Contents

General information

General program overview

Welcome reception

Sunday July 3 / 17:00-19:00
DAF Museum, Tongelresestraat 27, Eindhoven

The welcome reception will be held at the DAF museum in Eindhoven. The Museum is located in the center of Eindhoven at about a fifteen-minute walk from the Central Railway station. The city council has signposted the route to the Museum. A symposium registration desk is present at the welcome reception for attendees which have already registered in advance and for those who still need to register for the symposium.

The welcome reception in the DAF museum provides an opportunity to meet other attendees and to learn about the industrial history of Eindhoven. In the museum visitors can taste the inventiveness that has been characteristic for DAF vehicles from 1928 till the present day.

Technical sessions

Monday July 4 / 9:00 - Tuesday July 5 / 17:30
Conference center Auditorium, Den Dolech 2, Eindhoven

Information about the Technical Sessions is found on page 15 and further.

Banquet

Monday July 4 / 18:30 - 22:30
Laan Van Henkenshage 3, Sint-Oedenrode.

Busses leave at the Symposium site (Auditorium) at 17:45 and will return here around 23:00.

The banquet (walking dinner) is held at castle Henkenshage which is located in Sint-Oedenrode, N-Brabant. This beautiful castle, which is surrounded by water, has a wonderful bailey and garden and most probably dates from the 14th century. Although some of its wall still dates from 1450, quasi-medieval constructions built in 1850 dominate its looks.

Technical tours

The technical tours are not included in the standard registration. Attendees should register separately through the website registration form, or by contacting conferences@tue.nl. Both tours have a limited number of seats.

Technical tour 1: Transport & Automation

Wednesday July 6 / 8:45 - 13:30 / Vanderlande Industries
http://www.vanderlande.com

Vanderlande Industries is a market leader in automated material handling solutions. In market segments like Baggage Handling, Parcel Sorting and Automated Warehouses they deliver complete solutions. When 15 years ago they installed a complete baggage handling system based on carts driven by linear asynchronous drives they felt pioneers that had to develop crucial elements. Nowadays they deliver systems to major airports based on this technology and synchronous and asynchronous drives are applied in all their market segments in various applications.

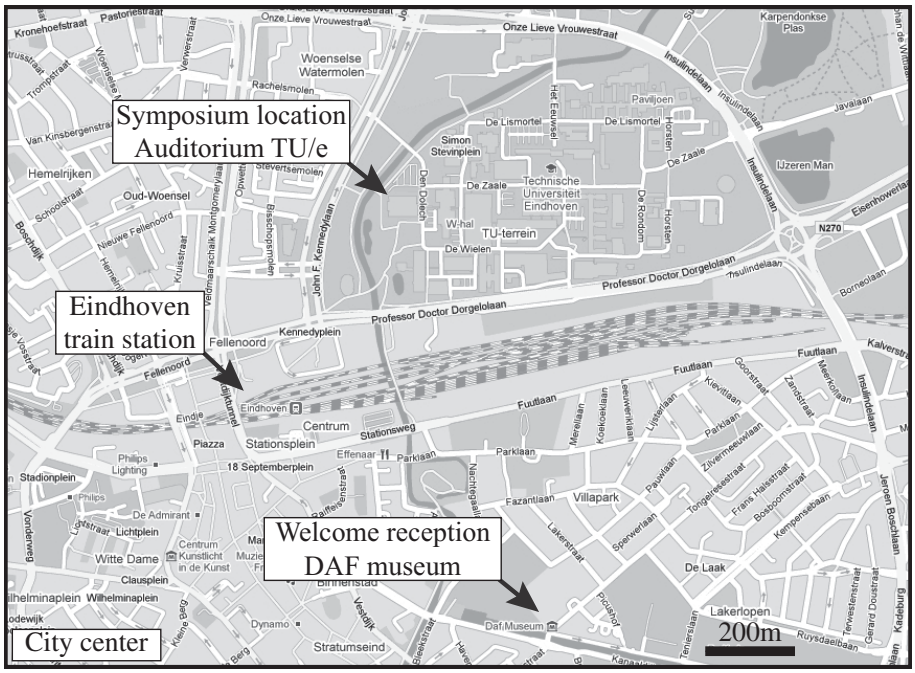
Technical tour 2: High precision

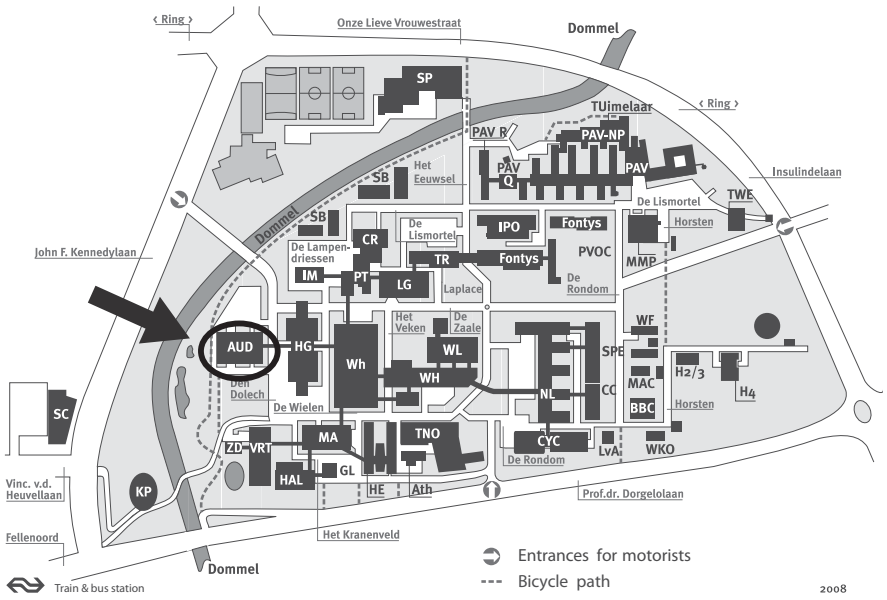
Wednesday July 6 / 8:45 - 15:30 / Assembléon (morning) and ASML (afternoon)
http://www.assembleon.com
http://www.asml.com

Assembléon is a global supplier of Surface Mount Technology (SMT) Pick & Place solutions for the electronics manufacturing industry. Their customers include some of the leading players in industries such as consumer, personal computer and automotive electronics, as well as more specialized fields like module manufacturing and semiconductor backend. The advanced technologies which are used in Assembléon's products and the integration of both rotating and linear drives into their designs make a visit to this company highly interesting for all symposium attendees.

ASML is the world leading provider of lithography systems for the semiconductor industry, manufacturing complex machines that are critical to the production of integrated circuits or microchips. Headquartered in Veldhoven, the Netherlands, ASML designs, develops, integrates, markets and services these advanced systems, which continue to help our customers - the major chipmakers - reduce the size and increase the functionality of microchips, and consumer electronic equipment.

City and University map



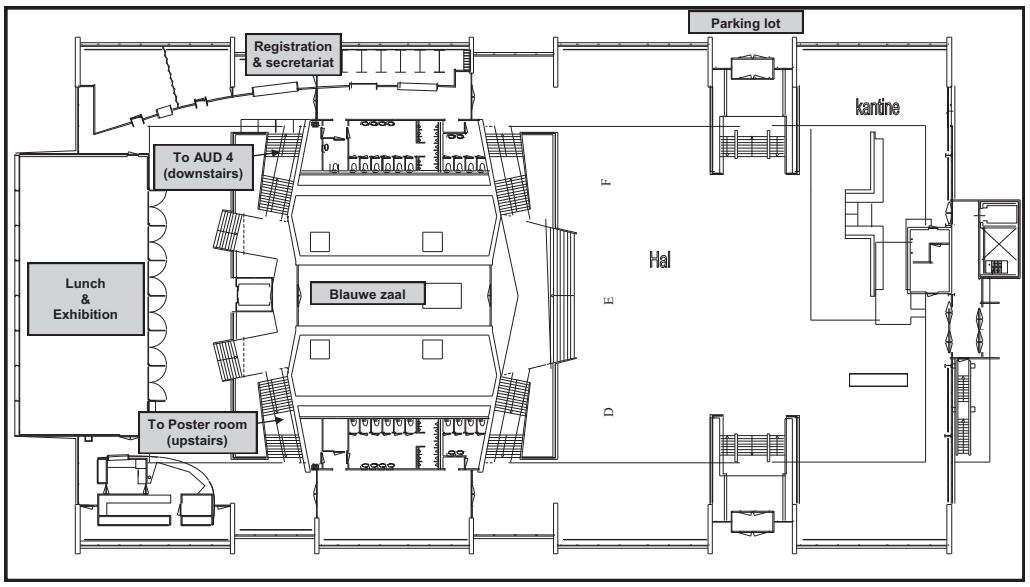


Campus of Eindhoven University of Technology
Conference center Auditorium, Den Dolech 2, Eindhoven

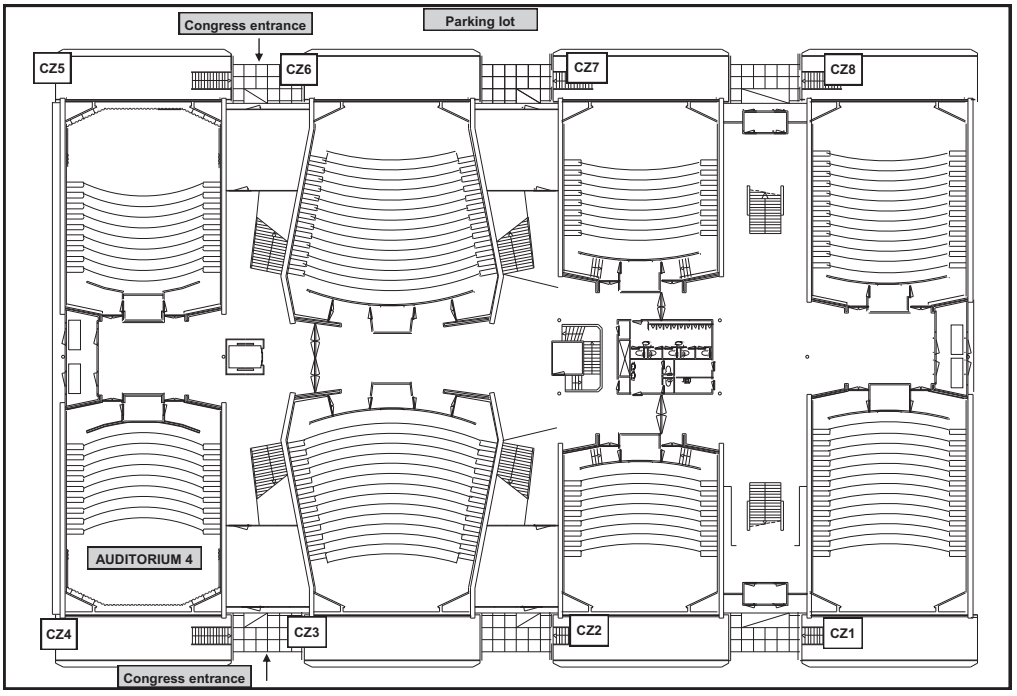
Symposium site maps

All technical sessions are held in the Auditorium congress center of Eindhoven University of Technology. The address is Den Dolech 2, Eindhoven.

AUDITORIUM MAP **LEVEL 1**



AUDITORIUM MAP **LEVEL 0**



WIFI Internet

Symposium attendees who wish to use the TU/e wireless network via their own laptops, may obtain temporary guest accounts. To obtain such an account please refer to the registration desk during the symposium.

Please note that the guest network is not secure; encryption is not applied.

Symposium secretariat

Congress Office, Eindhoven University of Technology

address / Den Dolech 2, AUD 2.23
5612 AZ Eindhoven
the Netherlands

tel / +31 40 247 4000
fax / +31 40 245 8195
email / congressoffice@tue.nl

During LDIA 2011 the secretariat will be available at the registration desk.

Technical program

Timetable

Monday July 4	Blauwe zaal		Auditorium 4
9:00 - 9:50	Opening ceremony and plenary keynote session I		
9:50 - 11:30	Magnetic Levitation and Transport I (MLT-I)		Linear Induction Motors I (LIM-I)
11:30 - 12:30	Plenary poster Session I (PS-I)		
12:30 - 14:00	Lunch		
14:00 - 15:20	Linear Tubular Motors (LTM)		Actuators & Special Machines I (ASM-I)
15:20 - 15:50	Coffee break		
15:50 - 17:30	Linear Induction Motors II (LIM-II)		Modeling (MOD)
Tuesday July 5	**Blauwe zaal**		**Auditorium 4**
9:00 - 9:40	Plenary keynote session II		
9:40 - 11:20	Magnetic Levitation and Transport II (MLT-II)		Linear Motors (LMO)
11:30 - 12:30	Poster Session II (PS-II)		
12:30 - 14:00	Lunch		
14:00 - 15:20	Control of Synchronous Motors (CSM)		Linear Transverse Flux Machines (LTF)
15:20 - 15:50	Coffee break		
15:50 - 17:10	Linear Switched Reluctance and Stepper Machines (LSS)		Actuators and Special Machines II (ASM-II)
17:10 - 17:30	Plenary closing session		

Plenary sessions

Opening ceremony

Date *Monday, Jul. 4, 9:00 - 9:10*
Location *Blauwe Zaal*
Session Chair *E.A. Lomonova*

Opening speech
C.J. van Duijn
Rector Magnificus of Eindhoven University of Technology

Keynote Sesssion I

Date *Monday, Jul. 4, 9:10 - 9:50*
Location *Blauwe Zaal*
Session Chair *E.A. Lomonova*

Linear Drives: an enabling technology for cost effective continuation of Moore's Law
Jos Benschop
Senior Vice President Technology at ASM Lithography, Veldhoven, The Netherlands

Abstract
Moore's Law dictates that every 18 months the number of transistors on an integrated chip doubles. This is first and foremost enabled by optical lithography printing ever smaller transistor on an integrated circuit.
ASML is market and technology leader in this multi-billion euro industry. State-of-the art immersion scanners, using 193 nm light and immersion optics with numerical aperture of 1.35, print 40 nm wide lines on a 300mm resist coated silicon wafer. To enable a cost-effective continuation of Moore's law the productivity of these optical lithography scanners have increased steadily over the last decades. Today's pixel rate exceeds 2 Terapixel/second.
The combination of sub-nm precision and high acceleration continues to push the envelope of sensor-, actuator- and servo-technology as well as construction of linear drives.
After an introduction into IC fabrication, and the role of lithography, it will be explained how lithography, and linear drives used for lithography, have evolved over the years enabling a cost effective continuation of Moore's law. Key challenges for lithography as well as linear drive technology will be shared.

Keynote session II

Date *Tuesday July 5, 9:00 - 9:40*
Location *Blauwe Zaal*
Session Chair *J.C. Compter*

15 Years of heavy duty linear drives in Material Handling
Gert Bossink
Vanderlande Industries BV, Veghel, The Netherlands

Abstract
Vanderlande Industries is a market leader in automated material handling solutions. In market segments like Baggage Handling, Parcel Sorting and Automated Warehouses we deliver complete solutions. When we installed 15 years ago a complete baggage handling system based on carts driven by linear asynchrone drives we felt pioneers that had to develop crucial elements. Nowadays we deliver systems to major airports based on this technology and synchrone and asynchrone drives are applied in all our market segments in various applications.

Closing Ceremony

Date *Tuesday July 5, 17:30 - 17:45*
Location *Blauwe Zaal*
Session Chair *J.W. Jansen*

Oral & Poster sessions / Monday July 4

Magnetic Levitation & Transport I (MLT-I)

Session type *Oral*
Date *Monday, Jul. 4, 9:40 - 11:20*
Location *Blauwe Zaal*
Chair(s) *D. Ebihara*

Linear Induction Motors I (LIM-I)

Session type *Oral*
Date *Monday, Jul. 4, 9:40 - 11:20*
Location *Auditorium 4*
Chair(s) *J.F. Gieras*

Poster Session I (PS-I)

Session type *Poster*
Date *Monday, Jul. 4, 11:30 - 12:30*
Location *Poster Room*
Chair(s) *F. Sahin*

Linear Tubular Motors (LTM)

Session type *Oral*
Date *Monday, Jul. 4, 14:00 - 15:20*
Location *Blauwe Zaal*
Chair(s) *D.H. Kang*

Actuators and Special Machines I (ASM-I)

Session type *Oral*
Date *Monday, Jul. 4, 14:00 - 15:20*
Location *Auditorium 4*
Chair(s) *Y. Perriard*

Linear Induction Motors II (LIM-II)

Session type *Oral*
Date *Monday, Jul. 4, 15:50 - 17:30*
Location *Blauwe Zaal*
Chair(s) *J. Shen*

Modeling (MOD)

Session type *Oral*
Date *Monday, Jul. 4, 15:50 - 17:30*
Location *Auditorium 4*
Chair(s) *P. Brochet*

MOD.1 (*Page 128*)
Forces Analysis in A Large Linear Synchronous Motor
M. Mirzaei, A. Binder, B. Funieru, B. Zamzow and R. Waidhauser
Darmstadt University of Technology, Germany
MAX BOEGL, Germany

MOD.2 (*Page 130*)
Analytical Modeling of Planar and Tubular Linear PM Machines with Surface Mounted Magnets and Semi-Closed Slots
Y. Amara and G. Barakat
GREAH (University of Le Havre), France

MOD.3 (*Page 132*)
Analytical Computation of Asymmetrical Magnetic Circuits of Surface-Mounted Permanent-Magnet Linear Motors with Distributed and Concentrated Winding
J. Jimenez, J.A. Malumbres Ruiz and M. Martínez-Iturralde
CEIT, Spain
TECNUN University, Spain

MOD.4 (*Page 134*)
Real-time 3D Thermal Modeling of a Magnetically Levitated Planar Actuator
M. Stoeck, J.M.M. Rovers, J.W. Jansen, E. Lomonova and Y. Perriard
The Netherlands
Eindhoven University of Technology, The Netherlands
Ecole Polytechnique Federale de Lausanne, Switzerland

MOD.5 (*Page 136*)
Coulombian Model for the 3D Analytical Calculation of the Torque Exerted on Cuboïdal Permanent Magnets with Arbitrary Oriented Magnetizations
H. Allag, J.P. Yonnet, R.E.H. Bouchekara and M.E.H. Latreche
Laboratoire de Génie Electrique de Grenoble, France
Umm Al-Qura University,, Saudi Arabia
Laboratoire dElectrotechnique de Constantine, Université de Constantine,, Algeria

Banquet

Monday, July 4. Busses leave at 17:45 in front of the symposium site.

Oral & Poster sessions / Tuesday July 5

Magnetic Levitation & Transport II (MLT-II)

Session type *Oral*
Date *Tuesday, Jul. 5, 9:40 - 11:20*
Location *Blauwe Zaal*
Chair(s) *S. Ohasi*

Linear Motors (LMO)

Session type *Oral*
Date *Tuesday, Jul. 5, 9:40 - 11:20*
Location *Auditorium 4*
Chair(s) *A. Cassat*

Poster Session II (PS-II)

Session type *Poster*
Date *Tuesday, Jul. 5, 11:30 - 12:30*
Location *Poster Room*
Chair(s) *J.J. Pyrhönen*

Control of Linear Synchronous Motors (CSM)

Session type *Oral*
Date *Tuesday, Jul. 5, 14:00 - 15:20*
Location *Blauwe Zaal*
Chair(s) *W.R. Canders*

Linear Tranverse Flux machines (LTF)

Session type *Oral*
Date *Tuesday, Jul. 5, 14:00 - 15:20*
Location *Auditorium 4*
Chair(s) *J.B. Wang*

Linear Switched Reluctance and Stepper Machines (LSS)

Session type *Oral*
Date *Tuesday, Jul. 5, 15:50 - 17:10*
Location *Blauwe Zaal*
Chair(s) *J. Zentner*

Actuators and Special Machines II (ASM-II)

Session type *Oral*
Date *Tuesday, Jul. 5, 15:50 - 17:10*
Location *Auditorium 4*
Chair(s) *J.-P. Yonnet*

Closing session

Tuesday, July 5, 17:10 - 17:30

Presentation guidelines

Oral presentation

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 or CD 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.

Poster presentation

The maximum size of the posters is A0 portrait (85 x 120cm w x h). An author should set up the poster at least 15 minutes before the session starts, and MUST be present at his/her poster during the session. The conference provides a small sign designating the paper number to be posted on each board. Mounting materials will be provided.

Post symposium publication

After the conference, authors will be invited to resubmit their work to the IEEJ Transactions of Industry Applications or the IFAC Mechatronics Journal.

IEEJ Transactions of Industry Applications

The Transactions of the Institute of Electric Engineers of Japan (IEEJ) are an important source of information delivered monthly to the society members directly. They are a public forum for communicating expeditiously and extensively to the members, the results of new research, development and applications that contribute to the scientific research and technology in electric engineering.

IFAC Mechatronics Journal

A Journal of IFAC, the International Federation of Automatic Control Mechatronics is the synergistic combination of precision mechanical engineering, electronic control and systems thinking in the design of products and manufacturing processes. It relates to the design of systems, devices and products aimed at achieving an optimal balance between basic mechanical structure and its overall control.

The purpose of this journal is to provide rapid publication of topical papers featuring practical developments in mechatronics. It will cover a wide range of application areas including consumer product design, instrumentation, manufacturing methods, computer integration and process and device control, and will attract a readership from across the industrial and academic research spectrum. Particular importance will be attached to aspects of innovation in mechatronics design philosophy which illustrate the benefits obtainable by an a priori integration of functionality with embedded microprocessor control. A major item will be the design of machines, devices and systems possessing a degree of computer based intelligence. The journal seeks to publish research progress in this field with an emphasis on the applied rather than the theoretical. It will also serve the dual role of bringing greater recognition to this important area of engineering.