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(Institute for Basic Science, Daejeon, Korea)

PLENARY II

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Seungyong Hahn
(Department of Electrical and Computer Engineering, Seoul National University, Seoul, 08826, Korea)

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Seungyong Hahn
(Department of Electrical and Computer Engineering, Seoul National University, Seoul, 08826, Republic of Korea)
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(Korea Institute of Fusion Energy, Daejeon 34133, South Korea)
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Garam Hahn
(Pohang Accelerator Laboratory, Pohang University of Science and Technology, Pohang, 37673, Korea)

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08.23 / 09:00-10:15 @Rainbow

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- O MM I-5 Correlation between magnetic anisotropy and superconductivity in $\text{GdBa}_2\text{Cu}_3\text{O}_{7-x}$ /Manganite heterostructure
Jun Yung Oh
(Department of Physics, Chungbuk National University, Cheongju, Korea)

SESSION II : ED I

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Electronics & Device Applications - I

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Yonuk CHONG
(SKKU)
- O ED I-2 Single-electron wave packet tailored by potential barrier
Min-sik KIM
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08.23 / 10:50-11:50 @Grand Ballroom

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- O LA I-3 An Analysis on Instrument Precision and Accuracy for Superconducting Magnet Experiments: Implications for Device Selection and Data Acquisition Strategies
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08.24 / 09:00-10:15 @Grand Ballroom

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(Seoul National University)
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- O LC II -3 **A Design Study on a Compact 20 T Metal-Insulation HTS Magnet**
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(Department of Electrical and Computer Engineering, Seoul National University)
- O LC II -4 **Stability of a metal insulated 2G HTS coil under the external ac field**
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(Korea Electrotechnology Research Institute)
- O LC II -5 **Experimental study on critical current of saddle-shaped no-insulation HTS coil**
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- O CR I -2 **Low gravity simulator for the cryogenic liquid acquisition device design**
Seungwhan Baek
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Jaehwan Lee
(Department of Smart Manufacturing Engineering, Changwon National University, Changwon, Korea)
- O CR I -4 **Spiral non-contact seal for HTS rotating machine to minimize the leakage flow of cryogenic fluid**
Yubin Kim
(Changwon National University)

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08.22 / 14:15-15:45 @Gold

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- IWRS I -1** **Orbital Selective Electronic Correlations and Topological Superconductivity of Iron Chalcogenide: A DMFT perspective**
Minjae Kim
(Korea Institute for Advanced Study, Seoul 02455, South Korea / Department of Chemistry, Pohang University of Science and Technology (POSTECH), Pohang 37673, Korea / Department of Physics and Astronomy, Rutgers University, Piscataway, New Jersey 08854, USA)
- IWRS I -2** **Strange luminescence from FeSe and Kondo-effect in NdNiO₂**
C. H. Park
(Quantum Matter Core-Facility and Research Center of Dielectric and Advanced Matter Physics, Pusan National University, Jangjun, Gumjung, Pusan 46240, Republic of Korea)
- IWRS I -3** **Antiferromagnetic insulating phase in layered nickelates at half filling**
Myung-Chul Jung
(Department of Physics, Arizona State University, Tempe, AZ 85287, USA)

SESSION : IWRS II

08.22 / 16:00-17:30 @Gold

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- IWRS II -1** **Anyon fractional statistics**
Heung-Sun Sim
(Department of Physics, KAIST, Daejeon 34141, Republic of Korea)
- IWRS II -2** **Majorana Fermions in Topological Materials**
Sangmo Cheon
(Department of Physics, Hanyang University, Seoul 04763, Republic of Korea)
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Doohee Cho
(Department of Physics, Yonsei University, Seoul 03722, Republic of Korea)

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08.23 / 09:00-10:30 @Gold

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Hyunsik Im

(Department of Physics and Semiconductor Science, Dongguk University, Seoul 04620, Republic of Korea)

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Dongjin Oh
(Department of Physics, Massachusetts Institute of Technology, Cambridge, MA 02139, USA)

IWRS III-3 Fulde-Ferrell-Larkin-Ovchinnikov state in Fe-based and transition metal dichalcogenide superconductors
Chang-woo CHO
(Department of Physics, Pohang University of Science and Technology, Pohang, Korea)

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08.23 / 10:50-12:20 @Gold

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IWRS IV-1 Transport anomalies in superconductors near quantum critical point
Maxim Dzero
(Department of Physics, Kent Universtiy, USA)

IWRS IV-2 Universal scaling law and a unified understanding of quasiparticle transverse transport in cuprate superconductors
Yi-feng Yang
(Institute of Physics, Chinese Academy of Sciences, Beijing 100190, China)

IWRS IV-3 Visualizing Quantum Textures in Unconventional Superconductors and their Parent Phases in Twisted Bilayer Graphene
Myungchul Oh
(Department of Semiconductor Engineering, POSTECH, Pohang 37673, Republic of Korea)

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08.24 / 09:00-10:30 @Gold

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IWRS V-1 High superconductivity in ternary hydrides under high pressure
Hanyu Liu
(Key Laboratory of Material Simulation Methods and Software of Ministry of Education, College of Physics, Jilin University, China)

IWRS V-2 Superhydrides: slow revolution in the field of superconductivity
Dmitrii Semenov

*(Center for High Pressure Science and Technology Advanced Research (HPSTAR),
Bldg. 8E, ZPark, 10 Xibeiwang East Rd, Haidian District, Beijing, 100193, P.R.
China)*

IWRSV-3 Superconductivity at 245 K in La-Sc-H system

Di Zhou

*(Center for High Pressure Science and Technology Advanced Research (HPSTAR),
Bldg. 8E, ZPark, 10 Xibeiwang East Rd, Haidian District, Beijing, 100193, P.R.
China)*

TUTORIAL I

08.23 / 14:00-16:00 @Grand Ballroom

TU I Introduction to Superconducting Quantum Computing

Eunseong Kim

*(Graduate School of Quantum Science and Technology and Department of Physics,
KAIST, Daejeon, Republic of Korea)*

POSTER SESSION

08.23 / 16:30-17:30 @Grand Ballroom

Theory / Physical Properties / Electronics & Device Applications

TPEP1 Higher-Order Topological Superconductors for 1T MoTe₂

Myungjun Kang

(Hanyang University)

TPEP2 Electrostatics in superconducting NbTi thin films in the terahertz regime

Ji Eun LEE

(Yonsei University)

TPEP3 Planckian behavior of highly overdoped Bi₂ Sr₂ CaCu₂ O_(8+d)

Hwiwoo Park

(Sungkyunkwan University)

TPEP4 Kondo interaction in FeTe and its potential role in the magnetic order

Younsik Kim

(Seoul National University)

TPEP5 Enhancement of vortex pinning with suppression of vortex avalanches, strong correlation, and dirtiness of medium entropy alloy Nb_{2/5}Hf_{1/5}Zr_{1/5}Ti_{1/5} compound

Jin Hee Kim

(Department of Applied Physics, Integrated Education Institute for Frontier Science and Technology (BK21 Four) and Institute of Natural Sciences, Kyung Hee University)

TPEP6 Electronic structure of copper-oxide monolayer

Youngdo Kim
(Seoul National University)

TPEP7 Spontaneous breaking of mirror symmetry beyond critical doping in Pb-Bi2212
Saegyeol Jung
(IBS-CCES)

TPEP8 Polarization-Dependent XAFS Studies on ZnO-Buffered MgB₂ Superconducting Films
Rico Pratama Putra
(Department of Physics, Chungbuk National University)

TPEP9 Separation of the Fermi Surface Reconstruction from the Quantum Critical Point in Kondo Breakdown Heavy Fermion CeRhIn₅
Chan-Koo Park
(Center for Quantum Materials and Superconductivity (CQMS) and Department of Physics, Sungkyunkwan University, Suwon 16419, Republic of Korea)

TPEP10 A Comparative analysis of superconducting critical properties in high- and medium-entropy alloys
Yoonseok Han
(Center for Quantum Materials and Superconductivity (CQMS), Department of Physics, Sungkyunkwan University, Suwon, 16419, Republic of Korea)

TPEP11 High gradient magnetic separation of nano beads using superconducting magnet for antibody purification
Jeongtae Kim
(Cryogenic Apparatus Research Center, Korea Electrotechnology Research Institute, Changwon, Korea)

Materials

MMP1 Critical Current Density and Flux Pinning Mechanism of La_{0.7}Sr_{0.3}MnO₃ added (Bi, Pb)-2223 High-T_c Superconductor
Muhammad Angga Anugrah
(Department of Physics, Chungbuk National University)

MMP2 Influence of sintering temperature on in-plane and out-of-plane crystallinities of MgB₂ materials
Minoru Maeda
(Kangwon National University, Republic of Korea)

MMP3 Development of carbon-doped MgB₂ wires for improving high-field J_c
Gi-Yeong Yoon
(Sam Dong Co., Ltd.)

MMP4 Changes in the Superconducting Transition Temperature (T_c) of Nb Thin Films Depending on the Irradiation Amount and Power of Kr⁺ Ion Beams
Minju Kim
(Kyungpook National University)

- MMP5** **Effect of LaFeO₃ buffer layers with different thickness on superconducting properties of GdBa₂Cu₃O_{7-δ} thin films**
 Han Seok Park
(충북대학교)
- MMP6** **Robust joining solution between REBCO-to-copper for current lead applications via ultrasonic welding**
 Michael Bihasa De leon
(Andong National University)
- MMP7** **Stress Distribution Analysis for Understanding the Transverse Delamination Behavior in Cu-Stabilized REBCO Coated Conductor Tapes**
 MARK ANGELO DIAZ
(ANDONG NATIONAL UNIVERSITY)

Large Scale Applications

- LAP1** **Analytical study on GdBCO pancake coil properties after pre load process**
 Jongsung Lee
(Department of Materials Science and Engineering, Korea University, Seoul, 02841, Korea)
- LAP2** **Fabrication parameters for improving the Electrical/Mechanical Properties of REBCO Lap joint**
 Younghoon Kim
(Department of Materials Science and Engineering, Korea University, Seoul, 02841, Korea)
- LAP3** **Effect of Stabilizer Thickness on the Bending Strain Tolerance of HTS tape**
 Jungmin Kim
(Department of Materials Science and Engineering, Korea University, Seoul, 02841, Korea)
- LAP4** **Life Prediction Approach for HTS Current Lead under Cryogenic Thermal Cycling Condition**
 Min Kyu Sun
(Department of Materials Science and Engineering, Korea University, Seoul, 02841, Korea)
- LAP5** **Investigation of High Temperature Superconducting Coils with Reinforced Ice Impregnation**
 Hyun Sung Noh
(Department of Materials Science and Engineering, Korea University, Seoul, 02841, Korea)
- LAP6** **Study on a long-term operation of a conduction-cooled 4 T/203 mm bore HTS magnet**
 Yungil Kim
(SuNAM Co., LTD)

- LAP7 **Measurement of turn-to-turn contact resistance of sandwiched REBCO tapes pasted vanadium trioxide-metal composite**
June Hee Han
(Department of Electrical & Energy Engineering, Jeju National University, Jeju, 63243, Korea)
- LAP8 **A Design Study of the Spoke-Positioned HTS Field Coil Motor and Investigation on Key Design Parameters**
JuKyung CHA
(Department of Electrical and Computer Engineering, Seoul National University)
- LAP9 **Measurement of magnetization loss in CORC-TSTC Hybrid Composite Conductor**
Myeonghee Lee
(Tech University of Korea)
- LAP10 **Magnetization loss characteristics of HTS CORC cables according to core structures**
Miyeon Yoon
(Tech University of Korea)
- LAP11 **Measurement of the AC loss of HTS CORC cables with striations**
Miyeon Yoon
(Tech University of Korea)
- LAP12 **Fast Ferromagnetic Shim Design Method in NMR magnets using Recursive Linear Programming**
Minchul Ahn
(Kunsan National University)
- LAP13 **Advanced Field Harmonic Measurement using Hall Sensor and Nanovoltmeter**
Hongmin Yang
(Korea Basic Science Institute)
- LAP14 **Applicability of flux-free hybrid welding to coil-to-coil REBCO CC joints**
Arman Ray Nisay
(Andong National University)
- LAP15 **Operation of 170 mm large bore superconducting magnet installed at the Kangwon High Magnetic Field Center**
Seongkeon Park
(Kangwon National University)
- LAP16 **Measurement of magnetization loss of high superconducting cables with striated strands**
Myeonghee Lee
(Tech University of Korea)
- LAP17 **Design study of gradient and shield coil for a high temperature superconductor MRI magnet system**
Hyunsoo Park
(Department of Electrical and Computer Engineering, Seoul National University, Seoul)

08826, Republic of Korea)

- LAP18 **A design study on KSTAR-scale High Temperature Superconducting Central Solenoid**
Dong Woo Lee
(*Department of Electrical and Computer Engineering, Seoul National University*)
- LAP19 **Effect of Operating Temperature on AC Losses of HTS Transformer**
Sang Ho Park
(*Tech University of Korea*)
- LAP20 **Turn-to-turn Contact Resistance Measurement due to Black Oxide on REBCO tapes**
Wonju Jung
(*Department of Electrical and Computer Engineering, Seoul National University*)
- LAP21 **An Experimental Study on Hoop Strain Tolerance of HTS Pancake Coil Under Mechanical Load**
Wonseok Jang
(*Seoul National University*)
- LAP22 **Electromagnetic-mechanical Simulation of Ultra-high Field Test Coils and Estimation of Critical Currents**
Yufan Yan
(*Seoul National University*)
- LAP23 **Investigation on Charging/Discharging Characteristics of HTS Field Coil for Air and Iron Cored Motor**
Jaejin Kim
(*Department of Mechanical Engineering, Sungkyunkwan University*)
- LAP24 **Preliminary Study of Current Sharing Properties of Stacked REBCO Tape for High Current Capacity**
Jaemin Kim
(*Seoul National University*)
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(*Seoul National University*)
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Byeong-Joo Kim
(*Tech University of Korea*)
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Jiho Shin
(*Imperial College London*)
- LAP28 **Performance Analysis of Data Acquisition Instruments for Superconducting Magnets and Devices**
Minwoo Kim
(*부산대학교 초전도응용연구실*)

- LAP29 **Stress Relaxation in High-Field Racetrack HTS Coils using Continuous Derivative Curve**
Changhyung Lee
(Changwon National University)
- LAP30 **Study of the Electrical Characteristics in Saddle type High Temperature Superconducting Coils**
Seongkeon Park
(Kangwon National University)
- LAP31 **A Study of Air-Cored HTS Rotating Machine Performance in High-Speed Rotation**
Jaheum Koo
(Department of Electrical and Computer Engineering, Seoul National University)
- LAP32 **Sensitivity-based multi-objective design of superconducting radio-frequency cavities**
Kyungsik Seo
(Seoul National University)
- LAP33 **Analysis of stress by electromagnetic/mechanical force of high-temperature superconducting wire**
Dongjin Seo
(Jeonju University)
- LAP34 **Transient loss estimation of NI-HTS coil using the voltage analysis method**
Hoon Jung
(Jeju National University)
- LAP35 **Simulation Load Operation of a 22.9 kV, 2 kA SFCL System**
SungJoon Kim
(LS ELECTRIC)
- LAP36 **Development of Saddle Coil Winding Machine for Superconducting Coated Conductor using 5-axis Robot Arm**
Seongjin Yang
(Pohang Accelerator Laboratory)

Cryogenics

- CRP1 **Various Modifications of Helium Brayton Refrigeration Cycle for 5 Ton/Day Hydrogen Liquefaction**
Seong Ho Bang
(Hong Ik University)
- CRP2 **Practical Design of 10 kA Current Leads for 20 K Test Facility of High-Field HTS Magnets**
Su Yeong Kim
(Hong Ik University)
- CRP3 **Long-Term Operation Scheme of Cooling System**

for 23 kV-2 kA SFCL in Preparation for Degraded Performance of GM Coolers
Jin Young Lee
(Hong Ik University)

- CRP4 Abnormal pressure fluctuation in 2 K helium reservoir of HWR cryomodule**
Youngkwon Kim
(Institute for Rare Isotope Science, IBS)
- CRP5 Design and manufacture of pre-cooler using cryo-cooler for hydrogen liquefier**
Dong-Woo Ha
(Korea Electrotechnology Research Institute)
- CRP6 Rotating gas-gap thermal coupling having self-blowing channel for HTS rotating machine**
Kihwan Kim
(Changwon National University)
- CRP7 Simulation of thermal stratification in cryogenic fluid storage tank considering boundary layer flow by natural convection**
Youngjun Choi
(Department of Smart Manufacturing Engineering, Changwon National University, Republic of Korea)
- CRP8 Analysis of re-condensing process using a gas helium circulation system for a 7 m³ liquid hydrogen zero-boil-off storage tank**
Jangdon Kim
(Department of Mechanical Engineering, Changwon National University, Republic of Korea)
- CRP9 Evaluation of cryogenic mechanical properties of aluminum alloy using small punch test**
Hojun Cha
(Changwon National University, Smart Manufacturing Engineering)
- CRP10 Experimental validation on a single stage Stirling cryocooler**
Bokeum Kim
(KAIST)