LDIA 2015
July 27 - 29

IEM RWTH
INSTITUTE OF ELECTRICAL MACHINES

The 10th International Symposium on Linear Drives for Industry Applications

Aachen, Germany, July 27-29 2015

Institute of Electrical Machines
RWTH Aachen University
Schinkelstraße 4
52062 Aachen


WITTENSTEIN
cyber motor


ETEL
MOTION TECHNOLOGY


CEDRAT
design solutions for
electrical engineering


PRODRIVE
TECHNOLOGIES


BROCKHAUS
MEASUREMENTS

Contents

Welcome letter

We are pleased to welcome you to Aachen and to the 10th International Symposium on Linear Drives for Industry Applications (LDIA 2015).

The goal of the symposium is to bring together researchers from both academia and industry from all over the world, and to share research findings and discuss future developments in linear drive technology.

This year the conference will be held in the beautiful historic city of Aachen, nowadays renowned for its university, scientific competence and many spin-off companies. Previously this conference was hosted in Japan, UK, France, Korea, the Netherlands and China. We are convinced that we all will bring LDIA2015 to a successful meeting as the previous ones. We wish you a lot of personal and scientific advancement and to foster your existing network of friends and colleagues. We hope that you enjoy the scientific program with two keynotes and scientific papers from 18 countries.

We would like to thank all the reviewers for their invaluable assistance in supporting us with the technical program. The final program includes nine parallel technical sessions.

We would like to thank the conference sponsors and exhibitors, Wittenstein, Etel, Cedrat, Prodrive and Brockhaus for their support, and encourage you to visit their exhibition stands during the conference in SuperC as well as in IEM laboratory during the daily Bierstube. We wish you an enjoyable stay in Aachen and a productive and pleasant time at LDIA2015.

Kay Hameyer & Rüdiger Appunn
General chair & technical chair

Local Organization

General chair:	Prof. K. Hameyer
Technical chair:	R. Appunn
Editorial chair:	D. Franck, T. Herold

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F. Eastham·UK
Jiabin Wang·UK
Z.Q. Zhu·UK
A.C. Ferreira·Brazil
J. Gieras·USA
S. Gurol·USA
D. Trumper·USA

General information

SuperC

The conference will take place in the SuperC. This is a visual highlight among the buildings of RWTH Aachen University and located in the heart of the city. The SuperC Student Service Centre provides a wide range of rooms and lecture theatres for events, conferences, and meetings. Not only of architectural interest, the SuperC is also remarkable for its utilization of geothermal energy - the building is cooled and heated through geothermal heat.

Aachen – City in the heart of Europe

The Emperor's City is a popular travel destination. This is not just because of its favorable geographical position but also due to its large variety of art and culture, elegant shops and pubs.

Aachen is situated in an area, where the three countries of Germany, Belgium and the Netherlands meet. You can easily get to the Eifel hills in a short time. You will soon see how much variety the city has to offer.

General information

Welcome reception:
Sunday July 26 / 7pm
IEM, Schinkelstraße 4, Aachen

Technical sessions:
Monday July 27 / 9am- Tuesday July 28 / 6pm
SuperC 6th floor, Templergraben 57, Aachen

Visit IEM laboratory, Exhibition and Bierstube:
Monday July 27 / 6pm
Tuesday July 28 / 5:30pm
IEM, Schinkelstraße 4, Aachen

Banquet:
Tuesday July 28 / 7pm
Crowning Hall of Aachen City Hall Aachen

The traditional LDIA conference dinner will be served in the historical Crowning Hall of Aachen city hall on Tuesday 7pm. All full registered as well as all student registered participants are invited to join.

General program overview

Date: Monday, 27/Jul/2015

9:00am – 9:20am	**OPEN: Opening Ceremony** Location: **Generali-Saal** Chair: **Kay Hameyer**	
9:20am – 10:00am	**INV-1: Invited Oral 1** Location: **Generali-Saal** Chair: **Rüdiger Appunn**	
10:15am – 11:35am	**CTRL-1:** Control methods for linear drives 1 Location: Ford-Saal Chair: **John Compter** Chair: **Tetsuzo Sakamoto**	**ELIM-1:** Electromagnetic linear motors and actuators 1 Location: **Generali-Saal** Chair: **Hiroyuki Ohsaki** Chair: **Yoan Civet**
11:50pm – 01:10pm	**AEFF-1:** Analysis of electromagnetic fields and force fields 1 Location: **Ford-Saal** Chair: **Abbas Shiri** Chair: **David Franck**	**LEV-1:** Levitation technologies 1 Location: **Generali-Saal** Chair: **Richard Stephan** Chair: **Rüdiger Appunn**
02:00pm – 03:20pm	**CTRL-2:** Control methods for linear drives 2 Location: **Ford-Saal** Chair: **J.W. Jansen** Chair: **Florian Poltschak**	**ELIM-2:** Electromagnetic linear motors and actuators 2 Chair: Andrzej Pawel Waindok Chair: **Qian Liu**
03:30pm – 04:50pm	**AEFF-2:** Analysis of electromagnetic fields and force fields 2 Location: **Ford-Saal** Chair: **Marco Hombitzer** Chair: **Simon Steentjes**	**APL-1:** Applications of linear drives and levitation technologies 1 Location: **Generali-Saal** Chair: **Yaohua Li** Chair **Harry Gabrielse**
05:00pm – 06:00pm	**CTRL-3:** Control methods for linear drives 3 Location: **Ford-Saal** Chair: **Liming Shi** Chair: **Koichi Oka**	**LEV-2:** Levitation technologies 2 Location: **Generali-Saal** Chair: **Qinfen Lu** Chair: **Shunsuke Ohashi**

Date: Tuesday, 28/Jul/2015

9:00am – 9:40am	**INV-2: Invited Oral 2** Location: **Generali-Saal** Chair: **Rüdiger Appunn**	
9:55am – 11:15am	**AEFF-3:** Analysis of electromagnetic fields and force fields 3 Location: **Ford-Saal** Chair: **Wolf-Rüdiger Canders** Chair: **Björn Riemer**	**ELIM-3:** Electromagnetic linear motors and actuators 3 Location: **Generali-Saal** Chair: **Mimpei Morishita** Chair: **Michael Schröder**
11:30am – 01:10pm	**AEFF-4:** Analysis of electromagnetic fields and force fields 4 Location: **Ford-Saal** Chair: **Jingyu Huang** Chair: **Stefan Böhmer**	**APL-2:** Applications of linear drives and levitation technologies 2 Location: **Generali-Saal** Chair: **Tomoaki Yano** Chair: **Qiongxuan Ge**
02:00pm – 03:20pm	**AEFF-5:** Analysis of electromagnetic fields and force fields 5 Location: **Ford-Saal** Chair: **Tsuyoshi Higuchi** Chair: **Erich Schmidt**	**ELIM-4:** Electromagnetic linear motors and actuators 4 Location: **Generali-Saal** Chair: **Jiabin Wang** Chair: **Satoshi Ueno**
03:30pm – 04:50pm	**APL-3:** Applications of linear drives and levitation technologies 3 Location: **Generali-Saal** Chair: **Xudong Wang** Chair: **Gulillaume Loussert**	**SUBS-1:** Subsystems for linear drives 1 Location: **Ford-Saal** Chair: **Michael van der Giet** Chair: **Thorwald L. Van Vuure**
05:00pm – 05:20pm	**CLOSE: Closing Ceremony** Location: **Generali-Saal** Chair: **Kay Hameyer**	

The LDIA technical tour

On July 29 a technical tour to RWTH Aachen Campus Melaten will be organized. We will visit three of the eleven research clusters.

Campus Melaten is the first phase of construction for RWTH‘s new research campus.

We will visit the Center for Wind Power Drives, the Center for Mobile Propulsion and the Logistics Cluster of RWTH Aachen University. The technical tour is included within the conference fee. Registration for the tour at the registration desk is mandatory. Bus transfer starts in front of the SuperC on Wednesday 9:00am.

Aachen city map

Symposium site map

All technical sessions are held in SuperC (6th floor) of RWTH Aachen University.

SuperC, Templergraben 57 in Aachen.

Gebäude-1040, 6.OG

International steering committee meeting
Monday, July 27, 6pm
Room 530 (5th floor SuperC)

Free Internet

SuperC and IEM
WLAN: mops
Username: LDIA2015
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Conference App (free of charge)

Conference4me
(Google Play, iTunes App Store, Windows Phone Store or Amazon Appstore)
App includes all relevant information such as conference time schedule, one-page abstracts, ect.

Congress Office

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Institute of Electrical Machines
Schinkelstraße 4
D-52062 Aachen, Germany

Secretary
Mrs. Petra Jonas-Astor
Phone: +49 241 80 97667
E-Mail: info@ldia2015.org

Technische Universität Braunschweig

Invited Oral 1:

High thrust linear drives with high quality of motion

Prof. Dr.-Ing. Wolf-Rüdiger Canders, Technische Universität Braunschweig

Linear drives must always be seen as component of a major system that defines the specification of the drive for optimal system function. A very impressive example for this approach are drives for vehicle simulators which allow testing of vehicle chassis suspension at the physical boundaries. The design requirements for such drives are illustrated for a vehicle simulator with 25 t moving mass. A special issue for the design of these machines is the motion quality which directly affects the driving impression of the test person in the simulator. Improvement of the force ripple was done here in several steps which will be depicted in the presentation as well.

WITTENSTEIN | cyber motor

Invited Oral 2:

High speed linear drives with high acceleration and position accuracy

Dr. Ingolf Gröning,
WITTENSTEIN cyber motor GmbH

Linear drives are the core component within the fastest pick-and-place-heads in the world. Accelerations of more than 300 m/s² in combination with position accuracies of more than 1,5 µm allow more than 300'000 placements per hour of electronic parts – without hitting the printed circuit-board. Linear drives also accelerate the machines in the high performance automation especially in loose interlinked systems for the transport of components, parts and pieces. The moved masses of the parts range from less than 1 g up to 25 g, so that speed up to 5 m/s and acceleration up to 500 m/s² are crucial to reach minimized cycle times and increased output.

Presentations

CTRL-1:
Control methods for linear drives 1

Time: Monday, 27/Jul/2015: 10:15am - 11:35am
Location: Ford-Saal
Chair: John Compter
Chair: Tetsuzo Sakamoto

Attractive and Thrust Force control of LIM powered by the source using the Component Synchronous with the Motor Speed
Toshimitsu Morizane, Keisuke Tsuruya, Noriyuki Kimura, Hideki Omori
Osaka Institute of Technology, Japan;

Intelligent integral backstepping sliding-mode control for piezo-flexural nanopositioning stage
Faa-Jeng Lin, Shih-Yang Lee, Jin-Kuan Chang
Engineering, National, National Central University, Taiwan;

Study on the servo drive of PM-LSM to be used in parallel synchronous drive
Hiroyuki Takai, Kenji Suzuki, Hideo Dohmeki
Tokyo City University, Japan;

A new dynamic model for linear induction motors, considering end effect
Abbas Shiri[1], Davoud Esmaeil Moghdam[2]
[1]Shahid Rajaei University, Iran, Islamic Republic of; [2]Institute of Electrical Power Systems and High-Voltage, Technische Universität Dresden, Dresden, Germany;

ELIM-1:
Electromagnetic linear motors and actuators 1

Time: Monday, 27/Jul/2015: 10:15am - 11:35am
Location: Generali Saal
Chair: Hiroyuki Ohsaki
Chair: Yoan Civet

Fast Design Optimization and Fundamental Test Methods for a Transverse-Flux Type Linear Synchronous Wave Generator
Takafumi Koseki, Ryuji Watanabe, Hideki Matsuoka, Yasuhiro
Takada School of Engineering, The University of Tokyo, Japan;

Design Process for High Force Tubular Linear Drive with Discrete Wound Coils
Sebastian Gruber, Ralf Wegener, Stefan Soter
Bergische Universität Wuppertal, Germany;

Performance measurements of the Double Layer Planar Motor
Hans Rovers
ASML, Netherlands, The;

Design Aspects of Quasi-Halbach Arrays Applied to Linear Tubular Actuators
Paulo Roberto Eckert, Igor Pasa Wiltuschnig, Aly Ferreira Flores Filho
Federal University of Rio Grande do Sul, Brazil;

AEFF-1:
Analysis of electromagnetic fields and force fields 1

Time: Monday, 27/Jul/2015: 11:50am - 1:10pm
Location: Ford-Saal
Chair: Abbas Shiri
Chair: David Franck

Comparison Investigation of E-core and C-core Linear Switched-flux PM Machines
Qinfen Lu, Yunyue Ye
College of Electrical Engineering, Zhejiang University, China, People's Republic of;

Geometry impact of the 5-phase permanent magnet tubular linear actuator on its electromagnetic parameters
Andrzej Pawel Waindok, Bronislaw Zbigniew Tomczuk
Opole University of Technology, Poland;

Magnetic Performance of Halbach Array Branching Mechanism Proto-model utilizing Cylinder Shape Permanent Magnets
Shogo Tokunaga[1], Hiroki Tsuchiya[1], Atsushi Ito[1], Haruhiko Suzuki[1], Mikael Bragge[2]
[1]National Institute of Technology, Fukushima College, Japan; [2]Helsinki Metropolia University of Applied Sciences, Finland;

Structure Optimization of the Double-side Segmented Stator Permanent Magnet Linear Synchronous Motor
Sang-In Byun, Sung-An Kim, Yun-Hyun Cho
Dong-A University, Korea, Republic of (South Korea);

LEV-1:
Levitation technologies 1

Time: Monday, 27/Jul/2015: 11:50am - 1:10pm
Location: Generali-Saal
Chair: Richard Stephan
Chair: Rüdiger Appunn

Small scale magnetically levitated train: A novel approach for the mechatronics laboratory.
Gregor Glehn, Rüdiger Appunn, Kay Hameyer
IEM RWTH Aachen University, Germany;

Diamagnetic Repulsion Force of an Asymmetrical Graphite Plate Sample by the Quasi-static Measurement Method
Haruhiko SUZUKI, Yuta TOMOTSUNE, Masatoshi ARAKAWA, Masato IGARI, Shogo TOKUNAGA, Atsushi ITO
National Institute of Technology, Fukushima College, Japan;

Development of a 5-DOF active-controlled self-bearing disk motor
Satoshi Ueno, Takuya Fukuura, Tran Van Toan
Ritsumeikan University, Japan;

Research and Analysis of Voice Coil Motor with Maglev Gravity Compensation and Micro-stage
Liwei Wu[1], Xiaofeng Yang[1], Qingsheng Chen[1], Feng Chi[2]
[1]The School of Microelectronics, Fudan University, Shanghai, China, People's Republic of; [2]Shanghai Micro Electronics Equipment Co., Ltd, Pudong, Shanghai, China, People's Republic of;

CTRL-2:
Control methods for linear drives 2

Time: Monday, 27/Jul/2015: 2:00pm - 3:20pm
Location: Ford-Saal
Chair: J.W. Jansen
Chair: Florian Poltschak

Approximate dual controller by information matrix maximization for self-sensing electromagnetic suspension system
Kohei Matsuda, Tetsuzo Sakamoto
Kyushu Institute of Technology, Japan;

A Novel Control Strategy of Linear Synchronous Motor for High Speed Maglev Train
Liming Shi, Yaohua Li, qiongxuan Ge, Yang Li
Chinese Academy of Sciences and Technology, China, People‘s Republic of;

Research on the Identification and Compensation of the Certain-Force Model of Linear Servo Motor with Permanent-Magnet
Yingquan Liu, Yunyue Ye
Zhejiang University, China, People‘s Republic of;

Trajectory Planning and Two Degrees of Freedom Control of an Electromagnetic Actuator
Ali El Hafni, Alexander Dötlinger, Ralph Kennel
Institute for Electrical Drive Systems and Power Electronics, Technical University of Munich, Munich, Germany;

ELIM-2:
Electromagnetic linear motors and actuators 2

Time: Monday, 27/Jul/2015: 2:00pm - 3:20pm
Location: Generali-Saal
Chair: Andrzej Pawel Waindok
Chair: Qian Liu

Magnetic design consideration of a Magnetic Lead Screw with Halbach Array
Rasmus Koldborg Holm, Nick Ilsoe Berg, Peter Omand Rasmussen
Aalborg University, Denmark;

A Novel Complementary and Modular Tubular Permanent Magnet Flux-switching Motor
Xudong Wang[1], Fengwei Wei[1], Baoyu Xu[2], Haichao Feng[1], Xiaozhuo Xu[1]
[1]School of Electrical Engineering and Automation, Henan Polytechnic University,China, People's Republic of; [2]School of Mechanical and Power Engineering, Henan Polytechnic University,China, People's Republic of;

The Optimal Design of a Halbach-type Permanent Magnet Surface Motor using Integrated Optimization
Junichi Tsuchiya, Keiichiro Yasuda
Tokyo Metropolitan University, Japan;

Principle and Characteristics of a Novel Self-Start Type PMLSM
Tsuyoshi Higuchi[1], Yuichi Yokoi[1], Takashi Abe[1], Shogo Makino[2]
[1]Nagasaki University, Japan; [2]Yaskawa Electric Corporation;

AEFF-2:
Analysis of electromagnetic fields and force fields 2

Time: Monday, 27/Jul/2015: 3:30pm - 4:50pm
Location: Ford-Saal
Chair: Marco Hombitzer
Chair: Simon Steentjes

The forces between two parallel finite bars with a uniform current density
John Compter
Heidenhain Numeric BV, Netherlands, The;

Electric Field Control Methods for Foil Coils in High-Voltage Coreless Linear Actuators
T.A. van Beek, J.W. Jansen, E.A. Lomonova
Eindhoven University of Technology, Netherlands, The;

Numerical Simulation of Forces in an Ironless Planar Actuator
Marcos Susin
UFRGS, Brazil;

Analysis of the Static Forces Produced by a Planar Induction Actuator
Felipe Treviso[1], Marilia Amaral da Silveira[2], Ály Ferreira Flores Filho[1]
[1]UFRGS, Brazil; [2]ULBRA, Brazil;

APL-1:
Applications of linear drives and levitation technologies 1

Time: Monday, 27/Jul/2015: 3:30pm - 4:50pm
Location: Generali-Saal
Chair: Yaohua Li
Chair Harry Gabrielse

The Design Requirements of a Linear Generator Integrated in a Free Piston Engine for Range Extender Application
Un-Jae Seo, Björn Riemer, Rüdiger Appunn, Kay Hameyer
Institute of Electrical Machines, RWTH Aachen University, Germany;

Research on Stereo-garage Driven by Linear Induction Motor
Qinfen Lu, Yunyue Ye, Jianxin Shen, Jian Zhang
College of Electrical Engineering, Zhejiang University, China, People's Republic of;

Shielding Effects of Reaction Magnetic Flux on Armatures of Eddy-Current Rail Brakes in High-Speed Regions
Hiroshi Yoda, Yasuaki Sakamoto
Railway Technical Research Institute, Japan;

A Comparison between Cylindrical and Cross-Shaped Magnetic Vibration Isolators
Dave T.E.H. van Casteren, Johan J.H. Paulides, Elena A. Lomonova

Eindhoven University of Technology, Netherlands, The;

CTRL-3:
Control methods for linear drives 3

Time: Monday, 27/Jul/2015: 5:00pm - 6:00pm
Location: Ford-Saal
Chair: Liming Shi
Chair: Koichi Oka

Space-Vector Modulation Technique for Two-Phase Inverter-Fed Tubular Permanent-Magnet Actuator
Ioana-Cornelia Vese Gros, Mircea Radulescu
Technical University of Cluj-Napoca, Romania;

Control-Based Reduction of Detent Force for Single Phase Linear Motor
Sung-An Kim, Sang-In Byun, Yun-Hyun Cho
Dong-A University, Korea, Republic of (South Korea);

The Study on Nonlinear Characteristic Curves for Linear Actuator with The Resonant PWM Inverter
Sung-An Kim, Sang-In Byun, Yun-Hyun Cho
Dong-A University, Korea, Republic of (South Korea);

LEV-2:
Levitation technologies 2

Time: Monday, 27/Jul/2015: 5:00pm - 6:00pm
Location: Generali-Saal
Chair: Qinfen Lu
Chair: Shunsuke Ohashi

A Capacity Selection Method for the Converters Applied in the Propulsion System of High-speed Maglev Transportation

Ying Lin[1], Xiaohua Wang[2]
[1]Tongji University, China, People's Republic of; [2]Tongji University, China, People's Republic of;

Comparison of different Eddy currents based magnetic levitation techniques

Daniel Grivon, Chavanne Jonathan, Perriard Yves
École Polytechnique Fédérale de Lausanne (EPFL), Switzerland;

Non-contact Liner Slider Using Wireless Power Transfer

Koichi Oka, Buddhika Annasiwaththh
Kochi University of Technology, Japan;

AEFF-3:
Analysis of electromagnetic fields and force fields 3

Time: Tuesday, 28/Jul/2015: 9:55am - 11:15am
Location: Ford-Saal
Chair: Wolf-Rüdiger Canders
Chair: Björn Riemer

FE technique for thermo-contact problems solution and its application for multiphysics numerical analysis of linear thermo-elastic actuator
Michael G. Pantelyat[1], Ivo Doležel[2]
[1]National Technical University „Kharkiv Polytechnic Institute“, Kharkiv, Ukraine; [2]Institute of Thermomechanics, Academy of Sciences of the Czech Republic, Praha, Czech Republic;

Investigation of a Double-side Permanent Magnet Linear Synchronous Motor Having Shifted Ends
Qinfen Lu, Yunyue Ye
College of Electrical Engineering, Zhejiang University, China, People‘s Republic of;

Optimization and Comparison of Novel 9/10 Primary/ Secondary Pole Number E-core and C-core Linear Switched-Flux PM machines
Jiabao Liu, Qinfen Lu
College of Electrical Engineering, Zhejiang University, China, People‘s Republic of;

Superconducting Linear Actuators for Highly Dynamic Motion
B.J.H. de Bruyn, J.W. Jansen, E.A. Lomonova
Eindhoven University of Technology;

ELIM-3:
Electromagnetic linear motors and actuators 3

Time: Tuesday, 28/Jul/2015: 9:55am - 11:15am
Location: Generali-Saal
Chair: Mimpei Morishita
Chair: Michael Schröder

The Development of a Cylindrical Coreless Linear Synchronous Motor
Mimpei Morishita, Miki Naoe, Nobuo Morimura, Akira Negishi
Kogakuin Universiy, Japan;

Considerations for improved design and reduced manufacturing complexity of a PM, Tubular Linear Motor
Ahmed Mahmood Mohammed, Michael Galea, Tom Cox, Christopher Gerada
The University of Nottingham, United Kingdom;

A Simulation Study of Driving Technique of Electro-Magnets to Increase Rotation Torque of 14-12 Spherical Motor
Akio Gofuku[1], Kazuki Adachi[1], Tomoaki Yano[2]
[1]Okayama University, Japan; [2]Kinki University, Japan;

A superconducting linear actuator operating in low temperature environments
Hiroyuki Ohsaki, Takashi Hiroe, Yusuke Terachi
The University of Tokyo, Japan;

AEFF-4:
Analysis of electromagnetic fields and force fields 4

Time: Tuesday, 28/Jul/2015: 11:30am - 1:10pm
Location: Ford-Saal
Chair: Jingyu Huang
Chair: Stefan Böhmer

Power-optimal force decoupling in a hybrid linear reluctance motor

T.T. Overboom[1], J.P.C. Smeets[1], J.W. Jansen[1], E.A. Lomonova[1], D. Mavrudieva[2]
[1]Eindhoven University of Technology, Netherlands, The;
[2]CEDRAT, France;

Optimization of Five Ultra-High Vacuum Voice Coil Actuator Topologies

J.R.M. van Dam[1], T.A. van Beek[1], J.W. Jansen[1], E.A. Lomonova[1], S.L. Paalvast[2], B.C.T. van Bree[2]
[1]Eindhoven University of Technology, Netherlands, The;
[2]Janssen Precision Engineering, Netherlands, The;

Performance analysis of permanent magnet linear synchronous machines using a hybrid analytical model

Abdourahman ADEN DIRIYE, Sofiane OUAGUED, Yacine AMARA, Georges BARAKAT
GREAH, University of Le Havre, France;

A study on the computational times of the surface charge model when the relative permeability is taken into account

Dave T.E.H. van Casteren, Johan J.H. Paulides, Elena A. Lomonova
Eindhoven University of Technology, Netherlands, The;

Comparative Study of Two Flux Reversal PM Linear Machine Topologies

Ahlam Shuraiji[1], Z.Q. Zhu[1], Q.F. Lu[2]
[1]University of Sheffield, United Kingdom; [2]Zhejiang University, P.R. China;

APL-2:
Applications of linear drives and levitation technologies 2

Time: Tuesday, 28/Jul/2015: 11:30am - 1:10pm
Location: Generali-Saal
Chair: Tomoaki Yano
Chair: Qiongxuan Ge

A Working Prototype of an Intelligent Kinetic Building Envelope

Seung-Hoon Han[1], Ok-Kyun Im[2], Tae-Ryong Kim[1]
[1]Chonnam National University, Korea, Republic of (South Korea); [2]University of North Carolina at Charlotte, USA;

Improvement of the configuration of the linear generator using mechanical vibration energy

Shunsuke Ohashi, Kazuya Hirasawa, Yusuke Sugiura
Kansai University, Japan;

Calculation models for electrodynamic accelerator and their measurement verification

Andrzej Pawel Waindok, Bronislaw Zbigniew Tomczuk, Pawel Piekielny
Opole University of Technology, Poland;

Civil Application of Electromagnetic Aircraft Launch Systems

Luca Bertola, Patrick Wheeler, Seamus Garvey, Tom Cox, Herve Morvan
The University of Nottingham, United Kingdom;

Evaluation of linear induction motors with two different topologies by FEM

Roberto André Henrique de Oliveira[1,2], Tilo Espenhahn[2,3], Dietmar Berger[2], Ludwig Schultz[2,3], Antônio Carlos Ferreira[1], Richard Magdalena Stephan[1]

[1]Federal University of Rio de Janeiro, Brazil; [2]Leibniz Institute for Solid State and Materials Research Dresden, Germany; [3]Technical University of Dresden, Germany;

AEFF-5: Analysis of electromagnetic fields and force fields 5

Time: Tuesday, 28/Jul/2015: 2:00pm - 3:20pm
Location: Ford-Saal
Chair: Tsuyoshi Higuchi
Chair: Erich Schmidt

Normal Force Analysis in Secondary Sheet Single-Sided Linear Induction Motor
Abbas Shiri
Shahid Rajaei University, Iran, Islamic Republic of;

The loss perspective of an electro-magnetic actuator involving eddy currents for linear direct drive applications
Sebastian Fizek, Wolfgang Amrhein
Johannes Kepler University Linz, Austria;

Comparison of Multi-tooth flux-switching linear permanent magnet motors with different magnet polarity and module displacement
Bangfu Zhang[12], Ming Cheng1, Jiabin Wang[2]
[1]Southeast university, China, People's Republic of;
[2]The University of Sheffield, U.K;

Stray-field calculations on a shielded planar actuator using 3-D Hybrid Analytical Modeling
K. J. W. Pluk, J. W. Jansen, E. A. Lomonova
Eindhoven University of Technology, The Netherlands;

ELIM-4:
Electromagnetic linear motors and actuators 4

Time: Tuesday, 28/Jul/2015: 2:00pm - 3:20pm
Location: Generali-Saal
Chair: Jiabin Wang
Chair: Satoshi Ueno

Design Strategy for the Permanent-Magnet Type Magnetic Contactor

Hyeon-Jeong Park[1], Jong-Suk Ro[2], So-Hyun Kim[1], Jae-Kil Lee[1], Hyun-Kyo Jung[1]
[1]Department of Electrical & Computer Engineering, Seoul National University, Korea, Republic of (South Korea); 2Brain Korea 21 Plus Creative Research Engineer Development, Seoul National University, Korea, Republic of (South Korea);

Design and optimization of a lightweight single phase linear actuator

Florian Poltschak, Jörg Kobleder
Johannes Kepler University of Linz, Austria;

Fractional-slot Tubular Permanent Magnet Machines with Low Space Harmonics

Jiabin Wang
The University of Sheffield, United Kingdom;

Design and control of an active suspension system with integrated electrical tubular linear motor

Andreas Thul, Daniel Eggers, Björn Riemer, Kay Hameyer
Institute of Electrical Machines, RTWH Aachen, Germany;

APL-3: Applications of linear drives and levitation technologies 3

Time: Tuesday, 28/Jul/2015: 3:30pm - 4:50pm
Location: Generali-Saal
Chair: Xudong Wang
Chair: Gulillaume Loussert

Influence of Manufacturing Tolerances on the Performance of an Electronically-Controlled Linear Escapement

Romain Besuchet, Yoan Civet, Yves Perriard
Integrated Actuators Laboratory (LAI), École Polytechnique Fédérale de Lausanne (EPFL), Switzerland;

Design and Characterization of a Soft Magneto-Rheological Miniature Shock Absorbers

Daniel Grivon[1], Yoan Civet1, Yves Perriard1, Zoltan Pataky2
1École Polytechnique Fédérale de Lausanne (EPFL), Switzerland; 2Geneva University Hospital, Service of Therapeutic Education and Chronic Diseases;

Characteristics Analysis of Vertical Linear Motor Transportation System with Non-uniform Air-gap

Xiaozhuo XU, Xudong Wang, Haichao Feng, Baoyu Du, Jikai Si, Baoyu Xu
Henan Polytechnic University, China, People's Republic of;

Application of Soft Magnetic Composites (SMC) in linear drives – Developments, experiences and results

Quirin Maurus
Technische Universität Braunschweig, Germany;

SUBS-1:
Subsystems for linear drives 1

Time: Tuesday, 28/Jul/2015: 3:30pm - 4:50pm
Location: Ford-Saal
Chair: Michael van der Giet
Chair: Thorwald L. Van Vuure

Contactless Energy Transfer to an Object with a Planar Movement
J.P.C. Smeets, T.T. Overboom, J.W. Jansen, E.A. Lomonova
Eindhoven University of Technology, Netherlands, The;

Design and analysis of a magneto-acoustic energy harvester for MRI applications
J Bao, B.L.J. Gysen, E.A. Lomonova
TU/e, Netherlands, The;

Linear drive with a mechanical passive switch
Christoph Löffler, W.-R. Canders
TU Braunschweig, Germany;

Ferrofluid Based Actuators for Braille Application
Cécile Cuchet, Florian Maushart, Yoan Civet, Yves Perriard
Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland;

Presentation guidelines

All presentations are oral presentations
A regular oral presentation is 20 minutes per speaker including discussion. This time limit should be strictly followed. The organization will provide a notebook, LCD projector, screen and microphone in each oral session room. Presentations should be prepared in MS-PowerPoint format in English.

Please bring your PowerPoint presentation on USB stick and upload it to the supplied notebook before the sessions starts. Each presenter is also asked to submit their short autobiography to the session chair before the beginning of the session.

Post Conference Proceedings

After the conference, authors of selected papers will be invited to submit an extended version to the peer reviewed journal:

Archives of Electrical Engineering