2022 Summer Conference of KSSC

Yongpyong Resort
Gangwon-do, Korea
August 9 ~ August 11, 2022

Organized by
The Korean Society of Superconductivity and Cryogenics

SCHEDULE

August 9, 2022 (Tuesday)

12:00-	Registration	**Greenpia Condominium**
12:40-12:50	Opening Ceremony	**Grand Ballroom**
13:00-14:00	Plenary Ⅰ	**Grand Ballroom**
14:00-14:15	Break	
14:15-15:15	Session Ⅰ	**Silver**
14:15-15:45	Special Ⅰ	**Rainbow**
14:15-15:45	IWRS Ⅰ	**Gold**
15:45-16:05	Break	
16:00-16:45	Session Ⅱ	**Silver**
16:00-18:00	Special Ⅱ	**Rainbow**
16:00-17:30	IWRS Ⅱ	**Gold**
18:00-18:10	Break	
18:10-20:10	Presentation of opinions of candidates for president and auditor & Banquet	**Hotel Grand Ballroom**

August 10, 2022 (Wednesday)

08:00-	Board Meeting of PSAC	**THE CHALET (Hotel)**
09:00-10:30	Tutorial Ⅰ	**Silver**
09:00-10:00	Session Ⅲ	**Rainbow**
09:00-10:30	IWRS Ⅲ	**Gold**
10:30-11:00	Break	
11:00-12:00	Tutorial Ⅱ	**Silver**
11:00-12:00	Session Ⅳ	**Rainbow**
11:00-12:30	IWRS Ⅳ	**Gold**
12:00-14:15	Lunch	
12:30-	Board Meeting of KSSC	**Conference Room (Hotel)**
14:00-16:00	IEC-TC90 Session	**Silver**
14:15-16:00	Session Ⅴ	**Rainbow**
14:15-15:45	IWRS Ⅴ	**Gold**
15:45-16:00	Break	
16:00-17:30	Board Meeting of KICS	**Silver**
16:00-17:30	Poster Session	**Grand Ballroom**
17:30-18:00	Break	
18:00-	General Meeting of KSSC	**Grand Ballroom**

August 11, 2022 (Thursday)

09:00-10:30	Session Ⅵ	**Grand Ballroom**
09:00-10:15	Session Ⅶ	**Rainbow**
09:00-10:30	IWRS Ⅵ	**Gold**
10:30-11:00	Break	
11:00-12:00	Plenary Ⅱ	**Grand Ballroom**
12:00-12:10	Break	
12:10-	Closing Ceremony	**Grand Ballroom**

Legend

PL	Plenary Talk
IN	Invited Talk
O	Oral Talk
P	Poster
TU	Tutorial
PR	PRISM
IWRS	International Workshop on Recent Progress in Superconductivity
TP	Theory, Physical Properties
ED	Electronic & Devices Applications
MM	Materials
LA	Large Scale Applications
CR	Cryogenics

August 9, 2022 (Tuesday)

REGISTRATION (12:00-) Greenpia Condominium

OPENING CEREMONY (12:40-12:50) Grand Ballroom

PLENARY I (13:00-14:00) Grand Ballroom

Chair : Byeongwon Kang *(Chungbuk Natl. Univ.)*

PL I **SI units based on nature constants**
(SI 단위, 자연에게 묻다)
Myung-Ho Bae
(Korea Research Institute of Standards and Science, Daejeon 34113, Republic of Korea)

Break (14:00-14:15)

SESSION I (14:15-15:15) Silver

Chair : Myung-Ho Bae *(KRISS)*

O ED I -1 (14:15-14:30)
Edge dependence of the supercurrent in the quantum Hall regime
Seong Jang
(Pohang University of Science and Technology)

O ED I -2 (14:30-14:45)
Numerical Analysis and Optimization of Flip-chip Based 3D Superconducting Quantum Circuits
Seong Hyeon Park
(Department of Electrical and Computer Engineering, Seoul National University, Seoul, 08826, Korea)

O ED I -3 (14:45-15:00)
Tunneling spectroscopy of Andreev bound states from short to long Josephson coupling
Geon-Hyoung Park
(Depart. of Physics, Pohang University of Science and Technology)

O ED I -4 (15:05-15:15)

Machine learning assisted spatial current density spectroscopy in Josephson junctions

Jinho Park

(Department of Physics, POSTECH)

SPECIAL I (14:15-15:45) Rainbow

Chair : Sangjin Lee *(SNU)*

IN PR I -1 (14:15-14:45)

고성능 고온초전도 자석용 선재의 기반기술 개발
(고온초전도 선재의 길이방향 균일성 향상 기반기술 개발)

하홍수

(한국전기연구원)

IN PR I -2 (14:45-15:15)

Development of Core Technology for Ultra-High Field and High Field-Homogeneity High-Temperature-Superconductor Solenoid Magnet

SangGap Lee

(Korea Basic Science Institute (KBSI), Cheongju, Korea)

IN PR I -3 (15:15-15:45)

Core Technology Development for High-Current Toroidal Field High Temperature Superconductor Magnet - The first movements

Sangjun Oh

(Korea Institute of Fusion Energy, Daejeon 34133, South Korea)

IWRS SESSION I (14:15-15:45) Gold

Cu/Fe/Ni-based Superconductivity- I

Chair : Jaeyong Kim *(Hanyang Univ.)*

IWRS I -1 (14:15-14:45)

First-principles study on superconductivity in d^9 correlated electron systems

Ryotaro Arita

(Research Center for Advanced Science and Technology, University of Tokyo, Tokyo, Japan / RIKEN Center for Emergent Matter Science, Saitama, Japan)

IWRS Ⅰ-2 (14:45-15:15)

X-ray scattering studies of charge order in cuprate superconductors: moving steps further

Hoyoung Jang

(PAL-XFEL Beamline Division, Pohang Accelerator Laboratory, Pohang, Korea)

IWRS Ⅰ-3 (15:15-15:45)

B1g-Phonon Anomaly Driven by Fermi Surface Instability at Intermediate Temperature in $YBa_2Cu_3O_{7-\delta}$

Dongjin Oh

(Seoul National University, Seoul, Korea)

Break (15:45-16:00)

SESSION Ⅱ (16:00-16:45)

Silver

Chair : Myung-Ho Bae *(KRISS)*

O ED Ⅱ-1 (16:00-16:15)

Early test results of the 4 T high temperature superconducting (HTS) magnet

Dohoon Kwon

(KAIST)

O ED Ⅱ-2 (16:15-16:30)

High energy-resolution tunneling spectroscopy in graphene Josephson junction

Sein Park

(Postech)

O ED Ⅱ-3 (16:30-16:45)

Subkelvin lateral thermal transport in hBN/graphene/hBN structure

Woochan Jung

(Physics Department, POSTECH)

SPECIAL Ⅱ (16:00-18:00)

Rainbow

Chair : Sangjin Lee *(SNU)*

IN PR Ⅱ-1 (16:00-16:30)

고성능 고온초전도 레이스트랙 코일 핵심기술 개발 (고온초전도 회전기 기술검토 및 성능평가방안 수립)

심기덕

(㈜수퍼제닉스)

IN PR Ⅱ-2 (16:30-17:00)

Core Technology Development of High Temperature Superconductor Magnets for Fast Ramping Saddle and Multi-pole Wiggler
(Developing Applications of HTS in Particle Accelerator with NI Technology)
Garam Hahn
(Pohang Accelerator Laboratory, Pohang University of Science and Technology, Pohang, 37673, Korea)

IN PR Ⅱ-3 (17:00-17:30)

고온초전도 자석 공통 기반기술 개발
(고온초전도 자석의 명품화/양산화를 위한 장비 및 기반기술 개발)
한승용
(서울대학교 공과대학 전기·정보공학부)

IN PR Ⅱ-4 (17:30-18:00)

고온초전도 자석의 다중물리 통합설계 기반기술 개발
(고온초전도 자석의 전자기, 구조, 열 해석 기초모델 개발)
한승용
(서울대학교 공과대학 전기·정보공학부)

IWRS SESSION Ⅱ (16:00-17:30) Gold

Topological Superconductivity- Ⅰ

Chair : SoonJae Moon *(Hanyang Univ.)*

IWRS Ⅱ-1 (16:00-16:30)

Nodal and nematic superconducting phases in $NbSe_2$ monolayers from competing superconducting channels
Chang-woo Cho
(Department of Physics, The Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong)

IWRS Ⅱ-2 (16:30-17:00)

Spin-orbit splitting of Andreev states in a nanowire Josephson junction
Sunghun Park
(Autonomous University of Madrid, Madrid, Spain)

IWRS Ⅱ-3 (17:00-17:30)

A nanomechanical probe for Majorana zero modes
Junho Suh
(Korea Research Institute of Standards and Science, Korea)

Break (18:00-18:10)

회장 및 감사 입후보자 정견발표 & BANQUET
(18:10-20:10) Hotel Grand Ballroom

August 10, 2022 (Wednesday)

BOARD MEETING OF PSAC (08:00-)

THE CHALET (Hotel)

TUTORIAL (09:00-10:30)

Silver

TU Ⅰ (09:00-09:30)
Preliminary thermal design of conduction cooled HTS magnet
Seokho Kim
(Chagnwon National University, Changwon, Korea)

TU Ⅱ (09:30-10:00)
Passive Shimming Technology for HTS Solenoids
Minchul Ahn
(Kunsan National University, Gunsan, Korea)

TU Ⅲ (10:00-10:30)
Evaluation Technologies of Mechanical and Electromechanical Properties in Practical REBCO Tapes at Cryogenic Temperatures
Hyung-Seop Shin
(Andong National University, Andong, 36729 Korea)

SESSION Ⅲ (09:00-10:00)

Rainbow

Chair : Kookchae Chung *(KIMS)*

O MM Ⅰ-1 (09:00-09:15)
Critical Properties and Microstructure of Electron Beam Irradiated MgB_2 Superconductors
Byung-Hyuk Jun
(Korea Atomic Energy Research Institute)

O MM Ⅰ-2 (09:15-09:30)
Attempts to test the multi-directional response of critical current in REBCO tapes' coil winding pack assembly
Michael De Leon
(Andong National University)

O MM Ⅰ-3 (09:30-09:45)

Magnetocaloric characteristics of a wire composite of La(Fe, Mn, Si)13-H alloy powders in Gd tube

Kookchae Chung

(Korea Institute of Materials Science)

O MM Ⅰ-4 (09:45-10:00)

MgB_2 conductors for application in superconducing magnet energy storage

Jun Hyuk Choi

(Sam Dong Co., Ltd)

IWRS SESSION Ⅲ (09:00-10:30) Gold

Sperconductivity at High Pressures- Ⅰ

Chair : Seung Ryong Park *(INU)*

IWRS Ⅲ-1 (09:00-09:30)

Theoretical Discovery of Superconducting Hydrides

Eva Zurek

(University at Buffalo, State University of New York, NY, USA)

IWRS Ⅲ-2 (09:30-10:00)

Synthesis Pathway of Superconductive Hydride

Katsuya Shimizu

(Osaka University, Osaka, Japan)

IWRS Ⅲ-3 (10:00-10:30)

Unusual pressure-induced quantum phase transition from superconducting to charge-density wave state in $LuPd_2In$

Heejung Kim

(Department of Physics, POSTECH, Korea / MPPHC-CPM, Max Planck POSTECH/Korea Research Initiative, Korea)

Break (10:30-11:00)

TUTORIAL (11:00-12:00) Silver

TU Ⅳ (11:00-11:30)

Simulation and Mitigation of Screening Current in High-Temperature Superconductor Magnet

Jeseok Bang

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

TU V (11:30-12:00)

Superconducting Synchronous Motor with No-insulation High-temperature Superconductor Field Winding

Uijong Bong

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

SESSION IV (11:00-12:00) — Rainbow

Chair : Hunju Lee *(SuNAM)*

O MM Ⅱ-1 (11:00-11:15)

초전도 박막 선재의 폭 방향 두께 균일화를 위한 차등 증착 기술 연구

김관태

(한국전기연구원)

O MM Ⅱ-2 (11:15-11:30)

Study of MgB_2 superconducting wires fabricated by Mg powder compaction method

Kookchae Chung

(Korea Institute of Materials Science)

O MM Ⅱ-3 (11:30-11:45)

Joint characteristics of ultrasonic welded REBCO tapes with different stabilizers like Ag and Ag-Cu

Arman Ray Nocedal Nisay

(Andong National University)

O MM Ⅱ-4 (11:45-12:00)

The fabrication of bulk magnet stacked with HTS tapes for the magnetic levitation

Insung Park

(Cryogenic Apparatus Research Center, Korea Electrotechnology Research Institute)

IWRS SESSION IV (11:00-12:30) — Gold

Topological Superconductivity - Ⅱ

Chair : Yong-Joo Doh *(GIST)*

IWRS Ⅳ-1 (11:00-11:30)

Optical transitions in clean superconductors

Junyeong Ahn

(Harvard University, Cambridge, MA, USA)

IWRSⅣ-2 (11:30-12:00)

Strain-driven topological phase transition in a quasi-one-dimensional superconductor

Sunghun Kim

(Korea Advanced Institute of Science and Technology (KAIST), Korea)

IWRSⅣ-3 (12:00-12:30)

Coupling between electrons and charge density wave fluctuation and its role on superconductivity

Yeong kwan Kim

(Department of Physics, Korea Advanced Institute of Science and Technology, Korea)

Lunch (12:00-14:15)

BOARD MEETING OF KSSC (12:30-)

Conference Room (Hotel)

IEC-TC90 SESSION (14:00-16:00) **Silver**

01 **IEC TC90 WG4 동향**

김동호

(영남대학교)

02 **초전도케이블 표준화 최근 동향 (Int-RRT)**

조전욱

(한국전기연구원)

03 **WG5의 최근 동향 및 Int-RRT 활동**

신형섭

(안동대학교)

04 **WG14의 최근 동향**

정연욱 / 이용호

(성균관대학교 / KRISS)

05 **2세대 선재의 자장하 임계전류 측정 동향**

이헌주 / 김형진

(㈜서남)

06 **고온초전도 장선 임계전류 연속 측정 표준화**

오상수

(한국전기연구원)

07 **그 외 동향: TC90 plenary meeting 대응**

초전도(IEC TC90) 전문위원회 정기회의

Silver

SESSION V (14:15-16:00)

Rainbow

Chair : Sung-Kyu Kim *(KERI)*

O LA I -1 (14:15-14:30)

A Study on Magnetic Fields Induced by Various Shaped HTS Coils: Solenoid, Racetrack, D-shape, and Saddle

Jeseok Bang

(Department of Electrical and Computer Engineering, Seoul National University)

O LA I -2 (14:30-14:45)

Design of 10 T NI HTS Magnet for Magnetohydrodynamic Propulsion Ship

Chaemin Im

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

O LA I -3 (14:45-15:00)

Continuum sensitivity analysis and design optimization of no-insulation HTS field windings in superconducting synchronous motors

Kyungsik Seo

(Seoul National University)

O LA I -4 (15:00-15:15)

Transient Characteristics of Multi-Pole NI HTS Coils with Unbalanced Characteristic Resistances in Synchronous Motors

Uijong Bong

(Department of Electrical and Computer Engineering, Seoul National University)

O LA I -5 (15:15-15:30)

A Study on AC Loss Estimation of HTS Field Coil in Synchronous Motor Considering Armature Reaction and Slotting Effect

Jonghoon Yoon

(Seoul National University)

O LA I -6 (15:30-15:45)

Study on the Epoxy Composites Containing Various Fillers as an Insulator on Thermal and Electrical Properties of NbTi Magnets using Conduction Cooling System

Dawool Kwon

(Department of Materials Science and Engineering, Korea University, Seoul, 02841, Korea)

O LA I -7 (15:45-16:00)

Development of high-temperature superconducting synchronous motor equipped with active rotating type flux pump exciter

Yoon Seok Chae

(Department of Electrical & Energy Engineering, Jeju National University)

IWRS SESSION V (14:15-15:45) Gold

Strong Correlation and Superconductivity - I

Chair : Kyungwan Kim *(Chungbuk Natl. Univ.)*

IWRS V -1 (14:15-14:45)

Superconductivity in a doped spin-liquid candidate

Kazushi Kanoda

(Applied Physics, University of Tokyo, Tokyo, Japan)

IWRS V -2 (14:45-15:15)

Self-healing high-entropy alloy superconductors

Soon-Gil Jung

(Center for Quantum Materials and Superconductivity (CQMS) and Department of Physics, Sungkyunkwan University, Korea)

IWRS V -3 (15:15-15:45)

Anisotropic non-split zero-energy vortex bound states in conventional superconducting thin films

Howon Kim

(University of Hamburg, Hamburg, Germany)

Break (15:45-16:00)

BOARD MEETING OF KICS (16:00-17:30) Silver

POSTER SESSION (16:00-17:30) Grand Ballroom

Theory & Physical Properties

Chair : Sooran Kim *(Kyungpook Natl. Univ.)*

TPP1 **First Principles Study of Superconducting CrB_2 under High Pressure**
Hong Suk Choi
(Department of Applied Physics, Graduate School, Korea University, Sejong)

TPP2 **$La_{1.85}Sr_{0.15}CuO_4$ thin film growth and in-situ ARPES**
Youngdo Kim
(Center for Correlated Electron Systems, Institute for Basic Science)

TPP3 **Kondo interaction in FeTe and its potential role in the magentic order**
Younsik Kim
(Seoul National University)

TPP4 **Determination of the superconducting gap in CeH_9 under pressure**
Seokmin Choi
(Department of Physics, Sungkyunkwan University)

TPP5 **Intertwined Pseudogap with Kondo hybridization in Heavy-fermion Superconductor $CeCoIn_5$**
Harim Jang
(Department of Physics, Sungkyunkwan University)

TPP6 **Enhancement of critical current density of high-entropy alloy superconductor $Ta_{1/6}Nb_{2/6}Hf_{1/6}Zr_{1/6}Ti_{1/6}$ via post-annealing**
Jihyun Kim
(Department of Physics, Sungkyunkwan University, Suwon 16419, Republic of Korea)

TPP7 **Disorder effects on quantum critical superconductor $CeRhIn_5$**
Soonbeom Seo
(Center for Quantum Materials and Superconductivity, Department of Physics, Sungkyunkwan University, Suwon 16419, South Korea)

TPP8 **Charge delocalization and quantum criticality in heavy fermion superconductor $CeRhIn_5$**
Tae Beom Park
(Sungkyunkwan University, Korea)

TPP9 **Superconducting gap in high-entropy-alloy probed by Andreev reflection spectroscopy**
Hong Thi Anh Vuong
(Center for Quantum Materials and Superconductivity (CQMS) and Department of Physics, Sungkyunkwan University, Suwon 16419, Republic of Korea)

TPP10 **Mirror symmetry breaking beyond critical doping in (Pb,Bi)2212**
Saegyeol Jung
(IBS-CCES)

TPP11 **Growth of heavy fermion $CeCoIn_5$ epitaxial thin films via Pulsed Laser Deposition**
Sungmin Park
(Center for Quantum Materials and Superconductivity (CQMS) and Department of Physics, Sungkyunkwan University, Suwon 16419, Republic of Korea)

TPP12 **Electron doping effect on CDW states and Superconductivity in Kagome superconductor CsV_3Sb_5**
Saqlain Yousuf
(Center for Quantum Materials and Superconductivity, Sungkyunkwan University, Natural Science Campus, Korea Republic of)

Electronics & Devices Applications

Chair : Myung-Ho Bae *(KRISS)*

EDP1 **Electrical phase control by tuning gate voltage and temperature in $Mo_{0.67}W_{0.33}Se_2$ field-effect transistor**
Min-Sik Kim
(JBNU, KRISS)

EDP2 **Aharonov-Bohm oscillations at Nanowire Magnetothermovoltage**
Du Hyuk Kwon
(Department of physics, Chungnam National University)

EDP3 **Microwave optomechanical system with a niobium resonator and a silicon-nitride membrane**
Duk Y. Kim
(Agency for Defense Development)

EDP4 **Temperature difference of liquid nitrogen surface according to pressurized gas and heat load of SFCL**
Sung Joon Kim
(LS Electric)

EDP5 **On Static H-formulation Adapted to the Critical Current Model of HTS Devices**
Dong Keun Oh
(Korea Institute of Fusion Energy)

EDP6 **Development of PEM fuel cell technology for superconducting coil operation**
Hyun Woo Noh
(Korea Electrotechnology Research Institute)

Materials

Chair : Jun Hyuk Choi *(SAMDONG)*

MMP1 **Investigation of the Transverse Electromechanical Delamination Strength in practical REBCO Tapes at 77 K**
Diaz Mark Angelo
(Andong National University)

MMP2 **Size and shape similarity of a pore and Mg powder and critical current density of in situ processed MgB_2 superconductors**
C.-J. Kim
(Korea Atomic Energy Research Institute)

MMP3 **Superconducting properties of single-grain YBCO bulk superconductors with artificial holes**
Nam-hyun Yu
(SungKyunKwan University)

MMP4 **Structural suitability of $GdFeO_3$ and $LaFeO_3$ as magnetic buffer layers for $GdBa_2Cu_3O_{7-x}$ superconducting thin films**
Han Seok Park
(충북대학교)

MMP5 **Temperature-dependent EXAFS studies on $GdBa_2Cu_3O_{7-x}/La_{0.7}Sr_{0.3}MnO_3$ system: correlation between superconductivity and local structure**
Jun Yung Oh
(Department of Physics, Chungbuk National University, Cheongju, Korea)

MMP6 **Influence of residual amorphous phases on superconducting performance of carbon-doped MgB_2 bulks and wires**
Minoru Maeda
(Kangwon National University)

MMP7 **초전도 자기 특성**
이상헌
(선문대학교 전자공학과)

Large Scale Applications

Chair : Jiho Lee *(PNU)*

LAP1 **A Preliminary Study for a Joint-less HTS Magnet with Persistent Current Switch**
Miyeon Yoon
(Tech University of Korea)

LAP2 **Study on the Optimized Superconducting Joint Technique using Litz MgB_2 Wires**
Hyun Sung Noh
(Department of Materials Science and Engineering, Korea University, Seoul, 02841, Korea)

LAP3 **A Study on Resistance of Soldered Joint between GdBCO-Coated Conductor Tapes depending on Various Parameters**
Younghoon Kim
(Department of Materials Science and Engineering, Korea University, Seoul, 02841, Korea)

LAP4 **Investigation on High-Temperature Superconductor Current-Lead Design for Electromagnetic Effect**
Min Kyu Sun
(Department of Materials Science and Engineering, Korea University, Seoul, 02841, Korea)

LAP5 **Thermal Characteristics of Current Lead Using Porous Copper foam**
Seoung Eon Kim
(Department of Materials Science and Engineering, Korea University, Seoul, 02841, Korea)

LAP6 **A study on the estimation of critical current density using magnetization losses of CORC conductors**
Jinwoo Han
(Tech University of Korea)

LAP7 **A study on estimating magnetization loss of TSTC conductors**
Jinwoo Han
(Tech University of Korea)

LAP8 **A Performance Comparison Study of NI HTS Saddle and Racetrack type 1 MW Motor for Aircraft Propulsion**
JuKyung Cha
(Seoul National University)

LAP9 **A 2D H-Formulation Model for Simulating Screening Current-Induced Multipole Coefficients of Saddle-Shaped HTS Magnet**
Hyunsoo Park
(Department of Electrical and Computer Engineering, Seoul National University, Seoul 08826, Republic of Korea)

LAP10 **Concept Design of Pizza Shape HTS Coil for Axial Flux Synchronous Motor Field Winding**
Hao Ming
(Seoul Nation University)

LAP11 **Numerical Study of AC Loss in No-Insulation Class High Temperature Superconducting Toroidal Field Coils for Compact Tokamak Fusion Reactor**
Wonseok Jang
(Seoul National University)

LAP12 **Design and analysis of a double sided HTS flux switching linear motor with yokeless stator**
Jaewoo Kang
(Seoul National University)

LAP13 **A Study of Effective Thickness in a No-Insulation coil after Winding-Unwinding Cycles**
Jaemin Kim
(Seoul National University)

Cryogenics

Chair : Dongmin Kim *(KIMM)*

CRP1 **Design of non-flammable mixed refrigerant Joule-Thomson refrigerator with cooling temperature of -100 ℃ for semiconductor etching process**
Cheonkyu Lee
(Carbon Neutral R&D department, R&D Institute of Clean Manufacturing System, KITECH)

CRP2 **Various Applications of Helium Brayton Cycle to 5 T/d Hydrogen Liquefaction with LNG Pre-cooling**
Seung Jun Back
(Hong Ik University, Seoul, 04066, KOREA)

CRP3 **Thermal-Hydraulic Characteristics of Forced Flow Cooling with Three Super-Critical Coolants (Helium, Hydrogen, and Neon) for 20 K HTS Magnets**
Jeong Gyu Lee
(Hong Ik University, Seoul, 04066, KOREA)

CRP4 **Integrated Design of Brayton Refrigeration Cycle and Forced Flow Cooling of Cable-in-Conduit Conductors for High Field HTS Magnets at 20 K**
Yumi Cha
(Hong Ik University, Seoul, 04066, KOREA)

CRP5 **Cascade JT Cycles with Nitrogen-Neon Mixed Refrigerant for Large scale Liquefaction of Hydrogen**
Seong Ho Bang
(Hong Ik University, Seoul, 04066, KOREA)

CRP6 **A study on the thermo-hydraulic characteristics according to distance between coils of the helical heat exchanger for supercritical cryo-compressed hydrogen**
Hojun Cha
(Changwon National University, Smart Manufacturing Engineering)

CRP7 **Performance Prediction by Shape of Labyrinth Seal for Cryogenic Fluid**
Yubin Kim
(Changwon National University, Dept. of Smart manufacturing Engineering)

CRP8 **Magnetic field effect on thermal contact conductance in low temperature**
Junhyuk Bae
(KAIST)

CRP9 **Numerical study on the area ratio between the displacer rod and the displacer in a single-stage Stirling cooler**
Bokeum Kim
(KAIST)

CRP10 **A Study on the Thermal and Structural Characteristics Considering the Rotational Stability of Cryogenic Support for Superconducting Motor**
Seungcheol Ryu
(Department of Smart Manufacturing Engineering, Changwon National University, Changwon, Korea)

Break (17:30-18:00)

GENERAL MEETING OF KSSC (18:00-)

Grand Ballroom

August 11, 2022 (Thursday)

SESSION Ⅵ (09:00-10:30) Grand Ballroom

Chair : Wooseung Lee *(KBSI)*

O LAⅡ-1 (09:00-09:15)
A Study on the Magnetic Field Dependent Critical Current Modelling of REBCO Coated Conductors for Large Scale Applications
Kibum Choi
(Department of Electrical and Computer Engineering, Seoul National University)

O LAⅡ-2 (09:15-09:30)
Improving the SuperMagnet model; recent developments and future activities
Dong Keun Oh
(KFE - Korea institute of Fusion Energy)

O LAⅡ-3 (09:30-09:45)
A Numerical Method Integrating 2-D Finite Element Method and Distributed Circuit Model to Simulate Current Distribution in a D-shaped HTS Coil
Jung Tae Lee
(Department of Electrical and Computer Engineering, Seoul National University)

O LAⅡ-4 (09:45-10:00)
Numerical modeling for constant perimeter winding of saddle-shaped no-insulation HTS coil
Geonyoung Kim
(Seoul National University)

O LAⅡ-5 (10:00-10:15)
A Design Study on NI HTS Short Period Undulator and Medium Field Wiggler for Light Source
Jeonghwan Park
(Seoul National University)

O LCⅡ-6 (10:15-10:30)
The copper cavity fabrication of 3rd harmonic cavity for bunch lengthening
Junho Han
(KAT)

SESSION Ⅵ (09:00-10:15) Rainbow

Chair : Dongmin Kim *(KIMM)*

O CR I -1 (09:00-09:15)
Thermo-hydraulic performance analysis of the airfoil heat sink for a metal 3D printing
Jaehwan Lee
(Department of Smart Manufacturing Engineering, Changwon National University, Changwon, Korea)

O CR I -2 (09:15-09:30)
Thermodynamic Optimization of 10 kA Current Leads with REBCO Tapes for 20 K HTS Magnets
Na Hyeon Kim
(Hong Ik University, Seoul, 04066, KOREA)

O CR I -3 (09:30-09:45)
HTS coil cooling device using liquid hydrogen and fuel cell power source for charging superconducting coil
Dong-Woo Ha
(Korea Electrotechnology Research Institute)

O CR I -4 (09:45-10:00)
Thermal analysis of a high-pressure exhaust line for a cryogenic liquid hydrogen pump
Kyoung Joong Kim
(Korea Advanced Institute of Science and Technology)

O CR I -5 (10:00-10:15)
Simulation of pressure, liquid level change and stratification of cryogenic fluid storage tank
Youngjun Choi
(Department of Smart Manufacturing Engineering, Changwon National University, Republic of Korea)

IWRS SESSION Ⅵ (09:00-10:30) Gold

Strong Correlation and Superconductivity - Ⅱ

Chair : Jeehoon Kim *(POSTEH)*

IWRS Ⅵ-1 (09:00-09:30)
Nematic quantum critical points and unconventional superconducting states in iron chalcogenides
Takasada Shibauchi
(University of Tokyo, Kashiwa, Japan)

IWRS Ⅵ-2 (09:30-10:00)
Electronic properties of f electrons near Fermi level via a comparative optical study of $CeCoIn_5$ and $LaCoIn_5$
Jungseek Hwnag
(Department of Physics, Sungkyunkwan University, Suwon, Korea)

IWRS Ⅵ-3 (10:00-10:30)
Hidden Hund's Physics in the Infinite-Layer Nickelate Superconductors
Chang-Jong Kang
(Department of Physics, Chungnam National University, Daejeon, Korea / Department of Physics and Astronomy, Rutgers University, New Jersey, USA)

Break (10:30-11:00)

PLENARY Ⅱ (11:00-12:00) Grand Ballroom

Chair : Seungyong Hahn *(SNU)*

PL Ⅱ (11:00-12:00)
과기부 고온초전도마그넷기술개발사업 추진현황
이상진
(서울대학교)

Break (12:00-12:10)

CLOSING CEREMONY (12:10-) Grand Ballroom

- Awards
- Closing Remarks

Organization Committee

Hankil Yeom *(KIMM)*
Sangjun Oh *(KFE)*
Eun-Gook Moon *(KAIST)*
Jungpil Seo *(DGIST)*
Myung-Ho Bae *(KRISS)*
Jun Hyuk Choi *(Sam Dong Co., Ltd.)*
Kookchae Chung *(KIMS)*
Seyong Choi *(Kangwon Nat.l Univ.)*
Jiho Lee *(PNU)*
Young Jin Hwang *(KMOU)*
Jae Young Jang *(KOREATECH)*
Keuntae Lee *(KIMM)*
Junseok Ko *(KIMM)*

2022 Summer Conference of KSSC

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