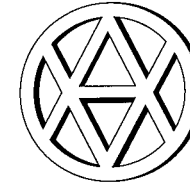


Timetable of LDIA 2001

	Room A (Hakuhou I, II) (3F)	Room B (Hakuhou III, IV) (3F)	Room C (Zuihou) (3F)	Gallery (2F)	Lobby (3F)
October 17 (Wed)					
18:00-19:30		Welcome Party			17:00-19:30 Registration
October 18 (Thu)					
9:00-9:20	Opening Ceremony				
9:25-10:15	Keynote Speech				
	Coffee Break				
10:30-11:50	Oral Session I Linear Induction Motor I	Oral Session II Magnetic Levitation Technology I			8:20-18:30 Registration
	Lunch				
13:20-15:00	Oral Session III Linear and Surface Motor	Oral Session IV Magnetic Field Analysis I		10:30-17:10 Exhibition	
	Coffee Break				
15:10-17:10			Poster Session I Linear Induction Motor II, Linear Synchronous Motor I, Magnetic Levitation Technology II		
17:30-19:30	Banquet				
October 19 (Fri)					
9:00-11:00			Poster Session II Linear Motor and Actuator, Magnetic Field Analysis II, Transportation and Conveyance I, Other Related Topics	9:00-15:20 Exhibition	8:30-15:20 Registration
	Lunch				
12:30-15:10	Oral Session V Transportation and Conveyance II	Oral Session VI Linear Synchronous Motor II			
	Coffee Break				
15:20-16:50	Oral Session VII Organized Session	Oral Session VIII Control			
	Coffee Break				
17:00-17:30	Closing Remarks				



The Third International Symposium on Linear Drives for Industry Applications

LDIA 2001 Nagano

October 17-19 2001, Nagano, Japan

Sponsored by:

The Institute of Electrical Engineers of Japan

In cooperation with:

The Iron and Steel Institute of Japan

The Japan Society of Applied Electromagnetics and Mechanics

The Japan Society of Mechanical Engineers

The Japan Society of Precision Engineering

The Institute of Electrical and Electronic Engineers, Industry Applications Society
(IEEE-IAS)

Nagano Prefecture

Nagano City

Shinshu University

Supported by:

Nagano Convention Bureau

LDIA2001 Committees

Organizing Committee

Chairperson:

Ebihara, D. (Musashi Institute of Technology)

Vice-Chairpersons:

Fujiwara, S. (Toyo Electric Mfg. Co., Ltd.)

Ohsaki, H. (The University of Tokyo)

Advisers

Masada, E. (Science University of Tokyo)
Matsumura, F. (Ishikawa National College of Technology)

Nonaka, S. (Kyushu Electric College)

Yamada, E. (Nagasaki University)

Yamada, H. (Doctors International Collaboration Institute)

Members:

Azukizawa, T. (Toshiba Corp.)

Daikuhara, S. (Sanyo Denki Co., Ltd.)

Ebizuka, R. (Toyo Electric Mfg. Co., Ltd.)

Fujii, N. (Kyushu University)

Fujisaki, K. (Nippon Steel Corp.)

Fujita, H. (The University of Tokyo)

Fukui, Y. (Tokyo Denki University)

Furukawa, K. (Mitsubishi Electric Plant Engineering Co., Ltd.)

Higuchi, T. (The University of Tokyo)

Hikihara, T. (Kyoto University)

Honma, T. (Hokkaido University)

Horikoshi, A. (NSK Ltd.)

Ishikawa, T. (Central Research Institute of Electric Power Industry)

Ishiyama, A. (Waseda University)

Itagaki, H. (Mitsubishi Electric Corp.)

Kageyama, I. (Nihon University)

Kakuno, K. (Yokohama National University)

Kano, Y. (Tokyo University of Agriculture and Technology)

Karita, M. (Shinko Electric Co., Ltd.)

Koseki, T. (The University of Tokyo)

Koshiji, K. (Science University of Tokyo)

Maki, N. (Tokai University)

Masaki, K. (Tamagawa Seiki Co., Ltd.)

Masuda, S. (Hitachi, Ltd.)

Matsui, N. (Nagoya Institute of Technology)

Miki, I. (Meiji University)

Miya, K. (Keio University)

Mizuma, T. (National Traffic Safety and Environment Laboratory)

Mori, M. (Taisei Corp.)

Murai, T. (Railway Technical Research Institute)

Muramoto, H. (Toyo Electric Mfg. Co., Ltd.)

Murata, K. (Tsubakimoto Chain Co.)

Nakagawa, T. (Tokyo Denki University)

Nakanishi, A. (Sumitomo Special Metals Co., Ltd.)

Nitta, Y. (Yaskawa Electric Corp.)

Ohashi, K. (Shin-Etsu Chemical Co., Ltd.)

Ohira, Y. (Nihon University)

Okuma, S. (Nagoya University)

Oshima, K. (Nippon Otis Elevator Co.)

Otsuka, J. (Shizuoka Institute of Science and Technology)

Oyama, J. (Nagasaki University)

Sasaki, T. (JR-Soken Electric Consulting Co., Ltd.)

Sato, Y. (Asahi Glass Co., Ltd.)

Sato, Y. (Saitama University)

Sekioka, K. (Yaskawa Electric Corp.)

Takeda, Y. (Osaka Prefecture University)

Tanaka, S. (Hitachi Metals, Ltd.)

Terashima, M. (Meidensha Corp.)

Utsumi, T. (Tokai University)

Wakiwaka, H. (Shinshu University)

Watanabe, T. (FDK Corp.)

Watanabe, T. (Fuji Electric Corporate R&D, Ltd.)

Yamada, S. (Kanazawa University)

Yamaguchi, H. (Sojo University)

Yotsumoto, K. (NTT Building Technology Institute Co., Ltd.)

Secretaries:

Kitano, J. (Central Japan Railway Co.)

Mizuno, T. (Shinshu University)

Torii, S. (Musashi Institute of Technology)

International Steering Committee

Chairperson:

Masada, E., Science University of Tokyo (Japan)

Members:

Afonin, A.A., Ukrainian Academy of Science (Ukraine)

Azukizawa, T., Toshiba Corp. (Japan)

Basak, A., Cardiff University (United Kingdom)

Belmans, R., Katholieke Universiteit Leuven (Belgium)

Binder, A., Darmstadt University of Technology (Germany)

Boldea, I., Polytechnic Institute of Timisoara (Romania)

Canders, W.-R., Technical University of Braunschweig (Germany)

Chen, S.K., Xi'an Jiaotong University (China)

Del Pizzo, A., University of Naples (Italy)

Eastham, J.F., University of Bath (United Kingdom)

Ebihara, D., Musashi Institute of Technology (Japan)

Gieras, J.F., United Technologies Research Center (USA)

Goodall, R.M., Loughborough University (United Kingdom)

Henneberger, G., Aachen Institute of Technology (Germany)

Hikihara, T., Kyoto University (Japan)

Howe, D., University of Sheffield (United Kingdom)

Kaplan, B.Z., Ben-Gurion University of the Negev (Israel)

Karita, M., Shinko Electric Co., Ltd. (Japan)

Kim, I.-K., General Atomics (USA)

Kim, Y.-K., Seoul National University (Korea)

Lavers, J.D., University of Toronto (Canada)

Mnich, P., Technical University of Berlin (Germany)

Moon, F.C., Cornell University (USA)

Morini, A., University of Padova (Italy)

Negrini, F., University of Bologna (Italy)

Ni, G.Z., Zhejiang University (China)

Nicolisky, R., Federal University of Rio de Janeiro (Brazil)

Ohsaki, H., The University of Tokyo (Japan)

Profumo, F., Politecnico di Torino (Italy)

Rufer, A.-Ch., EPFL (Switzerland)

Schweitzer, G., ETH Zurich (Switzerland)

Trumper, D.L., Massachusetts Institute of Technology (USA)

Xu, S.G., Chinese Academy of Sciences (China)

Steering Committee

Chairperson:

Ohsaki, H. (The University of Tokyo)

Vice-Chairperson:

Wakiwaka, H. (Shinshu University)

Adviser:

Ebihara, D. (Musashi Institute of Technology)

Members:

Azukizawa, T. (Toshiba Corp.)

Fujisaki, K. (Nippon Steel Corp.)

Higuchi, T. (Nagasaki University)

Hikihara, T. (Kyoto University)

Ichikawa, Y. (Shinko Electric Industries Co., Ltd.)

Iga, M. (Asahi Glass Co., Ltd.)

Kano, Y. (Tokyo University of Agriculture and Technology)

Karita, M. (Shinko Electric Co., Ltd.)

Kitano, J. (Central Japan Railway Co.)

Kobayashi, A. (Hitachi Metals, Ltd.)

Mizuno, T. (Shinshu University)

Mori, M. (The Institute of Electrical Engineers of Japan)

Murai, T. (Railway Technical Research Institute)

Nakagawa, T. (Tokyo Denki University)

Nakamura, M. (Toyo Electric Mfg. Co., Ltd.)

Nirei, M. (Nagano National College of Technology)

Ohashi, K. (Shin-Etsu Chemical Co., Ltd.)

Ohashi, S. (Kansai University)

Sakai, Y. (Taisei Corp.)

Sakamoto, S. (Hitachi, Ltd.)

Sakamoto, T. (Kyushu Institute of Technology)

Sanada, M. (Osaka Prefecture University)

Shinzen, K. (Meidensha Corp.)

Tang, Y. (Sanyo Denki Co., Ltd.)

Watada, M. (Musashi Institute of Technology)

Watanabe, T. (FDK Corp.)

Watanabe, T. (Fuji Electric Corporate R&D, Ltd.)

Watarai, A. (Mitsubishi Electric Corp.)

Secretaries:

Hayashiya, H. (The University of Tokyo)

Koseki, T. (The University of Tokyo)

Torii, S. (Musashi Institute of Technology)

Program Committee

Chairperson:

Hikihara, T. (Kyoto University, Japan)

Secretary:

Ohashi, S. (Kansai University)

General Information

The symposium is being held at Mielparque Nagano, which is located only three minutes from the eastern exit of JR Nagano Station. Nagano, host city for the 18th Olympic Winter Games in 1998, offers a great opportunity to see many different aspects of Japan. Nestled in the beautiful Japan Alps, Nagano possesses quiet, quaint streets with many traditional shops and national treasures such as the 1,300 years old Zenkoji Temple. Only a 75 minute bullet train ride from Tokyo, Nagano is located about two hours and twenty minutes from Narita International Airport. Nagano will extend a warm welcome to conference participants who are looking for both a chance to exchange information and see the beauty of Japan.

Transportation

From Narita Airport to JR Station

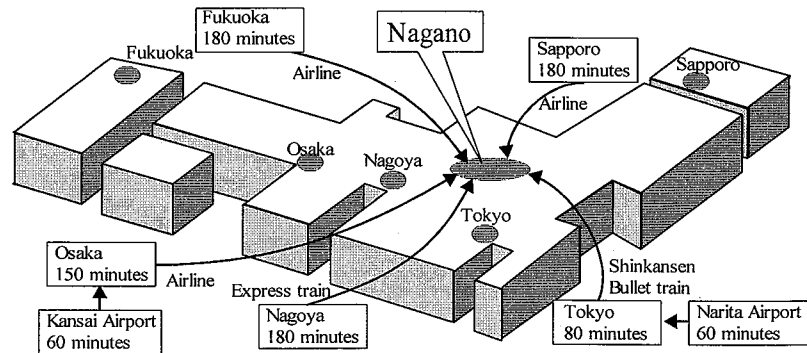
Narita Airport is approximately 60 km (37.3 mile) from the heart of Tokyo. Major means of access include buses, trains, and private automobiles. Above all, JR Line (train) is convenient to transfer at Tokyo Station to the Shinkansen bullet train for Nagano.

Train	Destination	Required time	Frequency	Fare (yen)
JR Narita Express	JR Tokyo Station	53 minutes	One every 30-60 minutes	¥2,940 (One way)

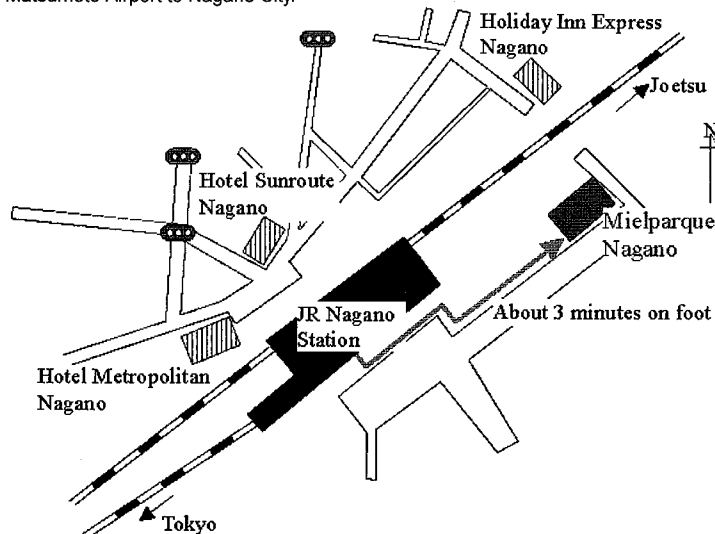
From Tokyo to Nagano

The Shinkansen bullet train running between Tokyo and Nagano began operations in October 1997. The high-speed train service for Nagano has really taken off with twenty-seven round trips per day; the fastest trip taking only seventy-nine minutes. The required time for Narita Airport has been shortened to two hours and twenty minutes with a transfer in Tokyo. Visitors can check in and out on the same day as their international flight.

Train	Destination	Required time	Frequency	Fare (yen)
Nagano Shinkansen Bullet Train "Asama"	JR Nagano Station	79 minutes	One every 30-60 minutes	¥7,970 (One way)



※ The nearest domestic airport to Nagano City is Matsumoto Airport, which is seventy minutes by express bus from Nagano City. Travel time via domestic flight includes the time from Matsumoto Airport to Nagano City.



Conference Information

LDIA2001 Secretariat:

Dr. OHSAKI, Hiroyuki
 Department of Electrical Engineering,
 The University of Tokyo
 7-3-1 Hongo, Bunkyo-Ku, Tokyo 113-8656, JAPAN
 Phone: +81-3-5841-6727 FAX: +81-3-5841-6067
 e-mail: ldia2001@ohsaki.t.u-tokyo.ac.jp

Conference Date and Site

Date: October 17-19, 2001
 Site: MIELPARQUE NAGANO
 752-8 Tsuruga-Takahata, Nagano-Shi, 380-8584, JAPAN
 Phone: +81-26-225-7802 FAX: +81-26-225-7803

Registration

¥45,000: The registration fee includes attendance at all scientific programs, a copy of the proceedings, and invitation to the welcome party and the banquet. Students may register for ¥10,000. They cannot attend the banquet.

Official Language

The official language of the conference is English.

Welcome Party

A welcome party will be held in the room Hakuhou III on the 3rd floor from 18:00 through 19:30 on October 17 (Wednesday). All participants and their guests are invited free of charge.

Banquet

A banquet will be held in the room Hakuhou I & II on the 3rd floor from 17:30 through 19:30 on October 18 (Thursday). Regular participants are invited free of charge. Extra tickets for their guests and students are available at the registration desk.

Exhibition

Technical exhibition is also held in Gallery on the 2nd floor. Every participants are welcome.

Technical Tour

Post-Conference Tour to LinearMetro in Tokyo
 Tokyo Metropolitan Subway Line No. 12 (OEDO Line)
 Saturday, October 20, 2001

An optional technical visit to a train depot of Tokyo Metropolitan Subway Line No. 12 (OEDO Line) is planned, where inspection and maintenance of LIM-driven subway trains are performed (LIM: linear induction motor). After visiting the LinearMetro train depot, we will go to some popular sightseeing spots like Asakusa in Tokyo.

Destination: Tokyo Metropolitan Subway Kiba Train Depot
 Date: October 20, 2001

Meeting Time 8:45am

Meeting Place Bus Station at the South Marunouchi Exit of Tokyo Station

Departure Time 9:00am

Charter Bus HATO Bus (English tour guide)

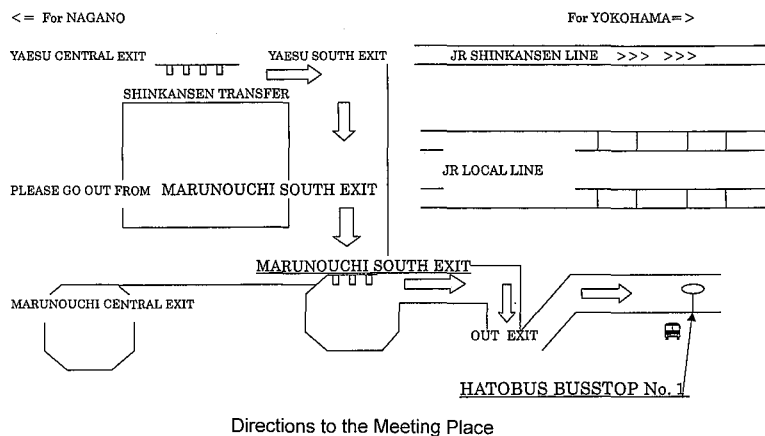
Fee 8,000 yen (eight thousand yen) (including lunch, sightseeing boat)

Capacity 40 persons (on a first-come-first-served basis)

PLAN:

9:00 Depart from Tokyo Station
10:00-12:00 Tour Kiba Train Depot
12:40-13:30 Lunch at the Seaside Hotel (Shibayayoi Kaikan)
13:30-17:00 Visit to the top floor of the World Trade Center Building
Ride a sightseeing boat up the Sumida River from the Hinode Wharf to Asakusa
Visit Sensou Temple and walk through the surrounding area
Visit the Imperial Palace and the Sakasita Gate
17:30 Return to Tokyo Station by driving through Ginza

MAP OF TOKYO CENTRAL STATION For LDIA2001 Member's



Authors Information

INSTRUCTIONS FOR ORAL PRESENTATION

Preparation of Visual Aids

Session rooms for oral presentation are large, and we advise you to use large letters in your slides and transparencies. No more than 10 lines in a projection are recommended.

Transparencies

We have the overhead projection equipment for normal letter-sized (or A4) transparencies. Use the largest projection area, normally 210 mm x 210 mm.

Slides

We do not accept slides in oral sessions.

Others Available

LCD projectors are also at the symposium site. There will be no problem for the domestic speakers; however, foreign presenters are recommended to contact the symposium secretariat sufficiently before the presentation to avoid the possible problems on the projection. If you wish to use the visual aids other than described above, please consult the secretariat.

During the Symposium

All speakers for a session are required to meet their session chairperson half an hour before the opening of the session. The chairperson will confirm your presentation, and local requirement for your presentation may be offered. Biographical information form should be submitted to the chairperson at this meeting. The symposium is rather small, so you will be able to find the chairperson easily. If you unfortunately cannot, please contact to the secretariat. The most careful attention should be paid on the time of your presentation, programmed for only 15 minutes, plus 5 minutes for questions. Please leave pure 5 minutes for the questions, because your answer would be more informative for the audience. The session chairperson, according to the time management of the whole symposium, might change the time. The time schedule of the symposium is rather tight as you can see in the program on the following pages, because of your kind cooperation in the contribution. The session chairperson will thus be asked to keep the timetable very strictly, so we would be very glad if you help the chairperson in accomplishing the duty.

INSTRUCTIONS FOR POSTER PRESENTATION

Preparation of Posters

The prepared display board at the site has 120 cm width. The height of the board itself is 110 cm, however, it is not recommended to use lower area. The upper-left area of the display is reserved for the program number indicated by the secretariat. Title, Name, and Affiliations should be indicated in the upper-right area, which is 20 cm height x 70 cm width. Thus the recommended area for the materials including text, figures, tables, etc. is 90 cm height x 120 cm width.

- There is no electric power source on the poster site.
- Please use larger size of letters, such as 25-30mm for the title, 15-20 mm for headings, and 7-10 mm for the text.
- Effective way to show up your display is to use the figures and photographs effectively, especially in colors.
- Show the order in which the poster is to be read clearly either by numbers, arrows, or lines.

During the Symposium

Please contact the front desk at the session room before you start to mount your poster. Thumbtacks will be available at the desk. Attach your materials to the panels assigned by the symposium secretariat. The program number of your poster presentation is indicated at the upper-left corner of the panel. Speakers are expected to be present at their poster display during the session time. The only official language for poster displays is English. All materials to be mounted on the panel should have description in English.

Authors are requested to follow the above schedule in mounting their posters on their assigned panels. Please note that the removal time must be strictly adhered to, as posters that are left on display beyond the time will be discarded.

Technical Program

October 18 (Thu) 9:00-9:20 Opening Ceremony

October 18 (Thu) 9:25-10:15 Keynote Speech

- PL-1 Linear Motor Direct Drives for Industrial Applications: State of the Art and Research at the Department of Electrical Machines (IEM) Aachen Institute of Technology (RWTH), Germany
Henneberger, G., *Aachen Institute of Technology, Germany*

October 18 (Thu) 10:30-11:50 Linear Induction Motor I (Oral)

Prof. Canders, W. -R. (Technical University of Braunschweig, Germany)
Prof. Takeda, Y. (Osaka Prefecture University, Japan)

- A-1 Linear Induction Motor Demo-Track: a Tool for Renewed Motivation in Electrical Engineering
Strubin, J.-M., Veenstra, M., Rufer, A., *Ecole Polytechnique Federale de Lausanne, Switzerland*
- A-2 Evaluation Study of Velocity Characteristics of Linear Induction Motors using a Ring Model Device
Maki, N., Ohta, K., *Tokai University, Japan*
- A-3 Comparative Studies of Flux-Concentration Type and Normal Type Tubular Linear Induction Motor
Roy, D., Akiyama, Y., Yamada, S., Iwahara, M., *Kanazawa University, Japan*, Basak, B., *Bengal Engineering College, India*
- A-4 Design Optimization of Single-Sided Linear Induction Motors for Maglev Vehicles
Higuchi, T., Nishimoto, T., *Nagasaki University, Japan*, Nonaka, S., *Kyushu Electric College, Japan*, Muramoto, H., *Toyo Denki Seizo K. K., Japan*

October 18 (Thu) 10:30-11:50 Magnetic Levitation Technology I (Oral)

Dr. Hull, J. R. (Argonne National Laboratory, USA)
Dr. Azukizawa, T. (Toshiba Corporation, Japan)

- B-1 3 Degrees of Freedom Semi-Zero-Power Maglev Scheme for Two-Dimensional Linear Motor
Liu, J., Koseki, T., *The University of Tokyo, Japan*
- B-2 Design of Zero-Power Controllers for Magnetic Suspension System by a Transfer Function Approach
Mizuno, T., *Saitama University, Japan*, Takemori, Y., *Honda Motor Company, Ltd., Japan*
- B-3 Magnetically Levitated Space Elevator to Low Earth Orbit
Hull, J. R., Mulcahy, T. M., *Argonne National Laboratory, USA*
- B-4 Design and Analysis of a Maglev Transportation System for Clean Room Applications
Wang, P.-J., *National Tsing Hua University, Taiwan*, Wang, L.-Y., *Nan-Yung Institute of Business and Technology, Taiwan*

October 18 (Thu) 13:20-15:00 Linear and Surface Motor (Oral)

Prof. Rufer, A. (Ecole Polytechnique Federale de Lausanne, Switzerland)
Dr. Watanabe, T. (FDK Corporation, Japan)

- A-5 DC Linear Actuator with Massive Iron as Secondary
Werle, Th., Binder, A., *Darmstadt University of Technology, Germany*
- A-6 Characteristic Comparisons of Recently Developed Two Moving-Magnet-Type Linear DC Motors
Mizuno, T., Matsumoto, N., *Shinshu University, Japan*, Anzai, T., *Amada Engineering Center Co., Ltd., Japan*, Yamada, H., *Doctors International Collaboration Institute, Japan*
- A-7 A Linear Microactuator with X-Y Stepping Motion
Komori, M., Tachihara, T., *Kyushu Institute of Technology, Japan*

- A-8 Position/Stroke Control of Moving Coil Linear Oscillatory Actuator for Springless Propulsion and Reciprocation
Jang, S.-M., Kwon, C., Chang, K.-W., *Chungnam National University, Korea*
- A-9 The Micro Step Drive of the Surface Motor with the Poles Distribution of Triangular Lattice
Katsuyama, N., Watada, M., Ebihara, D., *Musashi Institute of Technology, Japan*

October 18 (Thu) 13:20-15:00 Magnetic Field Analysis I (Oral)

Prof. Jung, H. -K. (Seoul National University, Korea)
Prof. Koseki, T. (The University of Tokyo, Japan)

- B-5 Designing Methods for Multi-Coordinate Drives: From the Planar Multi-Coordinate Drive to the Spherical Motor
Busch, T., Henneberger, G., *Aachen Institute of Technology, Germany*
- B-6 Eigenvalues and Eigenfunctions: A Tool to Synthesize Different Models of Linear Induction Motors
Poloujadoff, M., *University of Paris IV, France*, El Khashab, H., *Electronics Research Institute, Egypt*
- B-7 Analysis and Design Optimisation of Slotless Tubular Permanent Magnet Linear Motors
Wang, J., Jewell, G. W., Howe, D., *University of Sheffield, UK*
- B-8 Linear Machine Eddy Current Braking Techniques
Benarous, M., *TRW Aeronautical Systems, UK*, Eastham, J. F., *EnigmaTEC Ltd., UK*, Proverbs, J., Foster, A., *Force Engineering Ltd., UK*
- B-9 3-D MHD Calculation in Consideration of Free Surface, Heat Transfer and Solidification
Fujisaki, K., *Nippon Steel Corporation, Japan*

October 18 (Thu) 15:10-17:10 Linear Induction Motor II (Poster)

Prof. Higuchi, T. (Nagasaki University, Japan)
Prof. Sanada, M. (Osaka Prefecture University, Japan)

- P1-1 End Effect Compensator based on New Concept for Linear Induction Motor
Fujii, N., Sakamoto, Y., Kayasuga, T., *Kyushu University, Japan*
- P1-2 Location of Short Circuit in Linear Induction Motor with Several Taps
Utsumi, T., Takahashi, T., Yamaguchi, I., *Tokai University, Japan*
- P1-3 Analysis of the Vertical Component of Airgap Magnetic Flux-Density of Single-sided LIM by Simplified Fourier Transform Method
Nonaka, S., *Kyushu Electric College, Japan*
- P1-4 Primary Leakage Magnetomotive Force of an Induction Actuator
Goncalves, J. G., *University of Algarve, Portugal*, Calado, M. R., Cabrita, C. P., *University of Beira Interior, Portugal*
- P1-5 The Design of Torus Induction Machine for the Analysis of Linear Induction Motor
Yabuuchi, M., Yabe, K., Torii, S., *Musashi Institute of Technology, Japan*
- P1-6 Design Study of Cylindrical Linear Induction Motor for Machine Tools
Hirano, A., Maki, N., *Tokai University, Japan*
- P1-7 Circular Inductor "Way" with Disc-Type Secondary: Experimental Equipment and Characterization
D'Ovidio, G., Lanzara, G., Villani, M., *University of L'Aquila, Italy*, Crisi, F., Navarra, A., *Science and Technology Park of Abruzzo, Italy*
- P1-8 Analysis of Different Models of Linear Induction Drives
Martinez-Iturralde, M., Atencia, J., Garcia Rico, A., Florez, J., *Universidad de Navarra, Spain*
- P1-9 Static and Kinetic Characteristics of Linear Oscillatory Actuator for Cryocooler Compressor
Yatuzuka, S., Takizawa, K., Nara, K., Hagiwara, Y., *Cryodevice Inc., Japan*, Watada, M., Ebihara, D., *Musashi Institute of Technology, Japan*

October 18 (Thu) 15:10-17:10 Linear Synchronous Motor I (Poster)

Prof. Komori, M. (Kyushu Institute of Technology, Japan)
Prof. Torii, S. (Musashi Institute of Technology, Japan)

- P1-10 A Novel Linear Synchronous Motor with Half-Wave Rectified Self Excitation
Oyama, J., Higuchi, T., Abe, T., Tanaka, H., Yamada, E., *Nagasaki University*

- Japan
- P1-11 Vertical Electromagnetic Force of a Superconducting LSM Vehicle Based on the Formulation in dq-axis
Sakamoto, T., *Kyushu Institute of Technology, Japan*
- P1-12 Influence of Permanent Magnet Materials on Performance Characteristics of a Linear Synchronous Motor
Gieras, J. F., *United Technologies Research Center, USA*, Gieras, I. A., *Beaumont Services Company, L.L.C., USA*
- P1-13 The Design of Positioning Control of Unitized Linear Synchronous Motor Considering the Robustness
Tsukada, M., Um, Y., Kano, Y., *Tokyo University of Agriculture and Technology, Japan*
- P1-14 Vector Control of Air-core PMLSM with Halbach Array
Jang, S.-M., Chang, K.-W., Lee, S.-H., Jeong, S.-S., *Chungnam National University, Korea*
- P1-15 Reduction of Detent Force in a Permanent Magnet Linear Synchronous Motor
Jang, S.-M., Yoon, I.-K., Lee, S.-H., Jeong, S.-S., *Chungnam National University, Korea*
- P1-16 Skew Effect of Core Type Permanent Magnet Linear Synchronous Motor With High Positioning Accuracy
Jung, S.-Y., Cho, S.-M., Jung, H.-K., *Seoul National University, Korea*, Chun, J.-S., *Mirae Corporation, Korea*
- P1-17 Joint Experimental and FEM Validation of Design Criteria for Tubular Linear Motors
Marignetti, F., Scarano, M., *Universita di Cassino, Italy*
- P1-18 Experimental Investigation of Thrust of an X-Y LSM
Inui, S., Naduka, M., Ohira, Y., *Nihon University, Japan*
- P1-19 Numerical Simulation of the Vehicle Dynamics of the Superconducting Maglev System Incorporating the LSM Data Interpolation Method
Early, R., Ohsaki, H., *The University of Tokyo, Japan*
- P1-20 Position Feedback Control of Permanent Magnet Type Tubular Linear Synchronous Motor for Vertical Transportation
Mano, R., Koseki, T., *The University of Tokyo, Japan*
- P1-21 The Efficiency of LSM for the Rope-less Elevator Considering Condition of LSM
Ohkubo, S., Watada, M., Torii, S., Ebihara, D., *Musashi Institute of Technology, Japan*

October 18 (Thu) 15:10-17:10 Magnetic Levitation Technology II (Poster)
Prof. Mizuno, T. (Saitama University, Japan)
Dr. Sakamoto, S. (Hitachi, Ltd.)

- P1-22 A Study of Lateral Motion Damping of Electromagnetic Levitation System without Guide Magnets for Streetcars and Subways
Jifuku, Y., Yamaguchi, H., Kakinoki, T., Tono-oka, R., Nomiyama, T., Watanabe, F., *Sojo University, Japan*
- P1-23 Levitation Control of Completely Passive 4-Pole Core Excited Solely by Armature Currents of a Linear Synchronous Motor
Koseki, T., Yamashita, K., Kohno, K., *The University of Tokyo, Japan*
- P1-24 Magnetic Levitation and Guidance Control of Very Thin Steel Plates by Means of Gap Length Change Commands
Sano, H., Fujimoto, S., Nakagawa, T., *Tokyo Denki University, Japan*
- P1-25 A Development of Bearingless Machine Adopts Disk Motor
Tomita, T., Oguri, K., Watada, M., Torii, S., Ebihara, D., *Musashi Institute of Technology, Japan*
- P1-26 A Proposal of the Magnetic Levitation System with Two Desired Values to Suppress the Elastic Vibration of the Thin Steel Sheets
Uchimido, G., Torii, S., *Musashi Institute of Technology, Japan*
- P1-27 Memory Effect in Dynamics of Rotor Suspended by HTS Magnetic Bearing under Revolution
Hikihara, T., *Kyoto University, Japan*
- P1-28 Levitation Characteristics of the Experimental Device for the Sidewall Electrodynamic Suspension
Ohashi, S., Masai, H., *Kansai University, Japan*

- P1-29 A Superconducting Stepping Motor by Two Excitation Methods
Komori, M., Nomura, S., *Kyushu Institute of Technology, Japan*

October 19 (Fri) 9:00-11:00 Linear Motor and Actuator (Poster)
Prof. Kano, Y. (Tokyo University of Agriculture and Technology, Japan)
Dr. Morishita, M. (Toshiba Corporation, Japan)

- P2-1 Development of Cylindrical Linear DC Motor for High Thrust
Kim, D., Um, Y., Kano, Y., *Tokyo University of Agriculture and Technology, Japan*
- P2-2 Reducing the Normal Force of a Slot Type Moving Magnet Linear Actuator
Wakiwaka, H., Norhisam, M., Kamiya, A., *Shinshu University, Japan*, Yajima, H., Tamura, K., Fujiwara, N., Hosono, M., Takada, S., *SMC Corporation, Japan*
- P2-3 The Proposal of EMG Servo System of the Linear Motor for the Meal Nursing
Odajima, K., Um, Y., Kano, Y., *Tokyo University of Agriculture and Technology, Japan*
- P2-4 Design of a High Thrust Interior Permanent Magnet Linear Synchronous Motor and its Characteristics
Norhisam, M., Wakiwaka, H., Kamiya, A., *Shinshu University, Japan*, Yajima, H., Tamura, K., Fujiwara, N., Hosono, M., Takada, S., *SMC Corporation, Japan*
- P2-5 Optimal Design of Electromagnetic Linear Actuator for Mass Flow Controller
Chung, M.-J., Lee, S.-Q., Lee, M.-G., Gweon, D.-G., *Korea Advanced Institute of Science and Technology, Korea*
- P2-6 Thrust Characteristics of Small Sized Cylindrical Type Solenoid for Water Valve in Full Automatic Washing Machine
Yamamoto, Y., Nirei, M., *Nagano National College of Technology, Japan*
- P2-7 Influence of Mover Support Structure on Linear Oscillatory Actuator for Cellular Phones
Wakiwaka, H., Kato, H., Yoshimura, W., *Shinshu University, Japan*, Ito, H., Fukuda, N., Matsuhiro, K., *Teikoku Tsushin Kogyo Co. Ltd., Japan*
- P2-8 Efficiency Characteristics of a Linear Oscillatory Actuator Under Simulated Compressor Load
Utsuno, M., Takai, M., Yaegashi, T., Mizuno, T., *Shinshu University, Japan*, Yamamoto, H., Shibuya, K., *Matsushita Refrigeration Co., Ltd., Japan*, Yamada, H., *Doctors International Collaboration Institute, Japan*
- P2-9 Analysis and Development of a New XY Actuator Based on Orthogonal Coils
Flores Filho, A. F., Susin, A. A., *Federal University of Rio Grande do Sul, Brazil*, Da Silveira, M. A., *Lutheran University of Brazil, Brazil*, Kano, Y., *Tokyo University of Agriculture and Technology, Japan*
- P2-10 Improved Vibration Modelling of Reciprocating Air-Compressor
Rens, J., Clark, R. E., Howe, D., *University of Sheffield, UK*
- P2-11 Analytical Study of Double-side PM type X-Y Linear Synchronous Motor
Fujii, N., Tanaka, S., Okinaga, K., *Kyushu University, Japan*
- P2-12 Development of a Linear Motor for Compressors of Household Refrigerators
Park, K.-B., Hong, E.-P., Lee, H.-K., *LG Electronics Inc., Korea*
- P2-13 A Long Stroke Surface Acoustic Wave Linear Motor
Takasaki, M., Ishigami, Y., Higuchi, T., *The University of Tokyo, Japan*, Kurosawa, K. M., *Tokyo Institute of Technology, Japan*
- P2-14 Actuation of SAW Linear Motor Using Multiple Identical Transducers
Ishigami, Y., Takasaki, M., Higuchi, T., *The University of Tokyo, Japan*, Kurosawa, K. M., *Tokyo Institute of Technology, Japan*
- P2-15 Coarse Motion Performance of "Seal Mechanism" with Three Degrees of Freedom
Furutani, K., Furuichi, M., Mohri, N., *Toyota Technological Institute, Japan*

October 19 (Fri) 9:00-11:00 Magnetic Field Analysis II (Poster)
Dr. Fujisaki, K. (Nippon Steel Corporation, Japan)

- P2-16 3-D Finite Element Analysis of a Linear Induction Motor with Two Armatures
Yamaguchi, T., Kawase, Y., Yoshida, M., Nagai, M., *Gifu University, Japan*, Saito, Y., Ohdachi, Y., *Toyoda Automatic Loom Works, Ltd., Japan*
- P2-17 Analytical Prediction of Fringing Effect in Tubular Permanent Magnet Machines
Wang, J., Howe, D., Jewell, G. W., *University of Sheffield, UK*
- P2-18 An Establishment of the Wavelet Analysis of a Linear Induction Motor Aim at Analyzing the End Effect

- Sugiyama, T., Torii, S., *Musashi Institute of Technology, Japan*
 P2-19 Electromagnetic Analysis of an Eddy Current Loss in Superconducting Magnet for Maglev
 Hasegawa, H., Murai, T., Sasakawa, T., *Railway Technical Research Institute, Japan*

October 19 (Fri) 9:00-11:00 Transportation and Conveyance I (Poster)
Prof. Sakamoto, T. (Kyushu Institute of Technology, Japan)
Dr. Sasakawa, T. (Railway Technical Research Institute, Japan)

- P2-20 Numerical Control Simulations of Hybrid Maglev Transportation Systems
 Wang, P.-J., *National Tsing Hua University, Taiwan*, Wang, L.-Y., *Nan-Yung Institute of Business and Technology, Taiwan*
 P2-21 Coordinate Control between Running Characteristics and Riding Comforts of EMS--Magnetically Levitated Vehicle based on Genetic Algorithm
 Kusagawa, S., Baba, J., Shutoh, K., Masada, E., *Science University of Tokyo, Japan*
 P2-22 Control of a Linear Drive Test Stand for the NBP Railway Carriage
 Henke, M., Grotstollen, H., *University of Paderborn, Germany*
 P2-23 Realization of Pitch Control on the Test Stand for NBP Wheel-on-Rail System
 Yang, B., Henke, M., Grotstollen, H., *University of Paderborn, Germany*
 P2-24 Analysis of Linear Induction Motor for Subway Automatic Door Engine
 Jung, S.-Y., Jung, H.-K., *Seoul National University, Korea*, Chun, J.-S., *Mirae Corporation, Korea*
 P2-25 Electro-Hydrostatic and Electro-Mechanical Linear Actuators for Aircraft Flight Control Surfaces
 Churn, P. M., Schofield, N., Powell, D. J., Atallah, K., Bingham, C. M., Howe, D., *University of Sheffield, UK*
 P2-26 Design of a Linear Homopolar Motor for a Magnetic Levitating Transportation Vehicle
 Brakensiek, D., Henneberger, G., *Aachen Institute of Technology, Germany*
 P2-27 Linear Motor Suitable for High Frequency Drive and its Application
 Muraguchi, Y., Karita, M., Nakagawa, H., Maeda, M., Muragishi, Y., Kimura, T., Kato, K., *Shinko Electric Co., Ltd., Japan*
 P2-28 Proposed Configuration of the Repulsive Type Thermo Balance Magnetic Levitation System Using Permanent Magnets
 Ohji, T., *Toyama University, Japan*, Azuma, T., Yamada, S., Iwahara, M., *Kanazawa University, Japan*, Takata, Y., *Rigaku Co. Ltd., Japan*

October 19 (Fri) 9:00-11:00 Other Related Topics (Poster)
Prof. Ohashi, S. (Kansai University, Japan)

- P2-29 Analysis and Design of Permanent Magnet Linear Generator for Charging the Battery of Mobile Apparatus Considering Effect of Armature Reaction
 Jung, S.-Y., Choi, H.-Y., Jung, H.-K., *Seoul National University, Korea*
 P2-30 Electromagnetic Measurement on Normal and Singular Joint Gaps in the Railways
 Mizuno, T., Mochizuki, D., Kawasaki, S., Kondo, T., *Shinshu University, Japan*, Watanabe, S., *Nagano National College of Technology, Japan*, Enoki, S., Nagayasu, Y., *Shinkawa Sensor Technology Inc., Japan*, Yamada, H., *Doctors International Collaboration Institute, Japan*
 P2-31 Design and Dynamic Analysis of Linear Moving-Magnet Actuators
 Clark, R. E., Jewell, G. W., Howe, D., *University of Sheffield, UK*
 P2-32 Activities of the IEEJ Investigation Committee for Review of Technical Terminology for Linear Drive Systems and Related Topics
 Ohsaki, H., *The University of Tokyo, Japan*, Wakiwaka, H., *Shinshu University, Japan*, Shinzen, K., *Meidensha Corp., Japan*

October 19 (Fri) 12:30-15:10 Transportation and Conveyance II (Oral)
Prof. Henneberger, G. (Aachen Institute of Technology, Germany)
Mr. Kitano, J. (Central Japan Railway Company, Japan)

- A-10 Urban Maglev Technology Development in the USA

- Guroi, S., Baldi, B., Kim, I.-K., *General Atomics, USA*
 A-11 Propulsion System for the Magnetic Railway Line : Shanghai Pudong Airport - Long Yang Road Station
 Nothhaft, J., Henning, U., *Siemens Transportation Systems, Germany*
 A-12 Operation Control System for the Magnetic Railway Line Pudong Airport - Long Yang Road Station Plaza,
 B., Hamann, P., *Siemens Transportation Systems, Germany*
 A-13 Dynamic Characteristics of a Maglev Bogie Driven by One Side of the Both Sides LSM
 Yamanaka, A., Kitano, J., *Central Japan Railway Company, Japan*, Ohashi, S., *Kansai University, Japan*
 A-14 High Thrust Permanent Magnet Excited Linear Synchronous Drive for Mass Acceleration
 Siems, S. O., Meins, J., Deeg, C., Mosebach, H., *Technical University of Braunschweig, Germany*
 A-15 Evaluation of Air Suspended LIM Driven Transit System and Next Generation PRT
 Shindoh, R., *Nippon Otis Elevator Company, Ltd., Japan*, Mizuma, T., *National Traffic Safety and Environment Laboratory, Japan*, Deguchi, A., *Kyushu University, Japan*
 A-16 Electromagnetic Non-contact Guide System for Elevator Cars
 Morishita, M., Akashi, M., *Toshiba Corporation, Japan*

October 19 (Fri) 12:30-15:10 Linear Synchronous Motor II (Oral)
Prof. Profumo, F. (Politecnico di Torino, Italy)
Prof. Maki, N. (Tokai University, Japan)

- B-10 PM Linear Synchronous Motor with a Very High Thrust/Normal Force Ratio Profumo, F., Tenconi, A., Gianolio, G., Agliotti, A., *Politecnico di Torino, Italy*
 B-11 Theoretical Modeling and Operational Analysis of a Disc-type Permanent Magnet Linear Synchronous Machine Liu, C.-T., Chuang, K.-C., *National Sun Yat-Sen University, Taiwan*
 B-12 Characteristic Analysis of PMLSM with Halbach Array for Short-Stroke Actuator
 Jang, S.-M., Lee, S.-H., Yoon, I.-K., *Chungnam National University, Korea*, Lee, J.-H., *Chungbuk University of Science & Technology, Korea*
 B-13 High Thrust Double-Sided Permanent Magnet Excited Linear Synchronous Machine with Shifted Stators
 Canders, W.-R., Laube, F., Mosebach, H., *Technical University of Braunschweig, Germany*
 B-14 Minimization of Cogging Force in Flat Permanent Magnet Linear Motors
 Atencia, J., Martinez, G., Garcia Rico, A., Florez, J., *Universidad de Navarra, Spain*
 B-15 Static and Dynamic Characteristics of Slotless Permanent Magnet Linear Synchronous Motor Energized by Partially Excited Primary Current Considering End-Effect
 Jung, S.-Y., Jung, H.-K., *Seoul National University, Korea*, Chun, J.-S., *Mirae Corporation*,
 B-16 Thrust Ripple Improvement of Linear Synchronous Reluctance Motor with Segmented Mover Construction
 Sanada, M., Morimoto, S., Takeda, Y., *Osaka Prefecture University, Japan*

October 19 (Fri) 15:20-16:50 Organized Session (Oral)
Linear Drives for Industry Applications
Prof. Eastham, J. F. (EnigmaTEC Ltd.)
Prof. Ebihara, D. (Musashi Institute of Technology, Japan, Organizer)

- A-17 Status of Permanent Magnet Linear Motors in the United States
 Gieras, J. F., *United Technologies Research Center, USA*, Godkin, M., *BEI Technologies, Inc.*
 A-18 Present Status of Linear Drives for Industry Applications in Japan
 Karita, M., *Shinko Electric Company, Ltd., Japan*
 A-19 Status of Linear Drive Technologies in Europe
 Howe, D., Clark, R. E., Zhu, Z. Q., *University of Sheffield, UK*

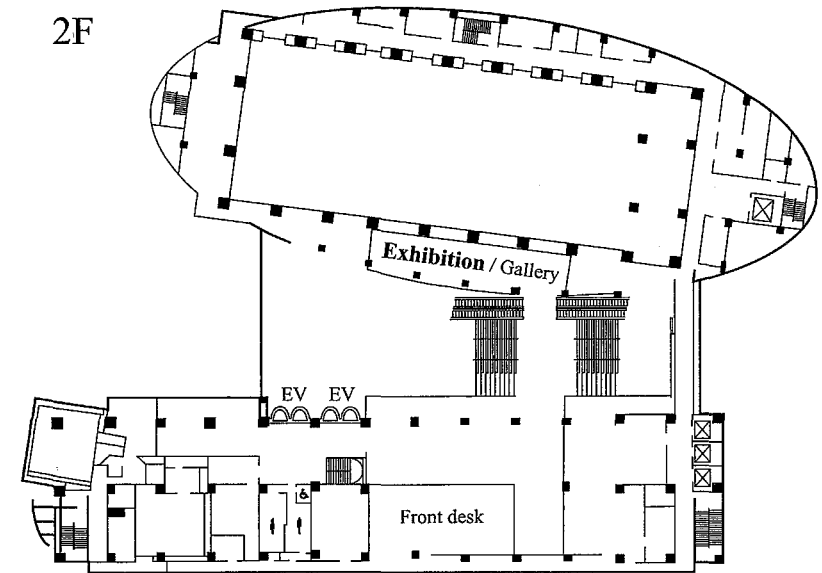
October 19 (Fri) 15:20-16:50 Control (Oral)
Dr. Kim, I.-K. (General Atomics, USA)
Prof. Yamada, S. (Kanazawa University, Japan)

- B-17 An MPC Application to the Linear RM Position Control System
 Hirano, K., Um, Y., Kano, Y., *Tokyo University of Agriculture and Technology, Japan*
- B-18 Motion Control of Linear Permanent Magnet Motors with Force Ripple Compensation
 Roehrig, Ch., *University of Hagen, Germany*, Jochheim, A., *Hesse & Knipps GmbH, Germany*
- B-19 Quick VSS Control for Magnetic Levitation
 Horen, Y., Kaplan, B.-Z., *Ben-Gurion University of the Negev, Israel*
- B-20 Time-Optimal Control of Linear BLDCM under Physical Limitations
 Kim, Y.-O., Choi, D.-S., Ha, I.-J., *Seoul National University, Korea*

October 19 (Fri) 17:00-17:30 Closing Remarks

LDIA2001 Site Map

2F Gallery



3F Rooms A, B and C

