Poster Session

TP Poster Session

Session Date	May 20 (Tue.), 2025
Session Time	14:30-16:00
Session Room	Room C (103+104)
Session Chair(s)	Prof. Ki-Chan Kim (Hanbat National University, Korea) Prof. Sun-Ki Hong (Hoseo University, Korea) Prof. Han-wook Cho (Chungnam National University, Korea) Prof. Minro Park (Soonchunhyang University, Korea) Prof. Jin-hwan Lee (Chonnam National University, Korea)

TP_01

Optimal Design and Analysis of Permanent Magnet Linear Synchronous Motor Considering Cogging Force

Ha-Jin Kim, Gang-Hoon Kim, and Dong-Kuk Lim

University of Ulsan, Korea

TP_02

Impact Analysis of the Optimization Strategies of the Permanent Magnet Linear Synchronous Motor with Auxiliary Teeth and Compensation Coils

Ye Zhao, He Zhang, Junren Mu, and Yuhang Liu

Harbin Institute of Technology, China

TP_03

Analysis of Improved Core Loss and Three-Dimensional Analysis for PMLSG Stator Considering Magnetic End Effects

Soo-Jin Lee[1], Seong-Won Kim[1], Chang-Woo Kim[3], Hyun Sup Yang[4], Kyung-Hun Shin[2], and Jang-Young Choi[1]

[1]Chungnam National University, Korea, [2]Changwon National University, Korea, [3]Chungnam State University, Korea, [4]Hanon Systems, Korea

TP_04

Comparison and Experimental Validation of Magnetization Arrays in Double-Sided Permanent Magnet Linear Synchronous Machines

Hwi-Rang Ban[1], Min-Gyu Park[3], Kyung-Hun Shin[2], and Jang-Young Choi[1]

[1]Chungnam National University, Korea, [2]Changwon National University, Korea, [3]Hanon Systems, Korea

TP_05

Design of Permanent Magnet Linear Motor Using Grain-Oriented Electrical Steel for Thrust Enhancement and Normal Force Ripple Reduction

Taek-Hyo Nam, Hye-Won Yang, Dong-Hyeon Park, In-Seok Song, Seah Park, and Sang-Yong Jung

Sungkyunkwan University, Korea

TP_06

No-Load Magnetic Field and Cogging Force Calculation in Linear Permanent Magnet Vernier Motor Using Subdomain Model

Young-Ho Hwang[1], Nam-Ho Kim[1], Seok-Won Jung[1], Jin-hwan Lee[2], and Sang-Yong Jung[1]

[1]Sungkyunkwan University, Korea, [2]Chonnam National University, Korea

TP_07

Integration of Coil Winding Process into Linear Oscillating Actuators Design

Du-Ha Park[1], Seong-Hyeon Kim[1], Jin-Ho Choi[1], Ji-Hyeon Lee[1], Soo-Hwan Park[2], and Myung-Seop Lim[1]

[1]Hanyang University, Korea, [2]Dongguk University, Korea

TP_08

Effect of Manufacturing Tolerances on Thrust Ripple in Coreless Permanent Magnet Linear Synchronous Motor

Hye-Won Yang, In-Seok Song, Dong-Hyeon Park, Taek-Hyo Nam, and Sang-Yong Jung

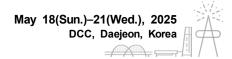*Sungkyunkwan University, Korea*

TP_09

Performance Comparison and Study of a Nover Design of Dual Side-Permanent Magnet Linear Motor Using SMC Core

Chang-Hyeon Wang, Jae-Hoon Cho, Ho-Jin Oh, Daeseon Cheo, Seok-Won Jung, and Sang-Yong Jung

Sungkyunkwan University, Korea

TP_10

Thrust Ripple Reduction in Linear Synchronous Motor through Notch Implementation

Yong-Jun Kwon, Nam-Ho Kim, Ho-Jin Oh, and Sang-Yong Jung

Sungkyunkwan University, Korea

TP_11

Novel Design Strategies of One Coil Type Permanent Magnet Actuator for Offshore Wind Power System

Jin-Seok Kim, Hyoung-Kyu Yang, and Jin-Hong Kim

Korea Electronics Technology Institute, Korea

TP_12

Vibration Characteristics in Tubular Linear Induction Motor Based on Electromagnetic-Mechanical Coupled Analysis

Kyu-Seob Kim[1], Hye-Seong Kim[2], Yong-Min Lee[2], Dong-Hoon Ko[2], and Min-Ro Park[2]

[1]Gyeongsang National University, Korea, [2]Soonchunhyang University, Korea

TP_13

A Comparative Study of Dual Mover and Dual Stator Linear Oscillating Actuator Considering Mechanical Resonance in Linear Compressor

Soo-Hwan Park[1], Ji-Hyeon Lee[2], Du-Ha Park[2], Jaehoon Jeong[3], and Myung-Seop Lim[2]

[1]Dongguk University, Korea, [2]Hanyang University, Korea, [3]LG Electronics Co., Ltd., Korea

TP_14

Shaft Voltage Analysis Considering Force Ripple in SPMLSM Based on Stator Notch Design

Han-Joon Yoon[1], Chang Hyeon Wang[1], Jin-hwan Lee[2], Seok-Won Jung[1], and Sang-Yong Jung[1]

[1]Sungkyunkwan University, Korea, [2]Chonnam National University, Korea

TP_15

Optimal Design of the Detent Force Reduction in a Permanent Magnet Linear Synchronous Machine

Jun-Beom Park[1], Jun-Ho Jang[1], Min-Mo Koo[3], Hyun-Sup Yang[4], Kyung-Hun Shin[2], and Jang-Young Choi[1]

[1]Chungnam National University, Korea, [2]Changwon National University, Korea, [3]Korea Institute of Industrial Technology, Korea, [4]Hanon Systems, Korea

TP_16

Design and Analysis of Linear Induction Motors for Maglev Trains

Jun-Ho Jang[1], Jun-Won Yang[1], Hyeon-Jae Shin[2], Min-Gyu Park[3], Kyung-Hun Shin[4], and Jang-Young Choi[1]

[1]Chungnam National University, Korea, [2]Korea Institute of Industrial Technology, Korea, [3]Hanon Systems, Korea, [4]Changwon National University, Korea

TP_17

Design and Experimental Evaluation of a 3kW Single-Phase Linear Permanent Magnet Generator for Stirling Engine Applications

Seong-Won Kim[1], Min-Gyu Park[3], Kyung-Hun Shin[2], and Jang-Young Choi[1]

[1]Chungnam National University, Korea, [2]Changwon National University, Korea, [3]Hanon Systems, Korea

TP_18

Design of Linear Equivalent 2-D Finite Element Analysis Model for AFPMM Considering the End Effects in Radial Direction

Jae-Seung Lee, Mun-Seok Jang, Si-Uk Jung, and Jae-Woo Jung

Daegu University, Korea

TP_19

Hybrid Method for Calculating AC Copper Losses in Permanent Magnet Linear Synchronous Motors

Nam-Ho Kim[1], Yong-Ho Hwang[1], Yong-Jun Kwon[1], Seok-Won Jung[1], Jin-hwan Lee[2], and Sang-Yong Jung[1]

[1]Sungkyunkwan University, Korea, [2]Chonnam National University, Korea

TP_20

One-Step Method for Reducing the Computational Time of PMLSM Analysis

Seung-Hwan Oh and Dong-Kuk Lim

University of Ulsan, Korea

TP_21

Optimal Design of a Permanent Magnet Linear Synchronous Motor for Thrust Ripple Reduction Based on Machine Learning

Ji-Sung Lee, Seung-Hwan Oh, and Dong-Kuk Lim

University of Ulsan, Korea

TP_22

Analysis and Consideration of Thrust Changes of Steel-Cored Permanent Magnet Linear Synchronous Motors with Different Pole Pitches

Na Mo Choi and Sung Il Kim

Hoseo University, Korea

TP_23

A Comparative Study of Multi-Objective Optimization in Linear Oscillating Actuators

Du-Ha Park[1], Seong-Hyeon Kim[1], Jin-Ho Choi[1], Ji-Hyeon Lee[1], Soo-Hwan Park[2], and Myung-Seop Lim[1]
[1]Hanyang University, Korea, [2]Dongguk University, Korea

TP_24

Performances Analysis of Linear Oscillating Actuator with Dual Stator Topology

Jin-Ho Choi[1], Ji-Hyeon Lee[1], Du-Ha Park[1], Seong-Hyeon Kim[1], Soo-Hwan Park[2], and Myung-Seop Lim[1]
[1]Hanyang University, Korea, [2]Dongguk University, Korea

TP_25

Improved Loss Analysis Method Considering Core Anisotropy and AC Copper Loss in Linear Oscillating Actuator

Jin-Ho Choi[1], Ji-Hyeon Lee[1], Du-Ha Park[1], Seong-Hyeon Kim[1], Soo-Hwan Park[2], and Myung-Seop Lim[1]
[1]Hanyang University, Korea, [2]Dongguk University, Korea

TP_26

Comparison of Prediction Accuracy between Kriging and Deep Neural Network Surrogate Models for Design Optimization of Linear Oscillating Actuators

Seong-Hyeon Kim[1], Du-Ha Park[1], Jin-Ho Choi[1], Soo-Hwan Park[2], and Myung-Seop Lim[1]
[1]Hanyang University, Korea, [2]Dongguk University, Korea

TP_27

Novel Design Strategies of Two-Coil Type Permanent Magnet Actuator Considering Nonlinear Dynamics for Circuit Breaker in 66kV Offshore Wind Power System

Jin-Seok Kim, Hyoung-Kyu Yang, and Jin-Hong Kim
Korea Electronics Technology Institute, Korea

TP_29

A Novel Superconducting Linear Motor Used on High Speed Maglev System

Liao Zhiming and Zhao Huahua
Tongji University, China

TP_30

A Multirate Model Predictive Current Control of GaN Power Amplifiers for Voice Coil Motors

Yu-Xiang Xie[1], Guang-Zhong Cao[1], Hong-Jin Hu[1], Su-Dan Huang[1], and Deliang Liang[2]

[1]Shenzhen University, China, [2]Xi'an Jiaotong University, China

TP_32

Sensorless Control of PMLSM Based on a Novel Adaptive Super-Twisting Sliding Mode Observer

Yinze Hou, Yanxin Li, and Qinfen Lu

Zhejiang University, China

TP_33

Three-Vector Model Predictive Thrust Control of Linear Flux Switching Permanent Magnet Motor with Load Force Observer

Xiang Wang, Long Fang, Mingyang Chen, and Ruiwu Cao

Nanjing University of Aeronautics and Astronautics, China

TP_34

Research on Position Detection Method of Secondary Segmented-Linear Flux Switching Permanent Magnet Motor Based on Linear Hall

Long Fang, Mingyang Chen, Xiang Wang, and Ruiwu Cao

Nanjing University of Aeronautics and Astronautics, China

TP_35

PI Gain Control Method Utilizing Inductive Characteristics of MR Dampers

Si-Uk Jung[1], Sung-Hyun Park[2], Byeong-Hwa Lee[2], and Jae-Woo Jung[1]

[1]Daegu University, Korea, [2]Korea Automotive Technology Institute, Korea

TP_36

Position Sensorless Control of PMLSM Based on Disturbance Observer

Geon-Hui Hyeong and Young-Wook Kim

Chungbuk National University, Korea

TP_37

Vibration Analysis of Electrodynamic Suspension Train Propulsion Systems: A Comparison Between Double-Layer and Single-Layer Coil Configurations

Huan Huang, Yougang Sun, Junqi Xu, and Guobin Lin

Tongji University, China

TP_38

Analysis of Traction Force for High-Speed Maglev under Steady-State Levitation

Yu Jin, Zhiming Liao, Xiaohua Wang, and Hao Ding

Tongji University, China

TP_39

Influence of the Rotational Stability by Adding Weight to the Rotor in the HTS Magnetic Bearing System

Togo Tagami, Keigo Yagi, Ken-ichi Kondo, and Shunsuke Ohashi

Kansai University, Japan

TP_41

A Novel Algorithm of Force Distribution to Reduce Force Coupling for the Six-Degree-of-Freedom Maglev Planar Motors

Chao Wang and Guang-Zhong Cao

Shenzhen University, China

TP_43

Thrust Ripple Reduction Technique Using Asymmetric Mover Structure in Double-Sided Spoke-Type Linear Synchronous Motor

Dong-Hyeon Park, Hye-Won Yang, Young-Ho Hwang, Taek-Hyo Nam, and Sang-Yong Jung

Sungkyunkwan University, Korea

TP_44

Electromagnetic Characteristic Regression Model for PMLSM Based on Convolutional Neural Network with Attention Mechanism

In-Seok Song, Tae-Hyuk Ji, and Sang-Yong Jung

Sungkyunkwan University, Korea

TP_45

Analysis of Electromagnetic Considering the End Effect of Linear Magnetic Gears Based on Subdomain Method

Seok–Hyeon Eom[1], Hwi–Rang Ban[1], Jeong–In Lee[3], Hyun Sup Yang[4], Kyung–Hun Shin[2], and Jang–Young Choi[1]

[1]Chungnam National University, Korea, [2]Changwon National University, Korea, [3]Hyundai Transys, Korea, [4]Hanon Systems, Korea

TP_46

Analytical and Experimental Study of Tubular Linear Machine with Axially Magnetized Double–Sided Permanent Magnets and Slotless Armature Coil

Kyung–Hun Shin[1], Mingyu Park[2], Kyunghun Jung[2], and Jang–Young Choi[3]

[1]Changwon National University, Korea, [2]Hanon Systems, Korea, [3]Chungnam National University, Korea

TP_47

Performance Analysis of an Asymmetric Overhang Outer–Rotor Permanent Magnet Synchronous Motor under Z–Axis Linear Force

Jae–Gak Shin, Tae–Su Kim, Seong–Han Ryu, Jeong–Hun Park, and Ki Chan Kim
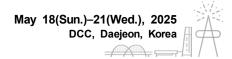
Hanbat National University, Korea

TP_48

Electromagnetic Drag Force Analysis of Hyperloop Tube According to the B–H Curve Characteristics of Steel Tube

Seong–Hwi Kim[1], Ju Lee[1], Wooyeon Cho[2], and Hyung–Woo Lee[3]

[1]Hanyang University, Korea, [2]POSCO Co., Ltd., Korea, [3]Korea National University of Transportation, Korea

TP_49

A Linear Position Correction Method for Inductive Displacement Sensor in Inter–Segment Movement

Mingyang Chen, Long Fang, Xiang Wang, and Ruiwu Cao

Nanjing University of Aeronautics and Astronautics, China

TP_50

Optimal Design of Magnetic Module in Novel Trunk Locking System for Reducing Magnet Rotation Torque

Jae–Hoon Cho[1], Hyun–Woo Wui[1], Ho–Jin Oh[1], Kyoung Taek Kwak[2], Moo Seok Kwak[2], Kyeong Jun Lim[2], Jae Seung Lee[2], Jin Ho Hwang[2], Dong Hwan Lim[2], Seok–Won Jung[1], and Sang–Yong Jung[1]

[1]Sungkyunkwan University, Korea, [2]Hyundai Motor Company, Korea

TP_51

Analysis of Force and Losses Based on the Position and Length of the Ferromagnetic Pole Piece in a Linear MG

Taeyun Ha and EuiJong Park

Chosun University, Korea

TP_52

Optimization of Motor to Reduce Axial and Radial Runout of the Direct Drive Motor

Rongping Fan, JuanJuan Cao, Shuhua Wang, Bian Zhang, and Yongjian Jin

Yokokawa Robotics (Shenzhen) Co., Ltd., China

TP_53

End Teeth Topology Optimization of PMLSM Using Normalized Gaussian Network

Jiaqi Hong, Lize Wu, Yanxin Li, and Qinfen Lu

Zhejiang University, China

TP_54

Torque Ripple Optimization of Arc Linear Permanent Magnet Synchronous Motor with Subdomain Model

Kai Zhang[1,2], Yingquan Liu[1], and Junyong Lu[1]

[1]Naval University of Engineering, China, [2]Zhejiang University, China

TP_55

Analysis of Sensorless Control Applicable to Linear Motor: Methods and Applications

AReum Kang and Jae Suk Lee

Jeonbuk National University, Korea

TP_56

Semi-Active Control of Superconducting Electrodynamic Suspension Train Based on Magnetorheological Damper

Piji Feng, Guangtong Ma, Zhenhua Su, Libin Cui, Taoning Zhu, and Jun Luo

Southwest Jiaotong University, China

TP_57

Feasible Design and Operating Investigations for Fast Wireless Power Charging Module Using Supercapacitor Unit in the High-Speed Superconducting Levitation Hyperloop Train

Yoon Do Chung[1] and Chang Young Lee[2]

[1]Suwon Science College, Korea, [2]Korea Railroad Research Institute, Korea

TP_58

Modelling and Analysis of Double-Layer Harmonic Linear Generator for Superconducting Electrodynamic Suspension Integrated with Propulsion, Levitation and Guidance

Zhenhua Su, Guangtong Ma, Jun Luo, Piji Feng, and Libin Cui

Southwest Jiaotong University, China

TP_59

Dynamic Characteristic Analysis of Linear Induction Motors Applying Various Skew Method

Jin-hwan Lee[1], Ho-Chang Jung[2], Jung-Hyung Park[3], Yong-Jae Kim[4], and Sang-Yong Jung[5]

[1]Chonnam National University, Korea, [2]Korea Automotive Technology Institute, Korea, [3]Korea Research Institute of Ships & Ocean Engineering, Korea, [4]Chosun University, Korea, [5]Sungkyunkwan University, Korea

TP_60

Theoretical Modelling of Permanent Magnet Linear Eddy Current Brake Based on Equivalent Circuit

Libin Cui, Jun Luo, Zhenhua Su, Piji Feng, Guanglai Huang, and Guangtong Ma

Southwest Jiaotong University, China

TP_61

Asymmetric Mover Design for Mitigating Detent Force and Thrust Ripple of Spoke-Type Permanent Magnet Linear Synchronous Machine

Hyeon-Taek Oh, Jong-Seok Seon, and Han-Kyeol Yeo

Konkuk University, Korea

TP_62

Coupling Magnetic Field Analysis of Teeth Slot and Longitudinal End Effects for Long Primary Double-Sided Linear Induction Motor

Tianping Li[1,2], Liming Shi[1,2], Yaohua Li[1,2], Zeyu Yang[1], Jinhai Liu[1,2], and Ganlin Kong[1,2]
[1]Chinese Academy of Sciences, China, [2]University of Chinese Academy of Sciences, China

TP_63

Investigation of Braking Characteristics in Dual-Winding Rail Eddy Current Braking System with AC Excitation

Xu Niu, Baoquan Kou, and Junren Mu
Harbin Institute of Technology, China

TP_64

Thrust Ripple Suppression in Spoke-Type Permanent-Magnet Linear Synchronous Machine with Arc-Shaped Mover Pole

Jong-Seok Seon, Hyeon-Taek Oh, and Han-Kyeol Yeo
Konkuk University, Korea

TP_65

Influence of Novel Secondary Structure on the Performance of LP-DSLIM

Zhuo Zhang[1,2], Yumei Du[1,2], Liming Shi[1,2], and Ruihua Zhang[1,2]
[1]Chinese Academy of Sciences, China, [2]University of Chinese Academy of Sciences, China