ICEMS 2022
Chiang Mai Thailand

PROGRAM BOOK

ICEMS 2022

HYBRID

2022 International Conference on Electrical Machines and Systems

November 29 - December 2, 2022 | Chiang Mai, Thailand

ICEMS Cooperation

IEEJ

KIEE
KIE
EMECS

CES

Technical Co-sponsor

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IEEE INDUSTRY APPLICATIONS SOCIETY
Linking Research to Practice

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THAILAND SECTION

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Industrial Electronics Society

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Powering a Sustainable Future

IEEE Joint IAS/IES/PELS Thailand Chapter

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Welcome Message

Dear Esteemed Colleagues and Supporters,

On behalf of the Organizing Committee, we would like to extend a warm and friendly invitation for your participation and contribution to the 25th International Conference on Electrical Machines and Systems (ICEMS 2022), which will be held on November 29 – December 2, 2022 in Chiang Mai, Thailand.

Since 1987, the KIEE EMECS (KIEE Electrical Machinery and Energy Conversion Systems Society), CES (China Electrotechnical Society), and IEEJ IAS (IEEJ Industry Applications Society) have organized the annual international conference ICEMS. ICEMS 2022 follows the tradition of high technical quality as one of the leading IEEE conferences in Electrical Machines, Power Electronics, Motor Drives, Energy Systems, E-Mobility, and other areas related to AI Convergence Technology for Electric Machines and Drives, jointly organized by the EEAAT (Electrical Engineering Academic Association Thailand), IEEE Joint IAS/IES/PELS Thailand Chapter, and hosted by Rajamangala University of Technology Lanna and Chiang Mai University.

There will be tutorials and keynote speeches this year, in addition to technical sessions with oral and poster presentations, testing, and applications pertaining to electrical machines and systems from both the academic and industrial tracks, among other things. It gives us great pleasure to extend to you a warm welcome to ICEMS 2022.

With our best regards,
Yuttana Kumsuwan (Conference General Chair)
Athikom Roeksabutr (President of EEAAT)
Uthane Supatti (Technical Program Chair)

Overview

Past Conferences

ICEMS 2013	Oct 26-29	Busan, Korea
ICEMS 2014	Oct 22-25	Hangzhou, China
ICEMS 2015	Oct 25-28	Pattaya, Thailand
ICEMS 2016	Nov 13-16	Chiba, Japan
ICEMS 2017	Aug 11-14	Sydney, Australia
ICEMS 2018	Oct 7-10	Jeju, Korea
ICEMS 2019	Aug 11-14	Harbin, China
ICEMS 2020	Nov 24-27	Virtual, Japan
ICEMS 2021	Oct 31-Nov 3	Gyeongju, Korea
ICEMS 2022	Nov 29-Dec 2	Chiang Mai, Thailand

Title : 2022 International Conference on Electrical Machines and Systems

Date : November 29 (Tue) – December 2 (Fri), 2022

Venue : Le Méridien Hotel, Chiang Mai, Thailand (Hybrid Conference)

Organized by : Electrical Engineering Academic Association (EEAAT), Thailand

Technical Co-sponsor : IEEE Joint IAS/IES/PELS Thailand Chapter

IEEE Thailand Section

Hosted by : Rajamangala University of Technology Lanna and Chiang Mai University

Highlight on ICEMS 2022

- ✓ Hybrid Conference
- ✓ 5 Keynote & 317 oral, 175 poster presentations from many countries
- ✓ Awards for best papers and presentations

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IEEE Joint IAS/IES/PELS Thailand Chapter

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Jirapat Sangthong, Mahanakorn University of Technology, Thailand

Program At a Glance

November 29, 2022 @ Le Meridien

9.00-17.00	18.00-20.00
Registration	Welcome Reception

November 30, 2022 @ Le Meridien

9.00 -9.20	9.20 -10.40	10.40 -11.00	11.00 -12.20	12.20 -13.20	13.20 -14.00	14.00 -15.40	15.40 -16.00	16.00 -18.00
Open Ceremony	Keynote Session 1 & 2	Coffee Break	Keynote Session 3 & 4	Lunch	Keynote Session 5	Oral Session	Coffee Break	Oral Session
Poster (Online)								
OTOP Exhibition								

December 1, 2022 @ Le Meridien

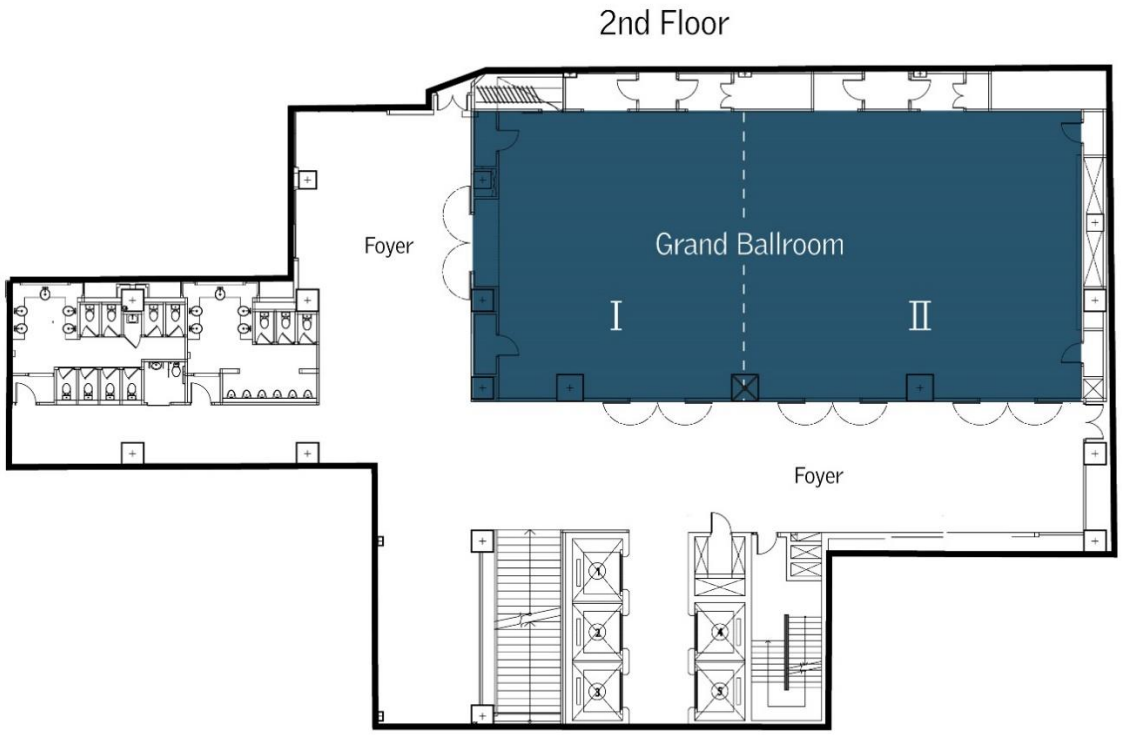
9.00 -10.40	10.40 -11.00	11.00 -12.20	12.20 -13.20	13.20 -15.20	14.00 -15.20	15.20 -15.40	15.40-18.20	19.00 -22.00
Oral Session	Coffee Break	Oral Session	Lunch	Oral Session	Poster Session (Offline)	Coffee Break	Oral Session	Banquet
Poster (Online)								
OTOP Exhibition								

December 2, 2022 @ Le Meridien

9.00-10.40	10.40-11.00	11.00-12.20	12.20-13.40
Oral Session	Coffee Break	Oral Session	Lunch
Poster (Online)			

Venue Layout @ Le Méridien

2F



Le Méridien Hotel

3F

Le Méridien Hotel

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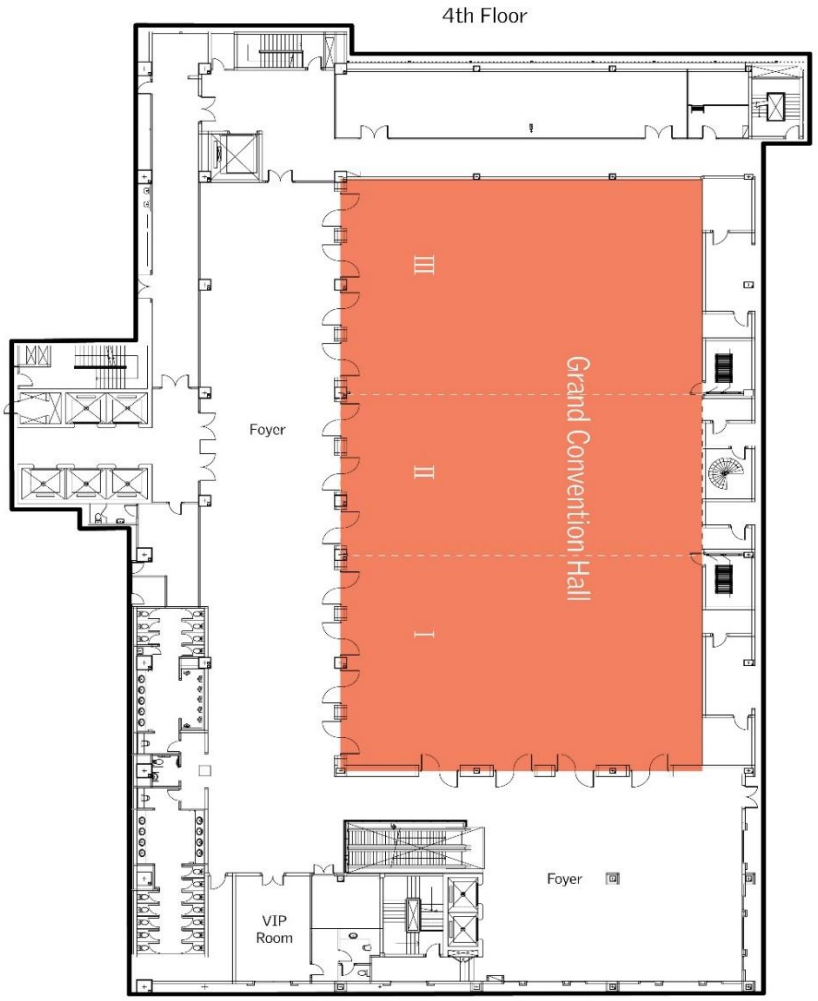

Le Méridien Hotel

Session Timetable

November 29, 2022 @ Le Meridien

November 29 (Tue) @ Le Meridien	
9.00-12.00	Registration
13.00-17.00	Registration (Cont.)
18.00-20.00	Welcome Reception

November 30, 2022 @ Le Meridien

November 30 (Wed) @Le Meridien											
On-site Room	Convention I	Convention II	Convention III	Ballroom I	Ballroom II	Meeting Room I Voyage	Meeting Room II Journey	Meeting Room III Expidition	Meeting Room IV Passage	Meeting Room V Excursion	
Online Room	Breakout Room 1	Breakout Room 2	Breakout Room 3	Breakout Room 4	Breakout Room 5	Breakout Room 6	Breakout Room 7	Breakout Room 8	Breakout Room 9	Breakout Room 10	
9.00-9.20	Opening Ceremony										
9.20-10.00	Keynote 1 (On-site) Prof. Dr. Jin Hur										
10.00-10.40	Keynote 2 (Online) Prof. Dr. Akira Chiba										
10.40-11.00	Coffee Break										
11.00-11.40	Keynote 3 (On-site) Prof. Dr. Surin Khomfoi										
11.40-12.20	Keynote 4 (Online) Prof. Dr. Xu Dianguo										
12.20-13.20	Lunch										
13.20-14.00	Keynote 5 (Online) Prof. Dr. Serhiy Bozhko										
14.00-15.40	Room setting for presentation			I1-1 Permanent Magnet Motors and Generators	I8-1 Motor Control and Motor Drives	I2-1 Induction Machines and AC Machines	I7-1 Other Areas in Electric Machines	I15-1 Renewable Energy Systems	S28-1 Condition Monitoring in Power Electronics and Electrical Machines	S33-1 Latest Research Issues on Power Electronics Technology in New Energy	
15.40-16.00	Coffee Break										
16.00-18.00	I9-1 Motion Control and Servo Systems	S22-1 Electrical Machines for More/All Electric Aircraft	S35-1 Advanced Topologies, Materials, and Control for Permanent-Magnet Machines	I1-2 Permanent Magnet Motors and Generators	ISC Meeting **ISC Meeting**	I14-1 Other Areas in Power Electronics and Motor Drives	I7-2 Other Areas in Electric Machines	I6, I10 Magnetics and Field Analysis Sensorless Control	S28-2, I19 Condition Monitoring in Power Electronics and Electrical Machines & AI Convergence Technology for Electric Machine and Drive	S33-2,S27 Latest Research Issues on Power Electronics Technology in New & Energy Railway Electrification and Electric Traction Systems	**Poster Session (Online - A)**

December 1, 2022 @ Le Meridien

December 1 (Thu) @Le Meridien											
On-site Room	Convention I	Convention II	Convention III	Ballroom I	Ballroom II	Meeting Room I Voyage	Meeting Room II Journey	Meeting Room III Expidition	Meeting Room IV Passage	Meeting Room V Excursion	
Online Room	Breakout Room 1	Breakout Room 2	Breakout Room 3	Breakout Room 4	Breakout Room 5	Breakout Room 6	Breakout Room 7	Breakout Room 8	Breakout Room 9	Breakout Room 10	
9.00-10.40	**I13-1** Power Electronic Devices (Si and Wide Band Gap) and Applications	**S22-2** Electrical Machines for More/All Electric Aircraft	**S34-1** Advanced Technologies on High Efficiency and High Power Density Converters	**I1-3** Permanent Magnet Motors and Generators	**I8-3** Motor Control and Motor Drives	**I2-2** Induction Machines and AC Machines	**I17-1** Smart Grids, FACTS, and Microgrids	**I15-2** Renewable Energy Systems	**I12-1** DC/DC, AC/DC, DC/AC, AC/AC Converters	**I18, S26** Hybrid/Electric Vehicles and Electric Propulsion Systems & Latest Research Issues on Autonomous Train Control Technology	**Poster Session (Online - B)**
10.40-11.00	Coffee Break										
11.00-12.20	Room setting for PS	Tutorial 1	Tutorial 2	**I1-4** Permanent Magnet Motors and Generators(4)	**I8-4** Motor Control and Motor Drives	**I4-1** Transformers and Power Apparatus	**I17-2** Smart Grids, FACTS, and Microgrids	**I16-1** Batteries Modeling and Management Systems, Energy Storage Systems	**I12-2** DC/DC, AC/DC, DC/AC, AC/AC Converters	**I11, I20-1** Automotive Power Electronics, EV Chargers, V2G and Infrastructure & Wireless Power Transfer System and Application	
12.20-13.20	**Lunch**										
13.20-15.20 (Oral) 14.00-15.20 (Poster)	Poster Session (On-site)	Room Setting for Banquet		**I1-5** Permanent Magnet Motors and Generators	**I8-5** Motor Control and Motor Drives	**S30, S32** Advanced Sensorless Drive for AC Motors & Advanced Control for Reluctance Machine Drives	**I17-3** Smart Grids, FACTS, and Microgrids	**I21, S25** Electric Vehicle Conversion & Other Areas in Energy Systems and E-Mobility	**I12-3** DC/DC, AC/DC, DC/AC, AC/AC Converters	**I20-2** Wireless Power Transfer System and Application	**Poster Session (Online - C)**
15.20-15.40	Coffee Break										
15.40-18.20	Room setting for Banquet			**I1-6** Permanent Magnet Motors and Generators	**I8-6** Motor Control and Motor Drives	**I8-2** Motor Control and Motor Drives	**S29-1** Advanced Control Strategy for Permanent Magnet Motor Drives	**S31-1** Advanced Electric Machines and Drives for Transportation Electrification	**I12-4** DC/DC, AC/DC, DC/AC, AC/AC Converters	**I5-1** Linear and Special Machines	
19.00-22.00	**Networking Banquet**										

December 2, 2022 @ Le Meridien

December 2 (Fri) @Le Meridien										
On-site Room	Convention I	Convention II	Convention III	Ballroom I	Ballroom II	Meeting Room I Voyage	Meeting Room II Journey	Meeting Room III Expidition	Meeting Room IV Passage	Meeting Room V Excursion
Online Room	Breakout Room 1	Breakout Room 2	Breakout Room 3	Breakout Room 4	Breakout Room 5	Breakout Room 6	Breakout Room 7	Breakout Room 8	Breakout Room 9	Breakout Room 10
9.00-10.40				I1-7 Permanent Magnet Motors and Generators	I8-7, I10-2 Motor Control and Motor Drives & Sensorless Control		I12-5 DC/DC and DC/AC Converters	N1 Smart Grids, FACTS, and Microgrids Wireless Power Transfer System	I8-8 Motor Control and Motor Drives	I6-2, S31-2 Magnetics and Field Analysis & Advanced Electric Machines and Drives for Transportation Electrification
10.40-11.00	Coffee Break									
11.00-12.20				I1-8 Permanent Magnet Motors and Generators	I1-9 Permanent Magnet Motors and Generators		I5-2 Linear and Special Machines	I16-2, I21-2 Batteries Modeling and Management Systems, Energy Storage Systems & Other Areas in Energy Systems and E-Mobility	I8-9 Motor Control and Motor Drives	I17-3, I19-2 Other Areas in Electric Machines & AI Convergence Technology for Electric Machine and Drive
12.20-13.40	Lunch									

Keynote Speakers

@Grand Convention : November 30, 2022

Jin Hur

Affiliation : Incheon National University
Title : Robust Design of Permanent Magnet Motor for EV Applications – based on Fault Analysis and Diagnosis
Time : 9.20-10.00 : Keynote Session 1 (On-site)

Akira Chiba

Affiliation : Tokyo Institute of Technology
Title : Developments of Switched Reluctance and Induction Motors for Automotive Applications
Time : 10.00-10.40 : Keynote Session 2 (Online)

Surin Khomfoi

Affiliation : King Mongkut's Institute of Technology Ladkrabang
Title: Electric Vehicle Charging Station Infrastructure incorporating with an Energy Management and Demand Response Technique
Time : 11.00-11.40 : Keynote Session 3 (On-site)

Xu Dianguo

Affiliation : Harbin Institute of Technology
Title : AC Motor Field-Weakening Control for High-Speed Operation-Overmodulation Strategy and Dynamic Mechanism
Time : 11.40-12.20 : Keynote Session 4 (Online)

Serhiy Bozhko

Affiliation : Director of the Institute for Aerospace Technology, University of Nottingham
Title : Towards Net Zero Aviation: Technologies and Challenges for Aircraft Electric Power Systems
Time : 13.20-14.00 : Keynote Session 5 (Online)

ICEMS 2022
Chiang Mai Thailand

Conference Topics

I Electric Machines and Field Analysis

01 Permanent Magnet Motors and Generators
02 Induction Machines and AC Machines
03 BLDC and DC Machines
04 Transformers and Power Apparatus
05 Linear and Special Machines
06 Magnetics and Field Analysis
07 Other Areas in Electric Machines

II Power Electronics and Motor Drives

01 Motor Control and Motor Drives
02 Motion Control and Servo Systems
03 Sensorless Control
04 Automotive Power Electronics and EV Chargers
05 DC/DC, AC/DC, DC/AC, AC/AC Converters
06 Power Electronic Devices (Si and Wide Band Gap) and Applications
07 Other Areas in Power Electronics and Motor Drives

III Energy Systems, E-Mobility, and AI Convergence

01 Renewable Energy Systems
02 Batteries Modeling and Management Systems, Energy Storage Systems
03 Smart Grids, FACTS, and Micro Grids
04 Hybrid/Electric Vehicles and Electric Propulsion Systems
05 AI Convergence Technology for Electric Machine and Drive
06 Wireless Power Transfer System and Application
07 Other Areas in Energy Systems and E-Mobility

Special Sessions

01 Electrical Machines for More/All Electric Aircraft
02 Electric Machinery and Drives for E-Mobility Applications
03 Switched Reluctance Motors and Application
04 Electric Vehicle Conversion
05 Latest Research Issues on Autonomous Train Control Technology
06 Railway Electrification and Electric Traction Systems
07 Condition Monitoring in Power Electronics and Electrical Machine
08 Advanced Control Strategy for Permanent Magnet Motor Drives

Presentation Guidelines

Hybrid Presentation Guideline
Oral Session

Instruction for Oral Presentations (Hybrid)

Presentation Time

- 15 minutes presentation + 5 minutes live Q&A
- To keep the sessions running to the set schedule and to allow possible questions from the audience, it is very important to keep presentation within the allocated time.

Onsite Presentation :

- Join the real time session following on the final program, please arrive in the session room at least 15 minutes before the session starts to check your presentation materials.
- Presentations are to be done onsite.
- Participants can join the oral presentations via onsite.

Online Presentation :

- Given livestreaming, please access Online at least 15 minutes before the session starts to check your presentation materials including the internet connection.
- Participants can join the oral presentations via online.

No Camera & No Record

Please note that photo taking and video recording are strictly prohibited for legal reasons, such as copyright and portrait rights.

Poster Session

Instruction for Poster Presentations (Hybrid)

Onsite Presentation :

- Please post your posters at the designated spot.
- Please make sure to stand by your poster during your assigned presentation time.

  Presentation Time for Offline Presenters
  14.00-15.20, December 1, 2022 | Convention (4F)
- Questions will be made live onsite.
- Participants can view posters posted in the venue or view posters posted on the virtual website.

Online Presentation :

- All posters will be posted on the virtual website during conference dates. Please submit the poster file in advance.
- Participants can view posters posted on the virtual website.

No Camera & No Record

Please note that photo taking and video recording are strictly prohibited for legal reasons, such as copyright and portrait rights.

Award & Event

Best Paper Awards Open to All Passionate Scientists

- Session Chair(s) will choose the best papers.
- The final decision is made by the Award Committee.
- The winners will be announced during the closing ceremony.

Things You Should Know

Instructions On COVID-19

- All participants' body temperature is checked at the entrance.
- Hand sanitizer is provided.
- All participants must wear a mask.
- Keep a 2 m distance from each other in the session room.

Wi-Fi Access : Free Open Wi-Fi

Registration Desk November 29, 2022 @Le Meridien Pre-function Area Convention 1	
Welcome Reception November 29, 2022 @ Le Meridien 18.00 - 20.00 : Convention Hall 1 and Pre-function Area	**Opening Ceremony** November 30, 2022 @ Le Meridien 9.00 - 9.20 : Grand Convention Hall (4F)
Banquet December 1, 2022 @ Le Meridien 19.00 - 22.00 : Grand Convention Hall (4F)	**OTOP Exhibition** November 30, 2022 and December 1, 2022 @ Le Meridien Foyer (4F)

Assistance

NEED HELP ?

You can ask help anytime. Your first contact point is the Registration Desk (Pre-function Area Convention 1) and will be very happy to assist delegates with enquiries. A wonderful team of ICEMS 2022 staff will be available throughout the venue to assist with directions and assist at sessions. For general inquiries regarding the conference, please email to: secretaryicems2022@gmail.com

DOWNLOAD MATERIALS

Website : https://icems2022.com/

HYBRID

2022 International Conference on Electrical Machines and Systems

November 29 - December 2, 2022 | Chiang Mai, Thailand

Presentation Schedule

ICEMS 2022 Chiang Mai Thailand

Presentation Schedule

Oral Presentation

I1-1: Permanent Magnet Motors and Generators

Date : November 30, 2022 (Ballroom I)
Time : 14.00-15.40
Chair: Chang Eob Kim

1570806979	**Research on Stator Core Axial Pipe to Improve Cooling Performance of Permanent Magnet Synchronous Motor** Zuming Li, Bin Xiong, and Kangjie Huang *Chinese Academy of Sciences and University of Chinese Academy of Sciences, China*	Online
1570806981	**Sensorless Fault-Tolerant Control of a Nine-phase Permanent Magnet Synchronous Motor Under One-phase Open-Circuited Fault** Xiaoming Liu, Xudong Zhang and Xiaoqin Zheng *Qingdao University, China*	Online
1570807190	**Analysis and Reduction of Electromagnetic Noise of Yokeless and Segmented Armature Axial Flux Motor** Xiaoyuan Wang, Yuzhou Zhang and Na Li *Tianjin University, China*	Online
1570812389	**Influence of Slot and Pole Number Combinations on Cogging Torque in PM Machines with Tooth Bulge and Rotor Eccentricity** Dong Xiang and Z.Q. Zhu *University of Sheffield, UK*	Online

I8-1: Motor Control and Motor Drives

Date : November 30, 2022 (Ballroom II)
Time : 14.00-15.40
Chair: Dong-Hee Lee

1570799497	**A Model Predictive Current Control Method based on Boundary Restriction for Medium-speed Maglev Train** Hang Zhang, Ruihua Zhang, Peng Zhang, and Yumei Du *Chinese Academy of Sciences and University of Chinese Academy of Sciences, China*	Online
1570801510	**Slip Frequency Type Vector Control for Cup Rotor Permanent Magnet Doubly Fed Machine** Jiaxiang Bi *Tianjin University, China*	Online
1570801587	**Performance analysis of vector control of Brushless doubly-fed machine in double synchronous reference frame** *Nannan Wang* Tianjin University, China	Online
1570806029	**A New Method for Automatic Identification of Electric-mechanical Angle Deviation of SPMLSM** Jixu Sun, Mingyi Wang, and Liyi Li *Harbin Institute of Technology, China*	Online
1570806252	**SiC MOSFET Crosstalk Analysis and Suppression Circuit Design** Wentao Wu, Mingyi Wang, Kai Kang, and Liyi Li *Harbin Institute of Technology, China*	Online

I2-1: Induction Machines and AC Machines

Date : November 30, 2022 (Meeting Room I Voyage)
Time : 14.00-15.40
Chair: Surapong Suwankawin and Pichai Aree

1570805016	**Efficiency-Slip Curve Determination of Induction Motors Using Technical Data** Pichai Aree *Thammasat University, Thailand*	On-site
1570811976	**Study on Torque performance Improvement of Half-Wave Rectified Variable Field Flux Motor with Axial Gap Structure** Yuzen Shimohara, Takashi Abe, Yoshitsugu Otomo and Takahiro Koga *Nagasaki University, Japan and ANSYS Japan K.K., Japan*	Online
1570823272	**Validation of a Transient Model for Induction Machines Considering Saturation and Current Displacement using Transient FEM** Matthias Kalla and Bernd Ponick *Leibniz University Hannover, Germany*	On-site
1570819619	**Effect of Evaporative Cooling of Stator Core on Electromagnetic Field of Large Horizontal Generator** Wang Yu[1], Du Fangmian[2], Wang Jiankang[2], Cheng Ziran[3] and Ruan Lin[1] *[1]Chinese Academy of Sciences, China,* *[2]Dongfang Electric Machinery Co. Ltd, China,* *[3]Hunan University, China, Chinese Academy of Sciences, China*	Online
1570823408	**Time Efficient Calculation of Current Harmonics in Inverter-Fed Electrically Excited Synchronous Machines** Anton Suchan and Bernd Ponick *Leibniz University Hannover, Germany*	On-site

I7-1: Other Areas in Electric Machines
Date : November 30, 2022 (Meeting Room II Journey)
Time : 14.00-15.40
Chair: Burin Kerdsup

1570814617	**Influence of Concentrated Winding and Insulation on the Vibration Behavior of Electric Machines** Martin Enno Gerlach, Markus Langfermann and Bernd Ponick *Leibniz University Hannover, Germany*	On-site
1570816310	**Drive System Integrated Magnetic Multiple Spur Gear and High-Speed Motors for Low Floor Light Rail Vehicles** Yoshiki Nishioka and Kan Akatsu *Yokohama National University, Japan*	On-site
1570818640	**Design of Motor Characteristic Testbed for Permanent-Magnet Assisted Synchronous Reluctance Motor** Burin Kerdsup and Santipong Karukanan *National Electronics and Computer Technology Center, Thailand*	On-site
1570819223	**Modular Stator, Segmented Rotor Switched Reluctance Motor Prototype: Assembly and Characterization** Ramon Florentino Santos, Belle Sermeno and Lew Andrew Tria *University of the Philippines Diliman, Philippines*	On-site
1570819315	**Study of the use of silver trace and improved flexibility in rolled Dielectric Elastomer Actuators** A. Walter, T. Martinez, Y. Civet and Y. Perriard *École polytechnique fédérale de Lausanne (EPFL), Switzerland*	On-site

I15-1: Renewable Energy Systems
Date : November 30, 2022 (Meeting Room III Expidition)
Time : 14.00-15.40
Chair: Siriroj Sirisukprasert

1570815658 **A Novel PV Series Arc Fault Detection Algorithm with High Reliability from False Detection** On-site

Jae-Beom Ahn, Woo-Cheol Jeong, Min-Kyu Choi, Seung-Jae Jeong and Hong-Je Ryoo
Chung-Ang University, Republic of Korea

1570816187 **Adaptive Feed-Forward Neural Network for Wind Power Delivery** Online

Hiye Krishan Mudaliar[1], Adriano Fagiolini[2], Maurizio Cirrincione[1], Shyamal Shivneel Chand[1], Ravneel Prasad[1] and Dhirendran Kumar[1]
[1]University of the South Pacific, Suva
[2]University of Palermo, Italy

1570816342 **A Prediction Method for Fuel Cell Degradation Based on CNN-LSTM Hybrid Model** Online

Yufan Zhang, Yuren Li, Bo Liang and Rui Ma
Northwestern Polytechnical University, China

1570819499 **A Hybrid Deep Neural Network Model for Photovoltaic Generation Power Prediction** On-site

Chaeeun Lee[1], Daeung Jeong[1], Yohan Jang[1], Sungwoo Bae[1], Jaeyoung Oh[2] and Seungbeom Lim[3]
[1]Hanyang University, South Korea, Hanyang University, South Korea
[2]Korea Conformity Laboratories, South Korea
[3]EON Co., Ltd, South Korea

1570822695 **Fast Maximum-Power-Point-Tracking for Photovoltaic Systems Based on P-V2 Characteristic Curve and Its Stability Analysis** On-site

Monchai Ariyapuek[1], Surapong Suwankawin[1], Somboon Sangwongwanich[1] and Ariya Sangwongwanich[2],
[1]*Chulalongkorn University, Thailand*
[2]*Aalborg University, Denmark*

S28-1: Special Session: Condition Monitoring in Power Electronics and Electrical Machines

Date : November 30, 2022 (Meeting Room IV Passage)

Time : 14.00-15.40

Chair: Pracha Khamphakdi

1570806687 **Induction Motor Eccentricity Fault Analysis and Quantification with Modified Winding Function Based Model** Online

Bingnan Wang[1], Mesaad W. Albader[1], Hiroshi Inoue[2] and Makoto Kanemaru[2],

[1]Mitsubishi Electric Research Laboratories and Texas A&M University, USA

[2]Mitsubishi Electric Corporation, Japan

1570806807 **Evaluation of Different Approaches to Measure Partial Discharge Characteristics within Electric Motor Insulation** Online

Thomas Hammarstroem

Chalmers University of Technology, Sweden

1570814344 **Design of Experimental Platform for Motor Fault Diagnosis Based on Embedded System and Shallow Neural Network** Online

Xiaoyuan Wang, Xin Wang, Qiheng Chen and Xiang Zhang

Tianjin University of Technology, China

1570814345 **Motor Fault Diagnosis Under Variable Working Conditions Based on Two-Dimensional Time Series and Transfer Learning** Online

Xiaoyuan Wang, Xin Wang, Xiang Zhang and Qiheng Chen

Tianjin University of Technology, China

1570816547 **Start-up Monitoring of Direct-on-line Startinghigh-Power Synchronous Machines with a Real-time Thermal Model** Online

Matthias Centner[1], Thorsten Getschmann[2] and Jeff Kugener[3],
[1]*Berliner Hochschule für Technik, Germany*
[2]*Siemens AG, Germany*
[3]*German Aerospace Center, Germany*

S33-1: Special Session: Latest Research Issues on Power Electronics Technology in New Energy

Date : November 30, 2022 (Meeting Room V Excursion)

Time : 14.00-15.40

Chair: Nithiphat Teerakawanich

1570815024 **Effects of VSI on the Correlation between System Stability and Output Active Power of Wind Farms in Weak Grid** Online

Xiangyu Li, Zhengjiang Zhang, Zhihui Hong, Jiabao Kou, Dongyang Li and Qijin Xu
Wenzhou University , China

1570816459 **Voltage Fluctuation and Flicker Suppression Strategy of DFIG Based on Resonant Regulator** Online

Haoran Jiao[1], Guodong Xu[2], Yong Sun[2], Jing Yang[2], Shuhan Zhang[2] and Heng Nian[1]
[1]Zhejiang University, China
[2]Zhejiang Yunda Wind Power Co., Ltd., China

1570815951 **Improved Sensorless Control Strategy of High-Power Synchronous Motor for Pumped Storage Power Station** Online

Jiabao Kou[1], Fengrui Yang[1], Fengyi Guo[1], Xiangyu Li[1] and Qijin Xu[2]
[1]Wenzhou University , China,
[2]Zhejiang Quality Inspection Center of High and Low-voltage Electrical Products, China

1570815462 **A Novel Switching Sequence Design for Integrated Modulation of Parallel NPC Inverters with Reduced Circulating Current** Online

Weiwei LI[1], Xiao YANG[2], Chunping GUO[1], Guoxiang HUA[1] and Xuejian GE[1]
[1]*Wuxi University, China*
[2]*Nanjing University of Information Science and Technology, China*

1570814381 **Torque Ripple Suppression of Permanent Magnet Synchronous Motor Based on Improved Active Disturbance Rejection Controller** Online

Lingfeng Qiu, Kai Yang, Yixiao Luo, Fan Yang, Zhijie Xu and Yifei Zheng
Huazhong University of Science and Technology, China

S9-1: Motion Control and Servo Systems
Date : November 30, 2022 (Convention I)
Time : 16.00-18.00
Chair: Chowarit Mitsantisuk

1570806592	**A High Controller Parameters Robust Decoupling Based on Complex Vector for Permanent Magnet Synchronous Motor** Jiahua You, Ming Yang, Chaoyi Shang, Pengbo Shan and Dianguo Xu *Harbin Institute of Technology, China*	Online
1570812298	**Linear Extended State Observer based Anti Interference Robust Position Tracking Control for Two-Inertia Systems with Uncertain Load Disturbance** Yue Zhang[1], Kan Liu[1], Jing Zhou[1], Pengfei Sang[1], Huajiang Wu[2] and Yongdan Chen[3] *[1]Hunan University, China* *[2]Ningbo Anson CNC Techniquc co.LTD, China* *[3]China North Vehicle Research Institution, China*	Online
1570815230	**Research on ASK Modulation Method for Rotating Magnet Based Mechanical Antenna Array System** Qiyao Zhang and Zhenyang Hao *Nanjing University of Aeronautics and Astronautics, China*	Online
1570815500	**Active Disturbance Rejection Position Servo Control and Parameter Tuning of PMSM Based on Improved Extended State Observer** Hongxu Liu, Zhiliang Wang, Lin Guo and Yong Wu Beijing Electro-Mechanical Engineering Institute, China	Online
1570818141	**An Observer-based Switching Controller for Servo Turntable based on Switched Model** Heng Yang, Qian Zhang, Menghu Fu, Qunjing Wang and Guoli Li *Anhui University, China*	Online
1570819724	**Force Sensorless Bilateral Control for Servomotor with Drygear Cantilever Axis** Komsan Sirimachan, Chowarit Mitsantisuk and Kanatip Prompol *Kasetsart University, Thailand*	On-site

S22-1: Special Session: Electrical Machines for More/All Electric Aircraft
Date : November 30, 2022 (Convention II)
Time : 16.00-18.00
Chair: Satit Owatchaiphong

1570805413	**Design and Fabrication of Dual-Rotor Motors with Axially Extended Stator for Electrified Aircraft Propulsion** Naoya Jike, Hiroshi Mitsuda and Tetsuya Kojima *Mitsubishi Electric Corporation, Japan*	Online
1570814141	**The Influence of Oriented Silicon Steel on Permanent Magnet Synchronous Motor** Ji Pang[1], Zhan Jin[1], Kehao Jin[1], Feihang Zhou[1] and Yanjing Hu[2], *[1]Xi'an University of Posts and Telecommunications, China* *[2]University of the Armed Police Force, China*	Online
1570814828	**A Compound Control Strategy of Torque Ripple Reduction for BLDC Motor** Yongming Qiao[1], Chao Zhang[2] and Jinlin Liu[2] *[1]Xinxiang Aviation Industry Co., Ltd, China* *[2]Northwestern Polytechnical University, China*	Online
1570815255	**Design and Comparison of two Axial Flux Motors for Electric Aircraft** Xuejing Bian, Mei Zhao, Tong Yao, Huaqiang Zhang and Yongxiang Xu *Harbin institude of technology, China*	Online
1570815977	**Electromagnetic Loss Analysis for Aircraft WoundRotor Synchronous Starter-Generator in Both Starting and Generation Modes** Pu Yao, Ningfei Jiao, Xu Han, Zijie Li and Weiguo Liu *Northwestern Polytechnical University, China*	Online
1570816302	**Power Regulation and Efficiency Optimization of Switched Reluctance Generator for More Electric Aircraft** Zizhen Fan, Lefei Ge, Jiale Huang and Shoujun Song *Northwestern Polytechnical University, China*	Online

S35: Special Session: Advanced Topologies, Materials, and Control for Permanent-Magnet Machines

Date : November 30, 2022 (Convention III)

Time : 16.00-18.00

Chair: Theeraphong Srichiangsa

1570812420	**Comparative Study of Stator-PM and Dual-PM Consequent-Pole Hybrid Excited Flux-Reversal Machines** Fangrui Wei, Z.Q. Zhu, Yinzhao Zheng and Hai Xu *University of Sheffield, U.K*	Online
1570815270	**Improved MRAS Parameter Identification Method for PMSM Based on Permanent Magnet Flux Linkage Free Model** Shengqi Zhao, Xiaoyan Huang, Qichao Hu and Zhaokai Li *Zhejiang University, China*	Online
1570816431	**A Novel Rotor Re-Construction Method for Improving the Electromagnetic Performance of the Interior PMSM** Xiaoyu Liang[1], Faliang Liu[1], Wanquan Li[1], Mingqiao Wang[1], Ping Zheng[1] and Zhongli Gu[2] [1]*Harbin Institute of Technology, China,* [2]*Guangdong Fans-tech Agro Co., Ltd, China*	Online
1570816777	**Investigation of Permanent Magnet Segmentations and Gaps in 2-Pole High-Speed Permanent Magnet Motor with Toroidal Winding** F. Xu[1], T. R. He[1], Z. Q. Zhu[1], D. W. Liang[1], H. Bin[2], D. Wu[2], L. M. Gong[2] and J. T. Chen[2] [1]*The University of Sheffield, UK* [2]*Motors and Drives Center Midea Group Corporate Research Center, China*	Online
1570815186	**A Novel Magnetization State Control Method Utilizing Torque Deviation for Variable Flux Memory Motor** Yan Jia[1], Z.Q. Zhu[1], Lei Xu[1], Jianghua Feng[2], Shuying Guo[2], Yifeng Li[2] and Liang Hu[2] [1]*University of Sheffield, UK* [2]*CRRC Zhuzhou Institute Co., Ltd., China*	Online

1570819615 **Based on the comparative analysis of the length of the air gap length of the finite element simulation permanent magnet synchronous motor** Online

Guodong Zhang, Ningran Song, Guangxu Zhou, Mengmei Zhu, Lei Guo and Hongyang Li
Qilu University of Technology (Shandong Academy of Sciences), China

I1-2: Permanent Magnet Motors and Generators

Date : November 30, 2022 (Ballroom I)
Time : 16.00-18.00
Chair: Thanatchai Kulworawanichpong

1570802959	**Effect of Stator and Rotor Pole Shapes on Torque of Flux-Modulating Consequent Pole Motors** Hiroshi Mitsuda[1], Tadashi Fukami[1], Masato Koyama[1]and Kazumasa Ito[2] *[1]Kanazawa Institute of Technology, Japan and Mitsubishi Electric Corporation, Japan,* *[2]Mitsubishi Electric Corporation, Japan*	On-site
1570814373	**Reduction of Torque Ripple and Vibration of Permanent Magnet Synchronous Machines with Sinusoidal Cavities** Marc England[1], Rainer Helmer[2] and Bernd Ponick[1] *[1]Leibniz University Hannover, Germany* *[2]Volkswagen AG, Germany*	On-site
1570814474	**Evaluation of Flux-barrier Stator in five-phase PMSMs for Electric Aircraft Traction** Daniel Alban[1], Gurakuq Dajaku[2] and Dieter Gerling[1] *[1]Universität der Bundeswehr München, Germany* *[2]FEAAM GmbH, Germany*	On-site
1570816048	**Synchronous Optimal Pulse Width Modulation for Salient Permanent Magnet Synchronous Machines Considering Spatial Harmonics** Nina Hartgenbusch, Duc Pham and Rik W. De Doncker *RWTH Aachen University, Germany*	On-site
1570817959	**Reduction of Torque Pulsation in Axial Flux Dual Rotor PM Vernier Motor** Tatsuya Konno and Shoji Shimomura *Shibaura Institute of Technology, Japan*	On-site
1570817960	**Application of Permanent Magnet Vernier Motors to Ultra-High-Speed Motors** Katsuki Kondo and Shoji Shimomura *Shibaura Institute of Technology, Japan*	On-site

I14: Other Areas in Power Electronics and Motor Drives &
I15-3:Renewable Energy Systems
Date : November 30, 2022 (Meeting Room I Voyage)
Time : 16.00-18.00
Chair: Burin Yodwong

1570808795	**SVPWM Strategy with Neutral Point Voltage Balance Capability for Electrolytic Capacitorless Vienna Rectifier** Jiarui Wang[1], Dawei Ding[1], Zhaobin Huang[2], Bin Hu[2], Tan Long[2], Qiwei Wang[1], Xiangjun Zhang[1], Gaolin Wang[1] and Dianguo Xu[1] *[1]Harbin Institute of Technology, China* *[2]GD Midea Air Conditioning Equipment Co., Ltd., China*	Online
1570810818	**Hardware-in-the-loop (HIL) Integrated Design Platform for High-frequency Controller Development of WBG Power Converters** Ravi Nath Tripathi *Kyoto University of Advanced Science, Japan*	On-site
1570813971	**Experimental Study on Heat Transfer Characteristics of Fully-immersed Evaporative Cooling IGBT** Yingke Wen and Lin Ruan *Chinese Academy of Sciences and University of Chinese Academy of Sciences, China*	Online
1570815688	**Drive Signal Switching based Discontinuous PWM for Suppression of Zero Sequence Circulating Current in Parallel Inverters** Jiaming Wu[1], Kan Liu[1], Shichao Zhou[1], Kaiqing Li[1], Shilin Tan[1] and Chao Huang[2] *[1]Hunan University, China* *[2]China Railway Rolling Stock Corporation, China*	Online
1570815824	**Traction Drive System using Adaptive Minimum Limit of DC-bus Voltage Control for Energy Efficiency Operation** LT.Siwakorn Kruttha,RTN, Tirasak Sapaklom, Ekkachai Mujjalinvimut and Mongkol Konghirun *King Mongkut's University of Technology Thonburi, Thailand*	On-site

1570817807 **Shoulder Position Estimation Using Load Current Shape** On-site

Dong-Hee Lee
Kyungsung University, Korea

1570816384 **IoT Based I-V and P-V Curve Analyzer system for small PV panels PART I** Online

T. Sapaklom, K. Janhom, C. Sipirah, P. Kjitdamkean,
P. Navaratana Na Ayudhya, E. Mujjalinvimut, and J. Kunthong
King Mongkut's University of Technology Thonburi, Thailand

I7-2: Other Areas in Electric Machines
Date : November 30, 2022 (Meeting Room II Journey)
Time : 16.00-18.00
Chair: Atip Doolgindachbaporn (Online)

1570802268 **Low Electromagnetic Vibration Optimization of FSPM Motor Based on NSGA-II Algorithm** Online

Shu Wang[1], Ming Kang[1], Zhe Pang[2], Zuxu Guo[1], You Bian[3], Wei Zhao[3] and Rong Lei[3]
[1]Beijing Mechanical Equipment Research Institute & North Engine Reserch Institute , China
[2]Beijing Institute of Space Mechanic& Electricity, China
[3]The first military representative office of the Ministry of Air Force equipment in Beijing, China

1570812460 **Experimental Study on the Characteristics of Stator Internally Cooled Self-Circulating Evaporative Cooling generator at 3-45 Degree Inclination** Online

Jiapei Hu and Feihui Liu
University of Chinese Academy of Sciences, China

1570806455 **Reluctance and Magductance Calculation of Laminated Core Under Different Frequency for Electrical Machines** Online

Wei Qin[1], Ming Cheng[1], Sa Zhu[2], Xinkai Zhu[3], Zheng Wang[1] and Zhengzhou Ma[1]
[1]Southeast University, China
[2]Hohai University, China
[3]North China Electric Power University, China

1570816214 **Modeling of Magnetic Characteristics of Electrical Steel Sheet under Stress Considering the Thermodynamic Hysteresis and Magnetic Domain Energy** Online

Ying Wang[1], Yanli Zhang[1] and Fasheng Qiu[2]
[1]Shenyang University of Technology, China
[2]Nanchang Hangkong University, China

1570816222 **Measurement and Modeling of Dynamic Magnetic Hysteresis and Magnetostrictive Strain of Electrical Steel Sheet under Rotational Magnetization** Online

Kai Xu, Yanli Zhang and Zhen Wang
Shenyang University of Technology, China

1570823894 **Optimization of the Flow Boiling Heat Transfer Structure for Power Electronics** Online

Li Zhi[1], Zhao Sheng[1], Wang Yu[1], Song Quan-gang[2] and Yao Yan-fang[2]
[1]*Chinese Academy of Sciences (CAS), China*
[2]*XJ Group Corporation, China*

I6:Magnetics and Field Analysis & I10: Sensorless Control
Date : November 30, 2022 (Meeting Room III Expidition)
Time : 16.00-18.00
Chair: Sakda Somkun

1570811190 **Pressure Offloading Device for Diabetic Footwear Based on Magnetorheological Fluids** On-site

Sofia Lydia Ntella, Kenny Jeanmonod, Yoan Civet, Christian Koechli and Yves Perriard
Ecole polytechnique fédérale de Lausanne (EPFL), Switzerland

1570816333 **Improvement of External Magnetic Field Tolerance of Resolver** On-site

Taisei Morikawa
Yokohama National University, Japan

1570816625 **Modeling of Frequency-Dependent Winding Losses in Solid and Litz-wire Toroidal Inductors** On-site

Dae Yong Um, Min Seung Song, Young Hyun Song, Tae Jun Ahn, Dae Gyu Lee, Seung Ahn Chae, Chang Geun Heo and Gwan Soo Park
Pusan National University, South Korea

1570814673 **Influence of DC-link Voltage Measurement Error on Extended EMF Based Sensorless Control with Reduced DC-Link Capacitor** Online

Jun Yan[1], Ximeng Wu[1], Z.Q. Zhu[1] and Chaohui Liu[2]
[1]*University of Sheffield, UK*
[2]*Beijing National NEVC, China*

1570815089 **Position Sensorless Estimation for Surface Permanent Magnet Synchronous Motor Using Eddy Current at Low-speed** Online

Koki Kataoka[1], Tatsuki Hayashi[1], Mutuwo Tomita[1], Masaru Hasegawa[2], and Shinji Doki[3]
[1]*The National Institute of Technology, Gifu College, Japan*
[2]*Chubu University, Japan*
[3]*Nagoya University, Japan*

1570815789 **An Improved Speed Observer Based on Supertwisting Algorithm for Standalone Brushless Doubly-fed Induction Generator-DC System** Online

Yifan Lin[1], Yi Liu[1], Wei Xu[1], Mohamed G. Hussien[2] and Essam M. Rashad[2]
[1]Huazhong University of Science and Technology, R.P.China
[2]Tanta University, Egypt

1570825121 **An Electrodynamic Wheel Maglev Vehicle with a Passive U-Guideway** Online

Colton Bruce, Jonathan Bird, Matthew Grubbs, Zhongkai Zheng, David Drake, Anh Doane, Yew Tin Lee, and Jon Seeboth
Portland State University, USA

S28-2: Special Session: Condition Monitoring in Power Electronics and Electrical Machines & I19: AI Convergence Technology for Electric Machine and Drive
Date : November 30, 2022 (Meeting Room IV Passage)
Time : 16.00-18.00
Chair: Pracha Khamphakdi and Gilsu Choi

1570806536	**Design Optimization of Traction Motors using a Quasi-Monte Carlo-based Two-Step Method**	On-site
	Mingyu Choi[1], Gilsu Choi[1] and Gerd Bramerdorfer[2] *[1]Inha University, Republic of Korea and Johannes Kepler University Linz, Austria* *[2]Johannes Kepler University Linz, Austria*	
1570806706	**Electric Machine Two-dimensional Flux Map Prediction with Ensemble Learning**	Online
	AKM Khaled Ahsan Talukder[1], Bingnan Wang[1] and Yusuke Sakamoto[2] *[1]Mitsubishi Electric Research Laboratories, USA and Michigan State University, USA* *[2]Mitsubishi Electric Corporation, Japan*	
1570816256	**A LSTM-based Neural Strategy for Diagnosis of Stator Inter-turn Faults with Low Severity Level for Induction Motors**	Online
	Krish Kumar Raj, Sukhde Joshi and Rahul Kumar *The University of the South Pacific, Fiji*	
1570818222	**DC Bus Regulation of Modular Converter by a Cascaded Controller**	Online
	Mohammad Afkar[1], Parham Karimi[1], Roghayeh Gavagsaz-Ghoachani[1], Matheepot Phattanasak[2] and Serge Pierfederici[3] *[1]Shahid Beheshti University, Iran* *[2]King Mongkut's University of Technology North Bangkok, Thailand* *[3]Université de Lorraine, France*	

1570816684 **Stator Inter-Turn Fault Diagnosis in Inverter-Fed Permanent Magnet Synchronous Machines Using High-Frequency Voltage Injection** On-site

Xinyi Yu, Duc Pham, Xinglin Li and Rik W. De Doncker
RWTH Aachen University, Germany

1570824181 **Real Time Estimation of ESR and Capacitance in the DC-Link Capacitors of AC Machine Drives** On-site

Thanakorn Chaiyakhot, Pracha Khamphakdi, Padung Kitsawang, Akkarapon Photong and Piyawat Khotprom
Electrical engineering Faculty of Engineering,
Ubon Ratchathani University, Thailand

S33-2: Special Session: Latest Research Issues on Power Electronics Technology in New Energy & S27: Special Session: Railway Electrification and Electric Traction Systems

Date : November 30, 2022 (Meeting Room V Excursion)

Time : 16.00-18.00

Chair: Nithiphat Teerakawanich

1570815440 **Multi-Objective Optimization Based Feedback Gains Design of Adaptive Full-Order Observer for Induction Motor Sensorless Drive** Online

Ruhan Li, Cheng Luo, Kai Yang, Yifei Zheng and Zhijie Xu

Huazhong University of Science and Technology, China

1570808598 **Optimized Operating Point Trajectory for Low Frequency Ride-Through with a gradient descent method in Speed-Sensorless Induction Motor Drives** Online

Cheng Luo, Ruhan Li, Kai Yang, Yifei Zheng, Yuhao Huang and Yixiao Luo

Huazhong University of Science and Technology, China

1570805566 **An Approach to Suppress Low-Frequency Oscillation with CHB-STATCOM based on improved sliding mode control in Vehicle-Grid System** Online

Binhua Yang, Chaoying Xia and Jiali Yu

Tianjin University of Science and technology, China

1570816539 **A Harmonic Voltage Elimination in Electric Railway System Using Series Active Power Filter** Online

Chakrit Panpean[1], Kongpol Areerak[2] and Phonsit Santiprapan[3]

[1]Rajamangala University of Technology Isan, Thailand

[2]Suranaree University of Technology, Thailand

[3]Prince of Songkla University, Thailand

1570806506 **Research on Coordinated Control Strategy of Negative Sequence Current Compensation for Traction Power Supply System under Unbalanced AC Grid** Online

Pei Luo, Rijie Luo, Zhijun Yang, Qian Guo, Zhenyu Lei and Yanyun Yao

Xiangtan University, China

1570823011 **Development of an Energetic System Model for Long-Tail Electric Boat combining Solar Panels and a Prototype of E-Engine** Online

D. Pham Hung[1], V. Tran Tuan[1], S. Kreuawan[2],
S. Udomkaew[3], M. Phattanasak[3], and Q. Nguyen Duc[4]
[1]Hanoi University of Science and Technology, Vietnam
[2]Real BPM Co., Ltd., Thailand
[3]King Mongkut's University of Technology, Thailand
[4]Electric Power University, Vietnam

1570823082 **Optimal Scheduling of Energy Storage System for Electrified Railroad under Carbon Trading Mechanism** Online

Qian Ma, Zhenyu Lei, Qian Guo, Zhijun Yang, Rijie Luo and Yanyun Yao
Xiangtan University, China

I13-1: Power Electronic Devices (Si and Wide Band Gap) and Applications Systems
Date : December 1, 2022 (Convention I)
Time : 9.00-10.40
Chair: Vuttipon Tarateeraseth and Ravi Nath Tripathi

1570814871	**Active Gate Drive Circuit with Auxiliary Drive Branch for SiC MOSFET** Di Zhao, Jiahui Qiu, Panbao Wang and Wei Wang *Harbin Institute of Technology, China*	Online
1570806482	**Current Balancing of Parallel-Connected SiC devices using Active Gate Control** Ravi Nath Tripathi *Kyoto University of Advanced Science, Japan*	On-site
1570799373	**Modeling and Analysis of DC Pole-to-Pole Fault in High-Frequency-Bus Based Power Electronic Transformer** Liqiang Yuan, Minghao Zheng, Shen Gao, Yuxuan Dai, Di Mou and Zhengming Zhao *Tsinghua University, China*	Online
1570816231	**A Quasi-Three-Level PWM Modulation Method with Suppressed Coil Terminal Overvoltage for Active Magnetic Bearing** Youjun Zhang, Weiming Zhang, YuFei Han and Jie Yu *Qingdao University, China*	Online
1570816667	**Full-Bridge Current Source Inverter Using Pulse Density Control for Induction Preheating of Welding Application** Panithan Chakkuchan[1], Saichol Chudjuarjeen[1], Nathabhat Phankong[1], Sirichai Dangeam[2], Monthon Nawong[2] and Prusayon Nintanavongsa[2] *[1]Rajamangala University of Technology Krungthep, Thailand* *[2]Rajamangala University of Technology Thanyaburi, Thailand*	Online

S22-2: Special Session: Electrical Machines for More/All Electric Aircraft
Date : December 1, 2022 (Convention II)
Time : 9.00-10.40
Chair: Kongpan Areerak (Online)

1570806572	**A Robust Control Method for Non-isolated Three Port Converter in Fuel Cell Hybrid System** Yuntong Li, Yuren Li, Jian Song, Liangbo TianBo Liang and Hongyu Zhang *Northwestern Polytechnical University, China*	Online
1570806573	**Design of AC Excitation Variable Speed Constant Frequency Power Generation System** Zexuan Zuo[1], Zhandong Xue[1] and Liangbo Tian[2] *[1]COMAC Shanghai Aircraft Design and Research Institute, China* *[2]Northwestern Polytechnical University, China*	Online
1570806608	**Composite Control of All-Electric Braking System with Electromechanical Actuator Redundancy Based on Enhanced NESO** Yiyun Zhao[1], Hui Lin[1] and Peilin Gao[2] *[1]Northwestern Polytechnical University, China* *[2]Beijing Institute of Space Launch Technology, China*	Online
1570806820	**AC Copper Loss Analysis and Optimization of DC Field Winding for High-Speed Doubly Salient Brushless DC Generator** Xiqing Zhu, Jian Zhang and Zhuoran Zhang *Nanjing University of Aeronautics and Astronautics, China*	Online
1570816334	**SMO-based Sensorless Control of Switched Reluctance Machines with Closed-loop Flux-linkage Observer** Lefei Ge, Dongpeng Zhang, Jiale Huang and Shoujun Song *Northwestern Polytechnical University, China*	Online

S34: Special Session: Advanced Technologies on High Efficiency and High Power Density Converters
Date : December 1, 2022 (Convention III)
Time : 9.00-10.40
Chair: Nisai Fuengwarodsakul

1570822915 **A Wide Bandgap Three-level Buck Converter with Power Balance Control Technique for High Power Density Applications — Design and Simulation** On-site

Jedsada Yodwong[1], Uthen Kamnarn[2], Charnyut Karnjanapiboon[2], Teeruch Janjongcam[2], Suchart Janjornmanit[2], Samart Yachiangkam[2], Anon Namin[2], Pakawadee Wutthiwai[2], Ekkachai Chaidee[2], Thanet Sriprom[2], Krit Ratchapum[2], Wuttikai Tammawan[2], Suparak Srita[2], Surasak Yousawat[2], Pratch Piyawongwisal[2], Noureddine Takorabet[3], Phatiphat Thounthong[4],
[1]mu Space and Advanced Technology Company Limited, Thailand
[2]Rajamangala University of Technology Lanna, Thailand
[3]Université de Lorraine, France
[4]King Mongkut's University of Technology North Bangkok, Thailand

1570815233 **Design of Class Φ2 Inverter Based on Piezoelectric Resonators** Online

Yi Cheng, Yueshi Guan, Chang Liu, Yijie Wang and Dianguo Xu
Harbin Institute of Technology, China

1570815234 **A Single-stage LLC Resonant GaN-based DC-DC Converter with Switched Capacitor** Online

Xiaozhi Xu, Yueshi Guan, Yijie Wang and Dianguo Xu
Harbin Institute of Technology, China

1570822102 **A Mode-switching-based Method to Improve Misalignment Tolerance of WPT Systems** Online

Jinwu Sun, Yijie Wang, Zhan Sun and Dianguo Xu
Harbin Institute of Technology, China

I1-3: Permanent Magnet Motors and Generators
Date : December 1, 2022 (Ballroom I)
Time : 9.00-10.40
Chair: Bunlung Neammanee (Online) and Thanh-Anh Huynh (Online)

1570807379	**Analysis and Optimization of Cogging Torque for Axial Flux Machine with Halbach Permanent Magnet Array**	Online
	Xiaoyuan Wang, Guodong Zhang and Peng Gao *Tianjin University, China*	
1570812807	**A Novel Fault-Tolerant Control for Five-Phase Fault-Tolerant IPMSM Considering Reluctance Torque**	Online
	Wenhu Fan, Jinquan Xu and Hong Guo *Beihang University, China*	
1570815018	**Inter-turn Short-circuit Fault Diagnosis of Six-Phase FTPMSM System Based on PWM Harmonic Current Extraction**	Online
	Xinlei Tian, Hong Guo and Jinquan Xu *Beihang University, China*	
1570815225	**Calculation of Loss and Temperature Rise of High Speed Permanent Magnet Synchronous Motor**	Online
	Zhihao Ji and Zhengyang Hao *Nanjing University of Aeronautics and Astronautics, China*	
1570815912	**Study on Rotor Topologies of a 2MW Permanent Magnet Synchronous Machine for Low-speed Ship Propulsion Systems**	Online
	Rakwon Son[1] and Ju Lee[2] [1]*Hyundai Electric & Energy Systems, Korea* [2]*Hanyang University, Korea*	

I8-3: Motor Control and Motor Drives
Date : December 1, 2022 (Ballroom II)
Time : 9.00-10.40
Chair: Paiwan Kerdtuad and Dong-Hee Lee

1570807465	**Open-circuit Fault Diagnosis Strategy for Partial Energy Electric Pump System Based on Grey Prediction Theory** Shirui Yang[1], Xuefeng Jiang[1], Zhijian Wei[1], Jingyu Zhou[1], Kaiwen Wang[1] and Zhenmao Han[2] *[1]Nanjing University of Science and Technology, China* *[2]Aviation Key Laboratory of Science and Technology, China*	Online
1570813809	**Analysis and Suppression of Inductance Asymmetry Effect on High Frequency Signal Injection Sensorless Control of Permanent Magnet Synchronous Machines** Yang Chen[1], Ximeng Wu[1], Ziqiang Zhu[1] and Chaohui Liu[2] *[1]University of Sheffield, UK* *[2]Beijing National New Energy Vehicle Technology Innovation Center, China*	Online
1570814805	**Novel VBHCC Strategy on Non-orthogonal Frame for PMSM** Mengqi Li, Jinglin Liu and En Xie *Northwestern Polytechnical University, China*	Online
1570815026	**Optimal Selective Harmonic Elimination PWM for Dual Three-phase PMSM Under Low Switching Frequency** Bo Shao and Zi-Qiang Zhu *University of Sheffield, UK*	Online
1570815239	**A Field-Weakening Scheme with Predictive Current Error for PMSM Modulated Model Predictive Control** Qinghua Dong, Yong Yu, Bo Wang, Minghe Tian and Dianguo Xu *Harbin Institute of Technology, China*	Online

I2-2: Induction Machines and AC Machines
Date : December 1, 2022 (Meeting Room I Voyage)
Time : 9.00-10.40
Chair: Atip Doolgindachbaporn (Online)

1570811977 **A Study on Torque Ripple Reduction of Half-Wave Rectified Variable Field Flux Motor** Online

Shota Hoyama, Takashi Abe and Yoshitsugu Otomo
Nagasaki University, Japan

1570815216 **Developments of Rational Analytical Model for Direct-on-line Synchronous Reluctance Motor Designs** Online

Cheng-Tsung Liu[1], Ying-Jie Su[1], Sheng-Chan Yen[2], Kuan Yang[2], Pei-Chun Shih[2], Yu-Wei Hsu[2] and Sheng-Yang Lin[3]
[1]National Sun Yat-Sen University, Taiwan
[2]Nidec Taiwan Corporation, Taiwan
[3]China Steel Corporation, Taiwan

1570815454 **Three-dimensional Transient Temperature Rise Calculation of Induction Motor under Overload Condition** Online

Hua Zhao, Bin Xiong and Zhenguo Li
University of Chinese Academy of Sciences, China

1570816378 **Efficiency Improvement of a Concentrated Winding Synchronous Reluctance Motor Using Sixth Harmonics Component of D- and Q-axis Currents** Online

Daichi Makihara, Kyohei Kiyota and Shou Qiu
Tokyo institute of technology, Japan

I17-1: Smart Grids, FACTS, and Microgrids
Date : December 1, 2022 (Meeting Room II Journey)
Time : 9.00-10.40
Chair: Burin Yodwong

1570803843	**Optimal Scheduling of Regional Integrated Energy System Based on Cloud Energy Storage** Xinlong Li, Yingshu Liu and Yiwei Yan *Tianjin University, China*	Online
1570804364	**Research on Power Quality Feature Extraction and Traceability Based on Multi-Source Information** Fan Xiao[1], Xiangyu Kong[1], Yuce Sun[1], Lin Zheng[2] and Junda Qin[2] *[1]Tianjin University, China* *[2]State Grid Smart Grid Research Institute Co., Ltd, China*	Online
1570805157	**Multi-stage Investment Decision-making Method of Distribution Network Based on Deep Deterministic Strategy Gradient** Yuce Sun[1], Xiangyu Kong[1], Jingtao Yao[1], Lin Zheng[2], Junda Qin[2] and Yajie Wang[2] *[1]Tianjin University, China* *[2]State Grid Smart Grid Research Institute Co., Ltd, China*	Online
1570805766	**New Power Management of All-Electric Ships during Berthing** Nattapon Boonyapakdee *Kasetsart University Sriracha Campus, Thailand*	Online
1570807045	**Electricity Theft Detection and Classification Method Based on D-S Feature Fusion and IALOSVM** Zhengtao Wang, Xiangyu Kong, Zhiduan Yang, Fan Xiao, Xiaopeng Zhang and Yuying Ma *Tianjin University, China*	Online

I15-2: Renewable Energy Systems
Date : December 1, 2022 (Meeting Room III Expidition)
Time : 9.00-10.40
Chair: Sompob Polmai

1570798472	**Cascaded H-Bridge Multilevel Inverter for Single Phase Grid-Connected PV System with Low Power on PV String** Chaiyant Boonmee[1], Yuttana Kumsuwan[2] and Napat Watjanatepin[1] *[1]Rajamangala University of Technology Suvarnabhumi, Thailand* *[2]Chiang-Mai University, Thailand*	On-site
1570816438	**Study on Output Fluctuation of Hybrid Wind Power Plant Consisting of Dozens of Wind Generators Connected in Series** Fujio Tatsuta[1], Ken-ichiro Yamashita[2], Hiroya Sugimoto[1] and Shoji Nishikata[1] *[1]Tokyo Denki University, Japan* *[2]Salesian Polytechnic, Japan*	Online
1570817510	**Feasibility Analysis of AC and DC Hybrid Power Transmission over the Same Transmission Line** Yihe Shen[1], Kai He[1], Yuhan Gao[2], Weiding Zhang[1] and Xijun Yang[1] *[1]Shanghai Jiao Tong University, China* *[2]Chongqing Acoustic-optic-Electic Co.,Ltd. of China, China*	Online
1570822771	**Two-Stage Optimal Active Power Control for PMSG-Based Wind Turbine Considering Frequency Secondary Drop** Long Zhang, Dan Sun and Heng Nian *Zhejiang University, China*	Online

1570823373 **Reliable Control Strategy and Power Switch Failure Analysis of a Three-level Interleaved Buck Converter for Electrolyzer Applications** On-site

Burin Yodwong[1], Suwat Sikkabut[1], Damien Guilbert[2], Wattana Kaewmanee[1], Matheepot Phattanasak[1], Melika Hinaje[2] and Gianpaolo Vitale[3]
[1]*King Mongkut's University of Technology North Bangkok (KMUTNB), Thailand*
[2]*Université de Lorraine, France*
[3]*Italian National Research Council of Italy, Italy*

I12-1: DC/DC, Converters
Date : December 1, 2022 (Meeting Room IV Passage)
Time : 9.00-10.40
Chair: Anuwat Jangwanitlert and Somboon Sooksatra

1570806209	**Three-Phase Interleaved Boost Converter with Fault-Tolerant Control Strategy for Renewable Energy System Applications** Kuagoon Kongkanjana and Sudarat Khwan-on *Suranaree University of Technology, Thailand*	Online
1570807001	**Transformerless Polarity Selectable Buck-Boost Converter with Common Ground** Somboon Sooksatra and Wanchai Subsingha *Rangsit University, Thailand*	On-site
1570816627	**Interleaved Bidirectional Buck-Boost DC/DC Converter for High Voltage Battery Application** Chayakarn Saeseiw, Piyadanai Pachanapan, Sakda Somkun, Suparak Srita and Tanakorn kaewchum *Naresuan University, Thailand*	On-site
1570812280	**High Voltage Gain Bidirectional Converter Based on Dual Active Bridge** Zixu Fang[1], Yijie Wang[1], Xiufang Liu[2], Yueshi Guan[1], Yiliang Li[1] and Dianguo Xu[1] *[1]Harbin Institute of Technology, China* *[2]Shanghai Aerospace Equipments Manufacturer Co., Ltd, China*	Online
1570806768	**Modeling Method for Bidirectional Conducted Noise Simulation of DC-DC Converter** Takato Hattori, Wataru Kitagawa and Takeshita Takaharu *Nagoya Institute of Technology, Japan*	On-site

I18: Hybrid/Electric Vehicles and Electric Propulsion Systems &
S26: Special Session: Latest Research Issues on Autonomous Train Control Technology
Date : December 1, 2022 (Meeting Room V Excursion)
Time : 9.00-10.40
Chair: Damrong Amorndechaphon

1570815691	**A Study on Operation Characteristics According to Rib Thickness for Each Layer of Double V-type IPMSM** Cheol-Min Kim, Hui-Seong Shin, Chung-Hui Lee and Ki-Chan Kim *Hanbat National University, Republic of Korea*	On-site
1570816337	**Impact of Irreversible Demagnetization on Electromagnetic Noise and Vibrations of Electric Vehicle Traction Motors on Wide Speed Range Operation** Thanh-Anh Huynh and Min-Fu Hsieh *National Cheng Kung University, Taiwan*	Online
1570816609	**Comparison of PMSM and Inverter Efficiency for Dual Three-Phase High Performance Powertrains Including Low Order Harmonics and Voltage Modulation** Leonard Mengoni[1], Sven Hochemer[1], Benjamin Wrzecionko[1], Jorn Mayer[1], Martin Fuchtner[1] and Rik W. De Doncker[2] [1]*Dr. Ing. h.c. F. Porsche AG, Germany* [2]*Institute for Power Electronics and Electrical Drives, Germany*	Online
1570815035	**Reconfigurable Model Predictive Control for Virtual Track Train Path-Tracking Considering Hinge Force** Zehan Wang and Zhenggang Lu *Tongji University, China*	Online

1570816345 **Combination Options of Metro Rail Transit Timetable Optimization for Energy and Cost Utilization** On-site

Thunyawara Anadngm and Masafumi Miyatake
Sophia University, Japan

I1-4: Permanent Magnet Motors and Generators
Date : December 1, 2022 (Ballroom I)
Time : 11.00-12.20
Chair: Bunlung Neammanee (Online)

1570815289	**Improved Sensorless Control of Permanent Magnet Synchronous Motor Based on Two-stage Filter** Kaiqi Zhao, Liu Yang, Zhao Shuang, Hongxia Hu and Pengda Zhou *Harbin Engineering University, China*	Online
1570815290	**Ship PMSM Nonlinear ADRC Parameter Self-tuning Based on Neural Network** Kaiqi Zhao, Liu Yang, Hongxia Hu and Zhao Shuang *Harbin Engineering University, China*	Online
1570815667	**Investigation of Cogging Torque Comprehensive Reduction Method in High Precision Servo Permanent Magnet Motor** Bin Yuan, Hui Li, Xuewei Xiang, Tong Zhou, Hao Zhou and Peng Jiang *Chongqing University, China*	Online
1570816351	**Transient and Steady-State Performance of a Consequent-Pole Line-Start Permanent-Magnet Synchronous Motor** Toshihiro Tsuda, Hiroki Sakan, Shougo Imura and Fumiya Kato Kanazawa Institute of Technology, Japan	Online

I8-4: Motor Control and Motor Drives
I13-2 Power Electronic Devices (Si and Wide Band Gap) and Applications
Date : December 1, 2022 (Ballroom II)
Time : 11.00-12.20
Chair: Paiwan Kerdtuad and Jin-Woo Ahn

1570816445	**Effect of Torque and Radial Force Ripple Suppression Control Gains for Vector-controlled SRMs on Evaluation Function Value** Ryoto KOJIMA and Nobukazu HOSHI *Tokyo University of Science, Japan*	On-site
1570816516	**Two-Phase Open-Circuit Fault Tolerant Control Based on Five-Phase Current-Source Inverter** Shijie Yang, Jingang Bai, Yong Liu, Ziyu Zhou and Ping Zheng *Harbin Institute of Technology, China*	Online
1570815804	**Study on GaN FET Short Circuit Characteristics and Development of Effective Short Circuit Protection Method** Chul-Min Kim, Jong-Soo Kim, and Nam-Joon Kim Daejin University, Republic of Korea	On-site
1570816917	**Optimal Level Number and Performance Evaluation of Si/GaN Multi-Level Flying Capacitor Inverter for Variable Speed Drive Systems** Gwendolin Rohner[1], Johann W. Kolar[1], Dominik Bortis[1] and Mario Schweizer[2] *[1]ETH Zurich, Switzerland* *[2]ABB Corporate Researchl, Switzerland*	On-site

I4-1: Transformers and Power Apparatus
Date : December 1, 2022 (Meeting Room I Voyage)
Time : 11.00-12.20
Chair: Sakda Somkun

1570814157 **Optimization Simulation Analysis of Leakage Magnetic Field and Loss Characteristics of High Frequency Nanocrystalline Transformer** Online

Xue Liu, Lu Zhao, Chengyao Ma, Qiongxuan Ge and Yaohua Li
Institute of Electrical Engineering, Chinese Academy of Sciences and University of Chinese Academy of Sciences, China

1570814779 **Optimal Design of U-shaped Evaporative Cooling Radiator for High Frequency Transformer** Online

Yang Zhangbin[1], Kangjie Huang[1], Zhang Sixiang[2], Bin Xiong[1] and Luo Daijun[2]
[1]*University of Chinese Academy of Sciences, China*
[2]*China Three Gorges Construction Engineering Corporation, China*

1570815307 **DC Bias Suppression Scheme Based on Hybrid Transformer** Online

Xia Fei[1], Chen Zhiwei[1], Danfeng Linzi[2], He Linjia[2], Jing Chen[2] and Wang Gang[2]
[1]*HeFei University of Technology, China*
[2]*State Grid Anhui Electric Power Co. LTD, China*

1570816213 **Mechanical Performance Analysis of Modified Insulating Paperboard in Transformers Based on Molecular Simulation** Online

Bo Wang, Yanli Zhang, Zhen Wang and Dianhai Zhang
Shenyang University of Technology, China

I17-2: Smart Grids, FACTS, and Microgrids
Date : December 1, 2022 (Meeting Room II Journey)
Time : 11.00-12.20
Chair: Siriroj Sirisukprasert

1570807180 **Source-load Coordination Economic Dispatch of Hybrid Combined Cooling Heating and Power Microgrid Considering Wind Power Accommodation** Online

Xu Zhao[1], Xiangyu Kong[1], Peirong Zhang[1], Qing Duan[2], Guanglin Sha[2], Lu Liu[2] and Haoqing Wang[2]
[1]Tianjin University, China
[2]China Electric Power Research Institute, China

1570811731 **Multi-level Collaborative Short-term Load Forecasting** Online

Linggzhi YI[1], Jiang ZHU[1], Jiangyong LIU[1], Haoyi SUN[2] and Bo LIU[1]
[1]Xiangtan university, China
[2]state Grid Liaoning Electric Power, China

1570812256 **Optimize the Placement of Measurement and Remote Control Switch in Distribution Network to Improve the Network Observability after Network Reconfiguration: a Bilevel Coordinated Optimization Approach** Online

Yuce Sun[1], Xiangyu Kong[1], Zhiduan Yang[1], Lin Zheng[2], Junda Qin[2] and Yajie Wang[2]
[1]Tianjin University, China
[2]State Grid Smart Grid Research Institute Co., Ltd, China

1570819817 **A Machine-learning Based Energy Management System for Microgrids with Distributed Energy Resources and Storage** Online

Remigio A. Iringan III, Alec Matthew S. Janer and Lew Andrew R. Tria
University of the Philippines Diliman, Philippines

I16: Batteries Modeling and Management Systems, Energy Storage Systems
Date : December 1, 2022 (Meeting Room III Expidition)
Time : 11.00-12.20
Chair: Sompob Polmai

1570806578	**The Savitzky-Golay Filter Based Hammerstein Wiener Model for SOC Estimation** Youwei Yang and Dongqing Wang *Qingdao University, China*	Online
1570807115	**Optimal Configuration of Wind Turbine Hybrid Energy Storage Based on Wavelet Packet-double Fuzzy Control** Caixue Chen, Huixiang Lv, Xutao Yang and Yan Li *Xiangtan University, China*	Online
1570814346	**Thermal Power-flywheel Energy Storage Combined Frequency Modulation System Participates in Primary Frequency Modulation Technology of Power Grid** Li Jie, Meng Gaojun, Ding Pengfei, Sun Yukun, Qian Congcong and Zhang Jing *Nanjing Institute of Technology, China*	Online
1570816562	**Control Strategy of Heterogeneous Network Base Station Energy Saving and Energy Storage Regulation Base on Genetic Algorithm** Gangwei Ding[1], Lijuan Li[1], Yue Li[1], Xin Wang[2] and Hai Liu[1] [1]*Xiangtan University, China* [2]*Information and Communication Company of State Grid Xinjiang Electric Power CO., LTD, China*	Online

I12-2: DC-DC converters
Date : December 1, 2022 (Meeting Room IV Passage)
Time : 11.00-12.20
Chair: Nathabhat Phankong and Somboon Sooksatra

1570815539	**A Hybrid Synchronous and Phase-shifted Control Strategy for DC Transformer** Hang Zhang, Cong Zhao, Zixin Li, Fanqiang Gao, Fei Xu and Yaohua Li *Chinese Academic of Science Beijing, China*	Online
1570819238	**Research on Bidirectional L-LLC Resonant Converter Based on Synchronous PWM Modulation** Wang Yong *Beihang University, China*	Online
1570819824	**Stability Analysis for Voltage Feed-Forward Control with Small-Signal DC Impedance Model** Young-Wook Kim and Seung-Ki Sul *Seoul National University, Korea*	Online
1570807638	**High Step-up Hybrid Converter for Simultaneous DC and AC Loads** Namon Kunjittipong and Sudarat Khwan-on *Suranaree University of Technology, Thailand*	Online

I11: Automotive Power Electronics, EV Chargers, V2G and Infrastructure &
I20-1: Wireless Power Transfer System and Application
Date : December 1, 2022 (Meeting Room V Excursion)
Time : 11.00-12.20
Chair: Damrong Amorndechaphon

1570819863	**Bidirectional On-Board Charger for Electric Vehicles with V2G Functionality**	On-site
	Attaphol Phimhpui and Uthane Supatti *Kasetsart University, Thailand*	
1570803001	**Soft-Switching Technique by Transfer Frequency of Wireless Power Transfer System Using Matrix Converter**	On-site
	Chikara Morimoto and Takaharu Takeshita *Nagoya Institute of Technology, Japan*	
1570806193	**A Novel Inductive Power Transfer System for Medium-low Speed Maglev Train Based on Double-ended Inverter**	Online
	Manyi Fan, Liming Shi, Zhenggang Yin, Jixin Yang and Wenjing Tang *Chinese Academic of Science, China*	
1570824755	**An Output Voltage Control of Inductive Power Transfer System for Multi-load**	Online
	Kan Voottipruex, Nattapong Hatchavanich, Sumate Naetiladdanon, Anawach Sangswang and Ekkachai Mujjalinvimut *King Mongkut's University of Technology Thonburi, Thailand*	

I1-5: Permanent Magnet Motors and Generators
Date : December 1, 2022 (Ballroom I)
Time : 13.20-15.20
Chair: Kongpan Areerak (Online)

1570815805	**Optimization of External Characteristic Parameters of Multiple Motors for Electric Vehicles Based on Optimal Torque Distribution Coefficient** Zhaorui Su and Jinhua Du *Jiaotong University, Chin*	Online
1570815990	**Design and Analysis of High Torque-to-weight Ratio Motors for Legged Robot Joints** Dongdong Jiang, Xiaoyan Huang, Ke Xu, Ye Ma and Zhaokai Li *Zhejiang University, China*	Online
1570816314	**Design and Electromagnetic Performance Analysis of Novel Dual-Armature Π-Core Doubly Salient Permanent Magnet Machines** Guangqiang Ming, Jianping Yuan, Shihao Ma and Junjie Yang *Hangzhou Huachen Electric Control Engineering Corporation Ltd. And Powerchina Huadong Engineering Corporation Ltd., China*	Online
1570816526	**Construction Method and Application Prospect of Electrical Machine Digital Twin** Lin Liu, Youguang Guo, Gang Lei, Wenliang Yin , Xin Ba and Jianguo Zhu *University of Technology Sydney, Australia*	Online
1570816568	**Fault Diagnosis of Low-severity Demagnetization in Permanent Magnet Synchronous Motors Using Numerical Data** Mahmoud S. Mahmoud[1], H. V. Khang[1], Jagath Senanayaka[1] and Ruben Puche Panadero[2] [1]*University of Agder, Norway* [2]*Universitat Politecnica de Val ` encia, Spain*	Online

1570816827 **Comparative Study of the Π-Core Doubly Salient PM Machines Having Different Stator Core Segments and Armature Winding Configurations** Online

Guangqiang Ming, Jianping Yuan, Shihao Ma, Junjie Yang, Guanchen Liu and Xuhui Yue
Hangzhou Huachen Electric Control Engineering Corporation Ltd. and Powerchina Huadong Engineering Corporation Ltd., China

I8-5: Motor Control and Motor Drives
Date : December 1, 2022 (Ballroom II)
Time : 13.20-15.20
Chair: Sirichai Dangeam

1570815393 **Analysis of Sensorless Deadbeat Predictive Current Control Under Parameter Mismatches for Permanent Magnet Synchronous Machines** Online

Ximeng Wu[1], Z.Q. Zhu[1] and Nuno M. A. Freire[2]
[1]*University of Sheffield, UK*
[2]*Siemens Gamesa Renewable Energy A/S, Denmark*

1570815522 **On-line Parameter Identification of Permanent Magnet Synchronous Motor based on Extended Kalman Filter** Online

Tianzi Hu, Jiaxi Liu, Jiwei Cao and Liyi Li
Harbin Institute of Technology, China

1570815630 **Enhancing Speed Loop PI Controllers with Adaptive Feed-forward Neural Networks: Application to Induction Motor Drives** Online

Ravneel Prasad[1], Shyamal Chand[1], Hiye Mudaliar[1], Dhirendran Kumar[1], Adriano Fagiolini[2], Marco Di Benedetto[3] and Maurizio Cirrincione[1]
[1]*The University of the South Pacific ,Fiji*
[2]*Università degli Studi di Palermo, Italy*
[3]*ROMA TRE University, Italy*

1570815796 **Flux-Weakening Operation of Speed-Sensorless Induction Machine Drives Using Deadbeat-Direct Torque and Flux Control** Online

Yu Yong, Ping Fan, Wang Bo and Xu Dianguo
Harbin Institute of Technology, China

1570815838 **A High Dynamic Performance SHEPWM Controller for PMSM at Low Switching Frequency** Online

Kailang Yi, Fei Peng and Yunkai Huang
Southeast University, China

1570815881 **Synchronous Filtering based Current Harmonic Suppression for Dual Three-phase Permanent Magnet Synchronous Machines** Online

Shilin Tan, Kan Liu, Bingxin Zhang, Jiaming Wu, Baihui Gong and Chao Huang
Hunan University, China

S30: Special Session: Advanced Sensorless Drive for AC Motors &
S32: Special Session: Advanced Control for Reluctance Machine Drives
Date : December 1, 2022 (Meeting Room I Voyage)
Time : 13.20-15.20
Chair: Nathabhat Phankong

1570815946	**Benefits of Cut-Off Barriers in Synchronous Reluctance Motors, Multi-Objective Comparison Based on Wide Design-Space Exploration** Christophe De Gr´eef, Joachim Van Verdeghem,Virginie Kluyskens and Bruno Dehez *Universit´e catholique de Louvain (UCLouvain), Belgium*	On-site
1570816406	**A Novel Performance Enhancement Process for Single-pulse Controlled Switched Reluctance Generators** Lefei Ge, Zizhen Fan, Jiale Huang and Shoujun Song *Northwestern Polytechnical University, China*	Online
1570816387	**Sensorless Control of Switched Reluctance Machines Based on Adaptive Sliding Mode Observer** Lefei Ge, Jiale Huang, Dongpeng Zhang and Shoujun Song *Northwestern Polytechnical University, China*	Online
1570806597	**Online Inductance Identification of PMSM Based on High Frequency Signal Injection into Virtual Axis** Guancheng Pan, Qiwei Wang, Kaiji Zhang, Shaobo Liu, Gaolin Wang and Dianguo Xu *Harbin Institute of Technology, China*	Online
1570814284	**Finite Position Set-Based Fast Position Estimation Method for High-Speed Permanent Magnet Synchronous Motor** Mengting Ye[1], Chen Li[1], Zhanqing Zhou[2], Zhiqiang Wang[2], Yan Yan[1] and Tingna Shi[1] *[1]Zhejiang University, China* *[2]Tiangong University, China*	Online

1570815743 **Dynamic Position Estimation Improvement for Sensorless Control of PMSM with ADRC-DPLL Embedded in Current Controller** Online

Zhe Chen, Chaomin Xiao, Xuxuan Zhang, Chunqiang Liu and Guangzhao Luo
Northwestern Polytechnical University, China

I17-3: Smart Grids, FACTS, and Microgrids
Date : December 1, 2022 (Meeting Room II Journey)
Time : 13.20-15.20
Chair: Siriroj Sirisukprasert

1570813216 **Mathematical Model of DCMGs with PV Arrays Feeding the Parallel Constant Power Loads** Online

Koson Chaicharoenaudomrung[1], Jakkrit Pakdeeto[1], Kongpan Areerak[2] and Kongpol Areerak[2]
[1]KMUTNB, Thailand
[2]Suranaree University of Technology, Thailand

1570813539 **A Method of Short-Term Load Prediction of Renewable Energy Power System Based on CNNLSTM** Online

Zhiduan YANG[1], Xiangyu KONG[1], Ningping YUAN[2], Xiufen LI[3], Zehao LI[3] and Guoqing LI[4]
[1]Key Laboratory of Smart Grid of Ministry of Education, China
[2]College of Computer and Information (Inner Mongolia Medical University), China
[3]Inner Mongolia Electric Power Co., Ltd., China
[4]Guodian Inner Mongolia New Energy Development Co., Ltd, China

1570815111 **Multi-Resonance Control and Phase Margin Compensation Method of Grid-Connected Inverter Based on Voltage and Current Feedforward** Online

Jingwen Hou[1], Chengsheng Wang[1], Wei Duan[2], Zhiming Lan[2], Jun Jiang[2] and Qiongtao Yang[2]
[1]Institute of Metallurgical Industry, China
[2]Beijing Aritime Intelligent Control Co.,LTD., China

1570815851 **Stabilization of power system using improved virtual inertia of virtual synchronous generator** On-site

Aditap Poungdokmai and Sompob Polmai
King Mongkut's Institute of Technology Ladkrabang, Thailand

1570815991 **Dynamic Aggregation Response Strategy of Adjustable Resources of Virtual Power Plants in Power Grid Balance Adjustment Scenario** Online

Ning Wang[1], Xiangyu Kong[1], Guoqing Li[2], Xiaofei Li[2], Xiufen Li[3] and Zehao Li[3]
[1]*Tianjin University, China*
[2]*Guodian Co., Ltd, China*
[3]*Inner Mongolia Electric Power Co.,Ltd, China*

1570816610 **Optimal Location and Sizing of Renewable Energy Power Generation in Peer-to-Peer Microgrid System based on Minimized Power Loss** On-site

Saksit Deeum, Natin Janjamraj, Sillawat Romphochai, Krischonme Bhumkittipich
Rajamangala University of Technology Thanyaburi (RMUTT), Thailand

I21: Other Areas in Energy Systems and E-Mobility &
S25: Special Session: Electric Vehicle Conversion
Date : December 1, 2022 (Meeting Room III Expidition)
Time : 13.20-15.20
Chair: Burin Kerdsup

1570807049 **Siting and Capacity Planning Method for Electric Vehicle Charging Station Based on Chaotic Simulated Annealing Particle Swarm Optimization** Online

ShangzeLI[1], XiangyuKONG[1], BixuanGAO[1], ZiyuLIU[1], YuSHEN[2] and WeiHU[2]
[1]*Tianjin University, China*
[2]*State Grid Hubei Electric Power Research Institute, China*

1570807056 **Optimal Operation of Carbon Capture Power Plants Considering Carbon Trading under Low Carbon Economy** Online

Ziyu LIU[1], Xiangyu KONG[1], Shangze LI[1], Bixuan GAO[1], Yi GAO[2] and Yang WANG[2]
[1]*Tianjin University, China*
[2]*State Grid Tianjin Electric Power Company, China*

1570819271 **Research on Path Planning of Electric Tractor Based on Improved Ant Colony Algorithm** Online

Liang Chuandong and Lu Min
Shihezi University, China

1570815299 **Torque-Current Lookup Table EstablishmentMethod for PMSM Considering Parameter Nonlinear Characteristics** Online

Benkang Tan[1], Hongyun Chen[1], Xinmin Li[2], Xin Gu[2], Yan Yan[1] and Tingna Shi[1]
[1]*Zhejiang University, China*
[2]*Tiangong University, China*

1570819516 **Comparative Design between Induction Motor and Synchronous Reluctance Motor used for Electric Vehicle Conversion** On-site

Burin Kerdsup[1] and Manop Masomtob[2]
[1]National Electronics and Computer Technology Center, Thailand
[2]National Energy Technology Center, Thailand

1570824118 **Wide-Speed-Range Performance of IPMSM with Variation of Saliency Considering Saturation for Electric Vehicle Application** Online

Weili Li[1], Baowang Huang[1], Jun Di[1] and Liangliang Zhang[2]
[1]Beijing Jiaotong University, China
[2]Jing-Jin Electric Technologies Co., Ltd, China

I12-3: AC-DC Converters
Date : December 1, 2022 (Meeting Room IV Passage)
Time : 13.20-15.20
Chair: Pracha Khamphakdi and Wanchai Subsingha

1570825277	**Two-Degree-of-Freedom Control over Totem-pole Power Factor Corrector** Yuhan Gao[1] , Wei Jiao[2], Wei Yan[3], Huang Li[2], Shuang Wu[2] and Xijun Yang[2] *[1]Chongqing Acoustic-Optic-Electronic Co., LTD, P.R. China* *[2]Shanghai Jiao Tong University, P.R. China* *[3]Peking University, P.R. China*	Online
1570802148	**Three-Vector Model Predictive Direct Power Control of Vienna Rectifier Based on Voltage Vector Optimization** Caixue Chen, Yan Li, Xutao Yang and Huixiang Lv *Xiangtan University, China*	Online
1570808577	**Switching Loss Evaluation in a Three-Phase Diode Rectifier with an Instantaneous Reactive Power Compensator** Nuilers Surasak[1], Kerdsup Burin[1] and Hideaki Fujita[2] *[1]National Electronic and Computer Technology Center (NECTEC), Thailand* *[2]Tokyo Institute of Technology, Japan*	On-site
1570816962	**Development of PFC Converter for Induction Heating System in Railway** Seong-Yong Hong, Dong-Kyun Kim, Hyeong-Seok Oh, Jae-Bum Le, Chan-Bae Park, Byung-Song Le and Hyung-Woo Le *Korea National University of Transportation (KNUT), Republic of Korea*	On-site

1570808646 **A New Short Circuit Fault Detection Method of High-Power Converter Based IGCT** Online

Pei Yang, Bo Zhang, Qiongxuan Ge and Xiaoxin Wang
Institude of Electrical Engineering and Chinese Academy of Sciences, China

1570806464 **Research on Optimal Fuel Consumption Control Strategy for Variable Speed Generation of Diesel Generator Set Rail Transit Traction System** Online

Yang Liu, Zhenhuan Yin, Kan Dong, Ma Chi, Dongdong Cui and Lu Zhao
China Academy of Railway Science Corporation Limited, China

I20-2: Wireless Power Transfer System and Application
Date : December 1, 2022 (Meeting Room V Excursion)
Time : 13.20-15.20
Chair: Nithiphat Teerakawanich

1570815807 **Dynamic process of power supply mode switching applied to inductive coupled WPT** Online

Wenjing Tang, Limingi Shi, Zhenggang Yin, and Jixin Yang
China and University of Chinese Academy of Sciences, China

1570808816 **A Wireless Induction Heating Rice Cooker with SCCC Compensation Network** Online

Zhenghuai Xia[1], Jinming Wan[2], Zhihui Wang[2], Jinneng Li[2], Lei Wu[1] and Shishun Wang[1]
[1]*Kunming University of Science and Technology, China*
[2]*Gree Electric Appliances,Inc.of Zhuhai, China*

1570815793 **Mutual Inductance Identification Based Constant Voltage Control for LC-L Wireless Power Transmission Systems** Online

Pengfei Sang[1], Kan Liu[1], Baihui Gong[1], Yue Zhang[1], Dinghua Zhang[2] and Chao Huang[2]
[1]*Hunan University, China*
[2]*China Railway Rolling Stock Corporation, China*

1570822972 **Design Guidelines to Allow Bifurcation Operation of Wireless Battery Charger with Primary Side Controller** Online

Nattapong Hatchavanich, Mongkol Konghirun, Anawach Sangswang and Supapong Nutwong
King Mongkut's University of Technology Thonburi, Thailand

1570824748 **A Comparison of Transmitter Connection for Dynamic Inductive Power Transfer Application** Online

Kasan Sukvanachaikul, Nattapong Hatchavanich, Sumate Naetiladdanon, Anawach Sangswang and Ekkachai Mujjalinvimut
King Mongkut's University of Technology Thonburi, Thailand

I1-6: Permanent Magnet Motors and Generators
Date : December 1, 2022 (Ballroom I)
Time : 15.40-18.20
Chair: Thanatchai Kulworawanichpong

1570816319	**Coupled Electromagnetic- LPTN Model of High Speed PMSM for Mechanical Vapor Recompression Applications** Usman Abubakar[1], Xiaoyuan Wang[1], Sayyed Haleem Shah[1], Yu Sheng[1] and Alhj. Dauda Maina[2] [1]*Tianjin University,China* [2]*Alooma Polytechnic,Geidam, Nigeria*	Online
1570816364	**Design Method of Variable-Flux Machines for Improving Torque Density** Faliang Liu[1], Yong Liu[1], Ping Zheng[1], Mingqiao Wang[1], Zaiping Zheng[2] and Jie Fu[2] [1]*Harbin Institute of Technology, China* [2]*Beijing Institute of Precision Mechatronics and Controls, China*	Online
1570816377	**Equal-Magnitude Sinusoidal Current Fault-Tolerant Strategy Derived from Rotating Rhombus Method for Six-Phase PMSM with Open-Circuit Fault** Jiaxuan Huang, Yi Sui, Zihang Yuan, Shijie Yang and Ping Zheng *Harbin Institute of Technology, China*	Online
1570816405	**Influence of Mutual Inductance on High-Frequency Impedance Characteristics of Six-Phase PMSM under Inter-Turn Short-Circuit Fault** Zihang Yuan, Minghao Wang, Jingang Bai, Jiaxuan Huang and Ping Zheng *Harbin Institute of Technology, China*	Online

1570816415 **A Novel Magnetic-Field-Shifting Method for Improving the Torque Density of Interior Permanent Magnet Machines** Online

Xiaoyu Liang[1], Faliang Liu[1], Mingqiao Wang[1], Ping Zheng[1], Zaiping Zheng[2] and Jie Fu[2]
[1]Harbin Institute of Technology, China
[2]Laboratory of Aerospace Servo Actuation and Transmission, China

1570819272 **Evaluation of Switching Ripple Effect on Efficiency of Novel Spoke-Type IPMSM Using Dy-Free Magnet - Comparison to IPMSM using NbFeB Magnet** Online

Jiseong Park[1], Ren Tsunata[2], Masatsugu Takemoto[2], Satoshi Ogasawara[1] and Koji Orikawa[1]
[1]Hokkaido University, Japan
[2]Okayama University, Japan

1570823990 **Electromagnetic Analysis of a High Gear-Ratio Magnetically Geared Motor** Online

H. Y. Wong[1], J. Z. Bird[1], S. Essakiappan[2], A. Verma[2] and M. Manjrekar[2]
[1]Portland State University, USA
[2]QM Power Inc., USA

1570825250 **Reduction of Torque Ripple and Radial Force Harmonics in Consequent-Pole Permanent Magnet Motor for Electric Power Steering Applications** Online

Yuga Tanaka, Hironori Minegish, Yusuke Fujii and Akira Chiba
Tokyo Institute of Technology, Japan

I8-6: Motor Control and Motor Drives
Date : December 1, 2022 (Ballroom II)
Time : 15.40-18.20
Chair: Sirichai Dangeam

1570815998 **A Three-level Drive Control Method Based on High-speed permanent magnet synchronous Moto** Online

Xiangshen Meng, Jiwei Cao, Jiaxi Liu and Liyi Li
Harbin Institute of Technology, China

1570816496 **PMSM High Precision Position Servo Control Based on Feedforward Compensation** Online

Xianting Zhang, Ziqiang Zhang, Ruiqing Ma, Qianbao Mi and Yuchen Zhang
Northwestern Polytechnical University, P.R. China

1570816569 **Dead-Time Effect Analysis and Compensation for Deadbeat-Direct Torque and Flux Control of PMSMs to Eliminate Steady-State Error** Online

Jiewen Lang[1], Chengde Tong[1], Ping Zheng[1], Xiaoyu Liang[1], Xuejin Yuan[1] and Wu Ren[2]
[1]Harbin Institute of Technology, China
[2]Beijing Institute of Aerospace Control Devices, China

1570816595 **Interleaved Generalized Predictive Control for Dual Three-Phase PMSM with Low Computation Burden** Online

J. X. Wu, K. Wang, T. Wang and J. Li
Nanjing University of Aeronautics and Astronautics, China

1570816629 **Comparison of Different Flux-Weakening Strategies of AC-Excited Hybrid Excitation Synchronous Motor** Online

Y. W. Deng, K. Wang, J. Li and T. Wang
Nanjing University of Aeronautics and Astronautics, China

1570816645 **Online Parameter Identification Method using Neural Network for IPMSM** Online

Minh Xuan Bui
RMIT University, Vietnam

1570817949 **A New Adaptive Feedforward Flux-Weakening Control Method of Aerospace Motor for More Electric Aircraft** Online

Yicheng Wang, Shuhua Fang and Heyun Lin
Southeast University, China

1570823571 **New Efficiency Optimal Control of Interior Permanent Magnet Synchronous Motor Based on Improved Minimum Stator Current Control** Online

Chenshan Hu[1], Jian Gao[1], Shoudao Huang[1], Wenjuan Zhang[2], Yi Wu[1] and Jianming Li[1]
[1]*Hunan University, China*
[2]*Changsha University, China*

I8-2: Motor Control and Motor Drives &
S29-2: Special Session: Advanced Control Strategy for Permanent Magnet Motor Drives
Date : December 1, 2022 (Meeting Room I Voyage)
Time : 15.40-18.20
Chair: Satit Owatchaiphong

1570806778	**Torque Ripple Reduction by Injecting q-axis Suppression Current for Half-wave Rectified Brushless Synchronous Motors** Kohei Kanaida, Tetsuji Daido, Shin-ichi Hamasaki and Takashi Abe *Nagasaki University, Japan*	Online
1570806876	**Permanent Magnet Synchronous Motor Composite Control Strategy Based on Proportional Resonance and Disturbance Observer** Pei Luo, Wenlun Zhao, Junhao Liang, Xinpeng Ma and Rijie Luo *Xiangtan University, China*	Online
1570807003	**Fast Integral Terminal Sliding Mode Control of PMSM Based on New Sliding Mode Reaching Law** Zhang Kaifei, Chen Yiguang, Zhang Haoran and Li Guowen *Tianjin University, China*	Online
1570807060	**Model Predictive Control Algorithm of Dual Three Phase Motor Considering Global Single Vecto** Hao Zhou, HuiLi, Xuewei Xiang, Bin Yuan, Tong Zhou and Wendong Li *Chongqing University, China*	Online
1570807090	**Research on Fault-Tolerant Control Strategy of Fault-Tolerant Permanent Magnet Motor Based on Cascaded Model Prediction Algorithm** Zhijian Wei, Xuefeng Jiang, Shirui Yang, Xiangyu Zhang, Yiming Cai and Siyuan Wang *Nanjing University of Science and Technology, China*	Online

1570807120 **Robustness Improvement of Predictive Flux Control Based on Parameter Identification for Permanent Magnet Synchronous Motor** Online

Haoran Zhang, Yiguang Chen, Kaifei Zhang and Guowen Li
Tianjin University, China

1570819476 **Magnet temperature estimation of permanent magnet synchronous motor using search coils** Online

Yuan Cheng, Jinfeng Chen, Wan Huang, Bochao Du, and Shumei Cui
Harbin Institute of Technology (HIT), China

1570816263 **A Novel Sensorless Model Predictive Current Control for Interior Permanent Magnet Synchronous Motor** Online

Yanqing Zhang, Gaoli Yan, Zhonggang Yin, Fengtao Gao, and Liang Shao
Xi'an University of Technology, China

S29-1: Special Session: Advanced Control Strategy for Permanent Magnet Motor Drives

Date : December 1, 2022 (Meeting Room II Journey)
Time : 15.40-18.20
Chair: Burin Yodwong

1570807832 **Simultaneous MTPA and Sensorless Control Strategy for IPMSM Drives Based on High-Frequency Signal Injection** Online

Ben Niu, Guoqiang Zhang, Sichun Wang, Lianghong Zhu, Nannan Zhao, Junya Huo, Hua Yang, Gaolin Wang and Dianguo Xu
Harbin Institute of Technology, China and GD Midea Air Conditioning Equipment Co., Ltd., China

1570811818 **Sensorless Control Using Model Reference Adaptive System Based on Power Balance Model for High-speed Permanent Magnet Synchronous Motor** Online

Yazhi Cui, Min Wu and Xiaoyan Huang
Zhejiang University, China

1570813953 **A Novel method of Phase current reconstruction with single DC-Link current sensor for Tri-phase Full Bridge Invertor** Online

Xin Liu[1], Chunqiang Liu[1], Zeliang Zhang[2], Yin Li[1] and Guangzhao Luo[1]
[1]*Northwest Polytechnic University, China*
[2]*York University,UK*

1570824380 **Direct Speed Regulation for PMSM Drive System Via a Generalized Dynamic Predictive Control Approach** Online

Zhongkun Cao, Jianliang Mao, Xin Dong and Chuanlin Zhang
Shanghai University of Electric Power, China

1570815672 **Intelligent Fault Diagnosis Method of Motor Gear Based on Transfer Learning Under Variable Working Conditions** Online

Peien Luo, Zhonggang Yin, Yangyang Cui and Yanqing Zhang
Xi'an University of Technology, China

1570806063 **Fault Tolerant Control Method for Half Centralized Open End Winding Permanent Magnet Linear Motor Drive Systems with Open Phase Fault** Online

Weijie Tian, Wei Wang, Chao Wei and Ming Cheng
Southeast University, China

1570819162 **Resonance Identification Method for Non-Contact Integrated PMVM Using BP Neural Network** Online

Junlei Chen and Ying Fan
Southeast University, China

1570806605 **Online Multi-Parameter Identification of PMSM Based on High Frequency Equivalent Impedance Model** Online

Xin Xiong, Qiwei Wang, Shaobo Liu, Dawei Ding, Guoqiang Zhang, Gaolin Wang and Dianguo Xu
Harbin Institute of Technology, China

S31-1: Special Session: Advanced Electric Machines and Drives for Transportation Electrification

Date : December 1, 2022 (Meeting Room III Expedition)

Time : 15.40-18.20

Chair: Paiwan Kerdtuad

1570819864	**Design and Study of Effect of Magnetic Flux-barriers on a High-pole Permanent Magnet Synchronous Machine** Sukanya Kamboj[1], Johannes Gerold[2] and Dieter Gerling[1] *[1]University of Bundeswehr, Germany* *[2]FEAAM GmbH , Germany*	On-site
1570814699	**Impact of the Magnet Span on the Forces of Electrodynamic Suspensions with an Alternate Permanent Magnet Arrangement** Louis Beauloye and Bruno Dehez *Universit´e catholique de Louvain (UCLouvain), Belgium*	Online
1570815940	**An Inertia Identification Method Based on Adaptive Linear Disturbance Torque Observer for PMSM Drives** Yuanming Huang, Hua Yang, Gaolin Wang, Guoqiang Zhang, Guangdong Bi and Dianguo Xu *Harbin Institute of Technology, China*	Online
1570815865	**Torque Ripple Suppression method of Doubly Salient Electro-Magnetic Machine Based on Direct Instantaneous Torque Control** Chuntao Zhu, Huizhen Wang, Weifeng Liu, Haowei Li and Zhifei Xiao *Nanjing University of Aeronautics and Astronautics, China*	Online
1570814768	**Position Estimation Error Correction Strategy Based on Dual-Gap Dual-Pole Composite Machine** Shengming Yang[1], Helong Wang[2] and Ronggang Ni[1] *[1]Qingdao University, China* *[2]Qingdao Haier Smart Technology R&D Co., Ltd., China*	Online

1570807130 **Position Error Suppression Method for SynRM Drives Based on Reduced-Order Flux Observer** Online

Ziyuan Wang, Yang Hua, Guoqiang Zhang, Runhua Xiang, Gaolin Wang and Dianguo Xu
Harbin Institude of Technology, China

1570821955 **Pseudo-Random-Phase High-Frequency Square-Wave Voltage Signal Injection Based Sensorless Control for PMSM Drives** Online

Lianghong Zhu, Binxing Li, Guoqiang Zhang, Guangdong Bi, Gaolin Wang and Dianguo Xu
Harbin Institute of Technology, China and GD Midea Air Conditioning Equipment Co., Ltd., China

1570815471 **Error Current Compensation Method for Speed-Sensorless Induction Motor Drives near Zero Synchronous Frequency** Online

Ruhan Li, Cheng Luo, Kai Yang, Zhijie Xu and Yifei Zheng
Huazhong University of Science and Technology, China

I12-4: AC/DC Converters
Date : December 1, 2022 (Meeting Room IV Passage)
Time : 15.40-18.20
Chair: Damrong Amorndechaphon

1570806011	**A Variable Band Width Hysteresis Current Control Zero-Voltage Switching Converter Based on a LCCR Filter** Jiaxing Ye, Mingyi Wang and Liyi Li *Harbin Institute of Technology, China*	Online
1570806496	**Comparative Analyses of Submodule Unified PWM and Level Shifted PWM for Modular Multilevel Converter** Chen Ma, Shishun Wang, Sizhao Lu and Siqi Li *Kunming University of Science and Technology, China*	Online
1570808819	**Switching-Cell Back-to-Back Current Source Converter with Modified SVPWM** Daheon Hong and Honnyong Cha *Kyungpook National University, Korea*	On-site
1570811746	**A Si IGBT and SiC MOSFET Hybrid Full-Bridge Inverter and Its Modulation Scheme** Shishun Wang, Zhenghuai Xia, Hengjiao Duan, Chen Ma, Sizhao Lu and Siqi Li *Kunming University of Science and Technology, China*	Online
1570816176	**Floating Output Series Interleaved Boost-only GaN Y-Inverter** Yusuke Endo[1], Hamzeh J. Jaber[2], Masataka Minami[1] and Alberto Castellazzi[2] *[1]Kobe City College of Technology, Japan* *[2]Kyoto University fo Advanced Science, Japan*	On-site

1570816285 **Open Circuit (OC) and Short Circuit (SC) IGBT Switch Fault Detection in Three-Phase Standalone Photovoltaic Inverters Using Shallow Neural Networks** Online

Shyamal Shivneel Chand, Rahul Ranjeev Kumar, Ravneel Prasad, Maurizio Cirrincione and Krish Kumar Raj
The University of the South Pacific, Fiji

1570818694 **A New Grid Voltage Compensated Model Predicted Control for BESS PCS** On-site

Jeongjin Seo and Hanju Cha
Chungnam Natonal University, Repblic of Korea

1570823140 **New Switching Patterns Based on Current SpaceVector Diagram Viewpoint to Reduce Input Current Ripple for Three-Level Inverters** Online

Phongsathorn Sangsuwan[1], Paiboon Kiatsookkanatorn[1], Somboon Sangwongwanich[2] and Ariya Sangwongwanich[3]
[1]Rajamangala University of Technology Suvarnabhumi(RUS), Thailand
[2]Chulalongkorn University, Thailand
[3]Aalborg University, Denmark

I5-1: Linear and Special Machines

Date : December 1, 2022 (Meeting Room V Excursion)
Time : 15.40-18.20
Chair: Surapong Suwankawin and Xiaotao Ren

1570806991	**Amorphous Long Stator Core Loss Calculation of Linear Motor Based on An Improved Calculation Model** Mujian Bao, Yuebing Lin and Xiaoqin Zheng Qingdao University, China	Online
1570810581	**Innovative Design of 3D-printed Winding for Linear Motor** Xiaotao Ren, Adrien Thabuis and Yves Perriard *Ecole polytechnique fédérale de Lausanne, Switzerland*	On-site
1570814579	**Optimal Design and Control Simulation of a High Accelerate Double-Sided Permanent-Magnet Linear Synchronous Motor** Lize Wu and Qinfen Lu *Zhejiang University, China*	Online
1570816591	**Modeling of Magnetic Field Distribution in Slotless Homopolar Active Magnetic Bearing with Eccentricity using Fourier Analysis** Guillaume Colinet and Bruno Dehez Université catholique de Louvain (UCLouvain), Belgium	Online
1570819639	**Eddy-Current Linear-Rotary Position Sensor for an Implantable Total Artificial Heart** Rosario V. Giuffrida, Johann W. Kolar and Dominik Bortis *ETH Zurich, Switzerland*	On-site

1570815649 **Structure Innovation and Material Optimization of Annular Linear Induction Electromagnetic Pump Based on Temperature Field Constraints** Online

Wenxiao Wu[1], Jien Ma[1], Lin Qiu[1], Qiyi Wu[1], Sixian Zhu[1], Shuming Zhang[2], Chunyuan Liu[2], Jiantian Hu[3] and Youtong Fang[1]
[1]*Zhejiang University, China*
[2]*State Power Investment Corporation, China*
[3]*Zhejiang AoXin Instrument Corporation, China*

1570815671 **Optimization and Performance Investigation of High Precision Permanent Magnet Linear Motor** Online

Yao Wang, Jinhua Du and Zhao Hou
Xi'an Jiaotong University , China

1570816737 **Self-Bearing Partitioned Stator Flux-Switching Permanent Magnet Motor** Online

Sadjad Madanzadeh[1], Wolfgang Gruber[2], Andrei Zhuravlev[1] and Rafal P. Jastrzebski[1]
[1]*Lappeenranta University of Technology, Finland*
[2]*Johannes Kepler University Linz, Austria*

I1-7: Permanent Magnet Motors and Generators
Date : December 2, 2022 (Ballroom I)
Time : 9.00-10.40
Chair: Mongkol Konghirun and Wataru Kitagawa

1570806055	**Torque Ripple Suppression of Model Predictive Torque Control for Nine-Phase Permanent Magnet Synchronous Motor Drives** Xiaolin Song, Xinzhen Wu and Haifeng Wang *Qingdao University, China*	Online
1570819208	**Study of the Winding Configuration in Linear Permanent Magnet Vernier Motors** Kazuhiro Moei and Shoji Shimomura *Shibaura Institute of Technology, Japan*	On-site
1570824170	**Shape Optimization of Permanent Magnets Considering Multiplicative Wave Skew in Axial Gap Motor** Daisuke Sato, Wataru Kitagawa and Takeshita Takaharu *Nagoya Institute of Technology, Japan*	On-site
1570816511	**Examination of stator magnets applied to Magnetization Reversal Motor** Shion Majima and Kan Akatsu *Yokohama National University, Japan*	On-site
1570815441	**Temperature Analysis of Permanent Magnet Synchronous Motor Based on Iterative Calculation of Boundary Heat Transfer** Qianqian Liu, Yaohua Hu, Renhua Jiang, Shushu Zhu, and Junyue Yu *Nanjing University of Aeronautics and Astronautics, China*	Online

I8-7: Motor Control and Motor Drives
Date : December 2, 2022 (Ballroom II)
Time : 9.00-10.40
Chair: Sakda Somkun and Yonghwa Lee

1570819586	**Over Temperature Protection During Hill-hold and Low-Speed Conditions for Electric Vehicle Traction Inverter** Philip Korta, Animesh Kundu, Cameron Pickersgill, Lakshmi Varaha Iyer and Narayan C.Kar *University of Windsor, Canada*	On-site
1570824096	**Discrete-time Optimization of Current-sensor-less Control for a High-frequency All-SiC CSI Converter** Yonghwa LEE and Alberto Castellazzi *Kyoto University of Advanced Science, Japan*	On-site
1570806751	**Study on Switching Strategy of PMSM and BLDCM** Chengrui Tao, Jianjian Fan, Sunong Yao and Jianhua Wu *Zhejiang University, China*	Online
1570815778	**Finite Control Set Model Predictive Control for PMSM Based on Imposed Weighting Factor** Maixia Shang and Jinglin Liu *Northwestern Polytechnical University, China*	Online
1570815652	**A Sensorless Control Method Based on High Frequency Injection for Dual Three Phase Motor with Asymmetric Windings** Zheng Wu, Chenwen Cheng, Wei Hua, Hengliang Zhang, Hang Yin and Mingjin Hu *Southeast University, China*	Online

I12-5: DC/DC and DC/AC Converters
Date : December 2, 2022 (Meeting Room II Journey)
Time : 9.00-10.40
Chair: Anuwat Jangwanitlert and Suwat Kitcharoenwat

1570816442	**Design of Battery Charger and Discharger using Series-input and Parallel-output connected DAB Converter** Sung-Hyeon Park[1], Seung-Min Song[2], Juwon Kim[1] and In-Dong Kim[1] [1]Pukyong National University, Korea [2]Hyowon Power Tech. Co., Korea	On-site
1570812505	**Third-Harmonic Injection Two-Stage Matrix Converter with Dual Reactive Current Control Bridge Arms** Chengjia Lu, Bo Zhou and Qingyun Chang *Nanjing University of Aeronautics and Astronautics, China*	Online
1570816519	**A Single-Phase AC-DC-AC Converter with PV for Voltage DC-Link Charging** Suwat Kitcharoenwat, Apirach Rattanaudompisut and Saichol Chudjuarjeen *Rajamangala University of Technology Krungthep, Thailand*	On-site
1570807528	**Clamping Circuit for Auxiliary Resonant Snubber-based Soft-Switching Inverter to Suppress Over-voltage of Auxiliary Switches** Hailin Zhang, Qi Zhang, Jun Yao and Zhentao Qin *Chongqing University, China*	Online
1570807127	**State-Plane Diagram Analysis of Full-Bridge ZCS-ZVS Boost Converter with Switches at Rectifier** Somboon Sooksatra, and Wanchai Subsingha *Rangsit University, Thailand*	On-site

N1: Others in Smart Grid, Microgrids and Wireless Power Transfer System & S28-3 Special Session: Condition Monitoring in Power Electronics and Electrical Machines

Date : December 2, 2022 (Meeting Room III Expidition)

Time : 9.00-10.40

Chair: Uthane Supatti

1570805238	**Triple-Active-Bridge converter Coupling Power control method for Voltage Balancing in Bipolar DC Distribution** Hyung-Jun Byun, Sung-Hun Kim, Junsin Yi, and Chung-Yuen Won *Sungkyunkwan University, Republic of Korea*	On-site
1570816255	**Online Identification Based on Time-Frequency Transformation for Equivalent Virtual Inertia Constant of Wind Farm** Xu Zhang[1], Dan Sun[1], Heng Nian[1], Zhenhua Lv[2], and Xiangyun Fu[2] *[1]Zhejiang University, China* *[2]State Grid Jiangsu Electric Power Co.Ltd, and Research Institute, China*	Online
1570815662	**Transmitter Based Wireless Power Transmission Output Voltage Control Using Virtual 2-phase Strategy** Jae-Gon Yoo and Jong-Soo Kim *Daejin Univercity, Republic of Korea*	On-site
1570806237	**Energy and Capacity Management of Hybrid Energy Storage System Applied to Urban Rail Transit by Nondominated Sorting Genetic Algorithm-II** Deshi Kong and Masafumi Miyatake *Sophia University, Japan*	On-site
1570819428	**Robust Motor Current Signature Analysis (MCSA)-based Fault Detection under Varying Operating Conditions** Dehong Liu, MAHiroshi Inoue, and Makoto Kanemaru *Mitsubishi Electric Corporation, Japan*	Online

I8-8: Motor Control and Motor Drives
Date : December 2, 2022 (Meeting Room IV Passage)
Time : 9.00-10.40
Chair: Vuttipon Tarateeraseth

1570805983	**A Diagnosis Method for Inverter Single Power Switch Open Circuit Fault of Doubly Salient Electromagnetic Motor** Yijun Zhang, Bo Zhou, Wenjing Fang and Weiqian Chen *Nanjing University of Aeronautics and Astronautics, China*	Online
1570806099	**An Optimal Fault-Tolerant Strategy for DSEM Drives System with Open-Circuit Fault on Single Switch of the Bridge Converter** Wenjing Fang, Bo Zhou, Kaimiao Wang, Yijun Zhang and Weiqian Chen *Nanjing University of Aeronautics and Astronautics, China*	Online
1570806251	**Research on Position Sensorless Control of Doubly Salient Electro-magnetic Generator Based on Phase Induced Electromotive Force** Minghui Zhang, Bo Zhou, Kaimiao Wang and Jingchen Huang *Nanjing University of Aeronautics and Astronautics, China*	Online
1570806440	**A Fault Diagnosis Method Based on Optimized Current Sensor Installation Strategy of Power Converter for Doubly Salient Electro-Magnetic Motor** Weiqian Chen, Bo Zhou, Wenjing Fang and Yijun Zhang *Nanjing University of Aeronautics and Astronautics, China*	Online
1570807110	**Self-Searching Maximum Torque per Ampere Working Point Based on Coordinate Tracking** Kewei Sha, Xiaolin Wang, Nanjing and Xuheng Peng *Nanjing University of Aeronautics and Astronautics, China*	Online

I6-2: Magnetics and Field Analysis &
S31-2: Advanced Electric Machines and Drives for Transportation Electrification
Date : December 2, 2022 (Meeting Room V Excursion)
Time : 9.00-10.40
Chair: Theeraphong Srichiangsa

1570815235 **A Current Coordinated Optimal Control Strategy for Doubly Salient Electromagnetic Machine** Online

Xingwei Zhou[1], Peixin Liu[1], Xing Zhao[2], Zhao Tian[3], Jinqi Wan[3], Shuangxia Niu[4]
[1]*Hohai University, China*
[2]*University of York, United Kingdom*
[3]*Industry Innovation Center Co., LTD , China*
[4]*The Hong Kong Polytechnic University, China*

1570816072 **Current Pre-Estimation-based Delay Compensation for Sensorless FCS-MPCC Used in PMSM Drives Over High-Speed Range** Online

Chao Gong[1], Li Ding[1] Yunwei Li[1], and Jiahui Li[2]
[1]*University of Alberta, Canada*
[2]*Zhuji Hechuang Motor Technology Co., Ltd., China*

1570816527 **Thermal Analysis and Cooling Enhancement of a Slotless High-Speed Permanent Magnet Motor Based on CFD** Online

Yuan Wan[1], Lingfeng Zhu[2], Nan Meng[2], Xu Zhang[2], Jian Guo[2], and Qiang Li[2]
[1]*Liyang Research Institute of Southeast University, China and Southeast University, China*
[2]*Nanjing University of Science and Technology, China*

1570815282 **Novel Axial-Gap Bearingless PM Motor with Full Passive Magnetic Suspension by Diamagne** Online

Yoshiki Ozawa[1], Yusuke Fujii[1], Akira Chiba[1], and Haruhiko Suzuki[2]
[1]*Tokyo Institute of Technology, Japan*
[2]*Fukushima College, Japan*

I1-8: Permanent Magnet Motors and Generators &
I8-10: Motor Control and Drives
Date : December 2, 2022 (Ballroom I)
Time : 11.00-12.20
Chair: Burin Kerdsup and Thanh-Anh Huynh (Online)

1570816235 **Influences of Rotor Design on Air-Gap Field Modulation Effect in Spoke-Type Permanent Magnet Machine for Traction Applications** Online

Ya Li, Qinglin Zhou, Shichuan Ding, Hang Jun and Wei Li
Anhui University, China

1570816303 **A Novel Sandwichend Permanent Magnet Switched Flux Machine with E-core Stator Configuration** Online

Sanhong Che[1], Ya Li[2], Zhen Zhao[1] and Heyun Lin[3]
[1]Jiangsu CRRC Electric Co., LTD, China
[2]Anhui University, China
[3]Southeast University, China

1570816603 **Performance Improvement of a Micro Permanent Magnet Motor** Online

Guanglin Li[1], Yongkun Dou[2], Jing Zhao[2], and Wang You[2]
[1]Electromagnetic Material Co., Ltd, China
[2]Beijing Institute of Technology, China

1570807129 **Offline Parameter Identification Strategy of Permanent Magnet Synchronous Motor Considering the Inverter Nonlinearities** Online

Du Pengcheng, Wang Bo, Yu Yong, and Xu Dianguo
Harbin Institute of Technology, China

I1-9: Permanent Magnet Motors and Generators
Date : December 2, 2022 (Ballroom II)
Time : 11.00-12.20
Chair: Satit Owatchaiphong

1570805821 **Sensitivity Analysis, and Design of a Permanent Magnet Synchronous Motor for Actuator Applications** On-site

Ahmed Tameemi[1], Michele Degano[2], Mauro Di Nardo[2], Mukhammed Murataliyev[2], David Gerada[2], and Chris Gerada[2]
[1]Al-Farahidi University, Iraq
[2]University of Nottingham, UK

1570816656 **Accurate FEA-Based Modeling of IPMSMs Operating Under High Magnetic Utilization** On-site

Daniel C. Rodriguez Pinto, Huihui Xu and Rik W. De Doncker
Institute for Power Electronics and Electrical Drives RWTH Aachen University, Germany

1570815970 **Loss Reduction of Dual Air-gap Surface-mounted Permanent Magnet Synchronous Motor** On-site

Reza Heidari[1], Do-Hyun Kang[2], and Kwang-Il Jeong[3]
[1]Kyungsung University, South Korea
[2]VAM Inc, South Korea
[3]Kyungsung University, South KoreaJin-Woo Ahn, Kyungsung University, South Korea

1570816674 **First Step to Optimum Rotor Design for E-Motors with High Power Density for Aircraft Propulsion** On-site

Ralf Johannes Keuter, and Bernd Ponick
Leibniz University Hannover, Germany

I5-2: Linear and Special Machines
Date : December 2, 2022 (Meeting Room II Journey)
Time : 11.00-12.20
Chair: Yuttana Kumsuwan

1570816361	**Proposal of a Novel Inverter Structure for Dual mode Reluctance Motor with Reduced Switching Components** Kangmou He, Kyohei Kiyota, Daichi Makihara, and Akira Chiba *Tokyo institute of technology, Japan*	Online
1570816556	**A Stable Control Method for Free Piston Linear Generator Based on On-line Trajectory Planning** Xinyao Zhao[1], Chi Zhang[1], Yuguo Cui[1], Feixue Chen[2], Tianyou Pei[2], and Wenjie Xiao[2] *[1]China and Ningbo Institute of Materials Technology and Engineering, China* *[2]Ningbo Institute of Materials Technology and EngineeringChinese Academy of Sciences, China*	Online
1570816565	**Comparative Study of Integrated Magnetic Suspension Spherical Induction Motor and Separated Magnetic Suspension Spherical Induction Motor** Wei He, Lei Yang, You Wang and Jing Zhao *Beijing Institute of Technology, China*	Online
1570816585	**Optimization of Integrated Magnetic Suspension Spherical Induction Motor Based on Multi-Physical Field** Wei He, Lei Yang and Jing Zhao *Beijing Institute of Technology, China*	Online

I16-2: Batteries Modeling and Management Systems, Energy Storage Systems &
I21-2: Other Areas in Energy Systems and E-Mobility
Date : December 2, 2022 (Meeting Room III Expidition)
Time : 11.00-12.20
Chair: Nisai Fuengwarodsakul

1570815428	**Optimal Energy Dispatch of Energy Storage Systemas a Shared Infrastructure between DC RailwayNetwork and DC Micro Grid** Mingyu Lyu, Deshi Kong and Masafumi Miyatake *Sophia University, Japan*	On-site
1570817150	**Electric Powertrain Efficiency Improvement for Autonomous Vehicles Using Genetic Algorithms for Optimized Speed Profile Creation** Claudio Hartkopf Lopes Filho, Marco Veliz Castro, Ze Li, Jimi Tjong and Narayan C. Kar *University of Windsor, Canada*	Online
1570806459	**A Method for Improving Initial Driving Vibration of Electric Scooter with Low Resolution Position Sensors** Sanghoon Oh, Haesung Jung, Huiseong Lim, Jinuk Park, and Kwanyoung Lee *Hyundai Kefico Corporation, Korea*	On-site
1570815809	**Development of cooperating system capable of parallel connection with photovoltaic power generation system** Daisuke Minakuchi and Naoki Yamamura *Mie University, Japan*	Online

I8-9: Motor Control and Motor Drives
Date : December 2, 2022 (Meeting Room IV Passage)
Time : 11.00-12.20
Chair: Mongkol Konghirun

1570815848 **Design and Multi-constraint Evaluation of Passive dv/dt Filter for SiC-based Motor Drives** Online

Donglin Xu[1], Ming Yang[1], Jiang Long[1], and Dianguo Xu[2]
[1]Harbin Institute of Technology, China
[2]Power Electronics and Electrical Harbin, China

1570815882 **An Improved Active Damping Strategy based on DOB for SiC-based Motor Drives with Sinusoidal LC Filter** Online

Donglin Xu, Ming Yang, Jiang Long and Dianguo Xu
Harbin Institute of Technology, China

1570819413 **Single Current Sampling & Double Current Update Method for Current Control of Permanent Magnet Synchronous Motor** Online

Shi-Xiang Huo, Chi Zhang and Xin-Dong Shu
Chinese Academy of Sciences, China and Zhejiang University of Technology, China

1570812403 **Accurate Estimation of Rotating Rotor Position Based on Virtual Resistance with Cross-coupling Feedback** On-site

Yoon-Seong Lee, Won-Sang Jeong, Junsin Yi, and Chung-Yuen Won
Sungkyunkwan University, Republic of Korea

I7-3: Other Areas in Electric Machines &
I19-2 :AI Convergence Technology for Electric Machine and Drive
Date : December 2, 2022 (Meeting Room V Excursion)
Time : 11.00-12.20
Chair: Uthen Kamnarn

1570816369 **Verification of Strength Characteristics of Traction Geared Motor Unit on Industrial Conditions** On-site

Genadijs Kobenkins, Marks Marinbahs, Anatolijs Bizans and Olegs Sliskis
Riga Technical University, Latvia

1570819174 **Comparison of Vibration and Noise Characteristics between Radial Flux PMSMs And Axial Flux PMSMs** Online

Mengfei Wei[1], Chi Zhang[2], Yunpeng Gao[2] and Yongzhou Qing[3]
[1]Chinese Academy of Sciences, China and University of Chinese Academy of Sciences, China and Zhejiang Key Laboratory of Robotics and Intelligent Manufacturing Equipment Technology, China
[2]Chinese Academy of Sciences, China and Zhejiang Key Laboratory of Robotics and Intelligent Manufacturing Equipment Technology, China
[3]Ningbo Jingwei Computer Numerical Control Company Limted

1570819720 **Deep Learning System with Data Augmentation for Electric Machinery Fault Diagnosis from Vibration Signals** Online

Sura Kijpaiboonwat[1], Waree Kongprawechnon[1], Nattapon Chayopitak[2], Watchara Siriarporntham[2], Cherdsak Kingkan[2] and Ruchao Pupadubsin[2]
[1]Thammasat University, Thailand
[2]National Electronics and Computer Technology Center, Thailand

1570822043 **Comparison of Radiated EMI Prediction Methods from Measured Common-Mode Currents** On-site

Warathep Padungtin[1] and Vuttipon Tarateeraseth[2]
[1]*Thai Summit Harness Public Company Limited, Thailand*
[2]*Srinakharinwirot University, Thailand*

Poster Presentation (Off Line)

Date : December 1, 2022
Time : 14.00-15.20
Chair : Yuttana Kumsuwan and Uthane Supatti

No.	Paper ID	Paper title
1	1570816534	**Temperature Estimation of a PMSM using a Feed-Forward Neural Network** Stephan Schuller, Mohammad Azeem, Anne von Hoegen and Rik W. De Doncker *RWTH Aachen University Campus-Boulevard, Germany*
2	1570814683	**Performance Comparison between IGBT and SiC Devices in Three-Phase Inverter for High-Speed Motor Drive Applications** Paisak Poolphaka, Ehsan Jamshidpour, Thierry Lubin and Noureddine Takorabet *University of Lorraine, France*
3	1570816855	**Buck-Type Converter Topologies Comparison and Analysis for 22kW-Class Wireless Charging of EV** Jin-Chul Kim, Hyung-Woo Lee, Chan-Bae Park, Jae-Bum Lee, Jae-Hyeon Lim, Seong-Yong Hong, Byung Song Lee and Choung-Seo Kim *Korea National University of Transportation, Korea*
4	1570818284	**Design Method of Coupled Inductor for Multi- Phase Coupled Interleaving Boost Convert** Seok-Min, Hyung-Woo Lee, Chan-Bae Park, Kwang-Woo Chung, Jin-Chul Kim, Seong-Yong Hong and Jae-Bum Lee *Hong Korea National University of Transportation (KNUT), Republic of Korea*

5 **1570815694**

A Study on the Characteristics Change According to the Type of Application of the Rotor Skew of the Interior Permanent Magnet Synchronous Motor

Hong-Rae Noh, Chung-Ho Lee, Hong-Jae Jang and Ki-Chan Kim
Hanbat National University, South Korea

6 **1570819601**

Power Quality Improvement of a Grid Connected Spilt-Phase Induction Generator using Tuned Harmonic Filters and Reactive Power Compensation

Nuttapong Prapurt and Vijit Kinnares
King Mongkut's Institute of Technology Ladkrabang, Thailand

7 **1570819679**

Single-Phase Grid Connected Induction Generator with Soft Starting and Power Quality Improvement

Nuttapong Prapurt and Vijit Kinnares
King Mongkut's Institute of Technology Ladkrabang, Thailand

8 **1570807172**

Study of Pole Changing of a Hybrid Excited Synchronous Machine with Stator Cage Winding

Christian Bratke and Dieter Gerling
Universität der Bundeswehr München, Germany

9 **1570816194**

A Study on the Reduction of Eddy Current Loss at 45kW-class MG-PMSM for tram

Jae-Hyeon Lim[1], Hyung-Woo Lee[1], Chan-Bae Park[1], Jae-Bum Lee[1], Kwangwoo Chung[1], Pil-Wan Han[2] and Seong-Hwi Kim[3]
[1]*Korea National Univ. of Transportation, Republic of Korea*
[2]*Korea Electrotechnology Research Institute (KERI), Republic of Korea*
[3]*Hanyang University, Republic of Korea*

10 **1570817685**

Dual Stator Winding Induction Motor in Regenerative Braking Operation of Electric Vehicles

Satit Owatchaiphong and Narong Thumputi
King Mongkut's University of Technology North Bangkok, Thailand

11 **1570812892**

Impact of Ferromagnetic Yokes on Axial Flux Passively Levitated Self-Bearing Machines

Joachim Van Verdeghem, Adrien Robert, Simon Herrman and Bruno Dehez
Université catholique de Louvain, Belgium

12 **1570815204**

Proposal of a Magnetic-Geared Motor with Controllable Maximum Transmission Torque

Junka Okamoto, Noboru Niguchi and Katsuhiro Hirata
Osaka University, Japan and Mitsubishi Electric Corp, Japan

13 **1570816141**

Reduction of Stator Vibration Acceleration Using One-Axis Actively Positioned Single-Drive Bearingless Motor

Theeraphong Srichiangsa, Hiroya Sugimoto, Yusuke Fujii, Kyohei Kiyota and Akira Chiba
Tokyo Institute of Technology, Japan and Kasetsart University Sriracha Campus, Thailand

14 **1570819427**

Characterization of Dielectric Elastomer Actuators : A Design of Experiments Approach

Quentin De Menech, Stefania Konstantinidi, Armando Walter, Pooneh Mohaghegh, Thomas Martinez and Yves Perriard
Ecole polytechnique fédérale de Lausanne (EPFL), Switzerland

15 1570820308

Improve the Time Response of Shape Memory NiTi Sheets Using Highly Conductive Elastomer Layers

Marjan Ghorbani, Gregoire Lacroix, Sofia Lydia Ntella, Thomas Martinez and Yves Perriard
Ecole polytechnique fédérale de Lausanne (EPFL), Switzerland

16 1570823937

Investigation on Magnetic Property Measurement Method of Solid Specimens Using an Electromagnet

Yanhui Gao[1], Yoshizawa Naoki[1], Hongyun Zhao[1], Yuji Gotoh[1], Weimin Guan[2] and Kazuhiro Muramatsu[3]
[1]Oita University, Japan
[2]Wuhan University, China
[3]Saga University, Japan

17 1570824715

Optimal Design of the Halbach Array of Magnetic Coupling

Ho-Joon Lee[1], Houng-Kun Joung[1] and Chang-Hyun Kim[2]
[1]Cheongju University, South Korea
[2]Kangnam University, South Korea

18 1570816810

Optimal Vector FCS-MPC in Multiple Paralleled Inverters System for PMSM

Yeong-Seop Jang and Rea-Young Kim
Hanyang University, South Korea

19 1570816452

Strength and Vibration Activity Control of Traction Geared Motor Units

Genadijs Kobenkins, Marks Marinbahs, Anatolijs Bizans and Olegs Sliskis
Riga Technical University, Latvia

20 1570819593

Design and Development of the 20 kW Load Bank Set for Performance Testing of Standby Generators

Nuttapong Prapurt and Chaiyaporn Lothongkam
Mahanakorn University of Technology, Thailand

21 1570808164

Influence of Axial Pre-stretch on Tubular Dielectric Elastomer Actuators

A.Benouhiba, A.Walter, T.Martinez, Y.Civet and Y.Perriard
Ecole polytechnique federale de Lausanne (EPFL), Switzerland

22 1570814623

Prediction of the Voltage Distribution in a Inverter-Fed Hairpin Stator Winding

Jochen Dittmann, Cara-Nastasja Behrendt and Bernd Ponick
Leibniz University Hannover, Germany

23 1570815286

Sensitivity Analysis Of The Parameters Of An Analytical Rotor Vibration Model

Dahnoun Larbi[1], Marcand Thomas[1], Rahouadj Rachid[2], Laurent Cédric[2], Dagusé Benjamin[3], Bonnard Charles-Henri[1], Fontchastagner Julien[1], Mezani Smaïl[1] and Takorabet Noureddine[1]
[1]Université de Lorraine and SAFRAN Tech, France
[2]CNRS, France
[3]SAFRAN Tech, France

24 1570815901

A Numerical Investigation on Measurement Accuracy of Thermocouples Mounted on the End Region of Hairpin Windings

Chuan Liu[1], Fengyu Zhang[1], David Gerada[1], Zeyuan Xu[1], Yew Chuan Chong[2], Melanie Michon[2] and Chris Gerada[1]
[1]The University of Nottingham, UK
[2]An ANSYS Company, UK

25 1570812353

Precise Volt-Second Measuring Instrument for Voltage-Source Inverters

Anne von Hoegen*[1], Georg Gotz[1], Nina Hartgenbusch[1], Rik W. De Doncker[1] and Tetsuya Kojima[2]
[1]RWTH Aachen University, Germany
[2]Advanced Technology R&D Center Mitsubishi Electric Corporation, Japan

26 1570819762

A Study on Axial Type Servo Motor for Current Density and Torque Ripple Reduction through Magnet Shape

Junho Kang, Hyunwoo Kim, Dong-Hoon Jung, Chang-Sung Jin, Sung-Hong Won and Ju Lee
Hanyang University, Republic of Korea

27 1570815996

Distributed Windings with Flux Barriers Applied to PM Wind Generators

Christian Roth[1], Gurakuq Dajaku[1], Johannes Gerold[1], Andreas Greifelt[1] and Dieter Gerling[2]
[1]FEAAM GmbH, Germany
[2]Bundeswehr University Munich, Germany

28 1570816298

Comparative study of Characteristics in Conventional PM Motors and PM Vernier Motors

Keishii Shimizu and Shoji Shimomura
Shibaura Institute of Technology, Japan

29 1570818846

Rotor Flux Barrier Design by Topology for Stress Reduction and Extended CPSR of IPMSM for EV Traction Motor

Min-Yeong Woo, Tae-Hyuk Ji, Seah Park and Sang-Yong Jung
Sungkyunkwan University, Republic of Korea

30 1570819219

Investigation of Dual Three-phase Winding Structure Suitable for 48-slot/8-pole Permanent Magnet Synchronous Motor

Akito Yoshida and Kan Akatsu
Yokohama National University, Japan

31 1570825201

Optimal Design Method of Torque Harmonics Reduction for Fractional-Slot Concentrated Winding SPM Motor Based on Kriging Surrogate Model

YoungHyun Choi, Nam-Ho Kim, Seok-Won Jung and Sang-Yong Jung
Sungkyunkwan University, Republic of Korea

32 1570825240

Winding Changeover System with Multi-Phase IPMSM for High-Torque Density and Wide Operating Region

Su-Bin Bae, Han-Joon Yoon, Sung-Bae Jun, Seok-Won Jung and Sang-Yong Jung
Sungkyunkwan University, Republic of Korea

33 1570819006

Improved Model Predictive Control for Asymmetric Flying Capacitor 3-Level Inverter to Balance Capacitor Voltages and Reduce Computational Burden

Nam Xuan Doan and Nho Van Nguyen
Ho Chi Minh City University of Technology,VNUHCM, Vietnam

34 1570815828

Development of Converter and Control System for Variable Speed Permanent Magnet Synchronous Generator in Small Hydro Power Plant Model

Chatchaphong Thanajitr, Sompob Polmai and Supat Kittiratsatcha
King Mongkut's institute of Technology Ladkrabang, Thailand

35 1570819695

Modeling and Evaluation of a Solar-powered Electric Vehicle Charging Station in a Public Transportation System

Rovinna Janel Cruzate, Brandon Jamos Cipriano, John Cyril Calub and Lew Andrew Tria
UP Electrical and Electronics Engineering Institute, Philippines

36 1570815849

A Feasibility Study on the Hybrid Renewable Energy Microgrid System Configuration Considering Carbon Neutrality

Cherl-Jin Kim[1], Sang-Won Park[1], Gu-Bok Cho[2], Heung-Kyo Shin[3] and Hong-Soon Chang[4]
[1]*Tech University of Korea, Republic of Korea*
[2]*Enerpark Co.,Ltd, Republic of Korea*
[3]*Gyeongsan National University, Republic of Korea*
[4]*Tech University of Korea, Republic of Korea*

37 1570816277 **Design and Analysis of T-L Stator-Rotor Pole Combination of Outer-Rotor SRM Considering Dynamic Torque Characteristic**

Grace Firsta Lukman, Kwang-Il Jeong and Jin-Woo Ahn
Kyungsung University, Korea

38 1570816016 **New Design of Antenna Array for Bluetooth Direction Finding**

Pooneh Mohaghegh, Alexis Boegli and Yves Perriard
Integrated Actuators Laboratory (LAI), Switzerland and IEEE Senior Member

39 1570822698 **The Development of DC-Nano Grid with WideRange Wireless Power Transfer for Evs**

Worapong Pairindra[1], Surin Khomfoi[1], Noureddine Takorabet[2] and Phatiphat Thounthong[3]
[1]KMITL, Thailand
[2]Université de Lorraine, France
[3]King Mongkut's University of Technology North Bangkok, Thailand

40 1570823892 **Long Distance Contactless Power Transmission in Seawater**

Taisei Takada, Shinnosuke Ito, Keigo Uehara and Mamiko Inamori
Tokai University, Japan

41 1570818872 **A Study on Harmonic Reduction According to the Combination of the Number of Pole/slots of an External Synchronous Generator for Drones**

Jungwon Kim, Junho Kang, Dong-Hoon Jung, Chang-sung Jin, Sung-Hong Won, and Ju Lee
Hanyang University, Republic of Korea

42 1570802914 **Design and Analysis of the 2-line Perpendicular Permanent Magnet Double-Sided Linear Synchronous Motor to Increase the Thrust/Weight**

Chang-Eob Kim[1], Byung-Chan Kim[2] , and Min-Seok Kim[1]
[1]Hoseo University, Korea
[2]FieldRo Tech, Korea

Poster Presentation (On Line)

Date : November, 30 - December 2, 2022
Time : Online

No.	Paper ID	Paper title
1	1570805901	**Multi-objective Optimization Design of DC-Biased Dual PM Hybrid-Excited Machine** Wang Jinyu, Li Hongmei, Wang Jiabing, Yang Liguo and Liu Liwen *HeFei University of Technology, China*
2	1570806037	**Thermal Analysis of Permanent Magnet Synchronous Motor Based on Equivalent Thermal Network Method** Jiapu Zhao and Xinzhen Wu *Qingdao University, China*
3	1570806042	**Simulation on Application of Flywheel Energy Storage System to Reduce DC Traction Network Voltage Fluctuation during Subway Braking** Yujie Feng and Xinzhen Wu *Qingdao University, China*
4	1570806994	**A Diagnosis Method for Inter-turn Short-circuit Fault of A Nine-phase Permanent Magnet Synchronous Motor Based on Search Coil** Xinyang Lv and Xiaoqin Zheng *Qingdao University, China*
5	1570807075	**Flux Modulated Permanent Magnet Generator Optimization with Improved Gray Wolf Algorithm** Hongwei Fang and Shuxian Zha *Tianjin University, China*
6	1570807084	**Modeling and Analysis of Five-phase Fault-tolerant Permanent Magnet Vernier Machine with Equivalent Magnetic Network Method** Hongwei Fang and Ziyan Li *Tianjin University, China*

7 1570807206 **Research on Cryogenic Cooling System of Electric Rocket Pump Driving System**

Jiangtao Wu, Jiwei Cao, Yuchen Song, Yuqing Liu and Liyi Li
Harbin Institute of Technology, China

8 1570808044 **Eddy Current Loss Reduction and Thermal Analysis of Ultrahigh-Speed Bearingless Permanent Magnet Synchronous Motor**

Xiaoyuan Wang, Tian Yu, Na Li and Yuhao Xu
Tianjin University, China

9 1570814764 **Electromagnetic Performance Analysis of Doubly Salient Tooth Pole Excitation motor**

Hongxu Liu, Zhiliang Wang, Yong Wu and Lin Guo
Beijing Electro-Mechanical Engineering Institute, China

10 1570815641 **Influence of Stator Tooth-tip Shape on Power Factor of Surface-Mounted Permanent-Magnet Field Modulation Motor**

Zhen Wei, Xianglin Li, Yingjie Tan, Xiaosong Wang and Bo Yan
Qingdao University, China

11 1570816009 **Thermal Modeling and Analysis of Axial Flux Permanent Magnet Machine with PCB Stator**

Xiaoyuan Wang, Chunxia Yin and Tianyuan Li
Tianjin University, China

12 1570816084 **Structural Parameter Optimization for Free Dual-piston Linear Generator Based on Impedance Matching**

Wenjie Xiao[1], Chi Zhan[1], Feixue Chen[1], Tianyou Pei[1] and Xinyao Zhao[2]
[1]*Chinese Academy of Sciences, China*
[2]*Ningbo University, China*

13 1570819483 **Design and Analysis of High Torque Density Permanent Magnet Synchronous Motor Based on Heat Pipe**

Feng Chai, Yongqi Cao and Yulong Pei
Harbin Institute of Technology, China

14 1570819667

Electromagnetic Topology Principle and Control Simulation of a New Bearingless Permanent Magnet Synchronous Motor with Distributed winding

Caiquan Wu, Weiwei Geng and Qiang Li
Nanjing University of Science and Technology, China

15 1570819690

Parasitic Capacitance Calculation by Electric Field Decomposition Method for Electric Motor

Chan-Ho Kim, Han-Joon Yoon and Sang-Yong Jung
Sungkyunkwan University, South Korea

16 1570820054

Design and Analysis of Flux-Intensifying Spoke-Type IPM Motor for Improving Output Torque and Flux-Weakening Performance

Viet-Vu Do, Thanh-Anh Huynh and Min-Fu Hsieh
National Cheng Kung University, Taiwan

17 1570823207

Design and Optimization of a Variable Flux Hybridpermanent Magnet Synchronous Machine

Yusheng Hu, Huijun Wei, Xumin Zhao, Bo Zhou, Hui Zhang and Huajie Chen
Gree electric appliances inc. of zhuhai, China

18 1570823537

Vibration Reduction of IPMSM with Asymmetric Rotor Shape under Load Condition

Seok-Won Woo[1], Jae-Hyun Kim[2], Jin-Cheol Park[2], Soo-Hwan Park[2] and Myung-Seop Lim[2]
[1]LG Magna e-Powertrain Co., Ltd, Republic of Korea
[2]Hanyang University, Republic of Korea

19 1570801683

Simulation of the 3-phase Induction Motors with Skewed Rotor Slots for Reducing Torque Ripple by the 3-D Finite Element Method

Somsak Watcharakhup, Adisorn Polsena and Chakrit Panpean
Rajamangala University of Technology Isan, Thailand

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