ISS2017 Program Book

30th INTERNATIONAL SYMPOSIUM ON SUPERCONDUCTIVITY

December 13–15, 2017
Iino Hall & Conference Center, Tokyo, Japan

AIST
NATIONAL INSTITUTE OF
ADVANCED INDUSTRIAL SCIENCE
AND TECHNOLOGY (AIST)

CONTENTS

Greetings

It is my great pleasure to announce that the commemorative 30th International Symposium on Superconductivity (ISS2017) will be held this year, organized by the National Institute of Advanced Industrial Science and Technology (AIST). The ISS has been held annually since the first Symposium, which was held in 1988 after the discovery of copper-oxide-based high-temperature superconductors.

At present, superconducting technologies are already used in a variety of fields. The most popular application is MRI (Magnetic Resonance Imaging) devices that are installed in almost all major hospitals. Superconducting magnets for generating high magnetic fields are also used in NMR (Nuclear Magnetic Resonance) machines and maglev trains. SQUID (Superconducting QUantum Interference Device) systems that can measure ultra-low magnetic fields are applied to medical devices (magnetoencephaloraphy and magnetocardiography) and to exploration of underground natural resources. The discovery of oxide-based high-temperature superconductors (HTS) and metal-based MgB_2 superconductors has widely expanded the possibility of applications. To answer the urgent societal need for energy saving, HTS power transmission cables are to be introduced in railway feeder cables. Demonstration of a low-cost, light-weight superconducting wind turbine generator is scheduled to be done in several years.

Last year AIST inaugurated a research consortium on superconductivity: the Applied Superconductivity Constellations of Tsukuba (ASCOT). ASCOT, composed of 21 private organizations and 8 national universities/institutes (including AIST), aims to develop superconducting technologies into practical products and systems used in our society, and to foster young researchers who may contribute to the future of this technology. In this context, ASCOT greatly supports ISS2017.

I sincerely hope that this commemorative symposium will gather many scientists, engineers, academic students, corporate executives and other participants from all over the world, and will facilitate fruitful discussions to promote superconductivity technologies.

April 20, 2017

Toshihiko Kanayama
General Chair, ISS2017

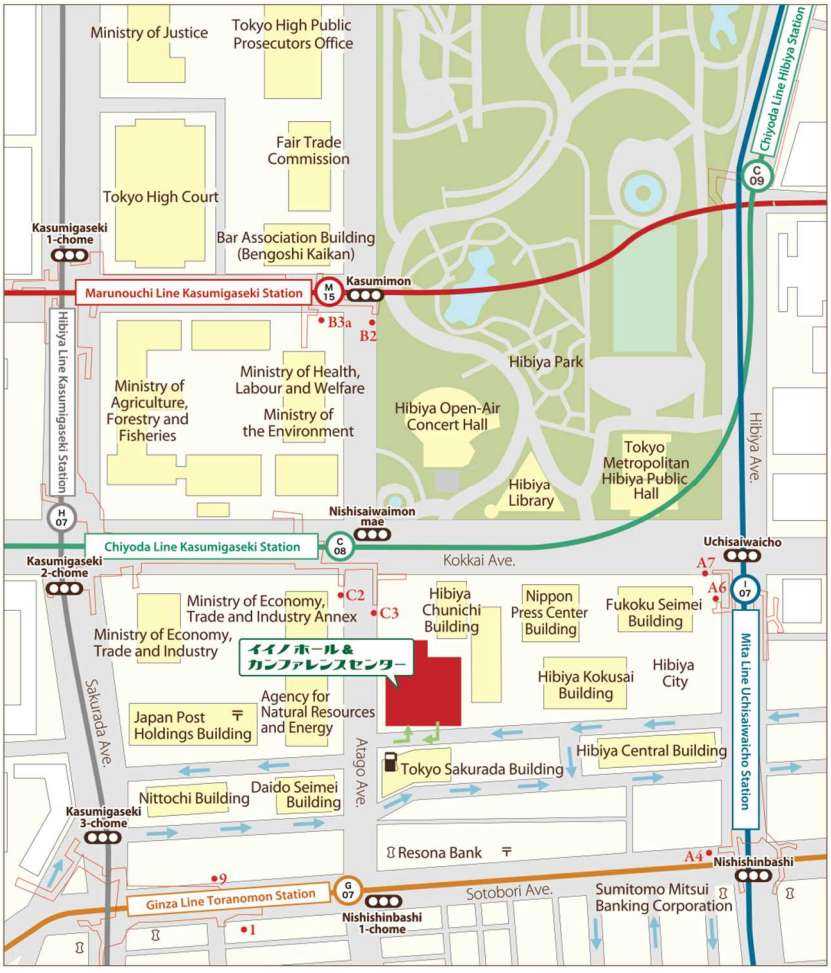
General Information

■ Period

December 13–15, 2017

■ Venue

Iino Hall & Conference Center, Chiyoda-ku, Tokyo, Japan
Iino Hall, Conference Center Rooms A, B, C, D and E
located at the 4th floor of the Iino Building
Phone: 03-3506-3251
Web: http://www.iino.co.jp/kaiun/english/estate/iinohall.html



■ Official language

English

■ On-site registration

Wednesday, Dec. 13,	8:45–11:00	Hall Lobby
	11:30–18:30	Foyer A
Thursday, Dec. 14,	8:45– 9:30	Hall Lobby
	10:00–17:00	Foyer A
Friday, Dec. 15,	8:45– 9:30	Hall Lobby
	10:00–13:30	Foyer A

■ Get together for ISS 30th anniversary –celebrating 30th year of ISS with free drinks

Iino Conference Center Room A3
Wednesday, December 13, 18:30–19:10

■ Banquet

Iino Conference Center Room A1+A2, ¥5,000 per person
Wednesday, December 13, 19:10–20:30

■ Web site

http://iss2017.tokyo/

■ Internet service

Free Wi-Fi available, ID: iino-hall, Password: iinohall10

■ Name card

On the resistration desk, you will obtain your name card. You are requested to **wear your name card** in the symposium sites all the time.

■ Scope

The 30th International Symposium on Superconductivity (ISS2017) will consist of oral and poster sessions, covering the latest findings and related topics in the following research fields of superconductivity science and technology.

(a) **Physics and Chemistry (PC)**
Novel Materials, Materials chemistry, Fundamental physical properties (bulk, single crystal and thin film), Vortex physics, Theory

(b) **Wires and Bulk (WB)**
Materials and processing, critical currents, mechanical properties, AC Loss and electro-magnetic stability for wires, tapes and bulk superconductors, including artificial pinning centers, multi-filamentary approach and superconducting joints

(c) **Electronic Devices (ED)**
Digital and mixed-signal circuits, Detectors and readout, SQUIDs, High-frequency devices, Quantum information technology, Novel devices, Materials and fabrication, System applications

(d) **Large Scale System Applications (AP)**
Magnets (for high energy physics, medical systems etc.), Electric power devices (cable, current limiter, transformer, SMES, others), Rotating machines, Magnetic levitation and propulsion, Medical systems etc. using HTS and LTS materials

Information for presentation

■ Instruction for oral presentation

The official language of the symposium is **English**. Only papers presented by authors are considered for publication in the proceedings. **An LCD projector** will be available in each session room. You can use **your own computer with mini Dsub-15 I/O pins**, or **the computer prepared by the secretariat**. Requirements for author's own computers and installed software on the computer prepared by the secretariat are as follows.

Requirements for your own PC

I/O connector	RGB mini D-sub 15 pins
Display resolution	XGA (1024x768)*
Electric power supply	AC 100V (50Hz) Flat-pin, two-prong plugs

*Other resolutions such as WXGA (1280x800) may be used for the projector, but the presenter must confirm normal operations beforehand.

Installed software on the secretariat's computer

OS	Windows 10 Pro (English, 64 bit)
Application software	MS Power Point 2013 Adobe Acrobat Reader

If you plan to use the secretariat's computer, you are strongly recommended to install your data in the secretariat's computer before starting the session or during the coffee break. Please contact a staff member at a session room or the ISS2017 headquarter if you have any questions.

Presentation times for various presentations are described as follows.

Presentation times

Plenary lectures	40 min	Including 5 min discussion
Invited talks (30 years, PC)	30 min	
Invited talks (WB, ED, AP)	25 min	
Invited talks (LN), Contributed presentations (ED, AP)	20 min	
Contributed presentations (PC, WB)	15 min	Including 3 min discussion

■ Instructions for Poster Presentation

Only papers presented by authors are considered for publication in the proceedings. The attendance should be confirmed by chairpersons of the poster session.

The available space is 90 cm wide and 210 cm high. Please mount your material on the panel that your presentation ID is posted on. All the material should be described in English. Captions are required for all figures, photographs and tables. Thumbtacks will be available from the symposium secretariat.

Schedule for poster presentations

	December 13	December 15
Mounting	15:00–16:00	12:40–13:45
Poster session	16:00–18:00	13:45–15:45
Removing	18:00–18:10	15:45–15:55

■ Withdrawal

If you want to withdraw your presentation for some reasons, please inform the ISS2017 secretariat in advance.

Organization

■ General chair

Dr. Toshihiko Kanayama
Fellow, National Institute of Advanced Industrial Science and Technology (AIST)

■ Local organizing committee

Secretary-General:
Michiya Okada, TIA Central Office, AIST

Members:
Haruhiko Obara, Fumio Takemura, Teruhisa Horita, Mitsuho Furuse (Department of Energy and Environment, AIST)

Satoshi Haraichi, Masataka Ohkubo, Mutsuo Hidaka, Yoshiyuki Yoshida, Shigeyuki Ishida, (Advisor) Akira Iyo (Department of Electronics and Manufacturing, AIST)

Susumu Ogawa, Hirofumi Yamasaki, Haruko Okazaki (TIA Central Office, AIST)

■ Supported by

Applied Superconductivity Constellations of Tsukuba (ASCOT)

TIA—a platform for open innovation

Ministry of Economy, Trade and Industry (METI)

Ministry of Education, Culture, Sports, Science and Technology (MEXT)

New Energy and Industrial Technology Development Organization (NEDO)

Japan Science and Technology Agency (JST)

Cryogenics and Superconductivity Society of Japan (CSSJ)

The Japan Society of Applied Physics (JSAP)

The Institute of Electrical Engineers of Japan (IEEJ)

■ ASCOT members (as of October 28, 2017)

Applied Superconductivity Constellations of Tsukuba (ASCOT)

—founded by the National Institute of Advanced Industrial Science and Technology (AIST) in May 2016

Private Companies:

Hitachi, Ltd.
Mitsubishi Electric Corporation
JEOL Ltd.;
Tokyo Electric Power Company Holdings, Inc.
Tohoku Electric Power Co., Inc.
Chubu Electric Power Co., Inc.
The Kansai Electric Power Co., Inc.
The Chugoku Electric Power Co., Inc.
Kyushu Electric Power Co., Inc.
Fujikura Ltd.
Sumitomo Electric Industries, Ltd.
Furukawa Electric Co., Ltd.
SWCC Showa Cable Systems Co., Ltd.
Taiyo Nippon Sanso Corporation
MAYEKAWA MFG. Co., Ltd.
Sumitomo Heavy Industries, Ltd.
Suzuki Shokan Co., Ltd.
JECC TORISHA Co., Ltd.
Fujihira Co., Ltd.
Central Research Institute of Electric Power Industry
IMRA Material R&D Co., Ltd.

Academic Members:

The University of Tokyo
Kyoto University
Kyushu University
University of Tsukuba
National Institute for Materials Science (NIMS)

Committees

■ International advisary committee

PC: Physics and Chemistry

Hideo Aoki (The Univ. of Tokyo)
Wai-Kwong Kwok (Argonne National Laboratory)
Satoshi Okuma (Tokyo Inst. of Technology)
Setsuko Tajima (Osaka Univ.)
Hai-Hu Wen (Nanjing Univ.)

WB: Wires and Bulk

David Cardwell (Univ. of Cambridge)
Leonardo Civale (Los Alamos National Laboratory)
Michael Eisterer (Vienna Univ. of Technology)
Timothy J. Haugan (Air Force Research Laboratory)
Bernhard Holzapfel (Karlsruhe Inst. of Technology)
Teruo Izumi (AIST)
Hiroaki Kumakura (National Inst. for Materials Science)
David Larbalestier (Florida State Univ.)
Qiang Li (Brookhaven National Laboratory)
Xavier Obradors (Inst. Ciencia de Materials de Barcelona)
Venkat Selvamanickam (Univ. of Houston)
Michael Sumption (Ohio State Univ.)
Yutaka Yoshida (Nagoya Univ.)

ED: Electronic Devices

Pascal Febvre (Univ. of Savoie Mont Blanc)
Mutsuo Hidaka (AIST)
Masataka Ohkubo (AIST)
Horst Rogalla (Univ. of Colorado at Boulder)
Keiichi Tanabe (SUSTERA)
Zhen Wang (SC2 & SIMIT, Chinese Academy of Sciences)

AP: Large Scale System Applications

Bob Buckley (Victoria Univ. of Wellington)
Toru Fukushima (SuperPower Inc.)
Mathias Noe (Karlsruhe Inst. of Technology)
Hiroyuki Ohsaki (The Univ. of Tokyo)
Minwon Park (Changwon National Univ.)
Christopher M. Rey (Energy-to-Power Solutions)
Pascal Tixador (Grenoble-INP)
Liye Xiao (Chinese Academy of Sciences)

■ Program Committee

(PC) Co-Chair: Atsutaka Maeda (The Univ. of Tokyo)
Sub-Chair: Hiraku Ogino (AIST)

Ryotaro Arita (RIKEN)
Takekazu Ishida (Osaka Prefecture Univ.)
Minoru Nohara (Okayama Univ.)
Tsutomu Nojima (Tohoku Univ.)
Takao Sasagawa (Tokyo Inst. of Technology)
Takasada Shibauchi (The Univ. of Tokyo)
(Advisor) Hiroshi Eisaki (AIST)
(Advisor) Akira Iyo (AIST)

(WB) Co-Chair: Yoshiyuki Yoshida (AIST)
Sub-Chair: Yasuhiro Iijima (Fujikura Ltd.)

Satoshi Awaji (Tohoku Univ.)
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Akiyoshi Matsumoto (National Inst. for Materials Science)
Kaname Matsumoto (Kyushu Inst. of Technology)
Jun-ichi Shimoyama (Aoyama Gakuin Univ.)
Hideki Tanaka (Hitachi Ltd.)

(ED) Co-Chair: Mutsuo Hidaka (AIST)
Sub-Chair: Tsunehiro Hato (Superconducting Sensing Technology Research Association)

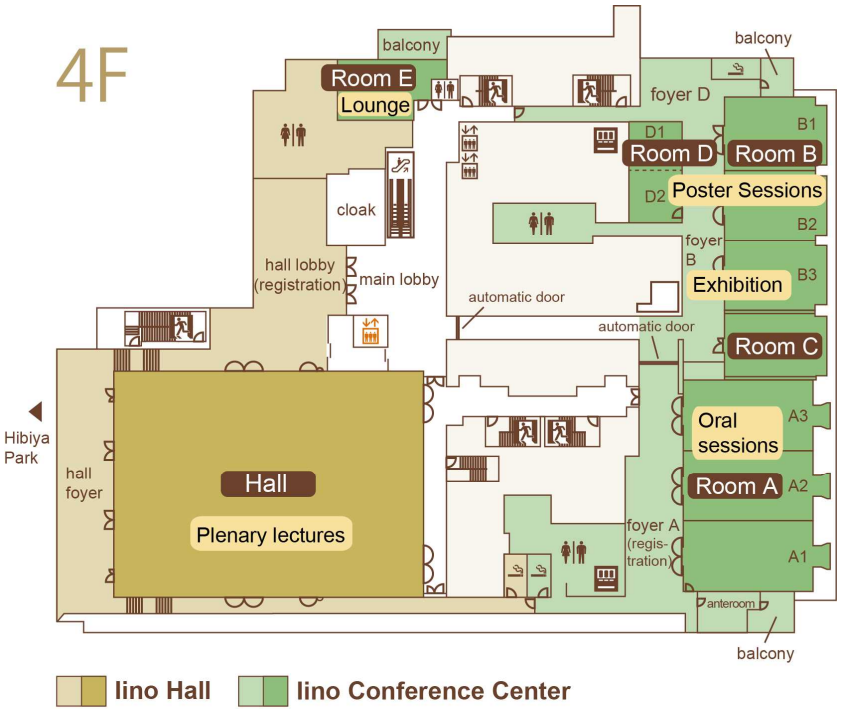
Yoshimi Hatsukade (Kinki Univ.)
Masashi Ohno (The Univ. of Tokyo)
Shigeo Sato (Tohoku Univ.)
Naoto Sekiya (Yamanashi Univ.)
Masamitsu Tanaka (Nagoya Univ.)
Hirotake Yamamori (AIST)
(Advisor) Masataka Ohkubo (AIST)

(AP) Co-Chair: Naoyuki Amemiya (Kyoto Univ.)
Sub-Chair: Tsuyoshi Wakuda (Hitachi Ltd.)

Kazuhiro Kajikawa (Kyushu Univ.)
Shinji Matsumoto (National Inst. for Materials Science)
Shin-ichi Mukoyama (Furukawa Electric Co., Ltd.)
Naoko Nakamura (MAYEKAWA MFG. Co., Ltd.)
Taketsune Nakamura (Kyoto Univ.)
Tetsuo Oka (Niigata Univ.)
Tomonori Watanabe (Chubu Electric Power Co., Inc.)
Shoichi Yokoyama (Mitsubishi Electric Corporation)
(Advisor) Mitsuho Furuse (AIST)

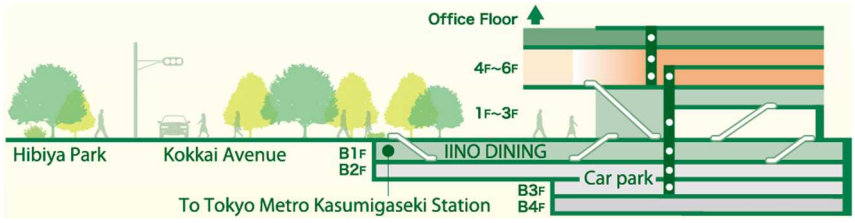
Floor plan of the symposium site

The plenary lectures and some oral presentations (30 years) of ISS2017 are held in the **Iino Hall**. Other sessions (oral and poster) are held at rooms in **Iino Conference Center**. **Iino Hall and Conference Center** is located on **the 4th floor of the Iino Building**.



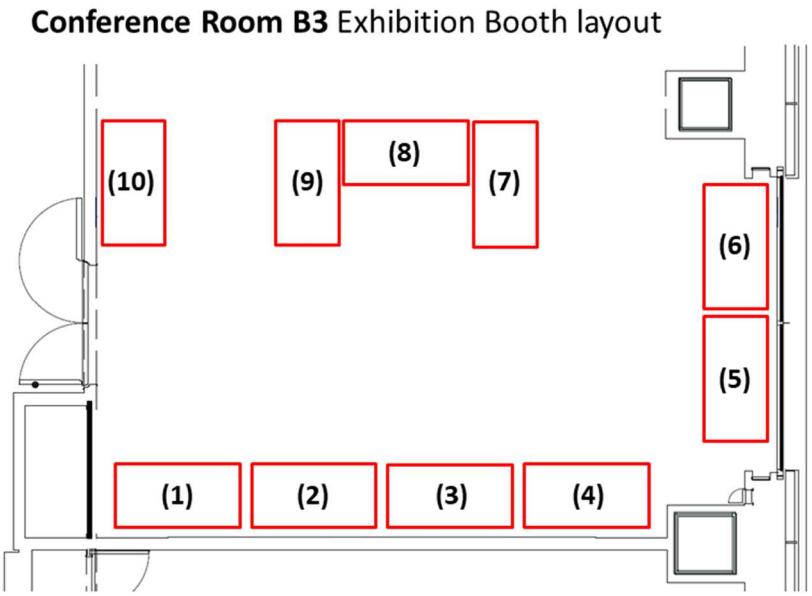
■ How to go to the Iino Hall and Conference Center

You can use an exclusive-use escalator that goes directly from the 1st floor to the 4th floor. You may also use an elevator that goes directly from the Iino Dining area (B1 floor) to the 4th floor.



Exhibitors

Layout plan of the Exhibition



Booth assignment

(1) Fujikura Ltd.
(2) Advanced Conductor Technologies LLC
(3) Furukawa Electric Co., Ltd.
(4) Superconducting Sensing Technology Research Association
(5) SuperOX Japan LLC
(6) Shanghai Superconductor Technology Co., Ltd.
(7) CAN SUPERCONDUCTORS
(8) Western Superconducting Technologies Co., Ltd.
(9) TOSHIMA Manufacturing. Co., Ltd.
(10) Quantum Design Japan, Inc.

Exhibitors

Booth 1　Fujikura Ltd.

1-5-1, Kiba, Koto-ku, Tokyo 135-8512, Japan.

http://www.fujikura.co.jp/eng/

Fujikura Ltd., has been the global leader of developing rare-earth-based 2nd Generation High-Temperature Superconducting wires over 20 years. We sustain this title by producing best performancewire with higher critical current, longerpiece length and higheruniformity for longitudinal critical current distribution. Prospective applications of our superconducting wires are now widely spread from electrical/industrial equipment to medical and measuring instruments. Our Superconducting wires are committed to not only be improving quality of human life but also have great potential for industrial innovation and saving natural resources.

Booth 3　Furukawa Electric Co., Ltd.

Furukawa / Superpower

Furukawa Electric, incorporating Superpower Inc., is a global corporation enabling the energy, industrial, automotive and communications markets. Presenting at ISS2017 high performance 2nd Generation HTS tapes (excelling in in-field application) and innovative, application specific NbTi and Nb_3Sn wires, designed and produced to highest quality

http://www.furukawa.co.jp/en/
2-3,Marunouchi 2-chome, Chiyodaku, Tokyo 100-8322, Japan.

http://www.superpower-inc.com
450 Duane Avenue, Schenectady, NY 12304 USA.

Booth 2　Advanced Conductor Technologies LLC

3082 Sterling Circle, Unit B
Boulder, CO 80301, USA.
info@advancedconductor.com
+1-720-408-0105
www.advancedconductor.com

Advanced Conductor Technologies' CORC® technology opens the door to new markets that require flexible, high-current density power transmission cables and wires.
High-temperature superconducting CORC® cables and wires also enable practical high-field magnets that operate at magnetic fields above 20 Tesla, or at temperatures exceeding 20 Kelvin.

Exhibitors

Booth 4　Superconducting Sensing Technology Research Association (SUSTERA)

2-11-19 Minowa-cho, Kohoku-ku, Yokohama, Kanagawa, Japan.

http://www.sustera.or.jp/index-e.html

SUSTERA established in February 2016 is a non-profit organization which aims at development of various systems using HTS-SQUIDs and their industrialization with member companies (Fujitsu Ltd., The Chugoku Electric Power Co., Inc., and Mitsui Mining & Smelting Co., Ltd.). SUSTERA also supplies some products such as HTS-SQUID chips.

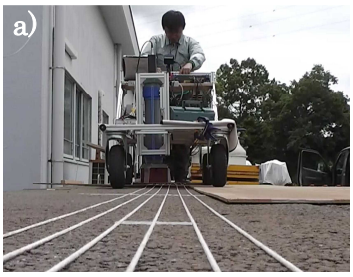
<Development>

・Road inspection system for steel deck plate (JST-SIP project) a)

・SQUID magnetometer system for use in a deep well (JOGMEC EOR monitoring project) b)

・TEM systems for exploration of natural resources (JOGMEC)

・Magnetic immunoassays system (JST project)

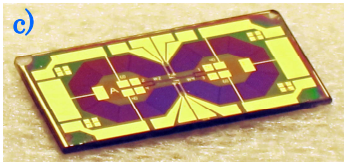


<Products>

・HTS-SQUID chips (gradiometer, magnetometer) c)

・Compact cryostat for HTS-SQUIDs d)

・Temperature control system



Booth 5　SuperOx Japan LLC

http://www.superox.co.jp

Parameter	Value		
Production length	up to 750 m		
Substrate thickness	60 or 100 µm		
Ag layer thickness	1 to 10 µm		
Copper layer thickness	0 to 100 µm		
Tensile strength (95% of Ic retained)	>500 MPa / 0.55% deformation		
Critical bend diameter	22 mm		
Tape width	4 mm	6 mm	12 mm
Critical current at 77 K, s.f.	100 to 150 A	100-200 A	300 to 500 A
Current uniformity	± 10 %	± 10 %	± 10 %

SuperOx Japan LLC is producing and selling conventional 2G high-Tc (HTS) superconducting wires and developing new advanced HTS tapes including narrow, stacked, various laminated tapes and Roebel cable.

As a part of the SuperOx group, SuperOx Japan actively participates in the joint R&D and commercial projects such as 220kV SFCL construction and installation in Moscow grid.

The essential information about our product and company activities will be exibited in the poster and in multimedia presentation. The line of our commercial products and samples on the stage of development will be displayed in our booth.

Sagamihara Incubation Center (SIC-3), 1880-2 Kamimizo, Chuo-ku, Sagamihara, Kanagawa 252-0243, Japan. Tel.+81-42-707-7077

Booth 6 Shanghai Superconductor Technology Co. Ltd

www.shsctec.com

Shanghai Superconductor Technology Co., Ltd (SSTC) employs physical vapour deposition and manufactures custom, cost effective 2G-HTS wires with superior mechanical properties and world leading critical current densities especially at high magnetic field and low temperature. The company also provides peripheral products and services including coil winding (machines) and vacuum deposition systems.

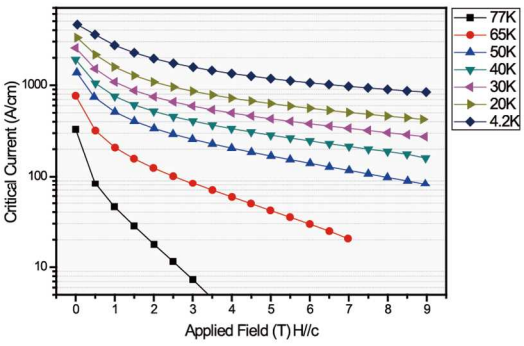
上海超导
SHANGHAI SUPERCONDUCTOR

Wire Specifications

Customizable Parameters	Typical Values
Substrate(Hastelloy™)	50 μm / 100 μm
Width	1-10 mm
Piece Length	1-300 m
Critical Current (77 K, s.f.)	250-350 A/cm-w
Critical Current (4.2 K, 12 T)	600-800 A/cm-w
Copper Stabilizer	2-25 μm per side
Lamination Material	Copper/Stainless Steel
Lamination Thickness	75-150 μm per side
Joint Resistance	25 nΩ·cm²
Critical Tensile Stress	400-600 MPa
Others	Tailored to specific requirements

Superior In-field Performance

PPMS data of commercialized wires



Courtesy of Institute of Plasma Physics, CAS

Amos HONG
+86 1364 2357 543
yiming.hong@shsctec.com
Bldg. 25, 1388 Zhangdong Road, Pudong, Shanghai, P. R. China

Booth 7 CAN SUPERCONDUCTORS

Ringhofferova 66, 251 01 Kamenice, CZECH REPUBLIC.

www.can-superconductors.com

can superconductors

High Temperature Superconductors for Practical Applications

European supplier of HTS materials and products since 1997.

- YBCO single and multi-domain melt textured bulk parts for applications using the effect of magnetic levitation
- REBCO powders
- REBCO targets
- Bi-2223 current leads
- Bi-2223 magnetic shields
- Superconductivity demonstration kits.

Booth 8 Western Superconducting Technologies Co., Ltd

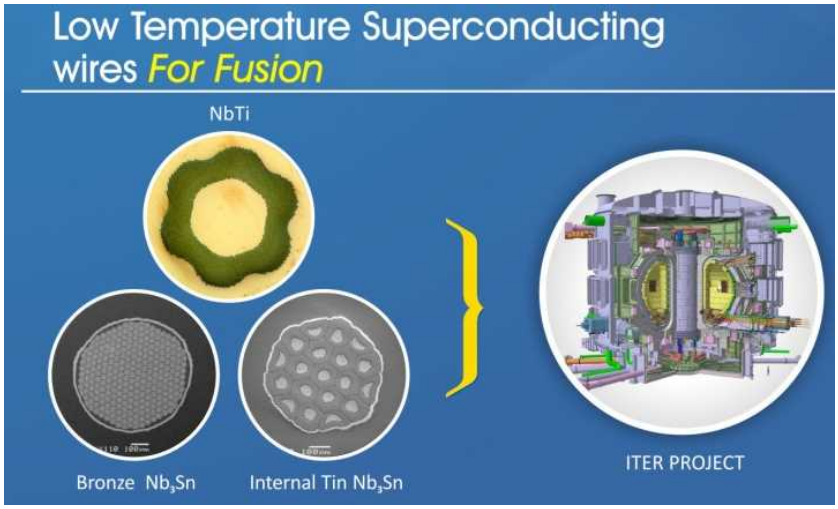
No.12, Mingguang Road, 710018 Xi'an, Shaanxi, China.
TEL: 0086-29-89616812, FAX: 0086-29-89616821
Email: wires@c-west.com

www.c-wst.com

Western Superconducting Technologies Co.,Ltd.

Western Superconducting Technologies Co., Ltd.(WST), founded in 2003, is headquartered in Xi'an, Shaanxi, the PRC. WST is leading provider of high quality superconducting matericals and titanium alloys for superconducting magnets and aviation industry in China, and continues to contribute worldwide socitey by supplying high quality products.

WST has already built an internationally advanced level production line of superconducting wires with annual production capacity of 350 ton superconducting wire and 400 ton WIC superconducting conductor.



Booth 9　TOSHIMA Manufacturing. Co.,Ltd

1414 Shimonomoto, Higashimatsuyama, Saitama 355-0036, Japan.
http://www.material-sys.com/global/

Creating Impressive Technology

TOSHIMA Manufacturing

We will display a great and variety of PLD and Sputtering target materials for HTS.

Booth 10　Quantum Design Japan, Inc.

1-11-16 Takamatsu, Toshima-ku, Tokyo 171-0742, Japan.

https://www.qd-japan.com/

QuantumDesignJapan

[Quantum Design, Inc.]
Magnetic Property Measurement System / Physical Property Measurement System / Laboratory SQUIDs / IR Image Furnace

[Montana Instruments Corporation]
Ultra Low Vibration Optical Cryostat

[RHK Technology, Inc.]
Cryogen-free LT STM&AFM / AFM&STM Control Systems

[Durham Magneto Optics Ltd]
Magnetooptical magnetometer and Kerr microscope / Direct-write photolithography

Scientific program

■ Plenary lectures

Giovanni Grasso (Columbus Superconductors)
Timothy Haugan (Air Force Research Laboratory)
Tomoo Mimura (TEPCO Holdings)
Donald Pooke (HTS-110)
Kosmas Prassides (Tohoku Univ.)
Horst Rogalla (NIST/Univ. of Boulder)

■ Invited speakers (PC)

Guang-Han Cao (Zhejiang Univ.)
Leonardo Civale (Los Alamos National Laboratory)
Riccardo Comin (MIT)
Donglai Feng (Fudan Univ.)
Swee Kuan Goh (The Chinese Univ. of Hong Kong)
Tetsuo Hanaguri (RIKEN)
Toshiya Ideue (The Univ. of Tokyo)
Shigeru Kasahara (Kyoto Univ.)
Kazutaka Kudo (Okayama Univ.)
Tatsuma Matsuda (Tokyo Metropolitan Univ.)
Yoshihiko Okamoto (Nagoya Univ.)
Shiro Sakai (RIKEN)
Toshiro Sakakibara (The Univ. of Tokyo)
Setsuko Tajima (Osaka Univ.)
Jian Wang (Beijing Univ.)
Ulrich Welp (Argonne National Laboratory)
Youichi Yanase (Kyoto Univ.)

■ Invited speakers (WB)

David Cardwell (Univ. of Cambridge)
Toru Fukushima (SuperPower)
Eric Hellstrom (Florida State Univ.)
Ruben Hühne (IFW Dresden)
Yasuhiro Iijima (Fujikura Ltd.)
Atsushi Ishihara (Railway Technical Research Inst.)
Teruo Izumi (AIST)
Takanobu Kiss (Kyushu Univ.)
Motomune Kodama (Hitachi)
Hiroaki Kumakura (National Inst. for Materials Science)
Yanwei Ma (Chinese Academy of Sciences)
Goran Majkic (Univ. of Houston)
Muralidhar Miryala (Shibaura Inst. of Technology)
Masashi Miura (Seikei Univ.)
Seung-Hyun Moon (SuNAM)
Mitsuru Morita (Nippon Steel & Sumitomo Metal)
Shin-ichi Mukoyama (Furukawa Electric Co)
Kotaro Ohki (Sumitomo Electric Ind.)
Tetsuo Oka (Niigata Univ.)

Tomoyuki Okada (Sumitomo Electric Ind.)
Teresa Puig (Institut Ciencia de Materials de Barcelona)
Sergey Samoilenkov (SuperOx)
Ken-ichi Sato (JST)
Kohki Takahashi (Tohoku Univ.)
Michael Tomsic (Hyper Tech)
Danko van der Laan (Advanced Conductor Technologies)
Yutaka Yoshida (Nagoya Univ.)
Yue Zhao (Shanghai Jiao Tong Univ. & Shanghai Superocond. Tech.)

■ Invited speakers (ED)

Boris Chesca (Loughborough Univ.)
Akira Fujimaki (Nagoya Univ.)
Francesco Giazotto (Istituto Nanoscienze-CNR & Scuola Normale Superiore)
Dorri Halbertal (Weizmann Inst. of Science)
Peter Hopkins (NIST)
Risto Ilmoniemi (Aalto Univ.)
Mark W. Johnson (D-Wave)
Hanpei Koike (AIST)
Daisuke Miyagi (Tohoku Univ.)
Shigetoshi Ohshima (yamagata Univ.)
Yutaka Tabuchi (RCAST, The Univ. of Tokyo)
Naoki Takeuchi (Yokohama National Univ.)
Hirotaka Terai (National Inst. of Information & Communications Technology)
Jaw-Shen Tsai (Tokyo Univ. of Science / RIKEN)
Joel Ullom (NIST)
Dag Winkler (Charmers Univ. of Technology)
Taro Yamashita (National Inst. of Information & Communications Technology)
Fumiki Yoshihara (National Inst. of Information & Communications Technology)
Lixing You (SIMIT, Chinese Academy of Sciences)

■ Invited speakers (AP)

Naoyuki Amemiya (Kyoto Univ.)
Tabea Arndt (Siemens)
Fedor Gömöry (Slovak Academy of Sciences)
Yukikazu Iwasa (MIT Francis Bitter Magnet Laboratory)
Mitsuru Izumi (Tokyo Univ. of Marine Science & Technology)
Zhenan Jiang (Victoria Univ. of Wellington)
Shoji Kamiya (Kawasaki Heavy Industries)
Tasuku Kitamura (SWCC Showa Cable Systems)
Joseph Minervini (MIT)
Yasuyuki Miyoshi (JASTEC)

Jin-Bae Na (LS Cable)
Ken Nagashima (Railway Technical Research Inst.)
Naoko Nakamura (Mayekawa Mfg.)
Taketsune Nakamura (Kyoto Univ.)
Tanzo Nitta (The Univ. of Tokyo (emeritus professor))
So Noguchi (Hokkaido Univ.)
Vladimir Penkin (Moscow Aviation Institute)
Lionel Quettier (CEA Saclay)
Bruce Strauss (Department of Energy, USA)
Pascal Tixador (Grenoble Inst. of Technology)
Frank Werfel (Adelwitz Technologiezentrum GmbH)
Yoshinori Yanagisawa (RIKEN)

■ Invited speakers (Late News)

Amit Goyal (The State Univ. of New York-Buffalo)
Jacques G. Noudem (Univ. of Caen)

Panel discussion and Domestic lunch meeting

Dec. 13 (Wed.) International panel discussion

Room C, 17:00–18:15

ISS in the future

Moderator: **Naoyuki Amemiya** (Kyoto University)

Panelists:
Horst Rogalla (University of Colorado at Boulder)
Eric Hellstrom (Florida State University)
Pascal Tixador (Grenoble Institute of Technology)
Hiroyuki Osaki (University of Tokyo)
Setsuko Tajima (Osaka University)
Toshihiko Kanayama (AIST)

This year, the ISS has the 30th anniversary. With all our great efforts, the HTS are still not able to contribute enough to our society. In view of this situation, we plan a panel discussion in the ISS2017, which will be a good chance to have honest opinions from stakeholders of this community. We would like to discuss under a title of "ISS in the future".

Dec. 13 (Wed.) 30th Anniversary celebration & Banquet

Room A3, 18:30–19:10

Get together for ISS 30th anniversary

We have a celebration for the 30th anniversary of ISS. Congratulatory addresses from government official, university professor, company executive, etc. will be delivered. Every participant can join. **Free drinks** are served.

Room A1+A2, 19:10–20:30

Banquet

Registration is needed to participate (¥5,000/person).

Dec. 14 (Thu.) Domestic lunch meeting

Room A3, 12:05–12:55

ISS in the future (in Japanese)

12 月 13 日のパネル討論を受けて、国内の超電導技術関係者に限定し、「今後の ISS 運営に関する意見交換」を、ランチミーティング形式で開催いたします。今後の ISS 開催頻度と開催場所、他の関連学会との関係、パブリケーションのありかた等、ISS の運営に関して忌憚のないご意見をいただければと思います。

プログラム委員、アドバイザー委員、座長、招待講演者の皆様のほか、国内参加者の皆様の積極的なご参加をお願いいたします。

（軽食を用意しますが、数に限りがあります。なくなった場合はご容赦下さい。）

Dec. 13 (Wed.) Plenary Lecture | Iino Hall

Opening address 9:25–9:30

Toshihiko Kanayama

Fellow, AIST

Chairperson: Hiroshi Eisaki (AIST)

PL1-INV 9:30–10:10

30 years of superconductivity in molecular solids

*Kosmas Prassides[1]

Tohoku University, Japan[1]

Chairperson: Hiroaki Kumakura (NIMS)

PL2-INV 10:10–10:50

Status Of Long Length MgB_2 Wire Manufacturing After a Decade Of Industrial Production

*Giovanni Grasso[1]

Columbus Superconductors srl, Genova, ITALY[1]

Chairperson: Mitsuho Furuse (AIST)

PL3-INV 10:50–11:30

The near future power grid in TEPCO and superconducting applied technology

*Tomoo Mimura[1]

Tokyo Electric Power Company Holdings, Japan[1]

Lunch Break 11:30–12:30

Dec. 14 (Thu.) Plenary Lecture Hall

Chairperson: Yoshiyuki Yoshida (AIST)

PL4-INV 9:00–9:40

R&D of applied superconductivity by a small business: experiences and future perspective

*Donald M Pooke[1], Mike Fee[1], Taotao Huang[1], Vadim Chamritski[1], Matt Christian[1]

HTS-110[1]

AP special session and Lunch Break 10:00–13:00

Chairperson: Takanobu Kiss (Kyushu University)

PL5-INV 13:00–13:40

Recent Progress in the Development of Superconducting Wires in the U.S.A.

*Timothy J. Haugan[1]

U.S. Air Force Research Laboratory, Aerospace Systems Directorate, USA[1]

WB special session at the conference Room A2 14:00–16:30

Dec. 15 (Fri.) Plenary Lecture Hall

Chairperson: Masataka Ohkubo (AIST)

PL6-INV 9:00–9:40

30 Years of History and Future Perspectives of Superconducting Electronics

*Horst Rogalla[1,2]

University of Colorado, ECEE Department, Boulder, USA[1]
NIST Boulder, Superconductive Electronics Group, USA[2]

ED special session at the conference Room C 10:00–12:30

Dec. 13 (Wed.) Physics and Chemistry **Room A1**

30-year history of ISS / Vortex physics

Chairpersons: Atsutaka Maeda (The University of Tokyo) and Ulrich Welp (Argonne National Laboratory)

PC1-1-INV 12:30–13:00

High-Tc Research Over Thirty Years: Beyond The Common Knowledge of Superconductivity

*Setsuko Tajima[1]

Graduate School of Science, Osaka University[1]

PC1-2-INV 13:00–13:30

Scanning Tunneling Microscopy as a Tool for Superconductivity Research

*Tetsuo Hanaguri[1]

RIKEN Center for Emergent Matter Science, Japan[1]

PC1-3-INV 13:30–14:00

Angle-Resolved Heat Capacity of Unconventional Superconductors

*Toshiro Sakakibara[1]

Institute for Solid State Physics, University of Tokyo[1]

Coffee break 14:00–14:30

PC1-4-INV 14:30–15:00

What is the lowest possible vortex creep in superconductors, and how can we achieve it?

*Leonardo Civale[1]

Los Alamos National Laboratory, USA[1]

PC1-5 15:00–15:15

Detecting changes in the vortex configuration associated with dynamic ordering and disordering

*Mihaly Dobroka[1], Koichiro Ienaga[1], Shin'ichi Kaneko[1], Satoshi Okuma[1]

Tokyo Institute of Technology[1]

PC1-6 15:15–15:30

Molecular Dynamics Simulations on Melting Transition of Vortex Matter in Nano-Sized Superconductors

*Masaru Kato[1], Osamu Sato[2]

Department of Mathematical Sciences, Osaka Prefecture University, Japan[1]
Osaka Prefecture University College of Technology[2]

Dec. 13 (Wed.) Wires and Bulk **Room A2**

Recent development of commercial HTS wires

Chairpersons: Danko van der Laan (Advanced Conductor Technologies LLC) and Teruo Izumi (AIST)

WB1-1-INV 12:30–12:55

Development of BMO-doped REBCO Coated Conductor by Hot-Wall PLD Process on IBAD template

*Yasuhiro Iijima[1]

Fujikura Ltd.[1]

WB1-2-INV 12:55–13:20

Recent progress on the development of RE-123 CCs in SuNAM

*Seung Hyun Moon[1]

SuNAM Co. Ltd., Anseong-Si, Gyeonggi-do, Korea[1]

WB1-3-INV 13:20–13:45

Development and production of advanced 2G HTS wires at SuperOx

*Sergey Samoilenkov[1], Alexander Molodyk[2], Sergey Lee[3], Valery Petrykin[3]

SuperOx, Nauchnyi proezd, Moscow, Russia[1]
S-Innovations, Presnenskaya embankment, Moscow, Russia[2]
SuperOx Japan, Chuo-ku Sagamihara, Kanagawa, Japan[3]

WB1-4-INV 13:45–14:10

Production and Development of ReBCO (2G-HTS) Conductors

*Toru Fukushima[1], Drew W. Hazelton[1], Yifei Zhang[1], Aarthi Sundaram[1], Satoshi Yamano[1], Hiroshi Kuraseko[1], Hisaki Sakamoto[2], Kengo Nakao[2], Ryusuke Nakasaki[2], Masayasu Kasahara[2]

SuperPower Inc.[1]
Furukawa Electric Co., Ltd.[2]

Coffee break 14:10–14:30

Recent development of commercial HTS wires 2

Chairpersons: S. H. Moon (SuNAM) and Yasuhiro Iijima (Fujikura)

WB2-1 14:30–14:45

Structural, mechanical and electrical characterization of long length *RE*BCO tapes for FCL applications

*Sandra Kauffmann-Weiss[1], Mayraluna Lao[1], Simon Otten[1], Veit Große[2], Markus Bauer[2], Bernhard Holzapfel[1], Jens Hänisch[1]

Institute for Technical Physics, Karlsruhe Institute of Technology, Karlsruhe, Germany[1]
THEVA Dünnschichttechnik GmbH, Ismaning, Germany[2]

WB2-2-INV 14:45–15:10

Recent Progress on CORC® Cables and Wires

*Danko van der Laan[1], Jeremy Weiss[1], Ulf Trociewitz[2], Ernesto Bosque[2], David Larbalestier[2], Xiaorong Wang[3], Chul Kim[5], Sastry Pamidi[5], Tim Mulder[6], Herman ten Kate[6]

Advanced Conductor Technologies LLC, Boulder, U.S.A and the Department of Physics, University of Colorado, Boulder, U.S.A[1]
National High Magnetic Field Laboratory, Florida State University, Tallahassee, U.S.A[2]
Lawrence Berkeley National Laboratory, Berkeley, U.S.A.[3]
Center for Advanced Power Systems, Florida State University, Tallahassee, U.S.A.[5]
CERN, Geneva, Switzerland and the University of Twente, Enschede, the Netherlands[6]

WB2-3 15:10–15:25

Numerical modelling of dynamic resistance in high-temperature superconducting coated-conductor wires

*Mark D Ainslie[1], Chris W Bumby[2], Zhenan Jiang[2], Ryuki Toyomoto[3], Naoyuki Amemiya[3]

Bulk Superconductivity Group, Department of Engineering, University of Cambridge[1]
Robinson Research Institute, Victoria University of Wellington[2]
Department of Electrical Engineering, Graduate School of Engineering, Kyoto University[3]

WB2-4-INV 15:25–15:50

Progress and Status of 2G-HTS Wire Development in China

*Yue Zhao[1,2], Xiang Wu[1], Jiamin Zhu[1], Zhiwei Zhang[1,2], Wei Wu[1,2] , Zhiyong Hong[1,2], Yijie Li[12], Zhijian Jin[2], Yutaka Yamada[2]

Shanghai Superconductor Technology Co. Ltd., Shanghai, People's Republic of China[1]
Department of Electrical Engineering, Shanghai JiaoTong University, Shanghai, People's Republic of China[2]

WB2-5-INV 15:50–16:15

Recent progress on the development of Bi2223 in SEI

*Tomoyuki Okada[1], Shin-ichi Kobayashi, Goro Osabe[1], Masashi Kikuchi[1], Satoru Yamade[1], Takayoshi Nakashima[1], Soichiro Takeda[1], Kenta Niki[1], Kazuhiko Hayashi[1], Takeshi Kato[1]

Sumitomo Electric Industries, Ltd., Japan[1]

Dec. 13 (Wed.) Electronic Devices **Room C**

SQUID

Chairpersons: Risto Ilmoniemi (Aalto University) and Tsunehiro Hato (SUSTERA)

ED1-1-INV 12:50–13:15

Multichannel on-scalp MEG based on high-Tc SQUID magnetometers

*Dag Winkler[1], Justin F Schneiderman[2], Alexei Kalabukhov[1], Maxim Chukharkin[1], Minshu Xie[1], Silvia Ruffieux[1], Christoph Pfeiffer[1]

Microtechnology and Nanoscience–MC2, Chalmers University of Technology, Sweden[1]
MedTech West and the Institute of Neuroscience and Physiology, Sahlgrenska Academy & the University of Gothenburg, Sweden[2]

ED1-2-INV 13:15–13:40

Superconducting Devices Based on Coherent Operation of Josephson Junction Arrays above 77K

*Boris Chesca[1]

Physics Department, Loughborough University, UK[1]

ED1-3 13:40–14:00

Magnetometer based on transfer and modulation of magnetic flux using HTS coils

*Keiji Enpuku[1], Masaaki Matsuo[1], Yujiro Yoshida[1], Shigeya Yamashita[1], Teruyoshi Sasayama[1], Takashi Yoshida[1]

Kyushu University[1]

Coffee break 14:00–14:30

Detectors

Chairpersons: Joel Ullom (NIST) and Masashi Ohno (The University of Tokyo)

ED2-1-INV 14:30–14:55

Micro-fiber coupled superconducting nanowire single-photon detector for near infrared wavelengths

*Lixing You[1,2], Junjie Wu[1,2], Yingxin Xu[3], Xintong Hou[1,2], Wei Fang[3], Hao Li[1,2], Weijun Zhang[1,2], Limin Tong[3], Zhen Wang[1,2]

State Key Laboratory of Functional Materials for Informatics, SIMIT, Chinese Academy of Sciences (CAS), Shanghai, China[1]
Center for ExcelleNce in Superconducting Electronics (CENSE), Chinese Academy of Sciences (CAS), Shanghai, China[2]
State Key Laboratory of Modern Optical Instrumentation, Dep. of Optical Engineering, Zhejiang University, Hangzhou, China[3]

ED2-2 14:55–15:15

Microscope imaging with an optical transition edge sensor sensitive to a single photon

*Kaori Hattori[1], Ryo Kobayashi[2], Kazuki Niwa[1], Takayuki Numata[1], Shuichiro Inoue[2], Daiji Fukuda[1]

AIST, Japan[1]
Institute of Quantum Science, Nihon University, Japan[2]

ED2-3 15:15–15:35

Microwave SQUID Multiplexing for Ti/Au bilayer TES X-ray microcalorimeter

*Yuki Nakashima[1,2], Fuminori Hirayama[2], Satoshi Kohjiro[2], Hirotake Yamamori[2], Shuichi Nagasawa[2], Akira Sato[2], Tasuku Hayashi[1], Haruka Muramatsu[1], Noriko. Y Yamasaki[1], Kazuhisa Mitsuda[1]

ISAS/JAXA, Japan[1]
AIST, Japan[2]

ED2-4 15:35–15:55

Evaluation of $YBa_2Cu_3O_{7-\delta}$ based microwave kinetic inductance detector array with rewound spiral resonators

*Keigo Sato[1], Seiichiro Ariyoshi[1], Kensuke Nakajima[2], Saburo Tanaka[1]

Toyohashi University of Technology, Japan[1]
Yamagata University, Japan[2]

Dec. 13 (Wed.) Large Scale System Applications

Room A3

Superconducting magnet

Chairpersons: Yukikazu Iwasa (MIT) and Bruce Strauss (DOE, USA)

AP1-1-INV 12:30–12:55

The Iseult Whole Body 11.7 T MRI System

*Lionel QUETTIER[1]

CEA Saclay[1]

AP1-2-INV 12:55–13:20

Design and technical development of a high-resolution 1.3 GHz (30.5 T) NMR magnet in a persistent current (PC) mode

*Yoshinori Yanagisawa[1], Kazuyoshi Saito[2], Mamoru Hamada[2], Hiroshi Ueda[3], Gen Nishijima[4], Hitoshi Kitaguchi[4], Shinji Matsumoto[4], Takashi Noguchi[4], Yu Suetomi[5], Takeshi Ueno[6], Kazama Yamagishi[6], Shunji Takahashi[6], Tomoaki Takao[6],

Takashi Yamaguchi[7], Kotaro Ohki[7], Tatsuoki Nagaishi[7], Renzhong Piao[1], Masato Takahashi[1], Hideaki Maeda[1]

RIKEN, Japan[1]
Japan Superconductor Technology, Japan[2]
Okayama University, Japan[3]
National Institute for Materials Science, Japan[4]
Chiba University, Japan[5]
Sophia University, Japan[6]
Sumitomo Electric, Japan[7]

AP1-3-INV 13:20–13:45

REBCO coated conductor layer winding for persistent current operation

*Yasuyuki Miyoshi[1], Kazuyoshi Saito[1], Mamoru Hamada[1], Shinji Matsumoto[2], Gen Nishijima[2], Ryusuke Nakasaki[3], Akinobu Nakai[3], Hisaki Sakamoto[3], Shinichi Mukoyama[3]

Japan Superconductor Technology, Inc., Kobe, Japan[1]
National Institute for Materials Science, Tsukuba, Japan[2]
Furukawa Electric Co., Ltd., Ichihara, Chiba, Japan[3]

AP1-4-INV 13:45–14:10

Highly Compact, High Magnetic Field, High Performance Fusion Reactors Using REBCO Conductor Technology

*Josep V. Minervini[1], Robert Mumgaard[1], Martin Greenwald[1], Dennis Whyte[1], Brandon Sorbom[1], Daniel Brunner[1]

Massachusetts Institute of Technology, Cambridge, USA[1]

Coffee break 14:10–14:30

AP1-5 14:30–14:50

High Field Magnets for Future Circular Colliders Presented by S. Izquierdo Bermudez on behalf of HL-LHC project and the FCC design study

*Susana Izquierdo Bermudez[1]

CERN[1]

AP1-6-INV 14:50–15:15

Progress of Fundamental Technology R&D toward Cryocooler-Cooled Accelerator Magnets

*Naoyuki Amemiya[1], Yusuke Sogabe[1], Shigeki Takayama[2], Yusuke Ishii[2], Toru Ogitsu[3], Yoshiyuki Iwata[4], Koji Noda[4], Masahiro Yoshimoto[5]

Kyoto University[1]
Toshiba Corporation[2]
High Energy Accelerator Research Organization[3]
National Institute of Radiological Sciences[4]
Japan Atomic Energy Agency[5]

AP1-7-INV 15:15–15:40

Technology priorities in large-scale HTS bulk devices

*Frank N Werfel[1], Uta Floegel-Delor[1], Rolf Rothfeld[1], Thomas Riedel[1], Peter Schirrmeister[1], Rene Koenig[1], Viktor Kantarbar[1]

Adelwitz Technologiezentrum GmbH (ATZ)[1]

Dec. 14 (Thu.) Physics and Chemistry **Room A1**

Iron-based superconductors

Chairpersons: Takasada Shibauchi (The University of Tokyo) and Masamichi Nakajima (Osaka University)

PC2-1-INV 10:00–10:30

New iron-based superconductors with separate double FeAs Layers

*Guang-Han Cao[1], Zhi-Cheng Wang[1], Si-Qi Wu[1], Chao-Yang He[1]

Department of Physics, Zhejiang University, Hangzhou, China[1]

PC2-2-INV 10:30–11:00

X-ray fluorescence holography of $Ca_{1-x}Pr_xFe_2As_2$

*Kazutaka Kudo[1], Satoshi Ioka[1], Naohisa Happo[2], Hiromi Ota[3], Yoshihiro Ebisu[4], Koji Kimura[5], Takuma Hada[2], Takumi Kimura[1], Hiroo Tajiri[6], Shinya Hosokawa[7], Kouichi Hayashi[5], Minoru Nohara[1]

Research Institute for Interdisciplinary Science, Okayama University, Japan[1]
Graduate School of Information Sciences, Hiroshima City University, Japan[2]
Advanced Science Research Center, Okayama University, Japan[3]
Graduate School of Science and Technology, Hiroshima Instituite of Technology, Japan[4]
Department of Physical Science and Engineering, Nagoya Institute of Technology, Japan[5]
Japan Synchrotron Radiation Research Institute, Japan[6]
Department of Physics, Kumamoto University, Japan[7]

PC2-3 11:00–11:15

An X-ray Fluorescence Holographic Study on a Fe-based High-Temperature Superconductor $FeSe_{0.4}Te_{0.6}$

*Jens R. Stellhorn[1], S. Hosokawa[1], N. Happo[2], K. Kimura[3], K. Hayashi[3], H. Okazaki[4], A. Yamashita[4], Y. Takano[4]

Department of Physics, Kumamoto University, Japan[1]
Graduate School of Information Sciences, Hiroshima City University, Japan[2]
Department of Physical Science and Engineering, Nagoya Institute of Technology, Japan[3]
MANA, National Institute for Materials Science, Japan[4]

PC2-4 11:15–11:30

Evolution of Physical Properties in FeSe Single Crystals with Different Qualities

*Tsuyoshi Tamegai[1], Jingting Chen[1], Sunseng Pyon[1], Yue Sun[2]

Department of Applied Physics, The University of Tokyo, Japan[1]
Inst. for Solid State Physics (ISSP), The Univ. of Tokyo, Japan[2]

PC2-5 11:30–11:45

Electrotransport and magnetic measurements on bulk FeSe superconductors

Thomas Karwoth[1], Kouichi Furutani[1,2], *Michael R Koblischka[1,2], Xianlin Zeng[1], Alex Wiederhold[1], Miryala Muralidhar[2], Masato Murakami[2], Uwe Hartmann[1]

Tokyo Institute of Technology[1]

PC2-6 11:45–12:00

Epitaxial NdFeAs(O,F) Films By Molecular Beam Epitaxy: Influence Of Film Thickness And Surface Morphology On Superconducting Properties

*Sandra Kauffmann-Weiss[1], Kazumasa Iida[2,3], Takuya Matsumoto[3], Taito Ohmura[2], Takafumi Hatano[2,3], Torben Boll[4,5], Marco Langer[1], Bernhard Holzapfel[1], Hiroshi Ikuta[2,3], Jens Hänisch[1]

Inst. for Technical Physics, Karlsruhe Inst. of Technology, Germany[1]
Dept. of Crystalline Materials Science, Nagoya University, Japan[2]
Department of Materials Physics, Nagoya University, Japan[3]
Karlsruhe Nano Micro Facility, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany[4]
Inst. for Applied Materials, Karlsruhe Inst. of Technology, Germany[5]

Iron-based superconductors 2 / Novel materials

Chairpersons: Kazutaka Kudo (Okayama University) and Swee K. Goh (The Chinese University of Hong Kong)

PC3-1-INV 14:00–14:30

On the interfacial superconductivity of FeSe/STO

*Donglai Feng[1]

Department of Physics, Fudan University, Shanghai, China[1]

PC3-2 14:30–14:45

Effect of orbital ordering on charge dynamics in $FeSe_{1-x}Te_x$ studied by optical spectroscopy

*Masamichi Nakajima[1], Kazuya Yanase[1], Masataka Kawai[2], Daisuke Asami[2], Tomoya Ishikawa[2], Fuyuki Nabeshima[2], Yoshinori Imai[3], Atsutaka Maeda[2], Setsuko Tajima[1]

Osaka University, Japan[1]
The University of Tokyo, Japan[2]
Tohoku University, Japan[3]

PC3-3 14:45–15:00

High-Resolution ARPES Study of Quasiparticle Band Dispersion in Electron-Doped FeSe Thin Films

*Koshin Shigekawa[1], Kosuke Nakayama[1], Masato Kuno[1], Giao Phan[1], Katsuaki Sugawara[2,3], Takashi Takahashi[1,2,3]

Dept. Phys., Tohoku Univ., Sendai, Japan[1]
WPI-AIMR, Tohoku University, Sendai, Japan[2]
CSRN, Tohoku University, Sendai, Japan[3]

PC3-4-INV 15:00–15:30

Superconductivity in the Noncentrosymmetric Iridium Phosphide ScIrP

*Yoshihiko Okamoto[1,2]

Department of Applied Physics, Nagoya University, Japan[1]
Institute for Advanced Research, Nagoya University, Japan[2]

PC3-5-INV 15:30–16:00

Nonlinear superconducting transport in noncentrosymmetric superconductors

*Toshiya Ideue[1]

Quantum-Phase Electronics Center (QPEC) and Department of Applied Physics, The University of Tokyo, Japan[1]

Coffee break 16:00–16:15

Novel materials 2

Chairpersons: Akira Iyo (AIST) and Yoshihiko Okamoto (Nagoya University)

PC4-1-INV 16:15–16:45

Quasilinear quantum magnetoresistance in pressure-induced nonsymmorphic superconductor CrAs

Q. Niu[1], W. C. Yu[1], K. Y. Yip[1], Z. L. Lim[1], H. Kotegawa[2], E. Matsuoka[2], H. Sugawara[2], H. Tou[2], Y. Yanase[3], *Swee K. Goh[1]

Department of Physics, The Chinese University of Hong Kong, Shatin, Hong Kong[1]
Department of Physics, Kobe University, Kobe, Japan[2]
Department of Physics, Kyoto University, Kyoto, Japan[3]

PC4-2-INV 16:45–17:15

High Temperature Superconductivity and Quantum Phase Transitions in crytalline 2D Superconductors

*Jian Wang[1,2]
International Center for Quantum Materials, School of Physics, Peking University, China[1]
Collaborative Innovation Center of Quantum Matter, Beijing, China[2]

PC4-3-INV 17:15–17:45

Structural Phase Diagram and Anomalous Magnetic Properties in a Superconductor of $LnO_{1-x}F_xBiS_2$ (Ln: rare earth elements)

*Tatsuma D. Matsuda[1], Joe Kajitani[1], Masaaki Mita[1], Ryoko Sagayama[2], Hajime Sagayama[2], Reiji Kumai[2], Youichi Murakami[2], Keisuke Matsumura[3], Ryuji Higashinaka[1], Yuji Aoki[1]

Department of Physics, Tokyo Metropolitan University, Japan[1]
Institute of Materials Structure Science, High Energy Accelerator Research Organization, Japan[2]
Department of Advanced Materials Science, the University of Tokyo, Japan[3]

PC4-4 17:45–18:00

The superconducting anisotropy of $LaO_{0.5}F_{0.5}BiS_2$ single crystal

*Yuet Ching Chan[1], King Yau Yip[1], Qun Niu[1], Yiu Wing Cheung[1], Yuk Tai Chan[1], Kwing To Lai[1], Joe Kajitani[2], Ryuji Higashinaka[2], Tatsuma D. Matsuda[2], Yuji Aoki[2], Swee Kuan Goh[1]

Dept. of Physics, The Chinese Univ. of Hong Kong, Hong Kong[1]
Department of Physics, Tokyo Metropolitan University, Japan[2]

PC4-5 18:00–18:15

Nearly isotropic superconductivity in layered Weyl semimetal WTe_2 at 98.5 kbar

*Yuk Tai Chan[1], P. L. Alireza[2], K. Y. Yip[1], Q. Niu[1], K. T. Lai[1], S. K. Goh[1]

Dept. of Physics, The Chinese Univ. of Hong Kong, Hong Kong[1]
Cavendish Laboratory, University of Cambridge, United Kingdom[2]

PC4-6 18:15–18:30

Strong Pauli Paramagnetic Effects in the Quasi-Two-Dimensional Superconductor Restacked TaS_2 Nanosheets

Yonghui Ma[1], Jie Pan[2], *Gang Mu[1], Fuqiang Huang[2], Xiaoming Xie[1]

Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, China[1]
Shanghai Inst. of Ceramics, Chinese Academy of Sciences, China[2]

Dec. 14 (Thu.) Wires and Bulk **Room A2**

Nb_3Sn, MgB_2 and Iron-based superconducting wires

Chairpersons: Giovanni Grasso (Columbus Superconductors) and Hiroaki Kumakura (NIMS)

WB3-1-INV 10:30–10:55

Recent Progress on the Development of MgB_2 superconductors at Hyper Tech

*Michael Tomsic[1], Matthew Rindfleisch[1], David Doll[1], Michael Sumption[2], Michael Martens[3]

Hyper Tech Research Inc.[1]
Ohio State University[2]
Case Western Reserve University[3]

WB3-2-INV 10:55–11:20

Recent progress on the development of MgB_2 wires in Hitachi

*Motomune Kodama[1], Hiroshi Kotaki[1], Takaaki Suzuki[1], Hideki Tanaka[1], Ryuya Ando[1], Takeshi Nakayama[1]

Research & Development Group, Hitachi Ltd[1]

WB3-3-INV 11:20–11:45

Development of iron-based superconducting materials for high-field applications

*Yanwei Ma[1]

Institute of Electrical Engineering, Chinese Academy of Sciences[1]

WB3-4 11:45–12:00

New Internal-Sn Processed Nb_3Sn Conductors with Brass Matrix

*Kyoji Tachikawa[1,2], Nobuya Banno[2], Yasuo Miyamoto[1]

Tokai University[1]
National Institute for Materials Science[2]

30-year history and future prospects of superconducting wire development

Chairpersons: Eric Hellstrom (Florida State University) and Kenichi Sato (JST)

WB4-1-INV 14:00–14:30

History and Future Prospects of the Development of (RE)BCO Bulk Superconductors

*David A. Cardwell[1]

Department of Engineering, University of Cambridge, UK[1]

WB4-2-INV 14:30–15:00

History and Future Prospects of Coated Conductor Development–As a commemoration of the 30th anniversary of ISS–

*Teruo IZUMI[1]

National Institute of Advanced Industrial Science and Technology (AIST)[1]

30-year history and future prospects of superconducting wire development 2

Chairpersons: Yanwei Ma (IEE, Chinese Academy of Sciences) and Yutaka Yamada (Shanghai Superconductor Technology)

WB5-1-INV 15:00–15:30

10 years beyond the 30th ISS: History and future prospects of Bi-2223 wires development

*Kenichi Sato[1]

Japan Science and Technology Agency[1]

WB5-2-INV 15:30–16:00

10 Years Beyond the 30th ISS: History and Future Prospects of Bi-2212 Conductors

*Eric E. Hellstrom[1], Ernesto S. Bosque[1], Griffin Bradford[1], Michael Brown[1], Daniel S. Davis[1], Charles L. English[1], David K. Hilton[1], Imam S. Hossain[1], Jianyi Jiang[1], Fumitake Kametani[1], Youngjae Kim[1], David C. Larbalestier[1], Jun Lu[1], Evan Miller[1], George E. Miller[1], Yavuz Oz[1], Ulf P. Trociewitz[1]

Applied Superconductivity Center, National High Magnetic Field Laboratory, Florida State University, USA[1]

WB5-3-INV 16:00–16:30

History and future prospects of MgB_2 and iron based superconducting wires

*Hiroaki Kumakura[1]

National Institute for Materials Science[1]

Coffee break 16:30–16:45

Enhancement of in-field performance of CCs by use of APC process

Chairpersons: Timothy Haugan (Air Force Research Laboratory) and Toru Fukushima (Furukawa-SuperPower)

WB6-1-INV 16:45–17:10

Recent results on flux pinning in nanoparticle-doped $REBa_2Cu_3O_y$ Coated Conductor by TFA-MOD

*Masashi Miura[1], Michio Sato[1], Takeharu Kato[2], Tomohiro Kato[2], Ryoji Yoshida[2], Koichi Nakaoka[3], Teruo Izumi[3]

Seikei University[1]
Japan Fine Ceramics Center[2]
National Inst. of Advanced Industrial Science and Technology[3]

WB6-2-INV 17:10–17:35

Fast PLD growth of nanostructured YBCO coated conductors with artificial pinning centers

Max Sieger[1], Patrick Pahlke[1], Jens Hänisch[2], Mayraluna Lao[2,3], Michael Eisterer[3], Alexander Meledin[4], Gustaaf Van Tendeloo[4], Kornelius Nielsch[1], Ludwig Schultz[1], *Ruben Hühne[1]

Inst. for Metallic Materials, IFW Dresden, Germany[1]
Inst. for Technical Physics, Karlsruhe Inst. of Technology, Germany[2]
Atominstitut, TU Wien, Vienna, Austria[3]
EMAT, University of Antwerp, Belgium[4]

WB6-3-INV 17:35–18:00

Present status of High Performance REBCO Conductors and Recent Progress of Advanced MOCVD

*Goran Majkic[1,2,3,4]

University of Houston[1]
Department of Mechanical Engineering[2]
Texas Center for Superconductivity[3]
Advanced Manufacturing Institute[4]

WB6-4-INV 18:00–18:25

Progress in low cost chemical solution Nanocomposite $YBa_2Cu_3O_{7-x}$ coated conductors

*Teresa Puig[1], Ziliang Li[1], Cornelia Pop[1], Natalia Chamorro[1,2], Bohores Villarejo[1], Flavio Pino[1], Ferran Vallés[1], Bernat Mundet[1], Laia Soler[1], J. Jareño[1], Silvia Rasi[1,3], J. Banchewski[1], R. Guzmán[1], J. Gázquez[1], M. Coll[1], A. Palau[1], S. Ricart[1], J. Ros[2], J. Farjas[3], P. Roura[3], X. Obradors[1]

Institut de Ciència de Materials de Barcelona, Spain[1]
Departament de Química, Universitat Autonoma de Barcelona, Spain[2]
GRMT, Department of Physics, University of Girona, Spain[3]

WB6-5-INV 18:25–18:50

High performance $REBa_2Cu_3O_y$ coated conductors with designed artificial pinning center

*Yutaka Yoshida[1], Yusuke Ichino[1], Yuji Tsuchiya[1], Kaname Matsumoto[2], Teruo Izumi[3], Ataru Ichinose[4], Satoshi Awaji[5]

Nagoya university[1]
Kyushu Inst. Tech[2]
AIST[3]
CRIERI[4]
Tohoku university[5]

WB6-6-INV 18:50–19:15

Analysis and Modeling of Current Transport Properties in Long Length Coated Conductors

*Takanobu Kiss[1], Kohei Higashikawa[1], Takumi Suzuki[1], Yuhei Nishimiya[1], Yuta Onodera[1], Masayoshi Inoue[1], Mitsunori Igarashi[2], Kazuomi Kakimoto[2], Yasuhiro Iijima[2]

Dept. of Electrical Engineering, Kyushu University, Japan[1]
Fujikura Ltd., Sakura, Japan

Dec. 14 (Thu.) Electronic Devices **Room C**

Novel devices

Chairpersons: Peter Hopkins (NIST) and Hirotake Yamamori (AIST)

ED3-1-INV 10:00–10:25

Single-Flux-Quantum Circuits with Nb-doped Si Barriers

*Peter F Hopkins[1], Manuel Castellanos Beltran[1], Paul D. Dresselhaus[1], David Olaya[1], Javier Pulecio[1], Miranda Thompson[2], Samuel P. Benz[1]

National Institute of Standards and Technology, USA[1]
University of Colorado, Boulder, USA[2]

ED3-2-INV 10:25–10:50

Coherent caloritronics with Josephson circuits: from heat interferometers to 0-π controllable thermal Josephson junctions

*F. Giazotto[1]

NEST, Istituto Nanoscienze-CNR & Scuola Normale Superiore, Pisa, Italy[1]

ED3-3-INV 10:50–11:15

Niobium-nitride Based Ferromagnetic Josephson Junctions for Superconducting Qubit Application

*Taro Yamashita[1,2]

Advanced ICT Research Institute, National Institute of Information and Communications Technology, Japan[1]
PRESTO, Japan Science and Technology Agency, Japan[2]

ED3-4-INV 11:15–11:40

Basic Study on AC loss characteristics in frequency band of a few tens of kHz in an HTS pancake-coil for Wireless Power Transmission System

*Daisuke Miyagi[1], Ryota Inoue[1], Makoto Tsuda[1], Hidetoshi Matsuki[1]

Tohoku University, Japan[1]

ED3-5 11:40–12:00

Generation of Circularly Polarized THz Radiation from $Bi_2Sr_2CaCu_2O_{8+\delta}$ Mesa Structures

*Asem Elarabi[1,2], Yusuke Yoshioka[1], Manabu Tsujimoto[2], Itsuhiro Kakeya[1]

Kyoto University[1]
University of Tsukuba[2]

Quantum information and detection

Chairpersons: Jaw-Shen Tsai (Tokyo University of Science /RIKEN) and Shigeo Sato (Tohoku University)

ED4-1-INV 14:00–14:25

Development of a commercial superconducting quantum annealing processor

*Mark W Johnson[1]

D-Wave Systems Inc[1]

ED4-2-INV 14:25–14:50

ASAC: Application Specific Annealing Circuit – A New Approach Towards Designing a Quantum Annealing Superconductor Integrated Circuit

*Hanpei Koike[1], Masaaki Maezawa[1], Kentaro Imafuku[1], Masakazu Hioki[1], Shiro Kawabata[1]

National Institute of Advanced Industrial Science and Technology (AIST)[1]

ED4-3-INV 14:50–15:15

Superconducting qubit-oscillator circuit beyond the ultrastrong-coupling regime

*Fumiki Yoshihara[1], Tomoko Fuse[1], Sahel Ashhab[2], Kosuke Kakuyanagi[3], Shiro Saito[3], Kouichi Semba[1]

National Institute of Information and Communications Technology , Japan[1]
Qatar Environment and Energy Research Institute, Qatar[2]
NTT Basic Research Laboratories, Japan[3]

ED4-4-INV 15:15–15:40

Sensing magnetization oscillation in quantum regime

*Yutaka Tabuchi[1], Yasunobu Nakamura[1,2]

Research Center for Advanced Science and Technology, The University of Tokyo, Meguro-ku, Japan[1]
Center for Emergent Matter Science, RIKEN, Wako, Japan[2]

ED4-5-INV 15:40–16:05

Scanning Nano-SQUID for Nanoscale Thermal Imaging of Dissipation in Quantum System

*Dorri Halbertal[1], Jo Cuppens[2], Moshe Ben Shalom[3], Lior Embon[1], Nitzan Shadmi[4], Yonathan Anahory[1], Leonid Levitov[5], Ernesto Joselevich[4], Andre Geim[3], Eli Zeldov[1]

Department of Condensed Matter Physics, Weizmann Institute of Science (Israel)[1]
Catalan Institute of Nanoscience and Nanotechnology, CSIC and the Barcelona Institute of Science and Technology (Spain)[2]
National Graphene Institute and the School of Physics and Astronomy, The University of Manchester (United Kingdom)[3]

Dept. of Materials & Interfaces, Weizmann Inst. of Science (Israel)[4]
Department of Physics, Massachusetts Inst. of Technology (USA)[5]

Coffee break 16:05–16:20

Digital

Chairpersons: Mark Johnson (D-Wave) and Masamitsu Tanaka (Nagoya University)

ED5-1-INV 16:20–16:45

Current Progress in Adiabatic Quantum Flux Parametron

*Naoki Takeuchi[1,3], Christopher Ayala[1], Qiuyun Xu[1], Yuki Yamanashi[1,2], Nobuyuki Yoshikawa[1,2]

Institute of Advanced Sciences, Yokohama National University[1]
Department of Electrical and Computer Engineering, Yokohama National University[2]
PRESTO, Japan Science and Technology Agency[3]

ED5-2-INV 16:45–17:10

Cryogenic signal processing based on superconducting logic circuits for multi-pixel superconducting nanowire single-photon detectors

*Hirotaka Terai[1], Shigeyuki Miyajima[1], Masahiro Yabuno[1], Taro Yamashita[1], Shigehito Miki[1], Naoki Takeuchi[2], Shuuich Nagasawa[3], Mutsuo Hidaka[3]

National Institute of Information and Communications Technology[1]
Yokohama National University[2]
National Institute of Advanced Industrial Science and Technology[3]

ED5-3 17:10–17:30

A single-flux-quantum based event-driven encoder toward a 1024-pixel single-photon imaging system

*Shigeyuki Miyajima[1], Masahiro Yabuno[1], Taro Yamashita[1,2], Shigehito Miki[1,3], Hirotaka Terai[1]

National Institute of Information and Communications Technology[1]
PRESTO, Japan Science and Technology Agency[2]
Graduate School of Engineering Faculty of Engineering, Kobe Univ.[3]

ED5-4 17:30–17:50

Demonstration of picosecond time resolution of double-oscillator time-to-digital converters using single-flux-quantum circuits

*Yuma Tomitsuka[1], Yutaka Abe[1], Yuki Yamanashi[1], Nobuyuki Zen[2], Masataka Ohkubo[2], Nobuyuki Yoshikawa[1]

Department of Electrical and Computer Engineering, Yokohama National University[1]
National Inst. of Advanced Industrial Science and Technology[2]

Dec. 14 (Thu.) Large Scale System Applications

Hall

Large-scale applications: Reviews of the past 30 years and future perspectives

Chairpersons: Hiroyuki Ohsaki (The University of Tokyo) and Naoyuki Amemiya (Kyoto University)

AP2-1-INV 10:00–10:30

High-Field Magnets for NMR and MRI: A Review of the Past 30 Years and a Vision for the Future Perspectives

*Yukikazu Iwasa[1]

Francis Bitter Magnet Laboratory, Plasma Science and Fusion Center, Massachusetts Institute of Technology, Cambridge, USA[1]

AP2-2-INV 10:30–11:00

Nuclear Fusion and Particle Accelerators: Past and Future Perspectives

*Bruce P. Strauss[1, 2]

U. S. Department of Energy, Office of High Energy Physics[1]
IEEE Council on Superconductivity[2]

AP2-3-INV 11:00–11:30

Rotating Machine: A review of the past 30 years and future perspectives

*Tanzo Nitta[1]

The University of Tokyo, Japan[1]

AP2-4-INV 11:30–12:00

Power applications: review of the past 30 years and future perspective

*Pascal Tixador[1]

Univ. Grenoble Alpes, Grenoble, France[1]

Dec. 14 (Thu.) Large Scale System Applications

Room A3

Magnet science and technology

Chairpersons: Arend Nijhuis (University of Twente) and Yasuyuki Miyoshi (JASTEC)

AP3-1-INV 14:00–14:25

HTS flux pumps and the role of dynamic resistance in the HTS flux pump

*Zhenan Jiang[1], Chris W Bumby[1], Rodney A Badcock[1], Andres E Pantoja[1], Kent Hamilton[1]

Victoria University of Wellington[1]

AP3-2-INV 14:25–14:50

Two-shell Superconductor/Ferromagnetic Cloaks for Shielding of Magnetic Fields

*Fedor Gömöry[1], Mykola Solovyov[1], Ján Šouc[1]

Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava, Slovakia[1]

AP3-3-INV 14:50–15:15

Numerical Analysis of Current Distribution and Stability in No-Insulation Coils Wound with REBCO Wires

*So Noguchi[1,2,3], Seungyong Hahn[2,4], Atsushi Ishiyama[5], Yukikazu Iwasa[3]

Graduate School of Information Science and Technology, Hokkaido University[1]
National High Magnetic Field Laboratory, Florida State Univ.[2]
Plasma Science and Fusion Center, Massachusetts Inst. of Tech.[3]
Dept. of Electrical & Computer Eng., Seoul National Univ.[4]
Dept. of Electrical Engineering and Bioscience, Waseda Univ.[5]

AP3-4 15:15–15:35

Transient Heat Transfer Through the LHC Polyimide Cable Insulation

*Tiemo Winkler[1], Marcel ter Brake[1], Torsten Koettig[2], Rob van Weelderen[2]

University Of Twente, The Netherlands[1]
CERN, Switzerland[2]

Coffee Break 15:35–16:15

Rotating machines

Chairpersons: Tabea Arndt (Siemens) and Kazuhiro Kajikawa (Kyushu University)

AP4-1-INV 16:15–16:40

Large Rotating Machines using HTS

*Tabea Arndt[1]

Siemens AG[1]

AP4-2-INV 16:40–17:05

Application of HTS for ship propulsion motor

*Mitsuru Izumi[1]

Tokyo University of Marine Science and Technology (TUMSAT)[1]

AP4-3-INV 17:05–17:30

Current Status of Superconducting motor for Aviation Application

*Vladimir T. Penkin[1]

Moscow Aviation Institute (National Research University), Russia[1]

AP4-4-INV 17:30–17:55

Development Status of 50 kW Class Fully Superconducting Induction/synchronous Motor for Transportation Equipment

*Taketsune Nakamura[1], Ryohei Nishino[1], Tetsuji Matsuo[1], Masaaki Yoshikawa[2], Yoshitaka Itoh[2], Toshihisa Terazawa[2], Yoshimasa Ohashi[3], Satoshi Fukui[4], Mitsuho Furuse[5]

Kyoto University, Japan[1]
IMRA MATERIAL R&D Co., Ltd, Japan[2]
AISIN SEIKI, Co., Ltd[3]
Niigata University, Japan[4]
AIST, Japan[5]

Dec. 15 (Fri.) Physics and Chemistry **Room A1**

Cuprate superconductors

Chairpersons: Donglai Feng (Fudan University) and Riccardo Comin (Massachusetts Institute of Technology)

PC5-1-INV 10:00–10:30

Critical-Current-by-Design

*U. Welp[1], W. -K. Kwok[1], A. E. Koshelev[1], D. J. Miller[2], H. P. Sheng[2], A. Glatz[1,3], I. A. Sadovskyy[1,4], Y. Zhang[5], M. W. Rupich[6], S. Sathyamurthy[6], S. Fleshler[6], S. Eley[7], L. Civale[7], A. Kayani[8], P. M. Niraula[8], J.H. Kwon[9], J. M. Zuo[9]

Materials Science Division, Argonne National Laboratory, USA[1]
Electron Microscopy Center-CNM, Argonne National Lab., USA[2]
Department of Physics, Northern Illinois University, USA[3]
Computational Institute, University of Chicago, USA[4]
SuperPower Corp., Schenectady, USA[5]
American Superconductor Corp., Devens, USA[6]
MPA & CMMS, Los Alamos National Laboratory, USA[7]
Dept. of Physics, Western Michigan University, Kalamazoo, USA[8]
Materials Research Lab., Univ. of Illinois-Urbana Champaign, USA[9]

PC5-2-INV 10:30–11:00

RESONANT SCATTERING STUDIES OF CHARGE ORDER IN QUANTUM SOLIDS

*Riccardo Comin[1]

Massachusetts Institute of Technology[1]

PC5-3-INV 11:00–11:30

Nematic Phase Transition at the Onset Temperature of Pseudogap in High-T_c Cuprates

*Shigeru Kasahara[1]

Department of Physics, Kyoto University[1]

PC5-4-INV 11:30–12:00

Hidden Fermionic excitation at the origin of high-temperature superconductivity and pseudogap in cuprates

*Shiro Sakai[1]

Center for Emergent Matter Science, RIKEN, Wako, Japan[1]

PC5-5-INV 12:00–12:30

Design of high-temperature topological superconductivity in curates and heavy fermions

*Youichi Yanase[1], Akito Daido[1], Kazuaki Takasan[1], Tsuneya Yoshida[1], Norio Kawakami[1]

Kyoto University[1]

PC5-6 12:30–12:45

Electron backscatter diffraction analysis (EBSD) on superconducting nanowires

*Anjela Koblischka-Veneva[1,2], Michael R. Koblischka[1,2], Xianlin Zeng[1], Jörg Schmauch[1], Uwe Hartmann[1]

Saarland University, Experimental Physics[1]
Superconducting Materials Laboratory, Department of Materials Science and Engineering, Shibaura Institute of Technology[2]

PC5-7 12:45–13:00

Study of oxygen exchange kinetics of $YBa_2Cu_3O_{7-\delta}$ films to achieve high carrier concentration

*Alexander Stangl[1], Anna Palau[1], Xavier Obradors[1], Teresa Puig[1]

ICMAB - CSIC[1]

Dec. 15 (Fri.) Wires and Bulk **Room A2**

Bulk materials and their applications

Chairpersons: Hiroshi Ikuta (Nagoya University) and Miryala Muralidhar (Shibaura Institute of Technology)

WB7-1-INV 10:00–10:25

History of QMG™ and recent progress on QMG™ bulk magnets

*Mitsuru Morita[1]

Advanced Technology Research Laboratories, Nippon Steel & Sumitomo Metal Corporation[1]

WB7-2-INV 10:25–10:50

Collecting Ni-Sulfate Compound from Electroless Plating Waste by Magnetic Separation Technique with Use of HTS Bulk Magnets

*Tetsuo Oka[1], Sho Sasaki[1], Hideto Sasaki[1], Satoshi Fukui[1], Jun Ogawa[1], Takao Sato[1], Tomohito Nakano[1], Manabu Ooizumi[1], Morio Tsujimura[2], Kazuya Yokoyama[3]

Niigata University, Japan[1]
Aichi Giken Co., Japan[2]
Ashikaga Institute of Technology, Japan[3]

WB7-3 10:50–11:05

SmBCO single grain bulk superconductors via Top seeded infiltration and growth process

Devendra K Namburi[1], Wen Zhao[1], Yunhua Shi[1], Anthony R Dennis[1], John H Durrell[1] and David A Cardwell[1]

Department of Engineering, University of Cambridge, UK[1]

WB7-4 11:05–11:20

How to Control the Gd211 Particles and Enhance the Levitation Force of Single Domain GdBCO Bulks Prepared by Gd+011 TSIG Method

*Wanmin Yang[1], Xiaochun Yuan[1], Chunyan Zhang[1]

Dept. of Physics, Shaanxi Normal University, Xi'an, China[1]

WB7-5 11:20–11:35

Single Grain Bulk $YBa_2Cu_3O_y$ Superconductors Grown by IG process Utilising the Mixture of Yb-123+Liquid phase as a Liquid Source

*Sushma Miryala[1,2], Masato Murakami[1]

Shibaura Institute of Technology, Japan[1]
Seisen International School, Japan[2]

Bulk materials and their applications 2

Chairpersons: Jacques NOUDEM (University of Caen Normandy) and Kohji Kishio (AIST)

WB8-1-INV 11:50–12:15

Development of RE123 and MgB_2 Superconducting Bulk Magnets

*Atsushi Ishihara[1], Tomoyuki Akasaka[1], Taiki Onji[1], Yusuke Fukumoto[1], Masaki Sekino[2], Hiroyuki Ohsaki[2], Kohji Kishio[2], Toshiteru Kii[3], Masaru Tomita[1]

Railway Technical Research Institute[1]
The University of Tokyo[2]
Kyoto University[3]

WB8-2-INV 12:15–12:40

Record critical current density in sintered MgB_2 bulks

*Muralidhar Miryala[1], Masaki Higuchi[1], Miles Jirsa[2], Michael R Koblischka[3], Masato Murakami[1]

Shibaura Institute of Technology[1]
Institute of Physics ASCR[2]
Saarland University[3]

Lunch Break 12:40–14:00

Joint technology

Chairpersons: Amit Goyal (State University of New York) and Takato Machi (AIST)

WB9-1-INV 14:00–14:25

An Intermediate Grown Superconducting (iGS) Joint between REBCO Coated Conductors: Fabrication, Microstructure and Superconducting Properties

*Kotaro Ohki[1], Tatsuoki Nagaishi[1], Takashi Yamaguchi[1], Yoshinori Yanagisawa[2], Renzhong Piao[2], Hideaki Maeda[2], Takeharu Kato[3], Daisaku Yokoe[3], Tsukasa Hirayama[3], Yuichi Ikuhara[3,4], Hitoshi Kitaguchi[5], Takeshi Ueno[6], Kazama Yamagishi[6], Tomoaki Takao[6]

Sumitomo Electric, Japan[1]
RIKEN, Japan[2]
Japan Fine Ceramics Center, Japan[3]
University of Tokyo, Japan[4]
National Institute for Materials Science, Japan[5]
Sophia University, Japan[6]

WB9-2-INV 14:25–14:50

Superconducting joint of REBCO wires for MRI magnet

*Shinichi Mukoyama[1], Akinobu Nakai[1], Hisaki Sakamoto[1], Shinji Matsumoto[2], Gen Nishijima[2], Mamoru Hamada[3], Kazuyoshi Saito[3], Yasuyuki Miyoshi[3]

Furukawa Electric Co., Ltd.[1]
National Institute for Materials Science[2]
Japan Superconductor Technology, Inc.[3]

WB9-3-INV 14:50–15:15

Magnetic Field Stability in the Persistent Current Operation of the REBCO Coil with a Superconducting Joint

*K. Takahashi[1], T. Hase[1], S. Awaji[1], A. Nakai[2], S. Yamano[2], H. Sakamoto[2]

Inst. for Materials Research, Tohoku University, Sendai, Japan[1]
Furukawa Electric Co., Ltd., Ichihara, Japan[2]

WB9-4 15:15–15:30

Enhancement of Joint Properties of Various Ultrasonic Welded CC Joints

*Hyung-Seop SHIN[1], Chan Hun Jung[1]

Andong National University, Andong, Korea[1]

Dec. 15 (Fri.) Electronic Devices **Room C**

30-year history and beyond

Chairpersons: Horst Rogalla (Colorado University/NIST) and Mutsuo Hidaka (AIST)

ED6-1-INV 10:00–10:30

The SQUID and its Applications in the Past 30 Years

*Risto J Ilmoniemi[1]

Dept. Neuroscience and Biomedical Engineering, Aalto University School of Science[1]

ED6-2-INV 10:30–11:00

Superconducting Detectors: the Past 30 Years and Future Prospects

*Joel N Ullom[1,2]

NIST, USA[1]
University of Colorado, USA[2]

ED6-3-INV 11:00–11:30

A Thirty-Year History of Superconducting Microwave Devices and Fundamental Studies Thereof

*Shigetoshi Ohshima[1]

Yamagata University[1]

ED6-4-INV 11:30–12:00

Cryogenic Digital Electronics–Challenges for Practical Use–

*Akira Fujimaki[1], Masamitsu Tanaka[1]

Nagoya University, Japan[1]

ED6-5-INV 12:00–12:30

Coherent superconducting circuits and quantum information – 30 years' advancements

*Jaw-Shen Tsai[1,2]

Tokyo University of Science[1]
Riken[2]

Dec. 15 (Fri.) Large Scale System Applications

Room A3

Electric power devices and energy system

Chairpersons: Pascal Tixador (Grenoble-INP/G2Elab-IN) and Shinichi Mukoyama (Furukawa Electric)

AP5-1-INV 10:00–10:25

Design of AC 23kV 50MVA Class HTS Cable in S. Korea

*Jin Bae NA[1], Heo Gyung Sung[1], Chang Yeol Choi[1], YongSeo Jang[1], Yang Hun Kim[1]

LS Cable&System[1]

AP5-2-INV 10:25–10:50

DEVELOPMENT OF TRI-AXIAL SUPERDONDUCTING CABLE SYSTEM

*Tasuku Kitamura[1], Kazuhisa Adachi[1], Hideo Sugane[1], Tatsuhisa Nakanishi[1], Yuji Aoki[1], Nobuhiro Midou[1], Masataka Iwakuma[2], Takayo Hasegawa[1]

SWCC SHOWA CABLE SYSYEMS CO., LTD.[1]
KYUSHU UNIVERSITY[2]

AP5-3

(Moved to LNP-8)

AP5-4-INV 11:00–11:25

Flywheel Energy Storage System Using Superconducting Magnetic Bearing for Demonstration Test

*K Nagashima[1], T Yamashita[1], M Ogata[1], Y Miyazaki[1], K Mizuno[1], S Mukoyama[2], K Nakao[2], H Sakamoto[2], H Shimizu[3] and H Sawamura[3], K Miyazaki[4]

Railway Technical Research Institute[1]
Furukawa Electric Co., Ltd.[2]
Mirapro Co., Ltd.[3]
Yamanashi Prefecture[4]

AP5-5-INV 11:25–11:50

Liquid hydrogen system toward hydrogen Society

*Shoji Kamiya[1]

Kawasaki Heavy Industries, Ltd[1]

AP5-6-INV 11:50–12:15

Progress in the development of refrigerator for HTS Cable

*Naoko Nakamura[1]

MAYEKAWA MFG. CO., LTD.[1]

Dec. 15 (Fri.) Late News **Room A1**

Chairperson: Teruo Izumi (AIST)

LN-1-INV 15:45–16:05

Enhanced Vortex-Pinning in Superconducting Wires

*Amit Goyal[1], Marty Rupich[2]

SUNY-Buffalo[1]
AMSC[2]

LN-2-INV 16:05–16:25

A novel route to prepare bulk superconductors: Spark Plasma Sintering and Texturing

*Jacques. G NOUDEM[1], Louis DUPONT[1,2], Rudy CAPELLE[1], Pierre BERNSTEIN[1], Richard RETOUX[1], Kevin BERGER[3], Masaki HIGUCHI[4], Miryala MURALIDHAR[4], Masato MURAKAMI[4]

CRISMAT Laboratory, University of Caen, CNRS, France[1]
CAYLAR SAS, France[2]
GREEN, University of Lorraine, France[3]
Superconducting Materials Laboratory, Graduate School of Science & Engineering, Shibaura Inst. of Technology, Japan[4]

Dec. 15 (Fri.) Closing Session **Room A1**

Dec. 13 (Wed.) Physics and Chemistry **B1+B2**

Novel materials 3

Chairperson: Minoru Nohara (Okayama University)

PCP1-1 16:00–18:00

Pb Substitution effect in La(O,F)BiSSe

*Shotaro Shobu[1], Satoshi Otsuki[1], Satoshi Demura[1], Hideaki Sakata[1]

Tokyo University of Science[1]

PCP1-2 16:00–18:00

Unidirectional pressure effect on electrical resistivity in single crystal $La(O,F)BiS_2$

*Yuto Sakai[1], Takashi Ogawa[1], Ryo Ohashi[1], Yuita Fujisawa[1], Satoshi Demura[1], Hideaki Sakata[1]

Department of physics, Tokyo university of science, Japan[1]

PCP1-3 16:00–18:00

F Substitution Effect on supermodulation in $LaO_{1-x}F_xBiSe_2$ Studied by STM

*Naoki Ishida[1], Satoshi Demura[1], Yuita Fujisawa[1], Hideaki Sakata[1]

Tokyo University of Science, Japan[1]

PCP1-4 16:00–18:00

Scanning tunneling microscopic observation in $LaO_{1-x}F_xBi_{1-y}Pb_yS2$

*Kazuki Miyata[1], Naoki Ishida[1], Satoshi Otsuki[1], Satoshi Demura[1], Hideaki Sakata[1]

Department of physics, Tokyo university of science, Japan[1]

PCP1-5 16:00–18:00

Observation of Superconducting gap and Vortex lattice in the transition metal tri-calchogenide $ZrTe_{3-x}Se_x$ by Scanning Tunneling Spectroscopy

*Satoshi Demura[1], Ryota Ishio[1], Yuita Fujisawa[1], Takashi Ogawa[2], Shinichi Kaneko[2], Satoshi Okuma[2], Hideaki Sakata[1]

Tokyo Univ. of Science[1]
Tokyo institute of Technology[2]

PCP1-6 16:00–18:00

Crystal structure and physical properties of layered compound $LaOSbSe_2$

*Hikaru Hiiragi[1], Yutaka Kitahama[1], Kazutaka Kudo[1], Seiichiro Onari[1], Hiromi Ota[1], Minoru Nohara[1]

Okayama University, Japan[1]

PCP1-7 16:00–18:00

Crystal Growth and Superconducting Properties of Topological Superconductor Candidates $A_xBi_2Se_3$ (A = Sr, Nb)

*Shun Takeda[1], Kazumune Tachibana[1], Masayuki Murase[1], Takao Sasagawa[1]

Laboratory for Materials and Structures, Tokyo Institute of Technology, Kanagawa, Japan[1]

PCP1-8 16:00–18:00

Crystal Growth and Superconducting Properties of Pb-doped $NiBi_3$ having Strong Spin-Orbit Coupling

*Keitaro Matsukawa[1], Kenjiro Okawa[1], Masayuki Murase[1], Takao Sasagawa[1]

Laboratory for Materials and Structures, Tokyo Institute of Technology, Kanagawa, Japan[1]

PCP1-9 16:00–18:00

Effect of Sulfur and Selenium Substitution on $ZrTe_3$

*Ryota Ishio[1], Satoshi Demura[1], Satoshi Otsuki[1], Yuto Sakai[1], Yuita Fujisawa[1], Hideaki Sakata[1]

Department of Physics, Tokyo University of Science, Japan[1]

Novel materials 4

Chairperson: Takao Sasagawa (Tokyo Institute of Technology)

PCP2-1 16:00–18:00

Observation of surface 1T phase on 2H-$NbSe_2$ by STM/STS

*Yuita Fujisawa[1], Hiroya Koseki[1], Masaya Shiina[1], Shun Ohta[1], Satoshi Demura[1], Hideaki Sakata[1]

Tokyo University of Science[1]

PCP2-2 16:00–18:00

Effects of the Co-Intercalation of Lithium and Ethylenediamine into 1T-TaS_2 and 2H-TaS_2

*Kazuki Sato[1], Shunsuke Hosaka[1], Takashi Noji[1], Takehiro Hatakeda[1], Takayuki Kawamata[1], Masatsune Kato[1], Yoji Koike[1]

Department of Applied Physics, Tohoku University, Japan[1]

PCP2-3 16:00–18:00

Effect of non-magnetic rare earth substitution for Zr on mixed anion $Zr(P,Se)_2$ superconductors

*Kosuke Iwakiri[1,2], Taichiro Nishio[1], Kenji Kawashima[2,3], Shigeyuki Ishida[2], Kunihiko Oka[2], Hiroshi Fujihisa[2], Yoshito Gotoh[2], Akira Iyo[2], Hiraku Ogino[2], Hiroshi Eisaki[2], Yoshiyuki Yoshida[2], Hijiri Kito[2]

Tokyo Univ. of Science[1]
AIST[2]
IMRA Material R&D Co., Ltd[3]

PCP2-4 16:00–18:00

Single Crystal growth of mixed anion $Zr(P, Se)_2$ superconductor and related materials

*Hijiri Kito[1], Kousuke Iwakiri[1,2], Taichiro Nishio[2], Kenji Kawashima[1,3], Shigeyuki Ishida[1], Kunihiko Oka[1], Hiroshi Fujihisa[1], Yoshito Gotoh[1], Akira Iyo[1], Hiraku Ogino[1], Hiroshi Eisaki[1], Yoshiyuki Yoshida[1]

National Institute of Advanced Industrial Science and Technology (AIST)[1]
Tokyo University of Science[2]
IMRA Material R&D Co., Ltd[3]

PCP2-5 16:00–18:00

Synthesis and Superconductivity of a Strontium Digermanide $SrGe_{2-\delta}$ with $ThSi_2$ Structure

*Akira Iyo[1], Izumi Hase[1], Shigeyuki Ishida[1], Hijiri Kito[1], Nao Takeshita[1], Hiroshi Fujihisa[1], Yoshito Goto[1], Yoshiyuki Yoshida[1], Hiroshi Eisaki[1], Kenji Kawashima[1,2]

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IMRA Material R&D Co. Ltd.[2]

PCP2-6 16:00–18:00

Electronic Structure of Novel Binary Superconductor $SrGe_2$: A First-principle study

*Izumi Hase[1], Takashi Yanagisawa[1], Akira Iyo[1], Hiroshi Eisaki[1], Yoshiyuki Yoshida[1], Kenji Kawashima[2]

National Institute of Advanced Industrial Science and Technology (AIST), Japan[1]
IMRA Material R&D Co. Ltd.[2]

PCP2-7 16:00–18:00

The electrical resistance of gold-capped chromium thin films

*Masaki Sawabu[1], Masashi Ohashi[1], Kae Maeta[1], Hiroaki Nakanishi[1], Koki Takanashi[2,3], Takahide Kubota[2,3]

Kanazawa University[1]
IMR Tohoku University[2]
CSRN Tohoku University[3]

PCP2-8 16:00–18:00

Diamond Anvil Cell with Boron-doped Diamond Electrodes and Undoped Diamond Insulating Layer

*Ryo Matsumoto[1,2], Aichi Yamashita[1,2], Hiroshi Hara[1,2], Tetsuo Irifune[3], Hiromi Tanaka[4], Hiroyuki Takeya[1], Yoshihiko Takano[1,2]

NIMS[1]
Univ. of Tsukuba[2]
Ehime univ.[3]
NIT, Yonago College[4]

Iron-based superconductors 3

Chairperson: Hiraku Ogino (AIST)

PCP3-1 16:00–18:00

Giant phonon softening and strong-coupling superconductivity induced by copper/phosphorus doping of $BaNi_2As_2$

*Minoru Nohara[1], Masaya Takasuga[1], Kazutaka Kudo[1]

Okayama University, Japan[1]

PCP3-2 16:00–18:00

(Withdrawn)

PCP3-3 16:00–18:00

Substitution effect of $EuAFe_4As_4$ (A = Rb, Cs) superconductor with 1144-type structure

*Kenji Kawashima[1,2], Shigeyuki Ishida[2], Kunihiko Oka[2], Hijiri Kito[2], Nao Takeshita[2], Hiroshi Fujihisa[2], Yoshito Gotoh[2], Hiroshi Eisaki[2], Yoshiyuki Yoshida[2], Akira Iyo[2]

IMRA Material R&D Co., Ltd.[1]
National Institute of Advanced Industrial Science and technology (AIST)[2]

PCP3-4 16:00–18:00

P and Sb doping effects in $LaFeAsO_{1-y}(F,H)_y$ (y=0~0.3) system

*Hirokazu Tsuji[1], Masahiro Uekubo[1], Shigeki Miyasaka[1], Setsuko Tajima[1], Hajime Sagayama[2], Hironori Nakao[2], Reiji Kumai[2], Youichi Murakami[2]

Department of Physics, Osaka University, Osaka, Japan[1]
Condensed Matter Research Center and Photon Factory, IMSS, KEK, Tsukuba, Japan[2]

PCP3-5 16:00–18:00

Effect of Post-annealing on Physical Properties of $BaFe_2As_2$-based Superconductors

*Shigeyuki Ishida[1], Daniel Kagerbauer[2], Dongjoon Song[1], Hiraku Ogino[1], Masamichi Nakajima[3], Michael Eisterer[2], Hiroshi Eisaki[1]

AIST (Japan)[1]
TU Wien (Austria)[2]
Osaka University (Japan)[3]

PCP3-6 16:00–18:00

Anisotropy of Critical Current Densities in $Ba_{1-x}K_xFe_2As_2$ and $Ba(Fe_{1-x}Co_x)_2As_2$ with Splayed Columnar Defects

*Nozomu Ito[1], Sunseng Pyon[1], Tadashi Kambara[2], Atsushi Yoshida[2], Satoru Okayasu[3], Ataru Ichonose[4], Tsuyoshi Tamegai[1]

Department of Applied Physics, The University of Tokyo, Japan[1]
Nishina Center, RIKEN, Wako, Saitama, Japan[2]
Japan Atomic Energy Agency, Advanced Science Research Center, Tokai, Ibaraki, Japan[3]
Central Research Institute of Electric Power Industry, Electric Power Engineering Research Laboratory, Kanagawa, Japan[4]

PCP3-7 16:00–18:00

Direct Current Measurement of Hall Effect in the Mixed State for the Iron-Chalcogenide Superconductors

*Ryo Ogawa[1], Tomoya Ishikawa[1], Masataka Kawai[1], Fuyuki Nabeshima[1], Atsutaka Maeda[1]

Dept. of Basic Science, the Univ. of Tokyo[1]

PCP3-8 16:00–18:00

Effect of excess Fe in $FeTe_{0.6}Se_{0.4}$ on the flux pinning

*Yuji Tanaka[1], Ibuki Wada[1], Osuke Miura[1]

Dept. of Electrical and Electronic Engineering, Tokyo Metropolitan University[1]

PCP3-9 16:00–18:00

Gap Structure of FeSe Determined by Field-Angle-Resolved Specific Heat Measurements

*Yue Sun[1], Shunichiro Kittaka[1], Toshiro Sakakibara[1], Koki Irie[2], Takuya Nomoto[3], Kazushige Machida[2], Jingting Chen[4], Tsuyoshi Tamegai[4]

Institute for Solid State Physics (ISSP), The University of Tokyo[1]
Department of Physics, Ritsumeikan University[2]
RIKEN Center for Emergent Matter Science (CEMS)[3]
Department of Applied Physics, The University of Tokyo[4]

Thin film / MgB_2

Chairperson: Tsutomu Nojima (Tohoku University)

PCP4-1 16:00–18:00

Anomalous Metal Interface Effect of Iron-based Superconductors

*Ryoga tajima[1], Yukihiro Miyamoto[1], Takenori Fujii[2], Azusa Matsuda[1]

Department of Physics, School of Advanced Science and Engineering, Waseda University, Japan[1]
Cryogenic Research Center, the University of Tokyo Japan[2]

PCP4-2 16:00–18:00

Transport properties of FeSe epitaxial thin films under in-plane strain

*Masataka Kawai[1], Fuyuki Nabeshima[1], Atsutaka Maeda[1]

Department of Basic Science, University of Tokyo, Japan[1]

PCP4-3 16:00–18:00

Transport Properties of NdFeAs(O,F) Epitaxial Thin Films Grown on Vicinal-Cut MgO Substrates

*Takuya Matsumoto[1], Taito Omura[2], Takafumi Hatano[1,2], Kazumasa Iida[1,2], Hiroshi Ikuta[1,2]

Dept. of Materials Physics, Nagoya Univ., Japan[1]
Dept. of Crystalline Materials Science, Nagoya Univ., Japan[2]

PCP4-4 16:00–18:00

FABRICATION OF GRAIN BOUNDARY JUNCTIONS USING NdFeAs(O,F) SUPERCONDUCTING THIN FILMS

*Omura Taito[1], Takuya Matsumoto[2], Takafumi Hatano[1,2], Kazumasa iida[1,2], Hiroshi ikuta[1,2]

Dept. of Crystalline Materials Science, Nagoya Univ., Japan[1]
Dept. of Materials Physics, Nagoya Univ., Japan[2]

PCP4-5 16:00–18:00

Search for superconductiveity in epitaxially deposited chromium thin films

*Hiroaki Nakanishi[1], Masashi Ohashi[1], Masaki Sawabu[1], Kae Maeta[1], Takahide Kubota[2,3], Koki Takanashi[2,3]

Graduate School of Natural Science and Technology, Kanazawa University[1]
IMR, Tohoku University[2]
CSRN, Tohoku University[3]

PCP4-6 16:00–18:00

Inelastic Scattering Rate of Electron near Superconducting Transition Temperature of NbN Thin Films

*Bunju Shinozaki[1], Shohei Ezaki[2], Tomotaka Odou[1], Kazumasa Makise[3], Takayuki asano[4]

Department of Physics, Kyushu University, Fukuoka, Japan[1]
National Astronomical Observatory of Japan, Mitaka, Japan[2]
National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan[3]
Department of Applied Physics, University of Fukui, Japan[4]

PCP4-7 16:00–18:00

Observation of fluxoid states and interstitial vortices in perforated mesoscopic triangle of amorphous superconducting thin films

*Marie Mitsuishi[1], Nobuhito Kokubo[1], Satoru Okayasu[2], Tsutomu Nojima[3], Takahiko Sasaki[3]

Department of Engineering Science, University of Electro-Communications, Chofu, Tokyo, Japan[1]
Advanced Science Research Center, Japan Atomic Energy Agency, Tokai, Ibaraki, Japan[2]
Inst. for Material Research, Tohoku University, Sendai, Japan[3]

PCP4-8 16:00–18:00

Analysis of the microstructure of bulk MgB_2 using EBSD and t-EBSD

*Anjela Koblischka-Veneva[1,2], Michael R. Koblischka[1,2], Alex Wiederhold[1], Jörg Schmauch[1], Miryala Muralidhar[2], Masato Murakami[2]

Saarland University, Experimental Physics[1]
Shibaura Institute of Technology, Superconducting Materials Laboratory, Department of Materials Science and Engineering[2]

PCP4-9 16:00–18:00

Nanoscale Investigations of the MgB_2 Superconductor by STM/STS

*Akira Sugimoto[1], Yuta Yanase[1], Takahiro Muranaka[2], Toshikazu Ekino[1]

IAS, Hiroshima Univ.[1]
Univ. of Electro-Communications[2]

Dec. 13 (Tue.) Wires and Bulk **B1+B2**

APC

Chairperson: Kaname Matsumoto (Kyushu Institute of Technology)

WBP1-1 16:00–18:00

Improvement of uniformity of I_c distributions in long REBCO with BMO coated conductors by in-plume PLD method

*Akira IBI[1], Takato MACHI[1], Koichi NAKAOKA[1], Teruo IZUMI[1]

National Institute of Advanced Industrial Science and Technology (AIST)[1]

WBP1-2 16:00–18:00

Evaluation of Laser Irradiated $YBa_2Cu_3O_{7-x}$ Film with $BaHfO_3$

*Sei Katagi[1], Ryo Teranishi[1], Yukio Sato[1], Kenji Kaneko[1]

Kyushu University Japan[1]

WBP1-3 16:00–18:00

3D Study of $EuBa_2Cu_3O_y$ and $GdBa_2Cu_3O_y$ Coated Conductors Using Focused Ion Beam-Scanning Electron Microscopy System

Daisaku Yokoe[1], Ryuji Yoshida[1], *Takeharu Kato[1], Akira Ibi[2], Tsukasa Hirayama[1], Teruo Izumi[2]

Nanostructures Research Lab., Japan Fine Ceramics Center[1]
Department of Energy and Environment, National Institute of Advanced Industrial Science and Technology[2]

WBP1-4 16:00–18:00

Apparent pinning potential of SmBCO superconducting thin film with BHO artificial pins

*Kei Kashiwagi[1], Masaru Kiuchi[1], Teruo Matsushita[1], Edmund Soji Otabe[1], Yuji Tsuchiya[2], Yutaka Yoshida[2], Tadahiro Akune[3], Terukazu Nishizaki[3]

Kyushu Institute of Technology, Japan[1]
Nagoya University, Japan[2]
Kyushu Sangyo University, Japan[3]

WBP1-5 16:00–18:00

Transport properties of grain boundaries in $SmBa_2Cu_3O_y$ films with $BaHfO_3$ nanorod pinning centers on bicrystal and IBAD substrates over a wide temperature and field range

*Junya Akita[1], Yuji Tsuchiya[1], Yusuke Ichino[1], Yutaka Yoshida[1]

Dept. of Electrical Engineering, Nagoya University (Japan)[1]

WBP1-6 16:00–18:00

The effect of deposition rate of SmBCO thin films on the pinning center formation in the process of reactive co-evaporation

*Gwan-tae Kim[1], Ho-sup Kim[1], Dong-woo Ha[1], Rock-kil Ko[1], Hyun-woo No[1], Kook-Chae Chung[2], Kiran Shinde[2]

Korea Electrotechnology Research Institute, Changwon, Korea[1]
Functional Nano-materials Research Department, Korea Institute of Materials Science, Changwon, Korea[2]

WBP1-7 16:00–18:00

Effect of flux pinning force on in-field current carrying capabilities in the force-free state of $REBa_2Cu_3O_y$ films with particulate artificial pinning centers

*Kazuki Sugihara[1], Yusuke Ichino[1], Yuji Tsuchiya[1], Ataru Ichinose[2], Yutaka Yoshida[1]

Nagoya University, Japan[1]
CRIEPI, Japan[2]

MOD

Chairperson: Ryo Teranishi (Kyushu University)

WBP2-1 16:00–18:00

REBCO superconductor with ultimately dispersed PrBCO for pinning centers fabricated by TFA-MOD

*Mariko Hayashi[1], Takeshi Araki[1], Hirotaka Ishii[1], Gen Nishijima[2], Akiyoshi Matsumoto[2]

Toshiba Corporation, Corporate Research & Development Center, Japan[1]
National Institute for Materials Science, Japan[2]

WBP2-2 16:00–18:00

Co-doping effects on the fabrication of fluorine-free MOD-GdBCO films

*Seiya Kato[1], Ryusuke Kita[1], Natsuki Kobayashi[2], Osuke Miura[2]

Shizuoka University[1]
Tokyo Metropolitan University[2]

WBP2-3 16:00–18:00

Flux pinning properties of hafnium doped Gd123 films fabricated by fluorine-free MOD method with multistage heat treatment

*Natsuki Kobayashi[1], Jouichiro Hukui[1], Ryusuke Kita[2], Osuke Miura[1]

Dept. of Electrical and Electronic Engineering, Tokyo Metropolitan University, Japan[1]
Dept. of Electrical and Electronic Engineering, Shizuoka University, Japan[2]

WBP2-4 16:00–18:00

Fabrication of coated conductor with artificial pinning center by MOD method using new calcination process

*Kazunari Kimura[1], Yasuo Takahashi[1], Yuji Aoki[1], Takayo Hasegawa[1], Koichi Nakaoka[2], Masashi Miura[3], Teruo Izumi[2]

SWCC Showa Cable Systems Co., Ltd.[1]
National Inst. of Advanced Industrial Science and Technology[2]
Seikei University[3]

WBP2-5 16:00–18:00

Enhancement of Flux Pinning in $BaZrO_3$-doped TFA-MOD $(Y,Gd)Ba_2Cu_3O_y$ CCs with Intermediate Heat Treatment

*Michio Sato[1], Tomonori Murakami[1], Masashi Miura[1], Akira Ibi[2], Koichi Nakaoka[2], Teruo Izumi[2]

Seikei University[1]
AIST[2]

WBP2-6 16:00–18:00

Influence of Carrier Density on the In-field J_c in $BaZrO_3$ Doped TFA-MOD-$(Y_{0.77}Gd_{0.23})Ba_2Cu_3O_y$ CCs

*Ryota Oku[1], Michio Sato[1], Koki Agatsuma[1], Keita Sakuma[1], Masashi Miura[1], Akira Ibi[2], Koichi Nakaoka[2], Teruo Izumi[2]

Seikei University[1]
AIST[2]

WBP2-7 16:00–18:00

The Influence of $BaZrO_3$ Nanoparticles on the J_c in Longitudinal Magnetic Field for TFA-MOD $(Y_{0.77}Gd_{0.23})Ba_2Cu_3O_y$ CCs

*Kota Hirai[1], Tasuku Kusama[1], Michio Sato[1], Keita Sakuma[1], Masaru Kiuchi[2], Masashi Miura[1]

Seikei university[1]
Kyushu Institute of Technology[2]

WBP2-8 16:00–18:00

Annealing Treatment of CeO_2 Buffered R-Al_2O_3 for the Improvement of the Critical Current Density of TFA-MOD $(Y_{0.77}Gd_{0.23})Ba_2Cu_3O_y$ Films

*Keita Sakuma[1], Michio Sato[1], Masashi Miura[1]

Seikei University[1]

PLD

Chairperson: Yutaka Yoshida (Nagoya University)

WBP3-1 16:00–18:00

Development of New Scribing Technique by using Multiple-laser Beams for Multi-filamentary Coated Conductors

Takato Machi[1], Akira Ibi[1], Teruo Izumi[1]

National Institute of Advanced Industrial Science and Technology (AIST)[1]

WBP3-2 16:00–18:00

Development of surface planarization process using MOD-Y_2O_3 bed layer

*Koichi Nakaoka[1], Akira Ibi[1], Takato Machi[1], Teruo Izumi[1]

National Institute of Advanced Industrial Science and Technology (AIST)[1]

WBP3-3 16:00–18:00

Angular Dependence of J_c in YBCO Films with *C*-axis Correlated Nano-Rods and In-Plane Distributed Nano-Particles

*Tetsuro Sueyoshi[1], Momotaro Suenaga[1], Takaaki Furusawa[1], Shota Matsuyuki[1], Takanori Fujiyoshi[1]

Kumamoto University[1]

WBP3-4 16:00–18:00

Investigation of Particles formation in $GdBa_2Cu_3O_{7-\delta}$ coated conductors prepared by pulsed laser deposition

*Tatsuya Murakami[1], Ryo Teranishi[1], Yukio Sato[1], Kenji Kaneko[1]

Dept. of Materials Physics and Chemistry, Kyushu Univ., Japan[1]

WBP3-5 16:00–18:00

Enhanced pinning properties of $EuBa_2Cu_3O_{7-\delta}$ films with Eu_2O_3 nanoparticles fabricated by Pulsed Laser Deposition

*Won-Jae Oh[1], Jae-Eun Kim[1], Yujin Park[1], Kiran Shinde[2], Kookchae Chung[2], Sang-Im Yoo[2]

Dept. of Material Science and Engineering, Research Institute of Advanced Materials (RIAM), Seoul National University, Korea[1]
Department of Functional Nano Materials, Korea Institute of Materials Science, Changwon, Korea[2]

WBP3-6 16:00–18:00

The effect of composition ratio of Sm:Ba:Cu on the flux pinning centers in the SmBCO coated conductor

*Ho-Sup Kim[1], Gwan-Tae Kim[1], Dong-Woo Ha[1], Kook-Chae Chung[2], Kiran Shinde[2]

Korea Electrotechnology Research Institute, South Korea[1]
Korea Institute of Materials Science, South Korea[2]

Coated conductors

Chairperson: Satoshi Awaji (Tohoku University)

WBP4-1 16:00–18:00

Enhancement of the Deposition Rate and Crystallinities for $SmBa_2Cu_3O_y$ Coated Conductors Using Vapor-Liquid-Solid Growth Technique

*Tomohiro Ito[1], Shuya Tajiri[1], Yusuke Ichino[1], Yuji Tsuchiya[1], Ataru Ichinose[2], Yutaka Yoshida[1]

Dept. of Electrical Engineering, Nagoya University, Japan[1]
Central Research Institute of Electric Power Industry, Japan[2]

WBP4-2 16:00–18:00

Measurement of magnetic properties of metal substrate for REBCO coated conductor at low temperature using a single sheet tester

*Shinya Ohara[1], Takuya Nakagawa[1], Kenya Fujimoto[1], SeokBeom Kim[1], Hiroshi Ueda[1]

Graduate School of Nature Science and Technology, Okayama University, Japan[1]

WBP4-3 16:00–18:00

Development of self-protected HTS coil for mechanical problems in non-insulated HTS coils

*Haruyoshi Okusa[1], Kentaro Tami[1], Takahiro Tatsuta[2], Hiroshi Ueda[1], SeokBeom Kim[1]

Graduate School of Natural Sciece and Technology, Okayama University, Japan[1]
Electrical and Communication Engineering, Okayama University, Japan[2]

WBP4-4 16:00–18:00

Study on Electromagnetic Characteristics of Twisted Soldered-Stacked-Square (3S) HTS Wire with 1mm Width

*Yongkang Zhou[1], Zhuyong Li[1]

Dept. of Electrical Engineering, Shanghai Jiao Tong Univ., China[1]

WBP4-5 16:00–18:00

(Withdrawn)

WBP4-6 16:00–18:00

CORC modeling and bending experiments with variation of cable manufacturing parameters

*A. Nijhuis[1,] V.A. Anvar[1,2], M. Binet[3], K.A. Yagotintsev[1], D.C. van der Laan[4], J. Weiss[4], T.J. Haugan[5]

Univ. of Twente, Faculty of Science & Technology, The Netherlands[1]
University of Wollongong, Wollongong, Australia[2]
TKM College of Engineering, Department of Mechanical Engineering, Kollam, Kerala, India[3]
Advanced Conductor Technologies and Univ. of Colorado, USA[4]
US Air Force Research Laboratory, Wright Patterson AFB, USA[5]

WBP4-7 16:00–18:00

AC Loss Properties of Stacked REBCO Superconducting Multifilamentary Tapes under Perpendicular Magnetic Field

*Hiromasa Sasa[1], Tetsuya Ito[1], Shun Miura[1], Masataka Iwakuma[1], Teruo Izumi[2], Takato Machi[2], Akira Ibi[2]

Inst. of Superconductors Science & Systems, Kyushu Univ., Japan[1]
National Inst. of Advanced Industrial Science & Technology, Japan[2]

WBP4-8 16:00–18:00

Experimental investigation and analysis on critical current of HTS tapes in current-rise-rate by Wavelet Analysis Algorithm

*Jie Chen[1], Jin Fang[1], Xinyu Fang[2]

The School of Electrical Engineering, Beijing Jiao-Tong University, Beijing[1]
The Department of Electrical and Computer Engineering, University of Victoria, Victoria[2]

WBP4-9 16:00–18:00

Ic–Bending Strain Characteristics of REBCO Coated Conductor Tapes at 77 K using a Bending Beam Spring Test Rig

*Mark Angelo E. Diaz[1], Hyung-Seop Shin[1]

Andong National University, Korea[1]

WBP4-10 16:00–18:00

Enhancement of Delamination Strength in Cu-stabilized GdBCO CC Tapes under Transverse Tension

*Zhierwinjay M. Bautista[1], Mark Angelo E. Diaz[1], Hyung-Seop Shin[1]

Andong National University, Korea[1]

Joint

Chairperson: Kohki Takahashi (Tohoku University)

WBP5-1 16:00–18:00

Superconducting joint of $GdBa_2Cu_3O_y$ coated conductors by solid diffusion of the precursor films

*Tomohiro Miyajima[1], Ryo Teranishi[1], Yukio Sato[1], Kenji Kaneko[1], Miyuki Nakamura[2], Valery Petrykin[2], Sergey Lee[2], Satoshi Awaji[3]

Kyushu University[1]
SuperOx Japan[2]
Tohoku University[3]

WBP5-2 16:00–18:00

Fabrication of superconducting joint of $REBa_2Cu_3O_y$ coated conductors by crystallization of additional precursor films

*Ryo Teranishi[1], Tomohiro Miyajima[1], Kazuya Hiramatsu[1], Yukio Sato[1], Kenji Kaneko[1], Miyuki Nakamura[2], Valery Petrykin[2], Sergey Lee[2], Satoshi Awaji[3]

Kyushu University, Japan[1]
SuperOx Japan LLC, Japan[2]
Tohoku University, Japan[3]

WBP5-3 16:00–18:00

Several methods to reduce the resistance of non-superconducting joint

*Yunhao Pan[1], Wei Wu[1], Zhuyong Li[1]

Shanghai Jiao Tong University (SJTU), The School Of Electronic, Information And Electrical Engineering, China[1]

WBP5-4 16:00–18:00

Superconducting Joints Using Bi-added PbSn Solders

Ryo Matsumoto[1,2], Hirotsugu Iwata[1,2], Aichi Yamashita[1,2], Hiroshi Hara[1,2], Gen Nishijima[1], Hiromi Tanaka[3], Masashi Tanaka[4], Hiroyuki Takeya[1], *Yoshihiko Takano[1,2]

NIMS[1]
Univ. of Tsukuba[2]
NIT. Yonago College[3]
Kyushu Inst. Tech.[4]

WBP5-5 16:00–18:00

Recent Progress on Superconducting Joint Technique of MgB_2 Wires at Korea University

*Young-Gyun Kim[1], Byeongha Yoo[1], Jiman Kim[1,2], Duck Young Hwang[2], Haigun Lee[1]

Department of Materials Science and Engineering, Korea University, Seoul, Korea[1]
Kiswire Advanced Technology Co., Ltd., Daejeon, Korea[2]

Simulation

Chairperson: Yasunori Mawatari (AIST)

WBP6-1 16:00–18:00

Numerical Study to Reduce the Effect of the Screening Field for Compact HTS NMR Magnets

*Masato Kirai[1], SeokBeom Kim[1], Hiroshi Ueda[1], Keito Sugo[1], Shoki Ishii[1]

Graduate School of Natural Science and Technology, Okayama University[1]

WBP6-2 16:00–18:00

Numerical Simulation on Coupling Current for Multifilamentary HTS Wire

*Tomoaki Koizumi[1], Eisuke Morikawa[1], SeokBeom Kim[1], Hiroshi Ueda[1]

Okayama University, Japan[1]

WBP6-3 16:00–18:00

Analysis of Magnetization and Loss on a Twisted Superconducting Tape Wire in a Constantly Ramping Magnetic Field

*Yoichi Higashi[1], Huiming Zhang[2], Yasunori Mawatari[1]

National Institute of Advanced Industrial Science and Technology (AIST)[1]
Chinese Electric Power Research Institute (CEPRI)[2]

WBP6-4 16:00–18:00

Electromagnetic Coupling of Multi-Filamentary

Superconducting Tape Wires in Ramping Magnetic Fields

*Yoichi Higashi[1], Yasunori Mawatari[1]

National Institute of Advanced Industrial Science and Technology (AIST)[1]

WBP6-5 16:00–18:00

TDGL simulation on the motion of flux lines with different kinds of pins in thin superconducting wire in transverse magnetic field

*Kenta Tanimura[1], Edmund Soji Otabe[1], Kiuchi Masaru[1], Yasunori Mawatari[2], Tetsuya Matsuno[3]

Kyushu Institute of Technology, Fukuoka, Japan[1]
National Institute of Advanced Industrial Science and Technology(AIST), Tsukuba, Japan[2]
National Inst. of Technology Ariake College, Fukuoka, Japan[3]

Bi-system

Chairperson: Akiyoshi Matsumoto (NIMS)

WBP7-1 16:00–18:00

The microstructure characterization and phase composition analysis of (Bi,Pb)-2223 Ag/tapes with SnO, MgO and Ag_2O mix-doping

*Xiaoye Lu[1], Danqing Yi[2], Taisuke Fujino[1], Akihiko Nagata[1]

Akita University, Japan[1]
Central South University, China[2]

WBP7-2 16:00–18:00

Effects of rolling passes on the transport properties of 37-filamentary AgAu sheathed Bi-2223 tapes

*Xiaobo Ma[1,2], Shengnan Zhang[2], Guo-qing Liu[2], Huiling Zheng[2], Chengshan Li[2], Pingxiang Zhang[1,2], Jinshan Li[1]

State Key Laboratory of Solidification Processing, Northwestern Polytechnical University, Xi'an, China[1]
Northwest Inst. for Nonferrous Metal Research (NIN), Xi'an, China[2]

WBP7-3 16:00–18:00

Effect of grinding method on the precursor powder of Bi2223 and properties of strip

Guoqing Liu[1], Huiling Zheng[1], *Pengfei Wang[1], Qingbin Hao[1], Shengnan Zhang[1], Xiaoyan Xu[1], Gaofeng Jiao[1], Lijun Cui[2], Chengshan Li[1]

Northwest Institute For Nonferrous Metal Research, China[1]
Western Superconducting Technology Co., Ltd, China[2]

WBP7-4 16:00–18:00

Longitudinal magnetic field effect in critical current

characteristics of Bi-2223 superconducting tape

*Xuan Wu[1,2], Baorong Ni[1]

Department of Information Electronics, Fukuoka Institute of Technology, Japan[1]
School of Electronic and Optical Engineering, Nanjing University of Science and Technology, China[2]

Nb_3Sn, MgB_2 and Fe-based

Chairperson: Yoshiyuki Yoshida (AIST)

WBP8-1 16:00–18:00

Use of Cu-Mg alloy matrix in internal diffusion process Nb3Sn wires

*Zhou YU[1,2], Yong Zhao[1], Nobuya Banno[2], Kyoji Tachikawa[2]

Southwest Jiaotong University, Superconductivity and New Energy Research Center, Chengdu, China[1]
National Institute for Materials Science, Tsukuba, Japan[2]

WBP8-2 16:00–18:00

Preparation of Nb_3Al superconducting tapes by a powder-in-tube method combined with hot-pressed sintering

Wenjie Zhang[1], Wenjia Lin[1], Pingyuan Li[2], Liang Zheng[1], Xinsheng Yang[1], Zhou Yu[1], Xifeng Pan[2], Guo Yan[2], Yong Zhao[1], *Yong Zhang[1]

Southwest Jiaotong University[1]
Western Superconducting Technologies (WST) Co., Ltd.[2]

WBP8-3 16:00–18:00

Effect of Bending Strain on Critical Current of Reacted MgB_2 Mono- and Multi-filament Wires

*Byeongha Yoo[1], Young-Gyun Kim[1], Jiman Kim[1,2], Duck Young Hwang[2], Haigun Lee[1]

Department of Materials Science and Engineering, Korea University, Seoul, Korea[1]
Kiswire Advanced Technology Co., Ltd., Daejeon, Korea[2]

WBP8-4 16:00–18:00

Fabrication Process and Pressure Dependence of Critical Current Density in $Ba_{1-x}K_xFe_2As_2$ Superconducting HIP Wires

*Sunseng Pyon[1], Takahiro Suwa[1], Tsuyoshi Tamegai[1], Katsutoshi Takano[2], Hideki Kajitani[2], Norikiyo Koizumi[2], Satoshi Awaji[3]

Dept. of Appl. Phys., Univ. of Tokyo, Japan[1]
Naka Fusion Institute, National Institutes for Quantum and Radiological Science and Technology, Japan[2]
High Field Laboratory for Superconducting Materials, Institute for Materials Research, Tohoku University, Japan[3]

WBP8-5 16:00–18:00

Enhancement of Critical Current Density in AgSn-sheathed (Sr,Na)Fe_2As_2 Superconducting Tapes

*Takahiro Suwa[1], Sunseng Pyon[1], Tsuyoshi Tamegai[1], Satoshi Awaji[2]

Department of Applied Physics, The University of Tokyo, Japan[1]
High Field Laboratory for Superconducting Materials, Institute for Materials Research, Tohoku University, Japan[2]

WBP8-6 16:00–18:00

Fabrication and Critical Current Properties of Powder-in-tube $Ba_{1-x}Na_xFe_2As_2$ Wires and Tapes

*Shota Imai[1,2], Shoko Itou[1,2], Tatsuya Asou[1,2], Shigeyuki Ishida[2], Yoshinori Tsuchiya[2], Akira Iyo[2], Hiroshi Eisaki[2], Kunio Matsuzaki[2], Taichiro Nishio[1], Yoshiyuki Yoshida[2]

Department of Physics, Tokyo University of Science[1]
National Institute of Advanced Industrial Science and Technology (AIST)[2]

Bulk materials

Chairperson: Tomoyuki Akasaka (Railway Technical Research Institute)

WBP9-1 16:00–18:00

Optimization of growth parameters for fabricating single grain (Gd, Dy)BCO bulk superconductors in top-seeded infiltration growth process

*Pavan Kumar Naik S[1], Muralidhar M[1], Murakami M[1]

Shibaura Institute of Technology, Toyosu, Tokyo, Japan[1]

WBP9-2 16:00–18:00

Effect of CeO_2 on the properties of single domain GdBCO bulk superconductors fabricated by Gd+011 TSIG Process

*Pengtao Yang[1], Wanmin Yang[1]

College of Physics and Information Technology, Shaanxi Normal University, Xi'an, China[1]

WBP9-3 16:00–18:00

Large single grain bulk $GdBa_2Cu_3O_y$ grown by IG process utilizing the $ErBa_2Cu_3O_y$+liquid as a liquid source

*Yuta Nakanishi[1], Muralidhar Miryala[1], Masato Murakami[1]

Shibaura Institute of Technology[1]

WBP9-4 16:00–18:00

The effect of cooling rate on critical current density and microstructure of single grain bulk $YBa_2Cu_3O_y$

superconductors grown by IG process

*Santosh Kumar Miryala[1,2], S Pavan Kumar Naik[2], Masato Murakami[2]

Faculty of Arts and Science, Univ. of Toronto, Toronto, Canada[1]
Superconducting Materials Laboratory, Dept. of Materials Science and Engineering, Shibaura Inst. of Technology, Toyosu, Japan[2]

WBP9-5 16:00–18:00

Study on the Torque Property of Non-Contact Rotating System Using HTS Bulks and Permanent Magnets

*Koichiro Tateishi[1]

Graduate School of Nature Science and Technology, Okayama University, Japan[1]

WBP9-6 16:00–18:00

Effects of Nanodiamond Addition on Critical Current Density in Y-Ba-Cu-O Bulk Superconductors

*Kazuo Inoue[1], Hirosuke Fujii[1], Muralidhar Miryala[1], Masato Murakami[1]

Shibaura Institute of Technology, Japan[1]

WBP9-7 16:00–18:00

Basic Design of Electromagnets to Prevent the Overshoots in 3-D Superconducting Actuator

*Yusuke Hiratsuka[1], Takao Yamasaki[1], Atsuo Nakashima[1,2], SeokBeom Kim[1], Hiroshi Ueda[1]

Graduate School of Natural Science and Technology, Okayama University, Japan[1]
Okayama University, Japan[2]

WBP9-8 16:00–18:00

Trapping Large Magnetic Field by Suppression of Thermomagnetic Instability in Coated Conductor Stacks

*Tomohiro Hashimoto[1], Sunseng Pyon[1], Tsuyoshi Tamegai[1]

Department of Applied Physics, The University of Tokyo[1]

WBP9-9 16:00–18:00

Effects of SPS pressure on the mechanical properties of high packing ratio bulk MgB_2 superconductor

*Akira Murakami[1], Akifumi Iwamoto[2], Jacques Noudem[3]

National Institute of Technology, Ichinoseki College, Japan[1]
National Institute for Fusion Science, Japan[2]
CRISMAT-CNRS UMR 6508/UNICAEN-ENSICAEN, France[3]

WBP9-10 16:00–18:00

MgB_2 bulk superconductors prepared through a powder reaction method using MgB_4 and Mg powders

D. N. Kim[1], B.-H. Jun[1]

Korea Atomic Energy Research Institute[1]

WBP9-11 16:00–18:00

Flux pinning and superconducting properties of MgB_2-diamond nanocomposites

*Longji Joseph Dadiel[1], Muralidhar Miryala[1], Masato Murakami[1]

Shibaura Institute of Technology[1]

WBP9-12 16:00–18:00

High performance bulk FeSe produced by silver addition and ball-milling technique

*Kouichi Furutani[1], Miryala Muralidhar[1], Michael Koblischka[2], Masato Murakami[1]

Shibaura Institute of Technology, Japan[1]
Saarland University, Germany[2]

WBP9-13 16:00–18:00

High Performance Y123 Superconductor Bulks and Thick Films for Practical Applications

*XIN YAO[1]

School of Physics & Astronomy, Shanghai Jiao Tong Univ., China[1]

Dec. 13 (Wed.) Large Scale System Applications

D1+D2

Motors and generators

Chairperson: Taketsune Nakamura (Kyoto University)

APP1-1 16:00–18:00

Design and Test Results of a Quench Protection Circuit for a HTS Ship Propulsion Motor

*Yohei Murase[1], Mitsuru Izumi[2], Tamami Oryu[1], Minoru Yokoyama[1], Katsuya Umemoto[1], Toshiyuki Yanamoto[1,2]

Kawasaki Heavy Industries, Ltd.[1]
Tokyo University of Marine Science and Technology[2]

APP1-2 16:00–18:00

Optimal Design of a Superconducting Motor for Electric-drive Aeropropulsion Based on Finite-Element Analysis and Genetic Algorithm

*Weilu Kong[1], Yutaka Terao[2], Hiroyuki Ohsaki[2]

Department of Electrical Engineering and Information Systems, Graduate School of Engineering, University of Tokyo, Japan[1]
Department of Advanced Energy, Graduate School of Frontier Sciences, University of Tokyo, Japan[2]

APP1-3 16:00–18:00

Design and Electrical Performance of Prototype Winding for Closed-Circuit Magnetization

*Keita Tsuzuki[1], Yunosuke Suzuki[1], Sho Yamamura[1], Dai Oikawa[2], Takehiko Tsukamoto[2], Hiroya Ando[1]

Department of Information and Computer Engineering, National Institute of Technology, Toyota College.[1]
Department of Electrical and Electronic Engineering, National Institute of Technology, Toyota College.[2]

APP1-4 16:00–18:00

Design and Analysis of Air-Core Superconducting Generator for Wind Power Applications

*Han-Wook Cho[1], Matthew Feddersen[2], Kiruba Haran[2]

University of Illinois at Urbana-Champaign[2]

APP1-5 16:00–18:00

Design of a Characteristic Evaluation Device for the Field Coil of Superconducting Wind Power Generator

*Changhyun Kim[1], Hae Jin Sung[1], MinWon Park[1], InKeun Yu[1]

Chang Won National University[1]

APP1-6 16:00–18:00

Design and thermal analysis of an HTS module coil for a 12 MW wind power generator

*Tat-Thang Le[1], Hae-Jin Sung[1], Byeong-Soo Go[1], Oyunjargal Tuvdensuren[1], Minwon Park[1], In-Keun Yu[1]

Changwon National University, Republic Of Korea[1]

APP1-7 16:00–18:00

Structural Design and Heat Load Analysis of a Flux Pump based HTS Module Coil for a Large Scale Wind Power Generator

*Oyunjargal Tuvdensuren[1], Haejin Sung[1], Byeong soo Go[1], Tat-Thang Le[1], Minwon Park[1], In-Keun Yu[1]

Changwon National University[1]

Transmission cables and cooling systems

Chairperson: Naoko Nakamura (Mayekawa MFG)

APP2-1 16:00–18:00

Heat Leak and Pressure Drop Measurements of the 1000 m Class Superconducting DC Power Transmission System in Ishikari

*Hirofumi Watanabe[1], Yury Ivanov[1], Noriko Chikumoto[1], Satarou Yamaguchi[1], Kotaro Ishiyama[2], Zenji Oishi[2],

Michihiko Watanabe[3], Takato Masuda[3]

Chubu University[1]
Chiyoda Corporation[2]
Sumitomo Electric Industries, Ltd.[3]

APP2-2 16:00–18:00

Fluid characteristic of liquid nitrogen flowing in HTS cable

*Osamu MARUYAMA[1], Tomoo Mimura[1]

Tokyo Electric Power Company Holdings[1]

APP2-3 16:00–18:00

Hydraulic Evaluation of Pressure Drops and Temperature Profiles in Liquid Nitrogen Circulation Coolings for HTS Power Transmission Cables

*Kazuhiro Kajikawa[1], Kenta Tadakuma[1], Yasuharu Kamioka[2], Atsushi Ishiyama[2], Shinsaku Imagawa[3], Taketsune Nakamura[4], Hirokazu Hirai[5]

Kyushu University, Japan[1]
Waseda University, Japan[2]
National Institute for Fusion Science (NIFS), Japan[3]
Kyoto University, Japan[4]
Taiyo Nippon Sanso Corp., Japan[5]

Electric power applications

Chairperson: Tomonori Watanabe (Chubu Electric Power Co.)

APP3-1 16:00–18:00

Three-Dimensional Thermal Analysis of an SFCL REBCO Coil Immersed in Liquid Nitrogen

*Kezhen Qian[1], Toshiki Shiratani[2], Yutaka Terao[2], Hiroyuki Ohsaki[2]

Graduate School of Engineering, The University of Tokyo, Japan[1]
Graduate School of Frontier Sciences, The Univ. of Tokyo, Japan[2]

APP3-2 16:00–18:00

Combined Use of SFCL and SMES for Augmenting FRT Performance and Smoothing Output Power of PMSG Based Wind Turbine

*Lei Chen[1], Hongkun Chen[1], Xin Liu[1], Yanjuan Yu[1]

Wuhan University, China[1]

APP3-3 16:00–18:00

HILS of Transmission Line Protection System for the application of the SFCL to Korean power system

*SEUNG RYUL LEE[1], JONG-JOO LEE[1], Dinh Minh Chau[2]

KERI[1]
KEPCO[2]

APP3-4 16:00–18:00

A feasibility study of smart high-temperature superconducting cable to improve stability of KEPCO system

*Sangsoo Seo[1], Seung Ryul Lee[1]

Korea Electrotechnology Research Institute[1]

APP3-5 16:00–18:00

Study on Configuration of a Single-phase Air-core Bi2223 High Temperature Superconducting Transformer for a Large AC Current Supply

*Yuhi Tanaka[1], Nozomu Nanato[1], Mikishi Kondo[1], Takahiro Niwase[1]

Okayama University, Japan[1]

APP3-6 16:00–18:00

Design and Performance analysis of a 1,500 A, 400 mH Class Superconducting DC Reactor Coil using 2G Multi-ply HTS wire

*Jae-In Lee[1], Changhyeong Lee[1], Sung-Kyu Kim[2], Tae-Kyu Kim[1], Minwon Park[1], In-Keun Yu[1]

Korea Electrotechnology Research Institute Korea[2]

APP3-7 16:00–18:00

Design and Demonstration of a Double-Pancake Coil for SMES using MgB_2 multi-strand cable

*Tsuyoshi Yagai[1], Sinya Mizuno[1], Toru Okubo[1], Sora Mizuochi[1], Masahiro Kamibayashi[1], Nama Jinbo[1], Tomoaki Takao[1], Yasuhiro Makida[2], Takakazu Shintomi[2], Naoki Hirano[3], Toshihiro Komagome[4], Kenichi Tsukada[4], Taiki Onji[5], Yuki Arai[5], Masaru Tomita[5], Daisuke Miyagi[6], Makoto Tsuda[6], Takataro Hamajima[4]

Sophia University[1]
High Energy Accelerator Research Organization KEK[2]
Chubu Electric Power Co. Inc.[3]
Mayekawa MFG Co. Ltd.[4]
Railway Technical Research Institute[5]
Tohoku University[6]

Large scale applications and magnet technology

Chairperson: Shinji Matsumoto (NIMS)

APP4-1 16:00–18:00

Solenoidal Magnet for Multi-Purpose Detector at NICA

*Nikita Emelianov[1], Vladimir Kekelidze[1], Georgy Kekelidze[1], Vyacheslav Golovatiuk[1], Nikolay Topilin[1], Alexander Vodopianov[1], Evgeny Koshurnikov[2], Oleg Kovalchuk[2], V Ochrimenko[2], Andrea Maffini[3]

Joint Institute for Nuclear Research (Russia)[1]
Research-and-production enterprise "Neva-Magnet" (Russia)[2]
ASG Superconductors s.p.a. (Italy)[3]

APP4-2 16:00–18:00

Effect of electromagnetic force on the hydraulic characteristics of a quad-pancake coil wound with a Nb_3Sn CIC conductor

*Tetsuhiro Obana[1], Kazuya Takahata[1], Shinji Hamaguchi[1], Hirotaka Chikaraishi[1], Shinsaku Imagawa[1], Toshiyuki Mito[1], Haruyuki Murakami[2], Kyohei Natsume[2], Kaname Kizu[2]

National Institute for Fusion Science[1]
National Inst. for Quantum and Radiological Science & Technology[2]

APP4-3 16:00–18:00

Thermal Properties of Heat Pipes for Conduction Cooled HTS Coils

*Jun Tokushige[1], Akifumi Kawagoe[1], Toshiyuki Mito[2], Nagato Yanagi[2], Shinji Hamaguchi[2], Suguru Takada[2], Naoki Hirano[2,3]

Kagoshima University, Japan[1]
National Institute for Fusion Science, Japan[2]
CHUBU Electric Power Co, Japan[3]

APP4-4 16:00–18:00

Effect of Surface-treated Carbon Nanotube (CNT) Fillers in Epoxy Composites on Thermal and Electrical Stabilities of Superconducting Coils

*Hyun Hee Son[1], Yoon Hyuck Choi[1], Young-Gyun Kim[1], Jihoon Lee[1], Haigun Lee[1]

Department of Materials Science and Engineering, Korea University, Seoul, Korea[1]

APP4-5 16:00–18:00

Ac Loss Measurements of High Current HTS Cables

*Ryuki Toyomoto[1], Naoyuki Amemiya[1]

Kyoto University[1]

APP4-6 16:00–18:00

Ac Loss Analyses of Twisted Stacked-Tape Cables

*Yudai Mizobata[1], Naoki Tominaga[1], Naoyuki Amemiya[1]

Kyoto University[1]

Magnet protection

Chairperson: Tsuyoshi Wakuda (Hitachi)

APP5-1 16:00–18:00

A Study on Active Protection for Prototype 1.0-T MgB_2 Magnet

*Jihoon Lee[1], Jong Cheol Kim[1], Young-Gyun Kim[1], Hyun Hee Son[1], Haigun Lee[1]

Department of Materials Science and Engineering, Korea University, Seoul, Korea[1]

APP5-2 16:00–18:00

Protection System for Normal Transitions in a Single-phase Bi2223 Full Superconducting Transformer by the Active Power Method under Flowing Various Frequency Current

*Takaaki Ono[1], Takahumi Adachi[1], Takahito Yamanishi[1], Nozomu Nanato[1]

Okayama University, Japan[1]

APP5-3 16:00–18:00

High Resolution Location of Normal Transitions in A High Temperature Superconducting Coil by Capacitor Type Voltage Terminals

*Hironobu Kumagai[1], Nozomu Nanato[1]

Okayama University, Japan[1]

APP5-4 16:00–18:00

Study on a Magnetic Flux Detection Coil for Detection of Normal Transitions in a Hybrid Single-phase Bi2223 Superconducting Transformer by the Active Power Method

*Shinichi Tanaka[1], Shota Tenkumo[1], Nozomu Nanato[1]

Okayama University[1]

APP5-5 16:00–18:00

The Effect of Turn-to-Turn Contact Resistance on the Electrical and Mechanical Characteristics of 2G HTS Pancake Coils

*Guangda Wang[1], Liang Li[1], Shaoliang Wang[1], Quanliang Cao[1], Wenzhang Guo[1]

Huazhong University of Science and Technology, Wuhan, China[1]

APP5-6 16:00–18:00

Investigation on Thermal and Electrical Characteristics of Metal-clad GdBCO Coil

*Jimin Kim[1], Jong Cheol Kim[1], Yoon Hyuck Choi[1], Young-Gyun Kim[1], Haigun Lee[1]

Department of Materials Science and Engineering, Korea University, Seoul, Korea[1]

Novel applications

Chairperson: Mitsuho Furuse (AIST)

APP6-1 16:00–18:00

Deign of a high temperature superconducting magnet for a single silicon crystal growth system

*Van Quan Dao[1], Chankyeng Lee[1], Jongho Choi[2], Minwon Park[1], In-Keun Yu[1]

Changwon National University[1]
Supercoil Co., Ltd[2]

APP6-2 16:00–18:00

Development of a low temperature superconducting magnet with MgB_2 wire for a 10 kW DC induction furnace

*Chankyeong Lee[1], Jongho Choi[a], Sang-ho Cho[1], Van Quan Dao[2], Minwon Park[2], In-keun Yu[2]

SUPERCOIL Co., Ltd.(jhchoi@supercoil.co.kr)[1]
Changwon National University[2]

APP6-3 16:00–18:00

Analysis of a Superconducting Inductive Pulsed Power Supply for Electromagnetic Railguns

*Xukun Liu[1,2], Xinjie Yu[1,2]

Department of Electrical Engineering, Tsinghua Univ., China[1]
State Key Laboratory of Power System, China[2]

APP6-4 16:00–18:00

Study on the basic design of multiple HTS magnets for single-sided compact MRI device

*Yoshikazu Tomisaka[1], Ryota Nomura[1], Kento Kotani[2], Naoki Arioka[2], Hiroshi Ueda[1], SeokBeom Kim[1]

Graduate School of Natural Science and Technology, Okayama University, Japan[1]
Electrical & Communication Engineering, Okayama Univ., Japan[2]

Dec. 15 (Fri.) Physics and Chemistry **B1+B2**

Cuprate superconductors 2

Chairperson: Hiroshi Eisaki (AIST)

PCP5-1 13:45–15:45

Cu hyperfine coupling constants of $HgBa_2CaCu_2O_{6+\delta}$

*Yutaka Itoh[1], Takato Machi[2], Ayako Yamamoto[3]

Department of Physics, Graduate School of Science, Kyoto Sangyo University, Japan[1]
AIST Tsukuba East, Research Inst. for Energy Conservation, Japan[2]
Graduate School of Engineering and Science, Shibaura Institute of Technology, Japan[3]

PCP5-2 13:45–15:45

Rare-earth dependence of in-plane anisotropy of resistivity in Bi2201 series high temperature superconductors

*Makoto Kawaguchi[1], Takahiro Urata[1], Hiroshi Ikuta[1]

Department of Materials Physics, Nagoya University, Japan[1]

PCP5-3 13:45–15:45

Effect of Ba-substitution for Sr in the Bi-2201 Phase of $BiPb(Sr,La)_2CuO_{6+\delta}$

*Daiki Hayakawa[1], Tomoaki Watanabe[1], Tianwen Luo[1], Takayuki Kawamata[1], Takashi Noji[1], Masatsune Kato[1], Yoji Koike[1]

Dept. of Applied Physics, Tohoku University, Sendai, Japan[1]

PCP5-4 13:45–15:45

Superconductivity above 100 K in the Bi-2212 Phase of $(Bi,Pb)_2Sr_2CaCu_2O_8$

*Keichi Sugawara[1], Chiaki Sugimoto[1], Tianwen Luo[1], Takashi Noji[1], Masatsune Kato[1], Yoji Koike[1]

Dept. of Applied Physics, Tohoku University, Sendai, Japan[1]

PCP5-5 13:45–15:45

Preparation of (11*n*) Oriented $Bi_2Sr_2CaCu_2O_{8+x}$ Thin Films by Solution Methods using $NdGaO_3$ (100) Substrates

*Yasuyuki YAMADA[1], Tomoichiro OKAMOTO[2]

Department of Innovative Electrical and Electronic Engineering, National Institute of Technology, Oyama College, JAPAN[1]
Electrical, Electronics and Information Engineering, Nagaoka University of Technology, JAPAN[2]

PCP5-6 13:45–15:45

Intermediate Phase Evolution of YBCO

Superconducting Film Fabricated by Fluorine Free MOD Method

*ZUO Junliang[1], ZHAO Yue[1,2], WU Wei[1,2], CHU Jingyuan[1], ZHANG Zhiwei[1,2], HONG Zhiyong[1,2], JIN Zhijian[1,2]

Shanghai Jiaotong University Shanghai China[1]
Shanghai Superconductor Technology Co., Ltd Shanghai China[2]

PCP5-7 13:45–15:45

Superconductivity and magnetism in lanthanoid-substituted $FeSr_2YCu_2O_{6+\delta}$

*Takashi Mochiku[1], Yoshiaki Hata[2], Isamu Iida[2], Yukihiko Yoshida[3], Akinori Hoshikawa[3], Toru Ishigaki[3], Hiroshi Yasuoka[2], Kazuto Hirata[1]

National Institute for Materials Science, Japan[1]
National Defense Academy, Japan[2]
Ibaraki University, Japan[3]

PCP5-8 13:45–15:45

Dependence of T_c on the *RE*-ion Size in $(RE,Ca)Ba_2Cu_3O_6$

*Kohei Nakagawa[1], Yoshiki Sumino[1], Hiroki Chiba[1], Keon Kim[1], Takashi Noji[1], Masatsune Kato[1], Yoji Koike[1]

Dept. of Applied Physics, Tohoku University, Sendai, Japan[1]

PCP5-9 13:45–15:45

Dependence of critical temperature on chemical composition in $Y(Sr,Ba)_2(Cu,Mo)_3O_z$ (z~7)

*Toshihiko Maeda[1,2], Takanori Okazaki[1], Takashi Akesaka[1], Yoshihiro Yamada[1], Keisuke Ozaki[1]

School of Environmental Science and Engineering, Kochi University of Technology[1]
Center for Nanotechnology, Kochi University of Technology[2]

Cuprate superconductors 3

Chairperson: Ryotaro Arita (RIKEN)

PCP6-1 13:45–15:45

Phase Diagram of High-Temperature Superconducting Cuprates and Iron Pnictides

*Kazuhisa Nishi[1]

University of Hyogo[1]

PCP6-2 13:45–15:45

An Analysis of high-T_c cuprates in the superconducting state incorporating strong correlation effects based on a self-consistent perturbation expantion

*Hiroki Morita[1], Takafumi Kita[1]

Department of Physics, Hokkaido University[1]

PCP6-3 13:45–15:45

Impurity-induced Mott transition in Doped Hubbard model

*Hisatoshi Yokoyama[1], Ryo Sato[1], Kenji Kobayashi[2]

Department of Physics, Tohoku University, Japan[1]
Dept. of Natural Science, Chiba Institute of Technology, Japan[2]

PCP6-4 13:45–15:45

Interhole correlation and Phase Separation in t-J model

*Ryo Sato[1], Hisatoshi Yokoyama[1]

Tohoku University, Japan[1]

PCP6-5 13:45–15:45

Interplay between Staggered Flux and d-Wave Superconducting Orders in t–t'–J Model

*Kenji Kobayashi[1], Hisatoshi Yokoyama[2]

Chiba Institute of Technology, Japan[1]
Tohoku University, Japan[2]

PCP6-6 13:45–15:45

Effects of Diagonal Hopping on Loop Currents in Fermionic Hubbard Model

*Yuta Toga[1], Hisatoshi Yokoyama[2]

ESICMM, National Institute for Materials Science, Japan[1]
Department of Physics, Tohoku University, Japan[2]

PCP6-7 13:45–15:45

Optimized wave function by kinetic renormalization effect in strongly correlated region of the three-band d-p model for cuprate superconductors

*Takashi Yanagisawa[1], Izumi Hase[1], Mitake Miyazaki[2], Kunihiko Yamaji[1]

National Inst. of Advanced Industrial Science and Technology[1]
Hakodate Institute of Technology[2]

Vortex Physics 2

Chairperson: Takekazu Ishida (Osaka Prefecture University)

PCP7-1 13:45–15:45

AC Resistivity of Driven Vortices of a Superconductor Measured by Mirowave technique

*Hodaka Kurokawa[1], Fuyuki Nabeshima[1], Atsutaka Maeda[1]

Dept. of Basic science, The University of Tokyo, Komaba, Japan[1]

PCP7-2 13:45–15:45

Estimation of the size of the pinning potential from ac current-voltage characteristics

Satono Moriya[1], Yasuki Kawamura[1], Koichiro Ienaga[1], *Shin-ichi Kaneko[1], Satoshi Okuma[1]

Department of Physics, Tokyo Institute of Technology, Japan[1]

PCP7-3 13:45–15:45

Partial reordering of dc plastic flow by superimposing ac drive

*Takashi Ogawa[1], Mihaly Dobroka[1], Koichiro Ienaga[1], Shin-ichi Kaneko[1], Satoshi okuma[1]

Department of Physics, Tokyo Institute of Technology, Japan[1]

PCP7-4 13:45–15:45

Blocking phenomenon in a vortex system

*Takahide Minemura[1], Koichiro Ienaga[1], Takashi Ogawa[1], Takumi Arai[1], Shun Maegochi[1], Shin-ichi Kaneko[1], Satoshi Okuma[1]

Department of Physics, Tokyo Institute of Technology, Japan[1]

PCP7-5 13:45–15:45

Random organization and reversible-irreversible transition of vortices in tilted field

*Yudai Shirahata[1], Koichiro Ienaga[1], Mihaly Dobroka[1], Shin-ichi Kaneko[1], Satoshi Okuma[1]

Department of Physics, Tokyo Institute of Technology, Japan[1]

PCP7-6 13:45–15:45

Configuration of vortices in dc flow interacting with random pinning

*Koichiro Ienaga[1], Mihaly Dobroka[1], Shin-ichi Kaneko[1], Satoshi Okuma[1]

Department of Physics, Tokyo Institute of Technology, Japan[1]

PCP7-7 13:45–15:45

Observation of Vortex Motion Using Scanning Tunneling Spectroscopy

*Koshiro Kato[1], Takashi Ogawa[1], Shin-ichi Kaneko[1], Koichiro Ienaga[1], Hideaki Sakata[2], Satoshi Okuma[1]

Department of Physics, Tokyo Institute of Technology, Japan[1]
Department of Physics, Tokyo University of Science, Japan[2]

PCP7-8 13:45–15:45

Microscopic theory of the vortex-core charging in superconductors

*Marie Ohuchi[1], Hikaru Ueli[1], Takafumi Kita[1]

Department of Physics, Hokkaido University, Sapporo, Japan[1]

PCP7-9 13:45–15:45

Paramagnetic and Glass States in YBCO Film Containing Nanorods at Low Magnetic Fields

*Hiroyuki Deguchi[1], Akira Harada[1], Tomoya Yamada[1], Masaki Mito[1], Tomoya Horide[1], Kaname Matsumoto[1]

Faculty of Engineering, Kyushu Institute of Technology[1]

PCP7-10 13:45–15:45

Effects of chirality of a helical magnetic field on a superconductor

*Saoto Fukui[1], Masaru Kato[1], Yoshihiko Togawa[2], Osamu Sato[3]

Dept. of Mathematical Sciences, Osaka Prefecture Univ., Japan[1]
Dept. of Physics and Electronics, Osaka Prefecture Univ., Japan[2]
Osaka Prefecture University College of Technology[3]

PCP7-11 13:45–15:45

Theoretical Study of Spontaneous Half-quantized Vortices in 3D d-dot model

*Norio Fujita[1], Masaru Kato[1], Takekazu Ishida[1]

Osaka Prefecture University (OPU), Japan[1]

PCP7-12 13:45–15:45

Impurity effects on critical temperatures for nano-structured superconductors

*Masaki Umeda[1], Masaru Kato[1]

Osaka Prefecture University[1]

PCP7-13 13:45–15:45

Critical states in superconducting complex structures

*Shinsuke Ooi[1], Masaru Kato[1]

Dept. of Mathematical Sciences, Osaka Prefecture Univ., Japan[1]

PCP7-14 13:45–15:45

Review of Quantum Electrical Standards and the Implementation of the 'Revised SI'

*Nobu-Hisa Kaneko[1]

National Institute of Advanced Industrial Science and Technology (AIST)[1]

Josephson junction

Chairperson: Tsuyoshi Tamegai (The University of Tokyo)

PCP8-1 13:45–15:45

Control of a single vortex in a stack of intrinsic Josephson junctions

*Shuuichi Ooi[1], Minoru Tachiki[1], Takashi Mochiku[1], Kazuto Hirata[1], Kazunori Komori[1], Shunichi Arisawa[1]

National Institute for Materials Science[1]

PCP8-2 13:45–15:45

Fabrications of Small and High-quality Intrinsic Josephson Junctions by Combinatorial Method of Ar-ion and Focused Ga-ion Etchings

*Shumpei Umegai[1], Ayami Yamaguchi[1], Yoshihiro Kakizaki[1], Daiki Kakehi[1], Haruhisa Kitano[1]

Dept. of Physics and Mathematics, Aoyama Gakuin Univ., Japan[1]

PCP8-3 13:45–15:45

Dynamics of Phase Switch in the Intrinsic Josephson Junctions Made of Bi2212 with Perfectly-stoichiometric Cation Compositions

*Yuji Watabe[1], Shumpei Umegai[1], Haruka Ohnuma[1], Ayami Yamaguchi[1], Jun-ichi Shimoyama[1], Haruhisa Kitano[1]

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PCP8-4 13:45–15:45

Uncertainty analysis of the Boltzmann constant measured by Johnson noise thermometry using superconducting integrated circuit

*Chiharu Urano[1], Kazuaki Yamazawa[2], Nobu-Hisa Kaneko[1]

National Metrology Institute of Japan, AIST[1]
National Institute of Technology and Evaluation[2]

PCP8-5 13:45–15:45

Spatiotemporal Dynamics and Collective Phenomena in a Driven Josephson Junction Network

*T. Kawaguchi[1]

Department of Physics, Toho University, Japan[1]

Dec. 15 (Fri.) Electronic Devices **D1+D2**

Electronics devices

Chairperson: Yoshimi Hatsukade (Kindai University)

EDP1-1 13:45–15:45

Neuro-inspired Quantum Associative Memory Model

*Yoshihiro Osakabe[1], Hisanao Akima[1], Masao Sakuraba[1], Mitsunaga Kinjo[2], Shigeo Sato[1]

Research Inst. of Electrical Communication, Tohoku Univ., Japan[1]
Department of Electrical and Electronics Engineering, University of the Ryukyus, Japan[2]

EDP1-2 13:45–15:45

Double-Flux-Quantum Amplifier with a Single-Flux-Biasing Line

*Yuma Arai[1], Tomoki Watanabe[1], Komei Higuchi[1], Hiroshi Shimada[1], Yoshinao Mizugaki[1]

The University of Electro-Communications[1]

EDP1-3 13:45–15:45

A random-access-memory cell based on quantum flux parametron with three control lines

*Hiroshi Takayama[1], Naoki Takeuchi[2,3], Yuki Yamanashi[1,2], Nobuyuki Yoshikawa[1,2]

Graduate School of Engineering, Yokohama National University[1]
Institute of Advanced Sciences, Yokohama National University[2]
PRESTO, Japan Science and Technology Agency[3]

EDP1-4 13:45–15:45

Proposal of superconducting analog to digital converter using quantum flux parametron

*Takashi Matsushima[1], Yuki Yamanashi[1], Naoki Takeuchi[1], Nobuyuki Yoshikawa[1]

Department of Electrical and Computer Eng., Yokohama National University[1]

EDP1-5 13:45–15:45

Study on Integer-Number Parallel Divider Based on Single Flux Quantum Logic

*Akiyoshi Sanada[1], Yuki Yamanashi[1], Nobuyuki Yoshikawa[1]

Yokohama National University[1]

EDP1-6 13:45–15:45

Design of an arithmetic logic unit and a data shifter for adiabatic quantum-flux-parametron-based microprocessor

*Christopher L. Ayala[1], Qiuyun Xu[2], Ro Saito[2], Naoki Takeuchi[1], Yuki Yamanashi[1, 2], Nobuyuki Yoshikawa[1,2]

Inst. of Advanced Sciences, Yokohama National Univ., Japan[1]
Department of Electrical Engineering and Computer Engineering, Yokohama National Univ., Japan[2]

EDP1-7 13:45–15:45

Development of the Large-scale Superconducting Nanowire Single-photon Detector Imaging Array

*Masahiro Yabuno[1], Shigeyuki Miyajima[1], Shigehito Miki[1,2], Taro Yamashita[1,3], Hirotaka Terai[1]

National Institute of Information and Communications Technology, Kobe, Japan[1]
Graduate School of Engineering Faculty of Engineering, Kobe University, Japan[2]

PRESTO, Japan Science & Technology Agency, Kawaguchi, Japan[3]

EDP1-8 13:45–15:45

Study on Multipoint Guided Wave Measurement Technique on Pipes using HTS-SQUID NDI System

*Yoshimi Hatsukade[1], Natsuki Masutani[1], Yuki Azuma[1], Kazuya Sato[1], Tarou Yoshida[1]

Kindai University[1]

EDP1-9 13:45–15:45

Ultra Low Field SQUID-MRI using Non-Resonant Cu Wound Flux Transformer

*Kazuma Demachi[1], Taiga Tanaka[1], Seiichiro Ariyoshi[1], Saburo Tanaka[1]

National University Corporation Toyohashi University of Technology[1]

EDP1-10 13:45–15:45

Constructing a Vector Scanning SQUID System

*THE DANG VU[1,2], Masaki Toji[1], Atsuki Ito[1], Yoshitsugu Ninomiya[1], Shigeyuki Miyajima[3], Thanh Huy Ho[2], Hiroaki Shishido[1,4], Masaru Kato[4,5], Masaaki Maezawa[6], Mutsuo Hidaka[6], Masahiko Hayashi[7], Takekazu Ishida[1,4]

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University of Sciences, Vietnam National University HCMC, Ho Chi Minh, Viet Nam[2]
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NanoSquare Research Inst., Osaka Prefecture Univ., Japan[4]
Dept. of Mathematical Sciences, Osaka Prefecture Univ., Japan[5]
National Inst. of Advanced Industrial Science & Technology, Japan[6]
Faculty of Education and Human Studies, Akita University, Japan[7]

EDP1-11 13:45–15:45

Precision measurements of transuranium elements using superconducting transition edge sensor

*Yoshitaka Miura[1], Yuya Ishii[1], Tomoya Irimatsugawa[1], Masashi Ohno[1], Hiroyuki Takahashi[1], Takashi Yasumune[2], Koji Takasaki[2], Chikara Ito[2], Satoshi Kohujiro[3]

The University of Tokyo[1]
Japan Atomic Energy Agency[2]
National Institute of Advanced Industrial Science and Technology[3]

EDP1-12 13:45–15:45

Study on Lumped Element Kinetic Inductance Detectors for Light Dark Matter Searches Using Liquid Helium

*Yosuke Kida[1], Hirokazu Ishino[1], Atsuko Kibayashi[1], Yosuke Yamada[1], Naoto Hidehira[1], Masashi Hazumi[2,3], Nobuaki Sato[2], Hirotake Yamamori[4], Fuminori Hirayama[4], Satoshi Kohjiro[4]

Department of Physics, Okayama University[1]
Institute of Particle and Nuclear Studies, High Energy

Accelerator Research Organization[2]
Kavli Institute for the Physics and Mathematics of the Universe[3]
Nanoelectronics Research Institute, National Institute of Advanced Industrial Science and Technology[4]

EDP1-13 13:45–15:45

Flip-chip bonding technology for high performance STJ array detector using superconducting bumps

*Soki Hatakeyama[1], Hiroshi Nakagawa[2], Katsuya Kikuchi[2], Masahiro Aoyagi[2], Masato Naruse[1], Hiroaki Myoren[1], Tohru Taino[1]

Saitama Univ.[1]
AIST[2]

EDP1-14 13:45–15:45

Development and evaluation of Multi-Layer Superconducting detectors for the CMB polarization observation

*Munehisa Semoto[1], Satoru Mima[2], Kenji Kiuchi[2], Masato Naruse[1], Chiko Otani[2,3], Osamu Tajima[6], Shugo Oguri[2], Junya Suzuki[4], R.M.T Damayanthi[5], Tohru Taino[1]

Saitama University. Japan[1]
RIKEN. Japan[2]
Tohoku University. Japan[3]
KEK. Japan[4]
University of Moratuwa. Sri Lanka[5]
Kyoto university. Japan[6]

Electronics devices and fabrication

Chairperson: Naoto Sekiya (Yamanashi University)

EDP2-1 13:45–15:45

Neutron signal features of Nb-based kinetic inductance detector with ^{10}B convertor

*Yuya Miki[1], Hiroyuki Yamaguchi[1], Yuki Iizawa[1], Hiroaki shishido[1,2], Kenji M Kojima[3,4], Kenichi Oikawa[5], Masahide Harada[5], Shigeyuki Miyajima[2,6], Mutsuo Hidaka[7], Takayuki Oku[5], Kazuhio Soyama[5], Takekazu Ishida[1,2]

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Muon Science Laboratory and Condensed Matter Research Center, Inst. of Materials Structure Science, KEK, Japan[3]
Department of Materials Structure Science, The Graduate University for Advanced Studies, Tsukuba, Japan[4]
Materials and Life Science Division, J-PARC Center, Japan Atomic Energy Agency, Tokai, Japan[5]
Advanced ICT Research Institute, NICT, Kobe, Japan[6]
National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba[7]

EDP2-2 13:45–15:45

Electrodynamic Theory for the Operation Principle of Superconducting Delay-line Kinetic Inductance Detector

*Tomio Koyama[1], Takekazu Ishida[1,2]

Dept. of Physics and Electronics, Osaka Prefecture University[1]
Inst. for Nano-Fabrication Researcd, Osaka Prefecture Univ.[2]

EDP2-3 13:45–15:45

Signal propagation in delay-line kinetic inductance detector under DC bias current

*Yuki Iizawa[1], Hiroyuki Yamaguchi[1], Yuya Miki[1], Kazuma Nishimura[1], Hiroaki Shishido[1,2], Kenji M. Kojima[3], Kenichi Oikawa[4], Masahide Harada[4], Shigeyuki Miyajima[2,5], Mutsuo Hidaka[6], Takayuki Oku[4], Kazuhiko Soyama[4], Tomio Koyama[7], Takekazu Ishida[1]

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Institute for Materials Research, Tohoku University, Japan[7]

EDP2-4 13:45–15:45

1 dimensional X-ray imager utilizing a superconducting strip line with a delay line structure

*Chiharu Watanabe[1], Nobuyuki Zen[1], Go Fujii[1], Kazumasa Makise[1], Masahiro Ukibe[1], Masataka Ohkubo[1]

AIST, Nanoelectronics Research Institute[1]

EDP2-5 13:45–15:45

Study for the Operating Principle of Superconducting Strip Photon Detectors (SSPDs)

*Nobuyuki Zen[1], Yutaka Abe[2], Go Fujii[1], Yuma Tomitsuka[2], Yuki Yamanashi[2], Yasunori Mawatari[1], Nobuyuki Yoshikawa[2]

National Institute of Advanced Industrial Science and Technology, JAPAN[1]
Yokohama National University, JAPAN[2]

EDP2-6 13:45–15:45

HTS Filter with Dielectric Rods For Tuning the Center Frequency and Trimming the Passband Characteristics

*Takahiro Unno[1], Naoto Sekiya[1]

University of Yamanashi[1]

EDP2-7 13:45–15:45

Design of wireless power transfer system from HTS

spiral coil to copper spiral coil

*Shinya Kobayashi[1], Naoto Sekiya[1]

University of Yamanashi[1]

EDP2-8 13:45–15:45

Pico Pulse Response Analysis of High-Tc Josephson Weak-Link using Time Dependent Ginzburg-Landau Model

*Shigeru Yoshimori[1]

Faculty of Engineering, Takushoku University, Japan[1]

EDP2-9 13:45–15:45

Microfabrication of MgB_2 by a conventional lift-off process

*Takatoshi Nakagami[1], Hiroaki Shishido[1,2], Takekazu Ishida[1,2]

Department of Physics and Electronics, Japan[1]
NanoSquare Research Institute, Japan[2]

EDP2-10 13:45–15:45

Replacement of NbN by $YBa_2Cu_3O_{7-\delta}$ in Superconducting Thin Film Coil in a Spiral Trench on a Si-Wafer for Compact SMESs

*Yushi Ichiki[1], Kazuhiro Adachi[2], Yasuhiro Suzuki[2], Akihisa Ichiki[2], Tatsumi Hioki[2], Che-Wei Hsu[3], Shinya Kumagai[3], Minoru Sasaki[3], Joo-Hyong Noh[4], Osamu Takai[4], Hideo Honma[4], Tomoyoshi Motohiro[1,2]

Graduate School of Engineering, Nagoya University, Japan[1]
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Graduate School of Engineering, Toyota Technological Inst., Japan[3]
Materials & Surface Engineering Research Institute, Kanto-Gakuin University, Japan[4]

EDP2-11 13:45–15:45

Numerical Analysis of Rapid Single-Flux-Quantum Circuits Composed of 0- and π-Shifted Josephson Junctions

*Tomohiro Kamiya[1], Soya Taniguchi[1], Kyosuke Sano[1], Masamitsu Tanaka[1], Akira Fujimaki[1]

Department of Electronics, Nagoya University, Japan[1]

EDP2-12 13:45–15:45

High Impedance Josephson Junction Arrays for Voltage Standard Circuits

*Hirotake Yamamori[1], Michitaka Maruyama[2], Yasutaka Amagai[2], Takeshi Shimazaki[2]

Nanoelectronics Research Institute, National Institute of Advanced Industrial Science and Technology[1]

National Metrology Institute of Japan, National Institute of Advanced Industrial Science and Technology[2]

EDP2-13 13:45–15:45

Negative resistance in niobium titanium nitride nanowires for flux-based superconducting devices

*Kazumasa Makise[1], Takayuki Asano[3], Bunju Shinozaki[2], Masahiro Ukibe[1]

National Institute of Advanced Industrial Science and Technology[1]
Kyushu University[2]
University of Fukui[3]

Dec. 15 (Thu.) Large Scale System Applications

B1 + B2

Bulk applications

Chairperson: Kazuya Yokoyama (Ashikaga Institute of Technology)

APP7-1 13:45–15:45

Study of bulk HTS rotating machine using Closed-Circuit Magnetization

*Yunosuke Suzuki[1], Keita Tsuzuki[1], Sho Yamamura[1], Dai Oikawa[2], Hiroya Ando[1], Takehiko Tsukamoto[2]

Department of Information and Computer Engineering, National Institute of Technology, Toyota College[1]
Department of Electrical and Electronic Engineering, National Institute of Technology, Toyota College[2]

APP7-2 13:45–15:45

Development and Load Test of a Radial Gap Bulk HTS Synchronous Machine for Marine Applications

*Clement Bocquel[1], Motohiro Miki[1], Erasmus Shaanika[1], Keita Tsuzuki[1,5], Brice Felder[1,6], Tetsuya Ida[1], Mitsuru Izumi[1], Steven Englebretson[2], Jere Kolehmainen[3], Hidekazu Teshima[4], Robert Chin[2], Mitsuru Morita[4]

Department of Marine and Energy Resource, Tokyo University of Marine Science and Technology, Japan[1]
US Corporate Research Center, ABB Inc., USA[2]
Motors and Generators, ABB Oy, Finland[3]
Advanced Technology Research Laboratories, Nippon Steel Sumitomo Metals Co., Japan[4]
Department of Information and Computer Engineering, National Institute of Technology, Toyota College, Japan[5]
Cryogenic Department, Suzuki Shokan Co., Ltd., Japan[6]

APP7-3 13:45–15:45

(Moved to APP1-3)

APP7-4 13:45–15:45

Evaluation of trapped field characteristic of bulk magnet system using various type refrigerators

*Kazuya Yokoyama[1], Atsushi Katsuki[1], Atsuro Miura[1], Tetsuo Oka[2]

Ashikaga Institute of Technology[1]
Niigata University[2]

Magnetic separation

Chairperson: Kazuya Yokoyama (Ashikaga Institute of Technology)

APP8-1 13:45–15:45

Removal of humic acid and hazardous heavy metals in water environment by magnetic separation utilizing rice hull magnetic activated carbon

*Keisuke Ishida[1], Tatsuya Shiina[1], Osuke Miura[1]

Dept. of Electrical and Electronics Engineering, Tokyo Metropolitan University, Japan[1]

APP8-2 13:45–15:45

Numerical Simulation on Behavior of Magnetic beads in Magnetic Filter for Medical Protein Screening System using High Gradient Magnetic Separation

*Mikihisa Kubota[1], Yuki Mori[1,2], SeokBom Kim[2], Hiroshi Ueda[1]

Graduate School of Natural Science and Technology, Okayama University, Japan[1]
Okayama University, Japan[2]

APP8-3 13:45–15:45

Magnetic separation system of boiler feed water scale in thermal power plants with superconducting magnet

*Hidehiko Okada[1], Noriyuki Hirota[1], Fumihito Mishima[2], Shigehiro Nishijima[2], Yoko Akiyama[3], Hidehki Matuura[4], Seitoku Nambu[4], Tomokazu Sekine[5]

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Fukui University of Technology, Japan[2]
Osaka Universuty, Japan[3]
Shikoku Research Institute Inc., Japan[4]
Ebara Industrial Cleaning Co.,Ltd., Japan[5]

APP8-4 13:45–15:45

Levitating separation of precious metals utilizing magneto-Archimedes effect in high gradient magnetic fields

*Kenichi Yamagishi[1], Daiki Yamamoto[1], Osuke Miura[1]

Electrical and Electronic Engineering, Graduate School of Science and Engineering, Tokyo Metropolitan University, Japan[1]

Magnetic levitation

Chairpersons: Shoichi Yokoyama (Mitsubishi Electric)

APP9-1 13:45–15:45

Numerical studies on the dynamic responses of levitated high-temperature superconductor with a strongly coupled thermo-electromagnetic model

*Changqing Ye[1], Guangtong Ma[1], Tianyong Gong[1,2], Wenjiao Yang[1], Kun Liu[1]

State Key Laboratory of Traction Power, Southwest Jiaotong University, Chengdu, China[1]
College of Electrical Engineering, Southwest Jiaotong University, Chengdu, China[2]

APP9-2 13:45–15:45

A man-loading hybrid maglev vehicle employing PML and SML

*Ruixue Sun[1], Jun Zheng[1], Jipeng Li[1], Haitao Li[1], Zigang Deng[1]

Applied Superconductivity Laboratory, State Key Laboratory of Traction Power, Southwest Jiaotong Univ., Chengdu, P. R. China[1]

APP9-3 13:45–15:45

Operating characteristics of high-temperature superconducting maglev under a low-pressure environment

*Wuyang Lei[1], Nan Qian[1], Jun Zheng[1], Yong Zhang[1], Lian Jin[1], Shijie Bao[1], Zigang Deng[1]

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APP9-4 13:45–15:45

Levitation Stability of Superconducting Stator adding Ring Shaped Magnet

*Muneo Futamura[1], Ryo Shindo[1]

Akita Prefectural University[1]

Dec. 15 (Fri.) Late News (Poster) **B1 + B2**

Chairperson: Hirofumi Yamasaki (AIST)

LNP-1 13:45–15:45

Laying of the superconducting feeder cable along railway line

*Masaru Tomita[1,2], Yusuke Fukumoto[2], Tomoyuki Akasaka[2], Kenji Suzuki[2], Atsushi Ishihara[2], Yusuke Kobayashi[2]

Research & Development Promotion Division, Railway Technical Research Institute, Japan[1]
Applied Superconductivity Laboratory, Materials Technology Division, Railway Technical Research Institute, Japan[2]

LNP-2 13:45–15:45

Dynamic performance of high temperature superconducting maglev system

*Li-Feng Zhao[1, 2], Lin-Bo Li[1, 2], Meng-Liang Yao[1, 2], Da-Jin Zhou[1, 2], Jing Jiang[1, 2], Yong Zhang[1, 2], Yong Zhao[1, 2]

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Superconductivity and New Energy R&D Center, Southwest Jiaotong University, Chengdu, China[2]

LNP-3 13:45–15:45

Realization and First Tests Results of the EuCARD 5.4-T REBCO Dipole Magnet

*P. Fazilleau[1], F.Borgnolutti[1], D. Bouziat[1], M. Durante[1], J.M. Gheller[1], F. Molinié[1], P. De Antoni[1]

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LNP-4 13:45–15:45

No-Insulation REBCO Pancake Coil with Stainless Steel Co-Winding Tape – Tests under High Resistive Background Field and High Current at 4.2 K

*T. Lécrevisse[1], T. Benkel[2, 3], A. Badel[3], P. Tixador[3], X. Chaud[2], P. Fazilleau[1]

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University Grenoble Alpes/CNRS, G2ELab/ Institut Néel, Grenoble, France[3]

LNP-5 13:45–15:45

Numerical Simulation of Instabilities in Magnetic Vortices in Type-II Superconductor under Non-Uniform Magnetic fields using Time-Dependent Ginzburg-Landau Equations

*Hasnain Mehdi Jafri[1], Xingqiao Ma[1], Congpeng Zhao[1], Houbing Huang[1], Zhuhong Liu[1]

Department of Physics, University of Science and Technology Beijing, Beijing, P. R. China[1]

LNP-6 13:45–15:45

The improvement of MgB_2 prepared by hot-pressing sintering method with the MgB_4 precursor powder

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LNP-7 13:45–15:45

The effects of Mg precursor powder on the MgB_2 superconductor prepared by diffusion method

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LNP-8 13:45–15:45

Installation Design of 23kV 50MVA Class HTS Cable in S.Korea Grid

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LNP-9 13:45–15:45

Constitutive Equation of Multiferroic Bismuth Ferrite under the Framework of Onsager's Reciprocity Relations

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LNP-10 13:45–15:45

Upper critical fields and critical current densities characteristics of Nb_3Sn doped with fourth elements

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LNP-11 13:45–15:45

Novel Discovery of Nano Tubular $YBa_2Cu_3O_x$

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LNP-12 13:45–15:45

A simplified white box model for real-time application to estimate the magnet temperature of superconducting tokamaks

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