Geonyoung Kim, PhD

Date of birth: 1995. 01. 20
e-mail: 2078kgy@gmail.com ; phone: +821088041934

Education

Ph.D in Electrical and Computer Engineering (GPA: 4.15/4.3, Selected as Best Thesis Award)

Thesis title: Applicability of No-insulation High-temperature Superconductor Saddle-shaped Dipole Magnet to Particle Accelerator

Seoul National University, Seoul, South Korea 2025.02

Barchelor of Science in Electrical and Computer Engineering (GPA: 3.81/4.3, Cum Laude)

Seoul National University, Seoul, South Korea 2020.02

Professional Experience

Assistant Professor

Department of Electrical Engineering, College of Engineering

The University of Suwon, Hwaseong, South Korea 2026.03-Present

Research Engineer (as Korean mandatory military service)

Nanotech Inc., Yongin, South Korea 2025.03-2026.02

Research Experience

On-going Programs

Development of Common Base Technologies for High Temperature Superconductor Magnet, National Research Foundation

Magnet Engineer 2022.04 –Present

Invented detachable current lead and supported development of joint machine and mechanical test facility. This project is part of the PRISM (Project for Research & Innovation in Superconducting Magnet) funded by Ministry of Science and ICT.

Development of Multiphysics Integrated Design Base Technology for High-Temperature Superconductor Magnet, National Research Foundation

Lead Engineer 2022.04 - Present

Led the research and developed multi-physics program for HTS magnet. This project is part of the PRISM (Project for Research & Innovation in Superconducting Magnet) funded by Ministry of Science and ICT.

Development of Core Technologies for High-Current Toroidal High-Temperature Superconducting Magnet

Magnet Engineer 2022.04 –Present

Participated in the development of kA-class high-temperature superconducting cables. This project is part of the PRISM (Project for Research & Innovation in Superconducting Magnet) funded by Ministry of Science and ICT.

Development of Winding Technique for Saddle/Wiggler Type High Temperature Superconductor Magnet, National Research Foundation

Lead Engineer 2022.04 - Present

Analyzed constant perimeter winding technique and developed multi-axis winding machine for saddle-shaped coil. This project is part of the PRISM (Project for Research & Innovation in Superconducting Magnet) funded by Ministry of Science and ICT.

Completed Programs

Foundation of a Company Specializing in High-temperature Superconducting Magnet Systems for Small-sized Nuclear Fusion, Commercialization Promotion Agency for R&D Outcomes

Magnet Engineer 2024.04 - 2025.02

Analyzed technical hardships for development of nuclear fusion magnet and investigated nuclear fusion marketability from a technology perspective.

Development of High Temperature Superconductor Coil Set for 5 T Cryocooled Wavelength Shifter, National Research Foundation

Magnet Engineer 2022.05 - 2025.02

Reviewed design of 5 T HTS wavelength shifter magnet and supported fabrication of the magnet as a part of Pohang Accelerator Laboratory's program.

Design and Consultation for Developing 3 T Brain MRI Magnet and Gradient Coil, Mybrain Corp.

Lead Engineer 2021.12 - 2025.02

Designed and constructed LTS 3 T brain MRI magnet and gradient coil, which is now constructing, in collaboration with Mybrain Corp.

Superconducting magnet design, fabrication, and property analysis study using Samdong MgB_2 superconducting wire, Samdong Co., Ltd.

Magnet Engineer 2023.05 - 2025.02

Validated of superconducting magnet design by numerical analysis methods.

Collaborative Research on Partial insulation in TF DEMO coils with ENEA

Magnet Engineer 2022.03 - 2025.02

Suggested the distributed-circuit model for simulating current distribution of TF DEMO coils. Calculated the self and mutual inductances between each turn.

HTS cable and associated insulation for the magnets of Spherical Tokamak for Energy Production, UKAEA

Magnet Engineer 2023.04 - 2025.02

Supported analysis of HTS stacked cable test. The specific aim is to develop and fabricate the HTS stacked cable which possibly applies to the STEP (Spherical Tokamak for Energy Production, UK) program.

Collaborative Research on Screening Current's Impact on Stellarator Magnet with Proxima Fusion

Lead Engineer 2023.11 - 2025.02

Led research collaboration. Analyzed screening current induced field and stress for HTS stellarator magnets. Fabricated small-scale module coil for verification. This is informal and individual research collaboration.

Development on High Temperature Superconductor Magnet for Next Generation Ultra-high Field MRI, Korean Medical Device Development Fund

Magnet Engineer 2020.09 – 2024.06

Specific aim is to develop a 6 T all HTS magnet for high field MRI. For the MRI magnet development, calculated the current distribution during the normal operation or the quench situation by adopting the distributed-circuit model.

Engineering design of gradient coil for high-field MRI magnet, Gangwon University

Magnet Engineer 2023.08 – 2024.06

Reviewed design of gradient coil with respect to linearity, uniformity, and inductance which determine the performance of the gradient coil.

Conceptual design of superconducting magnets and derivation of key parameters for core construction of national high magnetic field research infrastructure, Korea Basic Science Institute

Magnet Engineer 2022.07 – 2023.03

Designed high-field HTS magnets with consideration of magnetic field, uniformity, temperature gradient, mechanical stress, and conductor usage.

Development of a basic design program for analysis of electromagnetic characteristics of gradient coils, Gangwon University

Magnet Engineer 2022.09 – 2022.12

Developed design program for analyzing electromagnetic properties of gradient coils.

Development of Core Component Technology for No-Insulation High Temperature Superconductor Magnet, National Research Foundation

Magnet Engineer 2018.03 – 2022.02

Investigated characteristics of coils wound with no-insulation winding and its variations, e.g., metal-Insulation, metal-cladding insulation, partial insulation, defect-irrelevant windings.

"Beyond Limit": cryogenic computing system, Samsung Electronics

Cryogenic Engineer 2019.10 – 2021.10

Supported the temperature monitoring system instrumentation and measurement.

Core Component Technologies for Next-Generation Ultra High Field High Temperature Superconductor Whole-Body MRI Magnet, Samsung Foundation

Magnet Engineer 2018.06 – 2021.05

Supported the electromagnetic analysis, structure analysis, heat transfer analysis module considering screening current of a superconductor magnet.

Development of Tesla-class Large-bore Industrial High Temperature Superconductor Magnet, Ministry of SMEs and Startups

Magnet Engineer 2019.06 – 2020.08

Reviewed a design result of a >1 T center field >300 mm bore no-insulation high temperature superconductor magnet for industrial applications regarding magnet operation reliability and stability under a conduction cooling environment.

Development of magnetically controlled reactor for reactive power compensation, Ministry of SMEs and Startups

Magnet Engineer 2019.06 – 2020.05

Reviewed an active circuit system using power electronics in order to control reactive power compensation.

Analysis of actual operation characteristics of 400 MHz high-temperature superconducting magnets and improvement of operation performance, Korea Basic Science Institute

Magnet Engineer 2019.06 – 2019.12

Supported electromagnetic analysis of 9.4 T all-REBCO NMR magnet.

Academic Experience

Teaching Experience

Advanced Electromagnetics 1 (12458-001) 2026.03-2026.06

Electrical Engineering, The University of Suwon (Instructor)

Major Career Seminar 3 (11417-006) 2026.03-2026.06

Electrical Engineering, The University of Suwon (Instructor)

Electrical Energy Conversion (430.309A.001) 2024.09-2024.12

Electrical and Computer Engineering, Seoul National University (Teaching assistant)

Topics in Electric Energy Conversion and Circuit (430.629A.004) 2024.09-2024.12

Electrical and Computer Engineering, Seoul National University (Teaching assistant)

Electrical Engineering Design Project (430.405) 2024.03-2024.06

Electrical and Computer Engineering, Seoul National University (Teaching assistant)

Electrical Engineering Design Project (430.405) 2023.09-2023.12

Electrical and Computer Engineering, Seoul National University (Teaching assistant)

Topics in Electric Energy Conversion and Circuit (430.629A.001) 2023.09-2023.12

Electrical and Computer Engineering, Seoul National University (Teaching assistant)

Finite element method for electrical engineering (430.609.001) 2023.03-2023.06

Electrical and Computer Engineering, Seoul National University (Teaching assistant)

Electrical Energy Conversion (430.309A.001) 2022.09-2022.12

Electrical and Computer Engineering, Seoul National University (Teaching assistant)

Topics in Electric Energy Conversion and Circuit (430.629A.001) 2022.09-2022.12

Electrical and Computer Engineering, Seoul National University (Teaching assistant)

Finite element method for electrical engineering (430.609.001) 2022.03-2022.06

Electrical and Computer Engineering, Seoul National University (Teaching assistant)

Electrical Engineering Design Project (430.405) 2021.09-2021.12

Electrical and Computer Engineering, Seoul National University (Teaching assistant)

Topics in Electric Energy Conversion and Circuit (430.629A.001) 2021.03-2021.06

Electrical and Computer Engineering, Seoul National University (Teaching assistant)

Introduction to Electric Circuits and Laboratory (430.213A) 2018.03-2018.06

Electrical and Computer Engineering, Seoul National University (Undergraduate teaching assistant)

Peer Tutoring Program – Basic Physics I, Basic Calculus I 2018.03-2018.06

Faculty of Liberal Education, Seoul National University (Undergraduate teaching assistant)

Peer Tutoring Program – Basic Physics II 2017.09-2017.12

Faculty of Liberal Education, Seoul National University (Undergraduate teaching assistant)

Peer Tutoring Program – Basic Physics I 2017.03-2017.06

Faculty of Liberal Education, Seoul National University (Undergraduate teaching assistant)

Professional Activities

International Conference Presentation

G. Kim, J. Park, W. Jung, H. Park, Y. Yan, J. Kim, H. Yang, M. Ahn, J. Bang, G. Hahn, S. Choi, H. Kang, and S. Hahn, "Enhancement of Magnetic Field Uniformity of Saddle-shaped REBCO Cosine-theta Dipole Magnet," *Applied Superconductivity Conference 2024* (ASC2024), Salt Lake City, UT, 2024 – Oral (3LOr2B-04) 2024.09

G. Kim, N. Riva, S. Cho, D. Lee, W. Jang, H. Park, C. Im, J. T. Lee, Y. Yan, J. Kim, J. Bang, W. Guo, N. Foppiani, S. Hahn, and S. Lee, "Numerical Study of Effect of Screening Current on No-insulation HTS Stellarator Coil," *Applied Superconductivity Conference 2024* (ASC2024), Salt Lake City, UT, 2024 – Oral (4LOr2C-02) 2024.09

G. Kim, U. Bong, J. T. Lee, C. Im, S. H. Park, J. Park, K. Choi, J. Yoon, W. Jang, J. Cha, H. Park, J. Koo, W. Jung, J. Kim, and S. Hahn, "A numerical method based on equivalent circuit model for estimation of critical current of REBCO conductor," *7th International Conference on Advanced Electromaterials (ICAE2023)*, Jeju, South Korea – Oral (16-2847) 2023.10

G. Kim, J. Park, H. Park, J. Kim, Y. Yan, S. H. Park, J. T. Lee, W. Jang, J. Cha, J. Bang, G. Hahn, S. Choi, H. Kang, and S. Hahn, "Current bypassing behaviors during fast ramping in saddle-shaped REBCO dipole magnet wound with a bundled-conductor," *28th International Conference on Magnet Technology (MT28)*, Aix-en-Provence, France – Oral (2OrM2-6) 2023.09

G. Kim, J. Park, H. Park, J. Kim, Y. Yan, S. H. Park, J. T. Lee, W. Jang, J. Cha, J. Bang, G. Hahn, S. Choi, H. Kang, S. Hahn, and S. Lee, "Demonstration of a saddle-shaped no-insulation HTS cosine-theta dipole magnet in conduction-cooling operation," *28th International Conference on Magnet Technology (MT28),* Aix-en-Provence, France – Oral (2OrM2-5) 2023.09

J. Park, **G. Kim**, J. Kim, U. Bong, J. T. Lee, C. Im, S. H. Park, K. Choi, J. Yoon, W. Jang, J. Cha, H. Park, J. Koo, W. Jung, and S. Hahn, "Recent Progress in HTS Magnet Technology with a Focus on Accelerator Applications," *14th International Particle Accelerator Conference (IPAC'23)*, Venice, Italy – Co-first author (MC07.2) 2023.05

G. Kim, U. Bong, J. T. Lee, C. Im, J. Park, S. H. Park, K. Choi, J. Yoon, W. Jang, J. Cha, H. Park, J. Koo, W. Jung, M. Sim, J. Cha, J. Kim, and S. Hahn, "Challenges in I_c Estimation for REBCO Magnet (How precisely can we estimate $I_c(T, B, \theta)$ of REBCO)," *International Workshop on Coated Conductors for Applications 2023 (CCA2023)*, TX – First author (5MA3) 2023.04

G. Kim, J. Park, G. Hahn, S. H. Park, C. Im, H. Park, J. Bang, J. Kim, S-H. Kim, S. Choi, H. Kang, and S. Hahn, "Experiment and analysis on electromagnetic behaviors of saddle-shaped no-insulation HTS dipole magnet," *Applied Superconductivity Conference 2022 (ASC2022)*, Honolulu, HI – Poster (2LPo2D-05) 2022.10

G. Kim, U. Bong, C. Im, J. Yoon, H. Park, J. Bang, C. Lee, J. Kim, and S. Hahn, "Partial element equivalent circuit analysis on no-insulation HTS racetrack coil," *Applied Superconductivity Conference 2022 (ASC2022)*, Honolulu, HI – Poster (3LPo2B-01) 2022.10

G. Kim, J. Bang, K. Choi, C. Im, J. Kim, and S. Hahn, "Experiment and analysis of spatial electromagnetic and thermal behaviors during quench propagation in no-insulation HTS coil with multi-physics distributed-circuit approach," *27th International Conference on Magnet Technology (MT27),* Fukuoka, Japan, Hybrid – Poster (THU-PO3-707-04) 2021.11

G. Kim, S. H. Park, J. Bang, C. Im, J. Yoon, J. Kim, and S. Hahn, "An Experimental Study on Frequency Domain Analysis of Distributed-circuit Model of No-insulation HTS Coil," *European Conference on Applied Superconductivity 2021 (EUCAS2021)*, Moscow, Russia, Hybrid – Poster (Large Scale #437) 2021.09

G. Kim, J. An, C. Baek, and J. M. Seo, "3D-Printed Foldable Indirect Ophthalmoscope for Smartphone," *39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC2017)*, Jeju, Korea – Poster (ThDT12-05.4) 2017.07

International Workshop

Applied Superconductivity Conference 2024, Salt Lake City, UT

1LOr2B: HTS Magnets No Insulation / Metal Insulation II, Session Moderator 2024.09

High Field Science and Technology Forum, Seoul, South Korea

BK GoGE/SDG Program International Workshop, Session chair 2021.08

Journal Peer Reviewer

IEEE Transactions on Applied Superconductivity

Superconductor Science and Technology

Journal of Physics Communications

Materials Today Communications

Magnetic Resonance Imaging

Honors

Scholarships

BrainKorea21 2023.09-2025.02

Lecture & Research Scholarship from SNU 2022.03-2023.02

Korea Electric Power Corporation 2021.03-2022.02

BrainKorea21 2020.09-2021.02

Kwanjeong Educational Foundation 2018.03-2020.02

Kim Taehyeong Scholarship from SNU 2018.03-2018.08

Eminence Scholarship from SNU 2017.03-2018.02

Merit Based Scholarship from SNU 2016.09-2017.02

Awards

IEEE CSC Graduate Study Fellowship in Applied Superconductivity 2024.09

IEEE council on Superconductivity

The fellowship is awarded annually to a full-time graduate student pursuing a PhD (or equivalent) degree in the area of applied superconductivity, at an accredited college or university of recognized standing worldwide. The intention of the award is to encourage students to enter and contribute to the field of applied superconductivity.

Editor's pick by Applied Physics Letters (as coauthor) 2024.01

S. H. Park *et al*., "Characterization of broadband Purcell filters with compact footprint for fast multiplexed superconducting qubit readout," *Applied Physics Letters*, vol. 124, 2024, Art. no. 044003

Representative publication of project 2023.12

BrainKorea21, Education and Research Program for Future ICT Pioneers of SNU

(1) G. Kim, A. Musso, J. Bang, J. T. Lee, C. Im, K. Choi, J. Kim, M. Breschi, K. J. Han, and S. Hahn, "A numerical method for spatially-distributed transient simulation to replicate nonlinear 'defect-irrelevant' behaviors of no-insulation HTS coil," Supercond. Sci. Technol., vol. 34, no. 11, 2021, Art. no. 115004.

(2) G. Kim, S. H. Park, J. Bang, C. Im, J. Kim, J. Yoon, K. J. Han, S. Noguchi, and S. Hahn, "Experimental Study and Frequency Domain Analysis on Metal-Insulation HTS Coil," IEEE Trans. Appl. Supercond., vol. 32, no. 4, 2022, Art. no. 4600505.

Best PhD Thesis Award in ECE SNU

Department of Electrical and Computer Engineering, Seoul National University 2025.02

Selected as the best doctoral thesis among 2025 PhD recipients and published in Springer Theses by Springer Nature.

Best Paper Award

Korea Society of Superconductivity and Cryogenics 2025.02

Title: Comparison of Computation Time and Error for Screening Current in No-insulation HTS Magnet Depending on Mesh Size

Patents

Granted

Superconducting Motor System

J. Yoon, C. Im, J. Lee, S. H. Park, J. Park, H. Jang, B. Min, J. Choi, K. Choi, T. Lee, H. Lee, S. Hahn, J. Bang, **G. Kim**

U.S. Patent, 18124917 2024

Mapper for Measuring Magnetic Fields with Variable Measuring Radius

G. Kim, J. Kim, S. Park, S. Hahn

KR Patent, 10-2813585 2025

Current Switch Apparatus for Cryogenic Chambers Using Liquid Metal and Controlling Method Thereof

G. Kim, S. Hahn, J. Kim, C. Im, J. Park

KR Patent, 10-2784296 2025

Applications

Superconducting Wire Winding Bobbin, Superconducting Coil and Superconducting Magnet

J. Park, **G. Kim**, J. Kim, W. Jang, S. Hahn, G. Hahn

KR Patent, 1020240202698 2024

Current Lead, Superconducting Wire Connection System and Superconducting Magnet

G. Kim, S. Hahn, W. Jang, H. Park, C. Im, J. Kim

KR Patent, 1020240202528 2024

Technology Transfer

Nonlinear operation and evaluation knowhow for high temperature superconductor based SMES

S. Hahn, U. bong, J. Kim, S. H. Park, K. Choi, J. Park, C. Im, **G. Kim**, J. Bang, S. An, J. T. Lee, J. Yoon

Publications

Professional Books

[1] **Geonyoung Kim**. *Applicability of No-insulation High-Temperature Superconductor Saddle-Shaped Dipole Magnet to Particle Accelerator*. Springer Nature, 2025.

Peer Review Journal Publication

[1] **G. Kim**, J. Park, W. Jung, H. Park, Y. Yan, J. Kim, H. Yang, M. Ahn, J. Bang, G. Hahn, S. Choi, H. Kang, and S. Hahn, "Field uniformity enhancement in a prototype high-temperature superconducting dipole magnet," Sci. Rep., vol. 16, 2026, Art. no. 3589

[2] **G. Kim**, H. Park, W. Jang, J. Yoon, J. Park, C. Im, J. Kim, and S. Hahn, "Experimental Study on No-insulation HTS Coil with Solder-free Lap Joint Inserted," IEEE Trans. Appl. Supercond, vol. 35, no. 5, 2025, Art. no. 4605205.

[3] **G. Kim**, N. Riva, S. Cho, D. Lee, W. Jang, H. Park, C. Im, J. T. Lee, Y. Yan, J. Kim, J. Bang, W. Guo, N. Foppiani, S. Hahn, and S. Lee, "Numerical Study of Screening Current on HTS Stellarator Coil and Experimental Validation through Screening Current Induced Voltage," IEEE Trans. Appl. Supercond, vol. 35, no. 5, 2025, Art. no. 4605105.

[4] **G. Kim**, H. Park, C. Im, J. Park, J. Koo, W. Jung, J. T. Lee, W. Jang, J. Cha, Y. Yan, J. Kim, J. Bang, G. Hahn, S. Choi, H. Kang, and S. Hahn, "Distributed-Circuit Method for Replication of Fast-Ramping of Saddle-Shaped REBCO Dipole Magnet Wound With Two-Tape Bundled Conductor," IEEE Trans. Appl. Supercond, vol. 34, no. 5, 2024, Art. no. 4000405.

[5] **G. Kim**, W. Jung, J. Koo, J. Park, H. Park, J. Cha, J. T. Lee, W. Jang, S. H. Park, Y. Yan, J. Kim, J. Bang, G. Hahn, S. Choi, H. Kang, S. Hahn, and S. Lee, "Experimental Study for Modified Lumped-Circuit Model to Analyze Saddle-Shaped No-Insulation HTS Coil Operated in Overcurrent Situation," IEEE Trans. Appl. Supercond, vol. 34, no. 5, 2024, Art. no. 4600905.

[6] **G. Kim**, J. Park, J. Bang, G. Hahn, S. H. Park, C. Im, H. Park, J. Kim, S. Choi, H. Kang, S. Hahn, and S. Lee, "Investigation on nonuniform current density and shape deformation affecting magnetic field performance of a saddle-shaped no-insulation HTS cosine-theta dipole magnet," Supercond. Sci. Technol., vol. 36, no. 8, 2023, Art. no. 084002.

[7] **G. Kim**, U. Bong, C. Im, J. Yoon, H. Park, J. Bang, C. Lee, J. Kim, and S. Hahn, "Analysis of Nonuniform Contact Resistivity Distribution on No-Insulation HTS Racetrack Coil," IEEE Trans. Appl. Supercond., vol. 33, no. 5, 2023, Art. no. 4601305.

[8] **G. Kim**, J. Bang, C. Im, K. Choi, U. Bong, J. T. Lee, and S. Hahn, "Fast Current Distribution Simulation Method for No-Insulation HTS Coil With Defects," IEEE Trans. Appl. Supercond., vol. 32, no. 6, 2022, Art. no. 4602905.

[9] **G. Kim**, S. H. Park, J. Bang, C. Im, J. Kim, J. Yoon, K. J. Han, S. Noguchi, and S. Hahn, "Experimental Study and Frequency Domain Analysis on Metal-Insulation HTS Coil," IEEE Trans. Appl. Supercond., vol. 32, no. 4, 2022, Art. no. 4600505.

[10] **G. Kim**, A. Musso, J. Bang, J. T. Lee, C. Im, K. Choi, J. Kim, M. Breschi, K. J. Han, and S. Hahn, "A numerical method for spatially-distributed transient simulation to replicate nonlinear 'defect-irrelevant' behaviors of no-insulation HTS coil," Supercond. Sci. Technol., vol. 34, no. 11, 2021, Art. no. 115004.

[11] **G. Kim**, K. Choi, J. Park, U. Bong, J. Bang, and S. Hahn, "A simulation-based design study of superconductor zonal shim coil for a 9.4 T whole-body MRI magnet," Prog. Supercond. Cryog., vol. 22, no. 1, p. 12-16, 2020.

[12] A. Musso, J. T. Lee, Y. Yan, J. Bang, N. Riva, C. Im, **G. Kim**, M. Bocchi, G. Angeli, and S. Hahn, "Preliminary Experimental Investigation of Graded Insulation on the Performance of HTS Pancake Coils," IEEE Trans. Appl. Supercond., vol. 36, no. 3, 2026, Art. no. 4605207.

[13] J. T. Lee, **G. Kim**, H. Park, J. Park, C. Im, W. Jang, J. Kim, and S. Hahn, "Stochastic Analysis on the Factors Affecting Critical Current and Index Value of Multi-Tape Co-Wound NI HTS Coil," IEEE Trans. Appl. Supercond., vol. 36, no. 3, 2026, Art. no. 4604505.

[14] C. Im, J. Yoon, W. Jang, **G. Kim**, H. S. Noh, J. Koo, H. Park, W. Jung, J. Kim, S. Yoon, H. Lee, S. Hahn, and S. Lee, "Study on Mechanical Movements of HTS Coils Due to Winding and Thermal Effect," IEEE Trans. Appl. Supercond., vol. 36, no. 3, 2026, Art. no. 4901105.

[15] H. Park, J. Kim, J. Cha, J. Koo, S. Lee, G. Berthet, Y. Kim, W. Jung, **G. Kim**, S. Yoon, H. Lee, S. Hahn, and S. Lee, "Design, Construction, and Experiment of Roller Shaped High-Temperature Superconducting Coil Joint Apparatus," IEEE Trans. Appl. Supercond., vol. 36, no. 3, 2026, Art. no. 4602905.

[16] H. Jin, J. Ko, K. Nam, S. Shin, J. Lee, J. Kim, G. Jang, **G. Kim**, J. Park, and S. Hahn, "A study on beam optics and photon beam characteristics with a superbend in the Korea-4GSR," J. Korean Phys. Soc., 2025, 1-9.

[17] H. Park, **G. Kim**, J. Kim, C. Im, J. Park, W. Lee, W. Jang, G. Berthet, J. Cha, Y. Yan, W. Jung, and S. Hahn, "Experimental Study on Temperature-controlled Charging Sequence for Reduction of Screening Current Effect in HTS Magnet," IEEE Trans. Appl. Supercond., vol. 35, no. 5, 2025, Art. no. 4606205

[18] W. Jang, J. Kim, **G. Kim**, C. Im, S. Choi, J. H. Kim, J. H. Choi, D. G. Lee, S. Hahn, and S. Lee, "Design, Construction, and Operational Testing of Dry Wound Conduction Cooled React-and-Wind MgB2 Magnet," IEEE Trans. Appl. Supercond., vol. 35, no. 5, 2025, Art. no. 4606705

[19] J. Cha, **G. Kim**, C. Im, J. Yoon, J. Koo, and S. Hahn, "Post-Quench Analysis and Mechanical Considerations for No-Insulation HTS Racetrack Field Coils in a 5 MW Superconducting Motor," IEEE Trans. Appl. Supercond., vol. 35, no. 5, 2025, Art. no. 5202905

[20] J. T. Lee, J. Kim, H. Park, J. Yoon, J. Cha, J. Koo, W. Jung, **G. Kim**, C. Im, Y. Yan, S. Oh, and S. Hahn, "Experimental and Numerical Analysis on Non-Uniform Current Distribution in Two-Tape Co-Wound HTS Coil," IEEE Trans. Appl. Supercond., vol. 35, no. 5, 2025, Art. no. 4602605

[21] J. Park, Y. Yan, J. Kim, **G. Kim**, J. Yoon, W. Jang, and S. Hahn, "Numerical Study on Effect of Boundary Conditions and Winding Compressibility on Screening Current Induced Stress," IEEE Trans. Appl. Supercond., vol. 35, no. 5, 2025, Art. no. 4801805

[22] W. Jung, K. Choi, H. Park, **G. Kim**, J. Park, D. Lee, J. T. Lee, and S. Hahn, "Potential Joint Damage in a REBCO MRI Magnet due to the Gradient Coil-Induced Vibration," IEEE Trans. Appl. Supercond., vol. 35, no. 5, 2025, Art. no. 4400505

[23] D. Lee, J. Kim, W. Jang, **G. Kim**, H. Park, J. T. Lee, J. Park, J. Yoon, C. Im, W. Jung, G. Berthet, Y. Yan, M. K. Sun, H. Lee, S. Hahn, and S. Lee, "Experimental Study on Shrink-Fitted REBCO Pancake Coils," IEEE Trans. Appl. Supercond., vol. 35, no. 5, 2025, Art. no. 4601705

[24] W. Jang, L. Giannini, R. Bonifetto, J. T. Lee, K. Choi, **G. Kim**, Y. Yan, M. De Bastiani, A. Zappatore, S. Hahn, L. Muzzi, and V. Corato, "Feasibility Analysis of Partially Insulated Nb3Sn EU DEMO Toroidal Field Coil," Supercond. Sci. Technol., vol. 38, no. 3, 2025, Art. no. 035003

[25] Y. Yan, J. Park, **G. Kim**, J. Kim, F. Gömöry, and S. Hahn, "Effects of lateral critical current nonuniformity on stresses in dry-wound high-field REBCO coils," Supercond. Sci. Technol., vol. 37, no. 12, 2024, Art. no. 125015.

[26] K. Koo, C. Im, **G. Kim**, J. Kim, S. Hahn, and S. Lee, "Design, Construction, and Operation of Liquid Nitrogen Cooled MHD Miniature Ship with No-insulation High Temperature Superconductor Magnet," IEEE Trans. Transp. Electrif., vol. 10, no. 4, p. 7774-7784, 2024

[27] W. Jang, J. Kim, **G. Kim**, H. Park, S. Choi, J. H. Kim, J. H. Choi, D. G. Lee, S. Hahn, and S. Lee, "Conceptual Design of 1-T/360-mm Dry Wound Conduction Cooled MgB2 Magnet for Long Term Operation," IEEE Trans. Appl. Supercond., vol. 34, no. 5, 2024, Art. no. 4903905.

[28] C. Im, J. Ham, J. Maeng, **G. Kim**, S. H. Park, J. Kim, J. Lee, G. Park, J. T. Lee, K. Choi, U. Bong, S. Cui, S. Hahn, and S. Lee, "Nonlinear Characteristics of Metal-insulated REBCO Magnet Under Various Switching Frequencies of Half-bridge Inverter Circuit," IEEE Trans. Appl. Supercond., vol. 34, no. 5, 2024, Art. no. 4604906.

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Reference

Dr. Seungyong Hahn

Professor

Department of Electrical and Computer Engineering

College of Engineering, Seoul National University

1 Gwanak-ro, Gwanak-gu, Seoul, Republic of Korea 08826

Cell Phone: +8210-9365-7571

Email: hahnsy@snu.ac.kr