



## [MO1] Electromagnetic Linear Motors and Actuators

Session Date May 19 (Mon.), 2025

Session Time 11:10–12:50

Session Room Room A (101)

[MO1\_01]

11:10–11:30

High-Speed Single-Sided Linear Induction Motors-Part I: Analytical Model and Experimental Facility

Simone Rametti, Lucien Pierrejean, André Hodder, and Mario Paolone

*Swiss Federal Institute of Technology Lausanne, Switzerland*

[MO1\_02]

11:30–11:50

Prediction of Electromechanical Dynamic Characteristics of Voice Coil Actuator for Circuit Breaker

Ki-O Kim<sup>1</sup>, Jinho Choi<sup>1</sup>, Seong-Hyeon Kim<sup>1</sup>, Du-Ha Park<sup>1</sup>, Jun-Yeol Ryu<sup>2</sup>, and Myung-Seop Lim<sup>1</sup><sup>1</sup>*Hanyang University, Korea*, <sup>2</sup>*Korea Automotive Technology Institute, Korea*

[MO1\_03]

11:50–12:10

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

Zhuo Zhang<sup>1,2</sup>, Yumei Du<sup>1,2</sup>, Liming Shi<sup>1,2</sup>, and Ruihua Zhang<sup>1,2</sup><sup>1</sup>*Chinese Academy of Sciences, China*, <sup>2</sup>*University of Chinese Academy of Sciences, China*

[MO1\_04]

12:10–12:30

Study of the Basis for Improving the Charging Characteristics Using LC Resonance in the Vertical Linear Vibration Generator

Hodaka Kojima, Eiji Shirahama, Shinjiro Araki, Ken-ichi Kondo, and Shunsuke Ohashi

*Kansai University, Japan*

[MO1\_05]

12:30–12:50

Ultra-High Speed Linear Induction Motor Design for Low Vacuum Tube Transportation

Xiao Hua Wang, Zhi Ming Liao, and Yu Jin

*Tongji University, China*



## [MO2] Power Electronics and Control Methods for Linear Drives

Session Date May 19 (Mon.), 2025

Session Time 11:10–12:50

Session Room Room B (102)

[MO2\_01]

11:10–11:30

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

Yinze Hou, Yanxin Li, and Qinfen Lu

*Zhejiang University, China*

[MO2\_02]

11:30–11:50

Measures Against Overshooting During Levitation and Propulsion Control of Linear Induction Motors

Takumu Horimoto, Soma Jinno, Hidehito Matayoshi, and Toshimitsu Morizane

*Osaka Institute of Technology, Japan*

[MO2\_03]

11:50–12:10

Full Electrical Parameter Identification Method for PMLSM Based on Triangular Wave Injection And Considering Current Differential Terms

Huanchen Guo, Zhixun Ma, and Haichuan Niu

*Tongji University, China*

[MO2\_04]

12:10–12:30

Improvement in Efficiency through Compression Ratio Adjustment in Free-Piston Engine Linear Generator

Kyosuke Hayakawa<sup>1</sup>, Tsutomu Mizuno<sup>1</sup>, Mitsuhide Sato<sup>1</sup>, Yuhei Sakane<sup>2</sup>, Kaname Naganuma<sup>2</sup>, and Ken Enya<sup>3</sup>

<sup>1</sup>*Shinshu University, Japan*, <sup>2</sup>*Kanazawa Institute of Technology, Japan*, <sup>3</sup>*Enya Manufacturing Co., Ltd., Japan*

[MO2\_05]

12:30–12:50

Primary Total Flux Orientation Control Method for Segmented Parallel-Connected Long Primary Double-Sided Linear Induction Machine Driven by a Single Inverter

Maixin Zhang<sup>1</sup>, Wei Xu<sup>2</sup>, Kaiju Liao<sup>2</sup>, Yirong Tang<sup>1</sup>, Liming Shi<sup>2</sup>, Yaohua Li<sup>2</sup>, and Dayi Li<sup>1</sup>

<sup>1</sup>*Huazhong University of Science and Technology, China*, <sup>2</sup>*Chinese Academy of Sciences, China*



## [MO3] Electromagnetic Linear Motors and Actuators

Session Date May 19 (Mon.), 2025

Session Time 14:20–16:00

Session Room Room A (101)

[MO3\_01]

14:20–14:40

Development of a Scale Vehicle to Test and Analyze the Performance of a Homopolar Linear Motor and its Electromagnetic Levitation System

David Melly<sup>1</sup>, Valentin Pasche<sup>2</sup>, Vincent Bourquin<sup>2</sup>, and Samuel Chevailler<sup>1</sup>

<sup>1</sup>University of Applied Sciences and Arts Western Switzerland Valais, Switzerland, <sup>2</sup>School of Engineering and Architecture of Fribourg, Switzerland

[MO3\_02]

14:40–15:00

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

Kai Zhang<sup>1,2</sup>, Yingquan Liu<sup>1</sup>, and Junyong Lu<sup>1</sup>

<sup>1</sup>Naval University of Engineering, China, <sup>2</sup>Zhejiang University, China

[MO3\_03]

15:00–15:20

Reliability-Based Robust Design Optimization of Magnetic Locking System for Automobile Trunks Using PSO Algorithm

Hyun-Woo Wui<sup>1</sup>, Jae-Hoon Cho<sup>1</sup>, Ho-Jin Oh<sup>1</sup>, Kyoung taek Kwak<sup>2</sup>, Moo seok Kwak<sup>2</sup>, Kyeong Jun Lim<sup>2</sup>, Jae Seung Lee<sup>2</sup>, Jin Ho Hwang<sup>2</sup>, Dong Hwan Lim<sup>2</sup>, Seok-Won Jung<sup>1</sup>, and Sang-Yong Jung<sup>1</sup>

<sup>1</sup>Sungkyunkwan University, Korea, <sup>2</sup>Hyundai Motor Company, Korea

[MO3\_04]

15:20–15:40

Research on Tubular Linear Permanent Magnet Vernier Motor for Automobile Active Electromagnetic Suspension

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

Harbin Institute of Technology, China

[MO3\_05]

15:40–16:00

Research on Double Side Linear Synchronous Motor Scheme for High-Speed Propulsion

Wenbai Zhang and Guobin Lin

Tongji University, China



## [MO4] Power Electronics and Control Methods for Linear Drives

Session Date May 19 (Mon.), 2025

Session Time 14:20–16:00

Session Room Room B (102)

[MO4\_01]

14:20–14:40

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

AReum Kang and Jae Suk Lee

*Jeonbuk National University, Korea*

[MO4\_02]

14:40–15:00

Modeling the Transient Switching Process of Stator Segments in Series–Fed Long Primary Dual Three–Phase Linear Induction Motor

Yuchen Liang<sup>1,2</sup>, Liming Shi<sup>1,2</sup>, Zixin Li<sup>1,2</sup>, Manyi Fan<sup>1</sup>, Jinhai Liu<sup>1,2</sup>, and Ganlin Kong<sup>1,2</sup><sup>1</sup>*Chinese Academy of Sciences, China*, <sup>2</sup>*University of Chinese Academy of Sciences, China*

[MO4\_03]

15:00–15:20

Thrust Ripple Compensation and Disturbance Rejection Control Method for Permanent Magnet Linear Synchronous Machines

Ziyu Zou, Qinfen Lu, and Yanxin Li

*Zhejiang University, China*

[MO4\_04]

15:20–15:40

A Study on Performance Improvement of Saliency–Based Position Sensorless Drive for Permanent Magnet Linear Synchronous Motor

Tadashi Hirayama<sup>1</sup> and Kuniaki Muto<sup>2</sup><sup>1</sup>*Kogakuin University, Japan*, <sup>2</sup>*Kagoshima University, Japan*

[MO4\_05]

15:40–16:00

Model–Free Predictive Direct Speed Control for Maglev Transportation Long Stator Linear Motor

Haichuan Niu, Zhixun Ma, Jian Huang, and Guobin Lin

*Tongji University, China*



## [MO5] Electromagnetic Linear Motors and Actuators

Session Date May 19 (Mon.), 2025

Session Time 16:20–18:00

Session Room Room A (101)

[MO5\_01]

16:20–16:40

Analysis of Demagnetization Limits for a Limited Angle Rotary Voice Coil Motor

Metin Aydin and Emre Cevik

*Kocaeli University, Turkiye*

[MO5\_02]

16:40–17:00

Trust Ripple Reduction of PMLSM Considering Magnetic Saturation Under Load Condition by Frozen Permeability Method

In-Seok Song, Taek-Hyo Nam, Young-Ho Hwang, Hyung-Woo Kim, Seok-Won Jung, and Sang-Yong Jung

*Sungkyunkwan University, Korea*

[MO5\_03]

17:00–17:20

An Improved Sensorless Control Method for Distributed Chain Winding LSLSM Applied in High-Speed Maglev Trains

Zicong Zhang, Guobin Lin, Zhiming Liao, and Wenbai Zhang

*Tongji University, China*

[MO5\_04]

17:20–17:40

Analysis of Eddy Current Loss in Permanent Magnet Linear Synchronous Generator Considering Bolt-Mounted Halbach Array Magnet

Yeon Tae Choi<sup>1</sup>, Gang-Hyeon Jang<sup>3</sup>, Kyung-Hun Shin<sup>2</sup>, and Jang-Young Choi<sup>1</sup><sup>1</sup>Chungnam National University, Korea, <sup>2</sup>Changwon National University, Korea, <sup>3</sup>Korea Electric Power Research Institute, Korea

[MO5\_05]

17:40–18:00

Structural Optimization and Research of a Novel Linear– Rotary Permanent Magnet Motor

Yunnan Feng, Yanxin Li, and Qinfen Lu

*Zhejiang University, China*



## [MO6] Levitation Technologies

Session Date May 19 (Mon.), 2025

Session Time 16:20–18:00

Session Room Room B (102)

[MO6\_01] 16:20–16:40

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*

[MO6\_02] 16:40–17:00

Comparative Analysis of Wire-Wound and PCB Coil Magnetically Levitation Moving-Magnet Planar Motor

Wei-Feng Hu<sup>1</sup>, Hong-Jin Hu<sup>1</sup>, Guang-Zhong Cao<sup>1</sup>, and De-Liang Liang<sup>2</sup>*<sup>1</sup>Shenzhen University, China, <sup>2</sup>Xi'an Jiaotong University, China*

[MO6\_03] 17:00–17:20

Proposal for a Stress Applying Mechanism for Mechanical Testing Machines Using Magnetic Levitation

Shiori Doi, Koichi Oka, and Takenori Suzuki

*Kochi University of Technology, Japan*

[MO6\_04] 17:20–17:40

Design of Staggered Electromagnets for Compact 6-DoF Levitated Stage with Transverse Flux Permanent Magnet Linear Synchronous Motor

Yueying Yang<sup>1</sup>, Wataru Ohnishi<sup>1</sup>, Takafumi Koseki<sup>1</sup>, and Hounng-Joong Kim<sup>2</sup>*<sup>1</sup>The University of Tokyo, Japan, <sup>2</sup>KOVERY Motor Inc., Korea*

[MO6\_05] 17:40–18:00

Static Measurement of a Contactless Electromagnetic Isolator Adaptive to Variable Payload Mass

Wentao Li, Jianqiang Yao, Liang Guo, and Chenyang Ding

*Fudan University, China*





## [TO1] Electromagnetic Linear Motors and Actuators

Session Date May 20 (Tue.), 2025

Session Time 10:00–12:00

Session Room Room A (101)

[TO1\_01] 10:00–10:20

High-Speed Single-Sided Linear Induction Motors – Part II: Two- and Three- Dimensional Finite Element Method Analysis

Lucien Pierrejean, Simone Rametti, André Hodder, and Mario Paolone

*Swiss Federal Institute of Technology Lausanne, Switzerland*

[TO1\_02] 10:20–10:40

Uniform Heat Dissipation Structure for High Power Density PMSPM with Moving Magnet

Ronglu Wang, Lu Zhang, Chunqiu Zhao, and Chenyang Shi

*Harbin Institute of Technology, China*

[TO1\_03] 10:40–11:00

Design Optimization and Analysis of Consequent Pole MLS for WEC

Fengyu Shen<sup>1</sup>, Lei Huang<sup>1</sup>, Yuan Li<sup>1</sup>, Minshuo Chen<sup>2</sup>, Haoran Wang<sup>1</sup>, and Minqiang Hu<sup>1</sup><sup>1</sup>*Southeast University, China*, <sup>2</sup>*Nanjing Institute of Technology, China*

[TO1\_04] 11:00–11:20

Analysis of 2-D FEA Methods for Linear Oscillating Actuators Considering the Segmented Structure

Seong-Hyeon Kim<sup>1</sup>, Du-Ha Park<sup>1</sup>, Jin-Ho Choi<sup>1</sup>, Soo-Hwan Park<sup>2</sup>, and Myung-Seop Lim<sup>1</sup><sup>1</sup>*Hanyang University, Korea*, <sup>2</sup>*Dongguk University, Korea*

[TO1\_05] 11:20–11:40

Thrust Performance Optimal Design of Moving-Magnetic Type Permanent Magnet Synchronous Linear Motor Based on Embedded Analytical Model Physical Information Neural Network

Rui Xu<sup>1</sup>, Jiwen Zhao<sup>1</sup>, Zhenbao Pan<sup>1</sup>, Zixiang Yu<sup>1</sup>, and Lijun Wang<sup>2</sup><sup>1</sup>*Hefei University of Technology, China*, <sup>2</sup>*Anhui University, China*

[TO1\_06] 11:40–12:00

Optimal Design to Prevent Permanent Magnet Irreversible Demagnetization and Reducing Cogging Force in Permanent Magnet Linear Motors

Seah Park, Hyung-Woo Kim, In-Seok Song, and Sang-Yong Jung

*Sungkyunkwan University, Korea*



## [TO2] Applications of Linear Drives and Levitation Technologies

Session Date May 20 (Tue.), 2025

Session Time 10:00–12:00

Session Room Room B (102)

[TO2\_01] 10:00–10:20

Impact of Forces of Linear Air-Cored Synchronous Motors on Electromagnetic Suspension Systems Using the Example of the TUM Hyperloop Demonstrator

Tim Hofmann, Oliver Tim Kleikemper, and Agnes Jocher

*Technical University of Munich, Germany*

[TO2\_02] 10:20–10:40

Improvement of the Go-Back Force Based on Excitation Position in a Permanent Magnet-HTS Hybrid Maglev Transportation System

Haruka Shirovani, Yoshikage Abe, Alex Hitoshi Takinami, Ken-ichi Kondo, and Shunsuke Ohashi

*Kansai University, Japan*

[TO2\_03] 10:40–11:00

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<sup>1</sup> and Chang Young Lee<sup>2</sup><sup>1</sup>*Suwon Science College, Korea*, <sup>2</sup>*Korea Railroad Research Institute, Korea*

[TO2\_04] 11:00–11:20

Highly Responsive Drive of a Multi-Degree-of-Freedom Magnetic Levitation Planar Motor by Model-Based Feedforward Control

Keigo Nakata<sup>1</sup>, Wataru Ohnishi<sup>1</sup>, Takafumi Koseki<sup>1</sup>, Yuichiro Nakamura<sup>2</sup>, Kenji Takahashi<sup>2</sup>, and Hiroyuki Sekiguchi<sup>2</sup><sup>1</sup>*The University of Tokyo, Japan*, <sup>2</sup>*Mitsubishi Electric Corporation, Japan*

[TO2\_05] 11:20–11:40

Fundamental Study on Visual Servo in Maglev Linear Synchronous Drive –Comparison of Position-Based and Image-Based Methodologies–

Jianlong Gao, Yueying Yang, Wataru Ohnishi, and Takafumi Koseki

*The University of Tokyo, Japan*

[TO2\_06] 11:40–12:00

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*





## [TO3] Electromagnetic Linear Motors and Actuators

Session Date May 20 (Tue.), 2025

Session Time 13:30–14:50

Session Room Room A (101)

[TO3\_01]

13:30–13:50

Design of a 6-DoF Rotating Magnetically Levitated Sample Manipulator

Coen Custers, Ronald Faassen, Maryn Wijnhoven, Lucas Koorneef, Dick Laro, Martijn Princen, and Theo Ruijl

*MI-Partners, Netherlands*

[TO3\_02]

13:50–14:10

Design Optimization of Single-Phase Linear Oscillating Actuator Considering Effect of Detent Force on Mechanical Resonance in Linear Compressor

Soo-Hwan Park<sup>1</sup>, Ji-Hyeon Lee<sup>2</sup>, Du-Ha Park<sup>2</sup>, Jaehoon Jeong<sup>3</sup>, and Myung-Seop Lim<sup>2</sup><sup>1</sup>*Dongguk University, Korea*, <sup>2</sup>*Hanyang University, Korea*, <sup>3</sup>*LG Electronics Co., Ltd., Korea*

[TO3\_03]

14:10–14:30

Analysis of Injected Current in End Compensation Coils on Detent Force and Thrust Ripple Reduction in Permanent Magnet Linear Synchronous Motors

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

*Harbin Institute of Technology, China*

[TO3\_04]

14:30–14:50

Electromagnetic Design of Superconducting Linear Actuators and Magnetic Bearings for Liquid Hydrogen Pumps

Satsuki Okumura, Hikaru Kitamura, and Hiroyuki Ohsaki

*University of Tokyo, Japan*



[TO4] Electromagnetic Linear Motors and Actuators & Applications of Linear Drives and Levitation Technologies & Methods for Prediction and Analysis

Session Date May 20 (Tue.), 2025

Session Time 13:30–14:50

Session Room Room B (102)

[TO4\_01] 13:30–13:50

Core Loss Analysis of Linear Oscillatory Actuator Using Analytical Method Considering 3D Effects

Kyung–Hun Shin<sup>1</sup>, Jeong–Man Kim<sup>2</sup>, and Jang–Young Choi<sup>3</sup>

<sup>1</sup>Chagnwon National University, Korea, <sup>2</sup>Hyundai Mobis Co., Ltd., Korea, <sup>3</sup>Chungnam National University, Korea

[TO4\_02] 13:50–14:10

Adaptability Optimization of the Homopolar Linear Synchronous Motor Applied to HTS Maglev

Sanchun Nie, Mingming Li, Yi Su, Zheng Jun, and Zigang Deng

Southwest Jiaotong University, China

[TO4\_03] 14:10–14:30

Dynamic Characteristic Analysis of Linear Induction Motors Applying Various Skew Method

Jin Hwan Lee<sup>1</sup>, Yong–Jae Kim<sup>2</sup>, and Sang–Yong Jung<sup>3</sup>

<sup>1</sup>Chonnam National University, Korea, <sup>2</sup>Chosun University, Korea, <sup>3</sup>Sungkyunkwan University, Korea

[TO4\_04] 14:30–14:50

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

Ha–Jin Kim and Dong–Kuk Lim

University of Ulsan, Korea



## [TO5] Electromagnetic Linear Motors and Actuators

Session Date May 20 (Tue.), 2025

Session Time 16:20–18:00

Session Room Room A (101)

## [TO5\_01]

16:20–16:40

Investigation on the Characteristics of a Linear Motor with Magnetic Spring for the Cryocoolers  
 Zhouhang Hu<sup>1,2,3</sup>, Huiming Zou<sup>1,3</sup>, Xuan Yu<sup>1,2,3</sup>, Rui Kong<sup>1,2,3</sup>, Shuo Zhang<sup>1,2,3</sup>, Fanchen Kong<sup>1,2,3</sup>,  
 and Mingsheng Tang<sup>1,3</sup>

<sup>1</sup>Chinese Academy of Sciences, China, <sup>2</sup>University of Chinese Academy of Sciences, China,  
<sup>3</sup>Key Laboratory of Cryogenic Science and Technology, China

## [TO5\_02]

16:40–17:00

Impact of Space Attitude Change on Propulsion Characteristics of a Lightweight PMLSM  
 Libin Cui, Guangtong Ma, Jun Luo, Zhenhua Su, and Piji Feng  
*Southwest Jiaotong University, China*

## [TO5\_03]

17:00–17:20

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*

## [TO5\_04]

17:20–17:40

Research on Ignition Mechanism of Plasma Brush Applied to Series Linear Helical Launcher  
 Housheng Wang<sup>1,2</sup>, Naijin Wen<sup>1,2</sup>, Jianchao Wang<sup>1,2</sup>, Bendong Ma<sup>1,2</sup>, Jie Bai<sup>1</sup>, and Pengyun Jin<sup>1</sup>  
<sup>1</sup>Chinese Academy of Sciences, China, <sup>2</sup>University of Chinese Academy of Sciences, China

## [TO5\_05]

17:40–18:00

Analysis of Secondary Eddy Current Losses in Double-Sided Permanent Magnet Synchronous  
 Linear Motor with Step-Skew  
 Ho-Jin Oh<sup>1</sup>, Jin Hwan Lee<sup>2</sup>, and Sang-Yong Jung<sup>1</sup>  
<sup>1</sup>Sungkyunkwan University, Korea, <sup>2</sup>Chonnam National University, Korea



## [TO6] Methods for Prediction and Analysis

Session Date May 20 (Tue.), 2025

Session Time 16:20–18:00

Session Room Room B (102)

[TO6\_01]

16:20–16:40

Manufacturing Tolerances and Position Accuracy of Moving–Magnet Planar Motors

B.J.A. Kuijpers, J.W. Jansen, and E.A. Lomonova

*Eindhoven University of Technology, Netherlands*

[TO6\_02]

16:40–17:00

A Study of Reducing Analysis Time on Minimizing Detent Torque in Linear Motors Using Surrogate Model

Ji–Hoon Han, Jong–Hoon Park, Seung–Min Song, and Sun–Ki Hong

*Hoseo University, Korea*

[TO6\_03]

17:00–17:20

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

Tianping Li<sup>1,2</sup>, Liming Shi<sup>1,2</sup>, Yaohua Li<sup>1,2</sup>, Zeyu Yang<sup>1</sup>, Jinhai Liu<sup>1,2</sup>, and Ganlin Kong<sup>1,2</sup><sup>1</sup>*Chinese Academy of Sciences, China*, <sup>2</sup>*University of Chinese Academy of Sciences, China*

[TO6\_04]

17:20–17:40

Magnetic Field Analysis and Performance Evaluation of Tubular Permanent Magnet Linear Coupling Based on Analytical Approach

Yeon–Su Kim<sup>1</sup>, Jeong–Man Kim<sup>1</sup>, Kyung–Hun Shin<sup>2</sup>, and Jang–Young Choi<sup>1</sup><sup>1</sup>*Chungnam National University, Korea*, <sup>2</sup>*Changwon National University, Korea*

[TO6\_05]

17:40–18:00

Analytical Calculation of Detent Force in a Linear Motor Considering Stator–Induced Air–Gap Tolerance

Dong Hoon Ko, Hye Seong Kim, Yong Min Lee, and Min ro Park

*Soonchunhyang University, Korea*



## [WO1] Electromagnetic Linear Motors and Actuators

Session Date May 21 (Wed.), 2025

Session Time 10:00–12:00

Session Room Room A (101)

[WO1\_01]

10:00–10:20

Multiphysical Analysis of a Rail Gun for Power System Application

Fabio Freschi<sup>1</sup>, Maurizio Repetto<sup>1</sup>, Fermin Gomez De Leon<sup>2</sup>, and Ara Bissal<sup>2</sup><sup>1</sup>Politecnico di Torino, Italy, <sup>2</sup>Huawei Technologies Duesseldorf GmbH, Germany

[WO1\_02]

10:20–10:40

Comparison of Braking Characteristics of Electropermanent Magnetic Retarders by Finite Element Analysis

Hiromu Takahashi and Masayuki Kato

*Ibaraki University, Japan*

[WO1\_03]

10:40–11:00

Analysis and Comparison of a Linear Dual Stator Induction Motor for Various Solid Rotor Structures

Metin Aydin and Egemen Durna

*Kocaeli University, Turkiye*

[WO1\_04]

11:00–11:20

Comparative Study of Tubular Flux-Switching Permanent Magnet Machines with Different Hybrid Magnetic Cores

Seung-Ahn Chae<sup>1</sup>, Gwan-Soo Park<sup>1</sup>, and Dae-Yong Um<sup>2</sup><sup>1</sup>Pusan National University, Korea, <sup>2</sup>Gyeongsang National University, Korea

[WO1\_05]

11:20–11:40

Design and Evaluation of a Tubular Permanent Magnet Linear Generator for Compact Wave Energy Systems

Kyeong-Tae Yu<sup>1</sup>, Jeong-Man Kim<sup>1</sup>, Kyung-Hun Shin<sup>2</sup>, and Jang-Young Choi<sup>1</sup><sup>1</sup>Chungnam National University, Korea, <sup>2</sup>Changwon National University, Korea

[WO1\_06]

11:40–12:00

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

Xu Niu and Baoquan Kou

*Harbin Institute of Technology, China*



## [WO2] Electromagnetic Linear Motors and Actuators

Session Date May 21 (Wed.), 2025

Session Time 10:00–12:00

Session Room Room B (102)

[WO2\_01]

10:00–10:20

Comparison of Electromagnetic Performances for Permanent Magnet Linear Synchronous Machine with Different Magnetization Patterns Based on Subdomain Method

Kyung–Hun Shin<sup>1</sup>, Cheol Han<sup>2</sup>, and Jang–Young Choi<sup>3</sup>

<sup>1</sup>Chagnwon National University, Korea, <sup>2</sup>Hanon Systems, Korea, <sup>3</sup>Chungnam National University, Korea

[WO2\_02]

10:20–10:40

Cogging Force and Force Ripple Reduction of PMLSM by Permanent Magnet Segmentation for Direct–Drive Servo System

Daeseon Cheo<sup>1</sup>, Ho–Jin Oh<sup>1</sup>, Jae–Hoon Cho<sup>1</sup>, Chang Hyeon Wang<sup>1</sup>, Jin Hwan Lee<sup>2</sup>, and Sang–Yong Jung<sup>1</sup>

<sup>1</sup>Sungkyunkwan University, Korea, <sup>2</sup>Chonnam National University, Korea

[WO2\_03]

10:40–11:00

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

[WO2\_04]

11:00–11:20

Analysis of Damping Characteristics of EDS Maglev with Linear Generator

Gang Lv and Wang Yu

Beijing Jiaotong University, China

[WO2\_05]

11:20–11:40

Global Sensitivity Analysis of a Long–Stator Linear Synchronous Motor

Cheng Tian, Fei Ni, Lin Fan, and Lijun Rong

Tongji University, China

[WO2\_06]

11:40–12:00

Design Optimization and Analysis of Linear Force Motor Considering Spring Constant

Yu Jun Jeong and Dong Kuk Lim

University of Ulsan, Korea