# Technical Sessions

## Oral Sessions

### MO1　Electromagnetic Linear Motors and Actuators

| Session Date | May 19 (Mon.), 2025 |
|---|---|
| Session Time | 11:10-12:30 |
| Session Room | Room A (101) |
| Session Chair(s) | Prof. Eui-Jong Park (Chosun University, Korea)<br>Prof. Jin-hwan Lee (Chonnam National University, Korea) |

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**MO1_01**　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　11:10–11:30

**End Force Analysis and Optimization of Permanent Magnet Linear Synchronous Motor Based on Chamfered Auxiliary Teeth**

Lize Wu, Yanxin Li, and Qinfen Lu

*Zhejiang University, China*

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**MO1_02**　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　11:30–11:50

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

Ki-O Kim[1], Jin-Ho Choi[1], Seong-Hyeon Kim[1], Du-Ha Park[1], Jun-Yeol Ryu[2], and Myung-Seop Lim[1]

*[1]Hanyang University, Korea, [2]Korea Automotive Technology Institute, Korea*

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**MO1_03**　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　11:50–12:10

**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*

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**MO1_04**　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　12:10–12:30

**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 | 11:10-12:30 |
| Session Room | Room B (102) |
| Session Chair(s) | Prof. Liming Shi (China University of Chinese Academy of Sciences, China)<br>Prof. Young-Wook Kim (Chungbuk National University, Korea) |

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### MO2_01      11:10–11:30

**Sensorless Position Estimation Method of Winding-Segmented LPMSM Based on a Composite MRAS**

Weiwang He, 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**

T. Horimoto, S. Jinno, H. Matayoshi, and T. 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[1], Tsutomu Mizuno[1], Mitsuhide Sato[1], Yuhei Sakane[2], Kaname Naganuma[2], and Ken Enya[3]

*[1]Shinshu University, Japan, [2]Kanazawa Institute of Technology, Japan, [3]Enya Manufacturing Co., Ltd., Japan*

## MO3　Electromagnetic Linear Motors and Actuators

| Session Date | May 19 (Mon.), 2025 |
|---|---|
| Session Time | 14:00-15:20 |
| Session Room | Room A (101) |
| Session Chair(s) | Prof. Takafumi Koseki (The University of Tokyo, Japan)<br>Prof. Soo-Hwan Park (Dongguk University, Korea) |

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**MO3_01**　　　　　　　　　　　　　　　　　　　　14:00–14:20

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

David Melly[1], Valentin Pasche[2], Vincent Bourquin[2], and Samuel Chevailler[1]

[1]University of Applied Sciences and Arts Western Switzerland Valais, Switzerland, [2]School of Engineering and Architecture of Fribourg, Switzerland

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**MO3_02**　　　　　　　　　　　　　　　　　　　　14:20–14:40

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

Hyun-Woo Wui[1], Jae-Hoon Cho[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

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**MO3_03**　　　　　　　　　　　　　　　　　　　　14:40–15:00

### 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

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**MO3_04**　　　　　　　　　　　　　　　　　　　　15:00–15:20

### 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 | 14:00-15:40 |
| Session Room | Room B (102) |
| Session Chair(s) | Prof. Wei Xu (Chinese Academy of Sciences, China)<br>Prof. Shunsuke Ohashi (Kansai University, Japan) |

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**MO4_01**　　　　　　　　　　　　　　　　　　　　　　　　14:00–14:20

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

Yuchen Liang[1,2], Liming Shi[1,2], Zixin Li[1,2], Manyi Fan[1], Jinhai Liu[1,2], and Ganlin Kong[1,2]

[1]*Chinese Academy of Sciences, China,* [2]*University of Chinese Academy of Sciences, China*

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**MO4_02**　　　　　　　　　　　　　　　　　　　　　　　　14:20–14:40

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

Ziyu Zou, Qinfen Lu, and Yanxin Li

*Zhejiang University, China*

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**MO4_03**　　　　　　　　　　　　　　　　　　　　　　　　14:40–15:00

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

T. Hirayama[1], K. Muto[2], T. Akiyama[3], and S. Imamori[3]

[1]*Kogakuin University, Japan,* [2]*Kagoshima University, Japan,* [3]*Fuji Electric Co., Ltd., Japan*

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**MO4_04**　　　　　　　　　　　　　　　　　　　　　　　　15:00–15:20

### 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*

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**MO4_05**　　　　　　　　　　　　　　　　　　　　　　　　15:20–15:40

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

Maoxin Zhang[1], Wei Xu[2], Kaiju Liao[2], Yirong Tang[1], Liming Shi[2], Yaohua Li[2], and Dayi Li[1]

[1]*Huazhong University of Science and Technology, China,* [2]*Chinese Academy of Sciences, China*

## MO5  Electromagnetic Linear Motors and Actuators

| Session Date | May 19 (Mon.), 2025 |
|---|---|
| Session Time | 16:00-17:20 |
| Session Room | Room A (101) |
| Session Chair(s) | Prof. Qinfen Lu (Zhejiang University, China)<br>Prof. Toshimitsu Morizane (Osaka Institute of Technology, Japan) |

**MO5_01**　　　　　　　　　　　　　　　　　　　　　　　　　16:00–16:20

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

Emre Cevik[1] and Metin Aydin[2]

[1]MDS Motor Ltd., Türkiye, [2]Kocaeli University, Türkiye

**MO5_02**　　　　　　　　　　　　　　　　　　　　　　　　　16:20–16:40

### Improvement of Thrust Ripple in PMLSMs Considering Magnetic Saturation Using the Frozen Permeability Method

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

Sungkyunkwan University, Korea

**MO5_03**　　　　　　　　　　　　　　　　　　　　　　　　　16:40–17:00

### 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**　　　　　　　　　　　　　　　　　　　　　　　　　17:00–17:20

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

Yeon–Tae Choi[1], Gang–Hyeon Jang[3], Cheol Han[4], Kyung–Hun Shin[2], and Jang–Young Choi[1]

[1]Chungnam National University, Korea, [2]Changwon National University, Korea, [3]Korea Electric Power Research Institute, Korea, [4]Hanon Systems, Korea

## MO6　Levitation Technologies

| | |
|---|---|
| Session Date | May 19 (Mon.), 2025 |
| Session Time | 16:00-17:20 |
| Session Room | Room B (102) |
| Session Chair(s) | Prof. Jun Luo (Southwest Jiaotong University, China)<br>Prof. Guang-Zhong Cao (Shenzhen University, China) |

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**MO6_01**　　　　　　　　　　　　　　　　　　　　　　　　16:00−16:20

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

Wei−Feng Hu[1], Hong−Jin Hu[1], Guang−Zhong Cao[1], and De−Liang Liang[2]

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

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**MO6_02**　　　　　　　　　　　　　　　　　　　　　　　　16:20−16:40

### 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*

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**MO6_03**　　　　　　　　　　　　　　　　　　　　　　　　16:40−17:00

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

Yueying Yang[1], Wataru Ohnishi[1], Takafumi Koseki[1], and Houng−Joong Kim[2]

*[1]The University of Tokyo, Japan, [2]KOVERY Motor Inc., Korea*

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**MO6_04**　　　　　　　　　　　　　　　　　　　　　　　　17:00−17:20

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

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

*Fudan University, China*

## TO1 Electromagnetic Linear Motors and Actuators

| Session Date | May 20 (Tue.), 2025 |
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| Session Time | 10:00-11:40 |
| Session Room | Room A (101) |
| Session Chair(s) | Prof. Zhixun Ma (Tongji University, China)<br>Dr. Coen Custers (MI-Partners, the Netherlands) |

### TO1_01 — 10:00–10:20

**Design Optimization and Analysis of Consequent-Pole MLS for WEC**

Fengyu Shen[1], Lei Huang[1], Yuan Li[1], Minshuo Chen[2], Haoran Wang[1], and Minqiang Hu[1]

*[1]Southeast University, China, [2]Nanjing Institute of Technology, China*

### TO1_02 — 10:20–10:40

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

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*

### TO1_03 — 10:40–11:00

**Design of Permanent Magnet Linear Motor to Prevent Irreversible Demagnetization and Reduce Detent Force**

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

*Sungkyunkwan University, Korea*

### TO1_04 — 11:00–11:20

**Design Optimization and Analysis of Linear Force Motor Considering Spring Constant**

Yu Jun Jeong and Dong-Kuk Lim

*University of Ulsan, Korea*

### TO1_05 — 11:20–11:40

**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*

## TO2 — Applications of Linear Drives and Levitation Technologies

| | |
|---|---|
| Session Date | May 20 (Tue.), 2025 |
| Session Time | 10:00-11:40 |
| Session Room | Room B (102) |
| Session Chair(s) | Prof. Wataru Ohnishi (The University of Tokyo, Japan) |
| | Prof. Han-Kyeol Yeo (Konkuk University, Korea) |

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**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 T. Kleikemper, and Agnes Jocher

*Technical University of Munich, Germany*

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**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 Shirotani, Yoshikage Abe, Alex Hitoshi Takinami, Ken–ichi Kondo, and Shunsuke Ohashi

*Kansai University, Japan*

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**TO2_03**                                                      10:40–11:00

### Modeling and Electromagnetic–Dynamic Analysis of Null–Flux EDS Considering Line–Motor Propulsion System

Mingming Li, Zhiping Li, Weifeng Pan, Sanchun Nie, and Jun Zheng

*Southwest Jiaotong University, China*

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**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[1], Wataru Ohnishi[1], Takafumi Koseki[1], Yuichiro Nakamura[2], Kenji Takahashi[2], and Hiroyuki Sekiguchi[2]

*[1]The University of Tokyo, Japan, [2]Mitsubishi Electric Corporation, Japan*

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**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*

## TO3  Electromagnetic Linear Motors and Actuators

| Session Date | May 20 (Tue.), 2025 |
|---|---|
| Session Time | 13:10-14:30 |
| Session Room | Room A (101) |
| Session Chair(s) | Prof. Seok-Won Jung (Sungkyunkwan University, Korea) Prof. Soo-Hwan Park (Dongguk University, Korea) |

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**TO3_01**                                                    13:10–13:30

### Design of a 6–DoF Rotating Magnetically Levitated Sample Manipulator

C. Custers, R. Faassen, M. Wijnhoven, L. Koorneef, D. Laro, M. Princen, and T. Ruijl

*MI–Partners, the Netherlands*

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**TO3_02**                                                    13:30–13:50

### Design Optimization of Single–Phase Linear Oscillating Actuator Considering Effect of Detent Force on 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*

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**TO3_03**                                                    13:50–14:10

### 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*

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**TO3_04**                                                    14:10–14:30

### 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 | 13:10-14:30 |
| Session Room | Room B (102) |
| Session Chair(s) | Prof. Young-Wook Kim (Chungbuk National University, Korea) <br> Prof. Dong-Kuk Lim (University of Ulsan, Korea) |

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**TO4_01**      13:10–13:30

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

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*

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**TO4_02**      13:30–13:50

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

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

*Southwest Jiaotong University, China*

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**TO4_03**      13:50–14:10

### Optimal Design of Thomson-Coil Actuator for Arc Eliminator in High-Voltage Applications

Gang Hoon Kim and Dong-Kuk Lim

*University of Ulsan, Korea*

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**TO4_04**      14:10–14:30

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

Yunnan Feng, Yanxin Li, and Qinfen Lu

*Zhejiang University, China*

## TO5　Electromagnetic Linear Motors and Actuators

| Session Date | May 20 (Tue.), 2025 |
|---|---|
| Session Time | 16:00-17:20 |
| Session Room | Room A (101) |
| Session Chair(s) | Prof. Metin Aydin (Kocaeli University, Türkiye) <br> Prof. Minro Park (Soonchunhyang University, Korea) |

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**TO5_01**　　　　　　　　　　　　　　　　　　　　　　　　　　16:00–16:20

### Study on the Characteristics of Linear Motors with Magnetic Spring for Cryocoolers

Zhouhang Hu[1,2,3], Gang Chen[4,5], Huiming Zou[1,3], Yongheng Wu[1,2,3], Fanchen Kong[1,2,3], and Mingsheng Tang[1,3]

[1]*Chinese Academy of Sciences, China,* [2]*University of Chinese Academy of Sciences, China,* [3]*Key Laboratory of Cryogenic Science and Technology, China,* [4]*Wuhan University of Science & Technology, China,* [5]*Huangshi Donper Compressor Co., Ltd., China*

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**TO5_02**　　　　　　　　　　　　　　　　　　　　　　　　　　16:20–16:40

### Research on Ignition Mechanism of Plasma Brush Applied to Series Linear Helical Launcher

Housheng Wang[1,2], Naijin Wen[1,2], Jianchao Wang[1,2], Bendong Ma[1,2], Jingdan Xue[1,2], Yirong Tang[1], and Wei Xu[1]

[1]*Chinese Academy of Sciences, China,* [2]*University of Chinese Academy of Sciences, China*

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**TO5_03**　　　　　　　　　　　　　　　　　　　　　　　　　　16:40–17:00

### Analysis of Secondary Eddy Current Losses in Double-Sided Permanent Magnet Synchronous Linear Motor with Step-Skew

Ho-Jin Oh[1], Jin-hwan Lee[2], and Sang-Yong Jung[1]

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

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**TO5_04**　　　　　　　　　　　　　　　　　　　　　　　　　　17:00–17:20

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

Kyeong-Tae Yu[1], Jeong-Man Kim[3], Cheol Han[4], Kyung-Hun Shin[2], and Jang-Young Choi[1]

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

## TO6   Methods for Prediction and Analysis

| Session Date | May 20 (Tue.), 2025 |
|---|---|
| Session Time | 16:00-17:20 |
| Session Room | Room B (102) |
| Session Chair(s) | Prof. Dong-Kuk Lim (University of Ulsan, Korea)<br>Prof. Kyung-Hun Shin (Changwon National University, Korea) |

### TO6_01                                                          16:00–16:20

**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, the Netherlands*

### TO6_02                                                          16:20–16:40

**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                                                          16:40–17:00

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

Yeon-Su Kim[1], Jeong-Man Kim[3], Cheol Han[4], Kyung-Hun Shin[2], and Jang-Young Choi[1]

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

### TO6_04                                                          17:00–17:20

**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 | 10:00-11:20 |
| Session Room | Room A (101) |
| Session Chair(s) | Prof. Zhixun Ma (Tongji University, China)<br>Prof. Seok-Won Jung (Sungkyunkwan University, Korea) |

### WO1_01 · 10:00–10:20

**Multiphysical Analysis of a Rail Gun for Power System Application**

Fabio Freschi[1], Maurizio Repetto[1], Fermin Gomez De Leon[2], and Ara Bissal[2]

*[1]Politecnico di Torino, Italy, [2]Huawei Technologies Duesseldorf GmbH, Germany*

### WO1_02 · 10:20–10:40

**Comparison of Braking Characteristics of Electropermanet 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**

Egemen Durna[1] and Metin Aydin[2]

*[1]MDS Motor Ltd., Türkiye, [2]Kocaeli University, Türkiye*

### WO1_04 · 11:00–11:20

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

Seung–Ahn Chae[1], Gwan–Soo Park[1], and Dae–Yong Um[2]

*[1]Pusan National University, Korea, [2]Gyeongsang National University, Korea*

## WO2  Electromagnetic Linear Motors and Actuators

| | |
|---|---|
| Session Date | May 21 (Wed.), 2025 |
| Session Time | 10:00-11:20 |
| Session Room | Room B (102) |
| Session Chair(s) | Dr. Dave Krop (Eindhoven University of Technology, the Netherlands) Prof. Han-Kyeol Yeo (Konkuk University, Korea) |

### 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[1], Cheol Han[2], and Jang-Young Choi[3]

*[1]Changwon National University, Korea, [2]Hanon Systems, Korea, [3]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[1], Ho-Jin Oh[1], Jae-Hoon Cho[1], Chang Hyeon Wang[1], Jin-hwan Lee[2], and Sang-Yong Jung[1]

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

### WO2_03                                              10:40-11:00

**Global Sensitivity Analysis of a Long-Stator Linear Synchronous Motor**

Cheng Tian[1,2], Fei Ni[1,2], Lin Fan[1,2], and Lijun Rong[1,2]

*[1]Tongji University, China, [2]State Key Laboratory of High-speed Maglev Transportation Technology, China*

### 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*