ.; ³Miyazaki Univ.; ⁴Hokkaido Univ. Edu.

2B-06 Antiferromagnetic resonance of the π -d electron system

○Yugo Oshima¹, Taehoon Lee¹, Hengbo Cui¹, Takaaki Minamidate², Yohei Saito², Atsushi Kawamoto², Noriaki Matsunaga², Reizo Kato¹

¹RIKEN; ²Grad. Sch. of Sci., Hokkaido Univ.

2B-07 Nuclear-spin-polarized small-angle neutron scattering study of nanoice crystals in rapidly frozen sugar solutions

Takayuki Kumada

JAEA

Lunch (11:30 ~ 12:30)

(Afternoon sessions will be held in Room C)

Nov. 3 (Sun) Room C

12:30 【SEST Member Meeting】

- Award Ceremony
- Honorary Membership Ceremony

Break (13:30 ~ 13:40)

【Award Lecture 1】 (Chair : Toshiaki Arata)

Y-01 **Development and Application of Pulsed Electron Spin Multiple Resonance Technology**

Kazunobu Sato

Grad. Sch. of Sci., Osaka Metropolitan Univ.

【Award Lecture 2】 (Chair : Hiroyuki Nojiri)

Y-02 **Magnetic Resonance Study of Functional Molecular Assemblies**

Toshikazu Nakamura

Institute for Molecular Science, Frontier of Spin Life Sciences

Break (15:00 ~ 15:10)

【Award Lecture 3】 (Chair : Katsuichi Kanemoto)

Y-03 **Development of operando electron spin resonance method and exploration of novel phenomena in organic-inorganic devices**○Kazuhiro Marumoto^{1,2,3}¹Dep. of Mater. Sci., Univ. of Tsukuba; ²OIQSST, Univ. of Tsukuba; ³TREMS, Univ. of Tsukuba

【Award Lecture 4】 (Chair : Yasuhiro Kobori)

Y-04 **Elucidation of Electronic Functions in Photoresponsive and Bio-related Materials Using Advanced Spin Measurement and Analysis Techniques**

Tsubasa Okamoto

Mol. Photosci. Res. Center, Kobe Univ.

16:00 【Presentation Award and Poster Award Ceremony】

Break (16:15 ~ 16:30)

【Plenary Lecture 3】 (Chair: Yuya Ishikawa)

PL-03 **Dissolution Dynamic Nuclear Polarization: Enhancing NMR and MRI Signals by >10,000-fold for Metabolic Assessment of Cancer**

L. Lumata

University of Texas at Dallas, USA

Nov. 4 (Mon) Room A

9:00 【Mini symposium on “Understanding life phenomena opened up by spin”】 (Chair: Ken-ichi Yamada, Satoru Karasawa)

3S-00 **Introduction**

Ken-ichi Yamada

Fac. of Pharm., Kyushu Univ.

3S-01 **Development of MRI Contrast Agents Based on Organic NO Radicals**

○Satoru Karasawa¹, Naoko Iizuka¹, Tomohiro Umeno², Tatsuya Naganuma³, Kazuteru Usui¹

¹Grad. Sch. Pharm. Sci., Showa Pharmaceutical Univ.; ²Kyoto Pref. Uni. Med.; ³Japan REDOX.

3S-02 **Quantum Monitoring of Cellular Functions Through Nanoscale Spin Control**

Hitoshi Ishiwata¹

¹The National Institutes for Quantum Science and Technology (QST), Institute for Quantum Life Science (iQLS)

3S-03 **Cancer cell damaging effect and reactive oxygen scavenging activity of a planar catechin analog**

Hiromu Ito¹, Yoshimi Shoji¹, Megumi Ueno², Ken-ichiro Matsumoto², Kiyoshi Fukuhara^{1,3}, Ikuo Nakanishi¹

¹Inst. for Quant. Life Sci., Nat. Inst. for Quant. Sci. Technol.; ² Inst. for Radiol. Sci., Nat. Inst. for Quant. Sci. Technol.; ³ Showa Univ. Sch. of Pharm.

3S-04 **Imaging brain metabolic alterations in immune-fatigue model mice using hyperpolarized ¹³C spin**

○Shingo Matsumoto¹, Hayate Tomiyama², Masaki Yamasaki³, Hiroshi Hirata¹

¹Facul. of Info. Sci. and Tech., Hokkaido Univ.; ²Grad. Sch. of Info. Sci. and Tech., Hokkaido Univ.;

³Dept. of Info. Sci. and Tech., Hokkaido Univ.

Break (10:45 ~ 11:00)

3S-05 **Thinking about Fat “Rust” 【 Public Lecture 】** (Chair : Yutaka Fujii)

○Ken-ichi Yamada¹

¹Fac. of Pharm., Kyushu Univ

Lunch (12:00 ~ 13:00)

13:00 (Chair : Yusuke Miyake)

3A-01 The techniques to develop newly invented analytical instruments and functional devices in the field of ESR crystallography and ESR imaging, and their applications

○Tadashi Kobayashi¹, Fumio Takahara²

¹Fac. of Sci. & Tech., Oita Univ.; ²Nakadai Factory

3A-02 Q-band Pulsed-ESR Study for Trace Metals in Food of PlantsSatoha Numakura¹, Genki Isurugi¹, ○Ko Furukawa^{1,2}¹Grad. Sch. of Sci. Tech., Niigata Univ.; ²CCRF, Niigata Univ.**3A-03 Direct Observation of Initiation Processes of Radical Polymerizations by Time-resolved ESR**

Atsushi Kajiwara

Nara University of Education

3A-04 Studies on the excited multiplet states of iridium porphyrins linked to a nitroxide radical○Hirohisa Yanagikawa¹, Kei Murata¹, Kazuyuki Ishii¹¹IIS, The Univ. of Tokyo**3A-05 Exact Analyses of ESR Spectra of High-Spin Metallocomplexes**○Takeshi Yamane¹, Kenji Sugisaki^{1,2,3,4}, Kazunobu Sato¹, Kazuo Toyota¹, Daisuke Shiomi¹, Takeji Takui¹¹ Grad. Sch. of Sci., Osaka Metropolitan Univ.; ² Grad. Sch. of Sci. and Tech., Keio Univ.; ³ Quantum Computing Center, Keio Univ.; ⁴ JST PRESTO**3A-06 Spin-coherence phenomena of $S=1/2$ mono-copper(II)-substituted Keggin-type silicotungstate**○Toshiharu Ishizaki¹, Mizue Asada², Toshikazu Nakamura², Tomoji Ozeki¹¹ Coll. of Hum. and Sci., Nihon Univ.; ²Inst. for Mol. Sci.**3A-07 Electronic states and spin relaxations of trityl radical derivatives as studied by cw- and pulsed ESR spectroscopy**○Honoka Noro¹, Kevin L. Kopp², Olav Schiemann², Takeji Takui¹, Kazunobu Sato¹¹Grad. Sch. of Sci., Osaka Metropolitan Univ.; ²Inst. of Phys. and Theor. Chem., Univ. of Bonn

15:05 Closing remark by local organizing committee

Nov. 4 (Mon) Room B

9:00 (Chair : Takayuki Asano)

3B-01 Possible ESR Direct Observation of the Spin Gap at the Magnetization Plateau of the Distorted Diamond Spin Chain

Toru Sakai

Univ. of Hyogo

3B-02 Multi-Frequency High-Field ESR Measurements of CsFeCl₃ II○Susumu Okubo^{1,2}, Ryo Hirata², Kazuma Segawa², Shigeo Hara³, Takahiro Sakurai³, Hitoshi Ohta¹, Masashige Matsumoto⁴, Nobuyuki Kukurita⁵, Hidekazu Tanaka⁵

¹MPRC, Kobe Univ.; ²CSREA Kobe Univ.; ³Grad. Sch. of Sci., Kobe Univ.; ⁴Dept. Phys., Shizuoka Univ.;
⁵Dept. Phys. Tokyo Inst. of Tech.

3B-03 The reveal of Spin-dependent processes in P3HT using EDMR

Kunito Fukuda¹, Naoki Asakawa¹

¹Grad. Sch. Sci. Tech., Gunma Univ.

3B-04 Magnetization equilibration model for organic radical liquid crystals in a magnetic field

○Yoshiaki Uchida, Ryohei Kishi

Grad. Sch. of Eng. Sci., Osaka Univ.

3B-05 The Trial of NV-based Quantum Sensor in Shore to Brackish water area ~The Blue Ocean Strategy for Coastal Resource Development~

Yu Saito, Eisuke Oba, Eikichi Kimura, Shunpei Ohyama, Toyonobu Nakagawa, and Keigo Arai

Grad. Sch. of Eng., Tokyo Tech

Break (10:40 ~ 10:50)

10:50 (Chair : Ikuko Akimoto)

3B-06 Development of a Low-Power OMRI Method for suppressing biological heating

○Ayano Enomoto¹, Kazuhiro Ichikawa¹

¹Fac. of Pharm. Sci., Nagasaki Int'l Univ.

3B-07 Design of modified diabolo antennas for terahertz-band ESR spectroscopy

Eiji Ohmichi¹, ○Yuma Igo¹, Ryoto Takigawa¹, Hitoshi Ohta²

¹ Grad Sch. of Sci., Kobe Univ.; ²Mol. Photosci. Res. Center, Kobe Univ.

3B-08 Development of High-Precision Tumor Oxygen Imaging Using EPR spectroscopy -Improvement of spectral separation and measurement precision enhancement-

○Yohei Kudo¹, Shingo Matsumoto², Hiroshi Hirata²

¹Grad. Sch. of Info. Sci. and Tech. Hokkaido Univ.; ²Facul. of Info. Sci. and Tech., Hokkaido Univ.

3B-09 Boost of spin mixing with arbitrary waveforms in low magnetic fields

Akihiro Tateno

Grad. Sch. of Sci.&Tech., Saitama Univ.

3B-10 Development of a new double pulse forming system for pulsed-ESR using a gyrotron

○Masato Takahashi¹, Yamato Katayama¹, Naoto Nakane², Yuya Ishikawa¹, Yutaka Fujii¹, Takayuki Asano², Seitaro Mitsudo²

¹FIR-Center, Univ. of Fukui; ²Sch. Eng. Univ. of Fukui

Lunch (12:00 ~ 13:00)

13:00 (Chair : Hideto Matsuoka)

3B-11 Magnetic field effects on radical pairs due to the Δg mechanism under the influence of the charge transfer interaction

○Tomoaki Yago

Grad. Sch. of Sci. Engr., Saitama Univ.

3B-12 CW-ESR and Pulse-ESR of barium titanate

○Kouichi Nakashima¹, Tomoya Kobayashi¹, Kazunobu Sato²

¹Ibaraki University; ²Osaka Metropolitan University

3B-13 ESR study on PDINO cathode buffer layers in Sn-based perovskite solar cells

○Yizhou Chen¹, Seira Yamaguchi^{1,2}, Kaito Inoue¹, Atsushi Sato¹, Kazuhiro Marumoto^{1,2,3}

¹Dep. Mater. Sci., Univ. Tsukuba; ²OIQSST, Univ. Tsukuba; ³TREMS, Univ. Tsukuba

3B-14 Analysis of charge states in non-fullerene organic solar cells by ESR spectroscopy

○Atsushi Sato¹, Seira Yamaguchi^{1,2}, Kaito Inoue¹, Masahiko Saito³, Itaru Osaka³, Kazuhiro Marumoto^{1,2,4}

¹Dep. Mater. Sci., Univ. of Tsukuba; ²OIQSST, Univ. of Tsukuba; ³SUP>3Hiroshima Univ.; ⁴TREMS, Univ. of Tsukuba.

3B-15 Light-Induced ESR Study on Interfacial Charge Behavior in PEAI-Interface-Modified Perovskite Solar Cells

○Liqi Liu¹, Seira Yamaguchi^{1,2}, Yizhou Chen¹, Atsushi Sato¹, Kazuhiro Marumoto^{1,2,3}

¹Dep. of Mater. Sci., Univ. of Tsukuba; ²OIQSST, Univ. of Tsukuba; ³TREMS, Univ. of Tsukuba

3B-16 ESR Study on Transistors Using Perovskite and Conjugated Polymer Stacks

○Taiki Sakaguchi¹, Seira Yamaguchi^{1,2}, Sayo Okabe¹, Jiayi Wang¹, Yukihiro Shimoi¹, Kazuhiro Marumoto^{1,2,3}

¹Dep. of Mater. Sci., Univ. of Tsukuba; ²OIQSST, Univ. of Tsukuba; ³TREMS, Univ. of Tsukuba

3B-17 Enhancement of heat-controlled magnetic anisotropy effect by Pt capping structure with high interfacial thermal resistance

○Minori Goto^{1,2,3}, Yuki Hibino⁴, Kay Yakushiji⁴, Yoshishige Suzuki⁴, Hitoshi Kubota⁴

¹Fac. of., Univ. of Fukui; ²Grad. Sch. of Eng. Sci., Univ. of Osaka; ³CSRN-Osaka; ⁴AIST

(Closing in Room A)