



# E|DPC-2014

Electric Drives Production  
Conference 2014

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4<sup>th</sup> International Conference

# Electric Drives Production

September 30<sup>th</sup> – October 1<sup>st</sup>, 2014  
Nuremberg, Germany

## Program

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The increasing scarcity of resources, rising energy costs, and ever-stricter environmental regulations are intensifying pressure on industry to use energy more efficiently than in the past. And there is enormous potential in this area. As much as 70 percent of the energy used in industrial plants is consumed by electric drives and motors alone. We offer an

extensive portfolio of energy-efficient products and solutions during the entire production process – from modern energy-saving motors to innovative software applications – along with comprehensive energy consulting. You can thus quickly achieve lasting gains in efficiency that will continue to benefit you, day in and day out.

Answers for industry.

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The international Electric Drives Production Conference and Exhibition in the last years has been established as an outstanding platform for the exchange of experiences for researchers, product developers, production experts, purchasers and potential users of electric drives.

**E|DPC 2014** offers more than 120 technical presentations in a total of 13 tracks within two days: five of them concentrate on the core topics of electric drives production technologies, materials and systems. The focus of the globally accompanying conference on Energy Transfer for Electric Vehicles (**E|TEV**) is set on the technology of wireless power transmission. For the first time the integrated **Green Factory Kolloquium** opens up new ideas and synergies of an environmental compatible production. And last but not least the conference is hosting the **E-MOTIVE** track, organized by the German Engineering Federation (VDMA).

Comprehensive industrial exhibitions, tutorials, poster presentations, technical tours and an inspiring social program will complement the conference and create a sustainable experience for every participant.

## ON-SITE ORGANIZATION

The **registration desk** is located in level 0 in the foyer.

Opening time Conference:

Monday	September 29 <sup>th</sup> , 2014	10:00 AM - 7:00 PM
Tuesday	September 30 <sup>th</sup> , 2014	8:00 AM - 7:00 PM
Wednesday	October 1 <sup>st</sup> , 2014	8:00 AM - 7:00 PM

Phone: +49 (911) 5302 9090

Opening time Exhibition:

Tuesday	September 30 <sup>th</sup> , 2014	9:00 AM - 5:00 PM
Wednesday	October 1 <sup>st</sup> , 2014	9:00 AM - 5:00 PM

**Conference bags** can be picked up at the registration desk. **On-spot registrations** for the conference, the technical tours, the evening reception and WiFi will be possible. **On-site payments** can be settled in cash (EUR) and by credit card.

The on-spot **speakers reception** and welcome drink will take place on **Monday, September 29<sup>th</sup>, 2014 6:00 PM** in the foyer of NCC West.

**Free WiFi** is available in all rooms of the exhibition centre.

## PUBLICATION

All registered and accepted papers will be included in the conference proceedings and also published at **ieeexplore.org**, **scopus.com** and **scholar.google.com**.



**Jörg Grotendorst**

CEO eCar Powertrain Systems  
Siemens AG, Digital Factory

**Dear participants,**

**Siemens commitment to sustainability and resource efficiency has a high priority in the company's business strategy for many years now. This means acting responsibly on behalf of future generations to achieve economic, environmental and social progress. As our portfolio evolves, we are reflecting these principles by focusing on growth fields such as digitalization and electrification. This is now anchored in our strategy Siemens 2020. We are doing this, not only to fulfil our social responsibility, but also to improve the productivity and competitiveness of our customers.**

Honoring our success in integrating sustainability into our company activities, Siemens was ranked Industry Group Leader in the renowned Dow Jones Sustainability Index in 2013 with 93 out of 100 points. We are aware of today's challenges, which result from the megatrends demographic change, globalization, climate change and urbanization. 951 million tons of CO<sub>2</sub>-equivalents were emitted in 2013; this means an increase of 12 million tons when compared to 2012. By 2050, 70 percent of mankind will live in cities; further, it is estimated that by 2030 the number of passenger cars will have doubled. At the same time, industry accounts for nearly 30 percent of energy consumption, and the estimated growth rate is the same as that for passenger cars.

Therefore, we have identified several areas where we need to take action: conservation of fossil energy sources, reasonable usage of electricity, and last but not least increased usage of renewable energy sources. Siemens supports these fields of activity with its power of innovation for industrial and automotive applications. Based on its products and its unique technological know-how, Siemens is able to create additional value – and achieve long-term growth and high profitability through digitalization and electrification.

And we can already prove this: We provide solutions for improved energy management and integrated drive systems for industrial applications that help to increase data transparency and simultaneously reduce energy consumption. To achieve optimum results we consider the complete value chain from product design through planning, engineering, production and all types of services. The expertise in electrical drive trains and industrial software also allows us to develop innovative solutions for automotive applications. With electrical powertrain systems, charging solutions and a number of research projects for car2car and car2grid connectivity, we are paving the way to achieve sustainable mobility, emphasizing Siemens 2020 once again.

I am pleased to have the opportunity of participating in this network of experts and innovators here at the EDPC and being able to make my contribution. I am looking forward to a number of inspiring discussions, speeches and workshops. EDPC has become a valuable platform to drive forward all our future-oriented ideas.

**Jörg Grotendorst**

CEO eCar Powertrain Systems  
Siemens AG, Digital Factory



**Dr. Ulrich Maly**

Lord Mayor of the City of  
Nuremberg

**Ladies and gentlemen, dear reader,**

**It is hard to overestimate the importance of electric drives for our modern society. Electric drives move trains, industrial robots, production lines, medical equipment and countless other things. They play a significant role in future developments in mobility, automation and power consumption.**

The 4<sup>th</sup> International Electric Drives Production Conference and Exhibition offers excellent information and networking opportunities for developers, researchers and potential users. New fields of technology regularly add to the scope of the conference. This year a new Green Economy Colloquium sheds light on environmentally compatible production technologies.

The City and Metropolitan Region of Nuremberg - with 3.5 million inhabitants - is a relevant business location for future technologies in the fields of automation, power electronics and power engineering. The 4<sup>th</sup> International Electric Drives Production Conference and Exhibition therefore is well placed in this region. Beyond a flourishing, technology-driven economy Nuremberg features a beautiful old town with a wide range of sights and cultural offerings, tasty gastronomical specialties and especially a high quality of life.

I welcome you to the City of Nuremberg and send my best wishes to all participants of the conference. I wish you a successful as well as pleasant stay in Nuremberg.

A handwritten signature in blue ink, reading "U. Maly", written in a cursive style.

**Dr. Ulrich Maly**

Lord Mayor of the City of Nuremberg





**Petra Haarbürger**

President  
Mesago Messe Frankfurt GmbH

**Dear participants of the E|DPC 2014 Conference and Exhibition,**

**The increasing use of electric motors and generators is having a considerable impact on the economy. Without electric drives or generators, current trends such as CO<sup>2</sup> reduction or increased automation would simply not happen. Their performance influences the competitiveness of whole sectors. The development of electrically driven vehicles in the automotive sector alone offers considerable growth potential for the whole range of electric drive technologies.**

E|DPC is therefore the place to be! The exhibition showcases components, semi-finished products and materials as well as production-related cutting-edge processes for electric drives and generators. Its focus offers exhibitors the chance to meet with relevant visitors and conference delegates from the field and present their integrated production concepts and flexible assembly technologies. Visitors of the exhibition can compare the latest products and innovations and find the best solution to their problem through technical discussions with experts. Delegates at the international IEEE conference will meet researchers, product developers, experts, buyers and potential users to discuss highly innovative products, production methods and strategies on display, ranging from all related industry sectors to production technologies. The unique E|DPC networking platform, comprising exhibition and conference, serves as the ideal information exchange for all.

Wishing you new insights, lasting impressions and valuable contacts in the exciting days ahead,

Yours faithfully.

A stylized, handwritten signature in blue ink, appearing to read 'P. Haarbuerger'.

**Petra Haarbürger**

Mesago Messe Frankfurt GmbH



**Prof. Dr.-Ing. Jörg Franke**

Head of the Institute  
for Factory Automation  
and Production Systems  
University of Erlangen-Nuremberg

### **Dear distinguished experts in electric drive technologies!**

Isn't it amazing, which firework of innovations in material, process and product technologies for electric drives have been exploited in the last time? This dynamic development is surely vested by the compelling and well-established advantages of electric motors like excellent efficiency, zero emission at end use, low noise, perfect controllability, long lasting robustness, simplicity and high power/ weight ratio. But another important reason accelerated this unexpected progress significantly: The entrance of car manufacturers and their suppliers with the clear mission to revolutionize automobiles by the use of electric motors as traction drives. This new application enhances the requirements especially in regards of power density, range and cost dramatically. Simultaneously the expected volumes and the mighty research potency of the huge car companies generate steadily new powerful solutions.

This creative environment is the most fruitful breeding ground for the Electric Drives Production Conference (E|DPC). More than 150 technical presentations and posters will show up the latest state of the art in electric drives production technologies in five related conferences:

- The well-established E-MOTIVE forum of the German Machine Builders Association (VDMA) gathers all specialists in electro mobility.
- The Energy Transfer in Electric Vehicle Conference (E|TEV) is the world leading distinctive summit of experts and opinion shapers in wireless power charging technologies.
- In the sessions of the Effizienz Fabrik prevailing research projects funded by the German Ministry of Education and Research (BMBF) will present their status.
- The core congress E|DPC is the world's outstanding platform for the exchange of knowledge in the production of electric motors.
- Additionally all attendees of the E|DPC have the unique opportunity to visit the Colloquium of the Green Factory Bavaria (GFB) for the first time. The GFB is financed by the Bavarian Ministry of Education and develops new methods, processes and technologies to optimize the resource consumption in Bavarian factories. More than 30 research projects in 10 universities in Bavaria are currently prepared and presented in 45 additional speeches.

Of course, I know that the special attractiveness of the E|DPC is founded for it's the unique meeting place for professionals in electric drives production. Here at the E|DPC you encounter well-known and new customers, suppliers, competitors and researchers; here -beside all the extremely important knowledge- you receive information, trends, moods and opportunities which are not written down in technical papers or patents. Consequently, the E|DPC offers an enthusing atmosphere with sufficient pauses to foster your network, an instructive and clearly arranged exhibition where you experience equipment and material supplier, poster sessions to get in a close discourse with the researchers, attractive tutorials which deepen your knowledge, exciting technical tours and a grand evening reception at the historical townhall of Nuremberg.

I am looking forward to spend some encouraging days with you in the picturesque and emerging Metropolitan Region Nuremberg!



**Prof. Dr.-Ing. Jörg Franke**  
E|DPC Chairman

The Organizing Committee sincerely thanks the following organizations and companies for sponsoring the E|DPC 2014:

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The 4<sup>th</sup> International Electric Drives Production Conference is kindly supported by the following organizations:



**AMA - Association for  
Sensors and Measurement**  
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**Green Factory Bavaria**  
[www.greenfactorybavaria.net](http://www.greenfactorybavaria.net)



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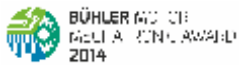
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**Bühler Mechatronic Award**  
<http://www.buehlermotor.com/DE/Mechatronic-Award>



**MHI - German Society for  
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[www.wgmhi.de](http://www.wgmhi.de)



**Cluster Mechatronik &  
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[www.cluster-ma.de](http://www.cluster-ma.de)



**City of Nuremberg**  
[www.nuernberg.de](http://www.nuernberg.de)



**ECPE -  
The Industrial Research Network  
for Power Electronics in Europe**  
[www.ecpe.org](http://www.ecpe.org)



**Nuremberg Metropolitan Region**  
[www.metropolregionnuernberg.de](http://www.metropolregionnuernberg.de)



**Electrical Manufacturing Coil  
Winding Association**  
[www.emcw.org](http://www.emcw.org)



**PELS -  
IEEE Power Electronics Society**  
[www.ieee-pels.org](http://www.ieee-pels.org)



**ETG - The Power Engineering  
Society of the VDE**  
[www.vde.com/etg](http://www.vde.com/etg)



**The UK Magnetics Society**  
[www.ukmagsoc.org](http://www.ukmagsoc.org)



**FVA - Research Association for  
Drive Technology**  
[www.fva-net.de](http://www.fva-net.de)



**VDMA -  
German Engineering Federation**  
[www.vdma.org](http://www.vdma.org)

Processing trade and industry consume more than half of the electric energy in Germany. Producing enterprises expend up to and sometimes even more than 10% of their total cost on energy. The steadily increasing energy demand with limited fossil resources and the tendential cost and investment intensive renewable energy will inevitably lead to further increases in expenditures on energy in manufacturing companies. Together with the strong perception of an environmentally friendly behavior among customers, employees and society energy is developing into the most important strategic competitive factor. Therefore, companies increasingly consider the economical use of energy. The potential savings are enormous: up to 30% or about 10 billion euro in Germany annually.

The model factories for energy efficiency production of the Fraunhofer Institute in Munich / Augsburg and Bayreuth and of the Universities in Erlangen-Nuremberg, Amberg/Weiden, Ansbach, Coburg, Hof and Schweinfurt / Wuerzburg are targeting the long-term objective to produce energy self-sufficient methods, technologies to optimize energy consumption in production and to minimize the heat loss in the laboratory halls, as well as strategies for adapting the energy consumption to the offer and procedures for decentralized renewable energy are developed and implemented in the Green Factories.

The Green Factories in Bavaria combine up the research skills of all relevant fields for energy efficient production, e.g. mechanical engineering / manufacturing technology, electrical engineering, information technology, process engineering, materials science and economic science. They also consider all major types of energy, e.g. for motion, illumination, information processing, manufacturing processes and thermal control. Furthermore, Green Factories address the use of energy in production, logistics and administration. With clear focus on energy efficiency in the production and state-wide, interdisciplinary collaboration, these Green Factories are aiming to expand into an international research network. In the model factories for energy-efficient production, innovative industrial partners should have the opportunity to present and to develop advanced techniques and technologies for energy-efficient production together with scientists from the participating research institutions in the available laboratories and production areas. They also allow for intensive networking and to pass on knowledge effectively to users and students. This unique concept of collaborative research between industry and universities guarantees an efficient research and a fast and more efficient transfer of the results into the economy.

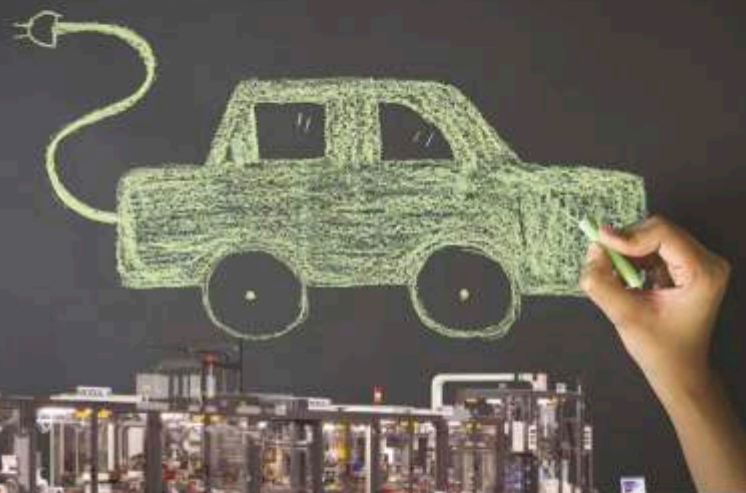
Within the 1st Green Factory Bavaria Kolloquium, the contents and first results of all individual projects are presented.

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## TIME SCHEDULE OVERVIEW

Monday, September 29 <sup>th</sup> , 2014							
10:00 AM	Tutorials			Technical Tours			
7:00 PM	Speakers Reception						Foyer NCC West
Tuesday, September 30 <sup>th</sup> , 2014							
9:00 AM	Welcome Coffee						Exhibition hall 12
9:30 AM	Opening Session Prof. Franke J., University of Erlangen-Nuremberg (DE) Thomsen L., future matters AG, Zuerich (CH) Grotendorst J., CEO eCar Powertrain Systems, Siemens AG, Nuremberg (DE) Prof. Meins J., TU Braunschweig (DE)						Room Paris
11:00 AM	Coffee Break						Exhibition hall 12
							
	Room Paris	Room London	Room Amsterdam	Room Zuerich	Room Venedig I	Room Venedig II	Room Madrid
11:30 AM	Production Scenarios for Winding Systems	Environmental Production of Electric Drives	Production of Electric Traction Drives	Markets and Strategies for WPT	Sustainable Production Strategies	Research Group Bayreuth	Sustainable Plant Solutions
1:00 PM	Lunch Break & Postersession						Exhibition hall 12
2:30 PM	Future Perspectives for Coil Manufacturing	Materials and Processes for Lamination Stacks	Process-Based Innovations of Electromobility	Interoperability and Standards for WPT	Green Electric Drives and Applications	Resource Efficient Factories	Research Group Bayreuth
4:00 PM	Coffee Break						Exhibition hall 12
4:45 PM	Winding Processes for Traction Drives	Magnetic Sheet Metal Material and Processing	New Electric Traction Motor Concepts	High Power Levels for Wireless Power Transfer	Green Electronics Production	Green Plastics Engineering	Efficient Conversation Technologies
7:30 PM	Evening Reception Welcome Address Guided walking tours						Historic Townhall of Nuremberg
Wednesday, October 1 <sup>st</sup> , 2014							
							
	Room Paris	Room London	Room Amsterdam	Room Zuerich	Room Venedig II	Room Madrid	
9:00 AM	Manufacturing of Electric Drives	Efficient Connection Processes	New Electric Machine Designs	Dynamic Power Transfer Applications	Applications for Machine Tools	Research Group Bayreuth	
10:30 AM	Coffee Break						Exhibition hall 12
11:15 AM	Isolation Technologies for Electric Drives	Quality Management of Magnetic Properties	Power Electronics and Control Methods	Electronics for Wireless Power Transfer	Sustainable Planning and Simulation	Processes and Production Machines (Research Group Augsburg)	
12:45 PM	Lunch Break & Postersession						Exhibition hall 12
2:15 PM	Computer Integrated Manufacturing	Quality Management in the Electric Drives Production	German Research Funding Focus on Drives Production	Broader Considerations for WPT	Efficient Electric Drives Production	Welding and Melting Technologies	
3:45 PM	Coffee Break						Exhibition hall 12
4:15 PM	Closing Session Buehler Mechatronic Award: Muhr P., Buehler Motor GmbH, Nuremberg (DE) Best Paper Award: Prof. Feldmann K., University of Erlangen-Nuremberg (DE) Green Factory Award: Dr. Kuttruff S., City of Nuremberg (DE)						Room Paris
5:00 PM	End of Conference						

## TUTORIALS

Monday, September 29<sup>th</sup>, 2014

During the tutorials vendors of materials, product and process technologies as well as research organizations will provide the participants with a profound and applied know-how about specific topics. Tutorials will be held in English or German at the Nuremberg Convention Centre (NCC).

Tutorial documentation and coffee breaks are included in the tutorial fee. All participants of the tutorials also have to register as participants of the E|DPC 2014. For further information and registration please visit our website [www.edpc.eu/tutorials](http://www.edpc.eu/tutorials).

Tutorial 1:	10:00 AM - 4:00 PM	EUR 100,-
<b>Evolution on Open Pole Stator Manufacturing</b> Marsilli & Co. S.p.A.	In this tutorial Marsilli is presenting manufacturing solutions and technologies for the complete process chain of the BLDC stator production. Discussion about the design needs of the product will be an important aspect to guarantee the feasibility of a cost efficient production solution.	
Tutorial 2:	10:00 AM - 4:00 PM	EUR 100,-
<b>Joining Technologies</b> University of Erlangen-Nuremberg Castec SRL	This tutorial offers new manufacturing developments for the joining of insulated copper wires and belonging cable shoes. Thus, the institute FAPS together with industry representatives offer an overview of possible wire diameters and forms and the corresponding manufacturing solutions which guarantee cost efficient and high quality joinings. Moreover, different approaches to quantify the connection quality will be presented.	
Tutorial 3:	10:00 AM - 1:30 PM	EUR 100,-
<b>Electrical Drivetrains Using The Novel Intelligent Stator Cage Machine (ISCAMA)</b> FEAAM GmbH Universität der Bundeswehr München	Based on a novel electrical machine design it will be shown during this tutorial how the entire electrical drivetrain (e.g. for the automotive industry) can be optimized concerning costs, efficiency, fail-safety, and weight simultaneously.	
Tutorial 4:	2:00 PM - 5:00 PM	EUR 100,-
<b>The Proper Handling of Power Electronic Components</b> Infineon Technologies AG	The tutorial deals with the challenges encountered of manufacturing power electronic converters. It will address material handling and root causes of device failures due to handling. Possible consequences will be discussed and hints be given on how to prevent the most common flaws while assembling power electronic components.	



## TIME SCHEDULE

Tuesday, September 30<sup>th</sup>, 2014



9:30 AM	Opening the Conference: <b>Prof. Franke J., University of Erlangen-Nuremberg (DE)</b>	
9:45 AM	520 Weeks Into the Future - Trends and Tipping Points in Electric Mobility: <b>Thomsen L., future matters AG (CH)</b>	
10:10 AM	Shaping the Future – Digitalization and Electrification for Efficient Applications in Industry and Automotive: <b>Grotendorst J., CEO eCar Powertrain Systems, Siemens AG (DE)</b>	
10:35 AM	Further Innovations in the Wireless Charging Technology: <b>Prof. Meins J., TU Braunschweig (DE)</b>	
<b>11:00 AM</b>	<b>Coffee Break in the exhibition hall 12</b>	
	<b>Session 1: Room Paris</b> <b>Production Scenarios for Winding Systems</b> Session Chair: Schwander R., SCO Expert Pool, Lucerne (CH)	<b>Session 2: Room London</b> <b>Environmental Production of Electric Drives</b> Session Chair: Prof. Dietz A., Technische Hochschule Nuernberg (DE)
11:30 AM	<b>New Winding Technology</b> Dr. Ovrebe S., SmartMotor AS, Trondheim (NO)	<b>A Model to Assess The Sustainability of Manufacturing Equipment Using The Example of a Reusable Frequency Converter Housing</b> Drechsel M. W., Audi Planung GmbH, Ingolstadt (DE)
12:00 PM	<b>Insulation and Material Technology for New Winding Systems</b> Weyl P., Von Roll Schweiz AG, Breitenbach (CH)	<b>Analyzing the Active Power of Variable Frequency Drives in Manufacturing Plants</b> Reger A., Fraunhofer IPA, Bayreuth (DE)
12:30 PM	<b>Manufacturing Technology for New Winding Systems</b> Bayer P., Micamation AG, Daellikon (CH)	<b>Innovative and Energy-Efficient Resin Technologies within the Production of Electric Drives</b> Hofmann B., University of Erlangen-Nuremberg (DE)
<b>1:00 PM</b>	<b>Lunch Break &amp; Postersession in the exhibition hall 12</b>	
	<b>Session 3: Room Paris</b> <b>Future Perspectives for Coil Manufacturing</b> Session Chair: Prof. Willner K., University of Erlangen-Nuremberg (DE)	<b>Session 4: Room London</b> <b>Materials and Processes for Lamination Stacks</b> Session Chair: Dr. Waasner M., Gebrüder Waasner Elektrotechnische Fabrik GmbH (DE)
2:30 PM	<b>Active Controllable and Flexible Winding Needle</b> Schneider M., University of Erlangen-Nuremberg (DE)	<b>Annealing of Electrical Steel</b> Dr. Hilinski E., Tempel Steel Company, Chicago (US)
3:00 PM	<b>Cast Coils for Electrical Machines and their Application in Automotive and Industrial Drive Systems</b> Groeniger M., Fraunhofer IFAM (DE)	<b>Automatic Manufacturing of Laminated Stator Teeth for the Automotive Industry</b> Staeuble T., SWD AG Stator- und Rotortechnik, Densbüren (CH)
3:30 PM	<b>Case History: BLDC High Flexibility in a Mass Production System</b> Kiefer D., Marsilli & Co. S.p.A., Castelleone (IT)	<b>Laser Beam Welding of Electrical Steel Stacks - Investigation of the Weldability</b> Schade T., Robert Bosch GmbH, Stuttgart (DE)
<b>4:00 PM</b>	<b>Coffee Break in the exhibition hall 12</b>	
	<b>Session 5: Room Paris</b> <b>Winding Processes for Traction Drives</b> Session Chair: Prof. Monkman G., OTH Regensburg (DE)	<b>Session 6: Room Lodon</b> <b>Magnetic Sheet Metal Material and Processing</b> Session Chair: Prof. Fleischer J., Karlsruhe Institute of Technology (DE)
4:45 PM	<b>Needle Winding for Distributed Windings without the Use of Insulating Disks</b> Stenzel P., Audi AG, Ingolstadt (DE)	<b>Metallurgical Solutions for New Top Performance Non-Oriented Electrical Steel for Cores</b> Jacobs S., ArcelorMittal, Gent (BE)
5:15 PM	<b>Needle Winding Technology for Symmetric Distributed Windings</b> Grosse T., RWTH Aachen University (DE)	<b>Laser Manufacturing of Electrical Machines</b> Siebert R., Dresden University of Technology (DE)
5:45 PM	<b>Flexible Production Concepts for the Winding of Efficient Electric Traction Drives</b> Bickel B., University of Erlangen-Nuermberg (DE)	<b>Continuous Rotational Cutting of Lamination Sheets for Electrical Machines</b> Hubert M., University of Erlangen-Nuremberg (DE)
<b>7:30 PM</b>	<b>Evening Reception at the Historic Townhall of Nuremberg</b>	



## TIME SCHEDULE

Tuesday, September 30<sup>th</sup>, 2014

E-MOTIVE

E|TEV-2014

9:30 AM	Opening the Conference: <b>Prof. Franke J., University of Erlangen-Nuremberg (DE)</b>	
9:45 AM	520 Weeks Into the Future - Trends and Tipping Points in Electric Mobility: <b>Thomsen L., future matters AG (CH)</b>	
10:10 AM	Shaping the Future – Digitalization and Electrification for Efficient Applications in Industry and Automotive: <b>Grotendorst J., CEO eCar Powertrain Systems, Siemens AG (DE)</b>	
10:35 AM	Further Innovations in the Wireless Charging Technology: <b>Prof. Meins J., TU Braunschweig (DE)</b>	
11:00 AM	<b>Coffee Break in the exhibition hall 12</b>	
	<b>Session E-MOTIVE i: Room Amsterdam</b> <b>Production of Electric Traction Drives</b> Session Chair: Dr. Boehm T., Volkswagen AG, Wolfsburg (DE)	<b>Session E TEV I: Room Zuerich</b> <b>Markets and Strategies for WPT</b> Session Chair: Prof. Meins J., TU Braunschweig (DE)
11:30 AM	<b>Design, Integration and Measurement of a Hybrid Machine with Casted Coils</b> Junginger C., Volkswagen AG, Baunatal (DE)	<b>The Development of a High Power, High Efficiency EVnplugging the Electric Car Charger</b> Prof. Mi C., University of Michigan - Dearborn (US)
12:00 PM	<b>Transformable Production Technologies as a Reaction on a Varying Demand of Electric Traction Motors</b> Reinders C., RWTH Aachen University (DE)	<b>Electric Vehicles - Global Production, Wireless Charging and Outlook</b> Scott B., IHS Automotive, Wellingborough (UK)
12:30 PM	<b>The 5 Fundamental Jigsaw Pieces of Successful Lean Implementation in a Siemens Motor Factory in Mexico</b> Dr. Beitinger G., Siemens AG, Erlangen (DE)	<b>Wireless Underground Power Supply for Trolley Buses and Transferability to Other Vehicle Categories</b> Prof. Pucher E., TU Wien (AT)
1:00 PM	<b>Lunch Break &amp; Postersession in the exhibition hall 12</b>	
	<b>Session E-MOTIVE ii: Room Amsterdam</b> <b>Process-Based Innovations of Electromobility</b> Session Chair: Speiser M., MAGNA Powertrain AG & Co KG, Albersdorf (DE)	<b>Session E TEV II: Room Zuerich</b> <b>Interoperability and Standards for WPT</b> Session Chair: Dr. Turki F., Vahle GmbH & Co. KG (DE)
2:30 PM	<b>High Bandwidth Current Sensors as an Enabler for Advanced Control Techniques</b> Dr. Slatter R., Semsittec GmbH, Lahnau (DE)	<b>A Universal Definition of the Interoperability for Cross-Manufacturer Contactless Charging Systems</b> Dr. Thamm S., ifak, Magdeburg (DE)
3:00 PM	<b>Cost Estimation of Electric Traction Machine and Gearbox for a Hybrid Vehicle Application</b> Domingues G., Lund University (SE)	<b>Interoperability Requirements for Stationary Wireless Charging and Potential Solutions</b> Dr. Ombach G., QUALCOMM CDMA Technologies GmbH, Munich (DE)
3:30 PM	<b>Generic Method to Proof the Freedom from Interference in Accordance with ISO 26262</b> Dr. Hoch S., ICS AG, Stuttgart (DE)	<b>Design of a 3kW Primary Power Supply Unit for Inductive Charging Systems Optimized for the Compatibility to Receiving Units with 20kW Rated Power</b> Zimmer M., University of Stuttgart (DE)
4:00 PM	<b>Coffee Break in the exhibition hall 12</b>	
	<b>Session E-MOTIVE iii: Room Amsterdam</b> <b>New Electric Traction Motor Concepts</b> Session Chair: Prof. Hahn I., University of Erlangen-Nuremberg (DE)	<b>Session E TEV III: Room Zuerich</b> <b>High Power Levels for Wireless Power Transfer</b> Session Chair: Prof. Haerri V., Lucerne University of Applied Sciences and Arts (CH)
4:45 PM	<b>Design and Measurement of a Laminated Permanent Magnet Excited Transverse Flux Machine for Electrical Vehicles</b> Seibold P., University of Stuttgart (DE)	<b>Development of a Highly Efficient Inductive Power Transfer System for Charging Electric Vehicles using SiC MOSFETs</b> Reichert S., Fraunhofer ISE, Freiburg (DE)
5:15 PM	<b>Highly Integrated Drive Train Solution: Integration of Motor, Inverter and Gearing</b> Dr. Burkhardt Y., Siemens AG, Erlangen (DE); Rauh H., Fraunhofer IISB, Erlangen (DE)	<b>High Efficient, Compact Vehicle Power Electronics for 22kW Inductive Charging</b> Dr. Henkel A., Robert Bosch GmbH, Stuttgart (DE)
5:45 PM	<b>Investigation of the Segment Order in Step-Skewed Synchronous Machines on Noise and Vibration</b> Blum J., BMW AG, Munich (DE)	<b>Electric Operability of an Inductive Charging System for Electric Vehicles in an Urban Area</b> Borrmann D., Fraunhofer IAO, Stuttgart (DE)
7:30 PM	<b>Evening Reception at the Historic Townhall of Nuremberg</b>	

## TIME SCHEDULE

Wednesday, October 1<sup>st</sup>, 2014

 E|DPC-2014

	<b>Session 7: Room Paris</b> <b>Manufacturing of Electric Drives</b> Session Chair: Prof. Drummer D., University of Erlangen-Nuremberg (DE)	<b>Session 8: Room London</b> <b>Efficient Connection Processes</b> Session Chair: PD Dr.-Ing. habil. Möckel A., Ilmenau University of Technology (DE)
9:00 AM	<b>Influences of the Design and Production on the Characteristic Properties of Multipolar Bonded Magnets</b> Kurth K., University of Erlangen-Nuremberg (DE)	<b>Evaluation of Energy Efficient Joining Processes in the Field of Electric Drives Manufacturing Considering Quality Aspects</b> Spreng S., University of Erlangen-Nuremberg (DE)
9:30 AM	<b>Uncertainty and Statistical Methods for Electrical Machine Production</b> Fyhr P., Lund University (SE)	<b>Optimized Winding and Connection Concept for an Integrated BLDC-Motor Drive</b> Neubauer A., Mahle GmbH, Stuttgart (DE)
10:00 AM	<b>Reliable Connections Between Copper and Aluminum for High Voltage Applications</b> Hofmann K., Bayerisches Laserzentrum GmbH, Erlangen (DE)	<b>The Untapped Optimization Potential of Historically Coined Manual Operations in the Manufacturing of Stators</b> Halder H., Otto Rist GmbH & Co. KG, Baienfurt (DE)
10:30 AM	<b>Coffee Break in the exhibition hall 12</b>	
	<b>Session 10: Room Paris</b> <b>Isolation Technologies for Electric Drives</b> Session Chair: Prof. Ehmann B., Hedrich Group, Katzenfurt (DE)	<b>Session 11: Room London</b> <b>Quality Management of Magnetic Properties</b> Session Chair: Prof. Becker S., University of Erlangen-Nuremberg (DE)
11:15 AM	<b>Performance Composites &amp; Vacuum Casting Technology. Enable Highly Efficient Electric Machines</b> Gugulla B., Hedrich GmbH, Ehringshausen (DE)	<b>Magneto-Optical Quality Control of Magnetic Materials</b> Dr. Richert H., Matesy GmbH, Jena (DE)
11:45 AM	<b>Hot Riveting Technology &amp; Impregnation of Hybrid and Electric Motors</b> Motta C., bdtronic GmbH, Weikersheim (DE)	<b>3-Axis Magnetic Field Camera for Ultrafast and High Resolution Inspection of Permanent Magnets</b> Dr. Vervaeke K., MagCam NV, Leuven (BE)
12:15 PM	<b>Impact of Impregnating Materials and Impregnating Processes on the Partial Discharge Resistance of Low Voltage Electrical Machines</b> Kuschnerus M., ELANTAS Beck GmbH, Hamburg (DE)	<b>Magneto-Optical and Field-Metric Evaluation of the Punching Effect on Magnetic Properties of Electrical Steels with Varying Alloying Content and Grain Size</b> Naumoski H., Daimler AG, Ulm (DE)
12:45 PM	<b>Lunch Break &amp; Postersession in the exhibition hall 12</b>	
	<b>Session 13: Room Paris</b> <b>Computer Integrated Manufacturing</b> Session Chair: Dr. Kolb J., Schaeffler Technologies GmbH & Co. KG, Karlsruhe (DE)	<b>Session 14: Room London</b> <b>Quality Management in the Electric Drives Production</b> Session Chair: Prof. Gerling D., Universität der Bundeswehr Muenchen (DE)
2:15 PM	<b>Fault Analysis of Linear Winding Processes for Noncircular Orthocyclic Coils</b> Sell-Le Blanc F., Karlsruhe Institute of Technology (DE)	<b>Comparison of End of Line Tests for Serial Production of Electric Motors in Hybrid Truck Applications</b> Butov A., Daimler AG, Stuttgart (DE)
2:45 PM	<b>Structural Mechanics Process Simulation of Coil Winded Stator Segments for E-Traction Drives</b> Boenig J., University of Erlangen-Nuremberg (DE)	<b>Analysis of Different Modeling Methods for the Diagnosis of PMSM Motor Faults in Production Lines</b> Wu C., Robert Bosch GmbH, Schwieberdingen (DE)
3:15 PM	<b>Simulation of Thin-Walled Injection Molded Magnets</b> Nguyen M., University of Stuttgart (DE)	<b>Influence of Different Impregnation Methods and Resins on Thermal Behavior and Lifetime of Electrical Stators</b> Richnow J., Universität der Bundeswehr Muenchen(DE)
3:45 PM	<b>Coffee Break in the exhibition hall 12</b>	
	<b>Closing Session: Room Paris</b>	
4:15 PM	<b>Buehler Mechatronic Award:</b> Muhr P., Buehler Motor GmbH, Nuremberg (DE)	
4:40 PM	<b>Best Paper Award:</b> Prof. Feldmann K., University of Erlangen-Nuremberg (DE)	
4:50 PM	<b>Green Factory Award:</b> Dr. Kuttruff S., City of Nuremberg (DE)	
5:00 PM	<b>Closing Words:</b> Prof. Franke J., University of Erlangen-Nuremberg (DE)	

## TIME SCHEDULE

Wednesday, October 1<sup>st</sup>, 2014

 E|DPC-2014

 E|TEV-2014

	<b>Session 9: Room Amsterdam</b> <b>New Electric Machine Designs</b> Session Chair: Dr. Winter R., Zentralverband Elektrotechnik- und Elektronikindustrie - ZVEI e.V. (DE)	<b>Session E TEV IV : Room Zuerich</b> <b>Dynamic Power Transfer Applications</b> Session Chair: Prof. Mi C., University of Michigan (US)
9:00 AM	<b>Thermal Optimization of Vacuum Ironless Motor</b> Dr. Van Vuure T., Tecnotion, Almelo (NL)	<b>Conductive Feeding of Electric Vehicles from the Road While Driving</b> Asplund G., Elways AB, Solna (SE)
9:30 AM	<b>Heat Transfer Analysis of a Traction Machine with Directly Cooled Laminated Windings</b> Dr. Reinap A., Lund University (SE)	<b>Dynamic Inductive Power Transfer for Electric Vehicles</b> Dr. Turki F., Paul Vahle GmbH & Co. KG, Kamen (DE)
10:00 AM	<b>New Methods for Reducing the Cogging Torque and Torque Ripples of PMSM</b> Dr. Dajaku G., FEAAM GmbH, Neubiberg (DE)	<b>Automatic Tuning Concept for a Three-Phase Inductive Power Transfer System</b> Arnold R., Karlsruhe Institute of Technology (DE)
10:30 AM	<b>Coffee Break in the exhibition hall 12</b>	
	<b>Session 12: Room Amsterdam</b> <b>Power Electronics and Control Methods</b> Session Chair: Prof. Frey L., Fraunhofer IISB, Erlangen (DE)	<b>Session E TEV V: Room Zuerich</b> <b>Electronics for Wireless Power Transfer</b> Session Chair: Prof. Parspour N., University of Stuttgart (DE)
11:15 AM	<b>Grid-Side Control of Inverters for Power Generation in Microgrids</b> Dr. Benesch N., Siemens AG, Erlangen (DE)	<b>A Systematic Comparison of Hard- and Soft-Switching Topologies for Inductive Power Transfer Systems</b> Stewing F., Robert Bosch GmbH, Stuttgart (DE)
11:45 AM	<b>Modular Integration of a 1200 V SiC Inverter in a Commercial Vehicle Wheel-Hub Drivetrain</b> Hilpert F., Fraunhofer IISB, Erlangen (DE)	<b>Wired and Wireless Charging of Electric Vehicles: A System Approach</b> Lempidis G., Fraunhofer IWES, Kassel (DE)
12:15 PM	<b>Sensorless Observer Based Hysteresis Control of a Transversalfux Machine</b> Bauer J., University of Applied Sciences Landshut (DE)	<b>Loss Model and Control of Bidirectional LCL-IPT System</b> Voglitsis D., TU Delft (NL)
12:45 PM	<b>Lunch Break &amp; Postersession in the exhibition hall 12</b>	
	<b>Session 15: Room Amsterdam</b> <b>German Research Funding Focus on Drives Production</b> Session Chair: Prof. Feldmann K., University of Erlangen-Nuremberg (DE)	<b>Session E TEV VI: Room Zuerich</b> <b>Broader Considerations for WPT</b> Session Chair: Prof. Pucher E., TU Wien (AT)
2:15 PM	<b>Large-Series Production of Novally Electric Radial Flux Motors</b> Schwab O., Compact Dynamics GmbH, Starnberg (DE)	<b>Calculation of Ohmic Losses for Litz Wire Applications by a Coupled Numeric Analytical Method</b> Roskopf A., Fraunhofer IISB, Erlangen (DE)
2:45 PM	<b>Throughput Analysis of Baked Varnish Stacking for Automotive Electric Drives</b> Stoll J., Karlsruhe Institute of Technology (DE)	<b>Magnetic Field Emission Comparison at Different Quality Factors with Series-Parallel Compensation Network for Wireless Power Transfer to Vehicles</b> Batra T., Aalborg University (DK)
3:15 PM	<b>Hysteresis-Model Oriented Test Procedure for Soft-Magnetic Properties of Printed or Laminated Toroids</b> Lindner M., Technische Universität Chemnitz (DE)	<b>Challenges and Solutions for Guided Vehicle Positioning for Wireless Charging</b> Bartz S., Continental Automotive GmbH, Regensburg (DE)
3:45 PM	<b>Coffee Break in the exhibition hall 12</b>	
	<b>Closing Session: Room Paris</b>	
4:15 PM	<b>Buehler Mechatronic Award:</b> Muhr P., Buehler Motor GmbH, Nuremberg (DE)	
4:40 PM	<b>Best Paper Award:</b> Prof. Feldmann K., University of Erlangen-Nuremberg (DE)	
4:50 PM	<b>Green Factory Award:</b> Dr. Kuttruff S., City of Nuremberg (DE)	
5:00 PM	<b>Closing Words:</b> Prof. Franke J., University of Erlangen-Nuremberg (DE)	

## TIME SCHEDULE

Tuesday, September 30<sup>th</sup>, 2014



9:30 AM	<b>Opening Session: Room Paris</b>		
11:00 AM	<b>Coffee Break in the exhibition hall 12</b>		
	<b>Session Green Factory A: Room Venedig I Sustainable Production Strategies</b> Session Chair: Dr. Hauch J., University of Erlangen-Nuremberg (DE)	<b>Session Green Factory B: Room Venedig II Research Group Bayreuth</b> Session Chair: Prof. Steber M., University of Applied Sciences Coburg (DE)	<b>Session Green Factory C: Room Madrid Sustainable Plant Solutions</b> Session Chair: Prof. Michos G., University of Applied Sciences Schweinfurt-Würzburg (DE)
11:30 AM	<b>GEM-Portal: Green Energy Management Portal</b> Brandmeier M., University of Erlangen-Nuremberg (DE)	<b>Green Factory Bayreuth: Integration In a New Lab Building</b> Dr. Freiburger S., Fraunhofer IPA, Bayreuth (DE)	<b>E SysDEN: System Optimization of Energy Supply for Compressed Air</b> Prof. Eppler P., Friedrich F., Coburg University of Applied Sciences and Arts (DE)
12:00 PM	<b>E Benchmark: Assessment Strategies of Energy Efficiency for the Production</b> Bleise A., IT innovations, Nuremberg (DE) Kreitlein S., University of Erlangen-Nuremberg (DE)	<b>Methodologies to Increase Energy Efficiency in Discrete Manufacturing</b> Dr. Boehner J., Fraunhofer IPA, Bayreuth (DE)	<b>E Flow: Energy-Efficient, Versatile and Autonomous Transport Vehicles for the Internal Material Flow</b> Scholz M., University of Erlangen-Nuremberg (DE)
12:30 PM	<b>Green Controlling</b> Rackow, T., Technische Hochschule Ingolstadt (DE)	<b>Identifying Energy Efficiency Potentials by Applying Flexible Measurement Systems</b> Hamacher M., Fraunhofer IPA, Bayreuth (DE)	<b>Effitrusion: Efficient Use of Energy in the Extrusion of Plastic Profiles and Pipes</b> Stumpf S., Hof University of Applied Sciences (DE)
1:00 PM	<b>Lunch Break &amp; Postersession in the exhibition hall 12</b>		
	<b>Session Green Factory D: Room Venedig I Green Electric Drives and Applications</b> Session Chair: Prof. Becker S., University of Erlangen-Nuremberg (DE)	<b>Session Green Factory E: Room Venedig II Resource Efficient Factories</b> Session Chair: Dr. Michl M., University of Erlangen-Nuremberg (DE)	<b>Session Green Factory F: Room Madrid Research Group Bayreuth</b> Session Chair: Dr. Freiburger S., Fraunhofer Projektg. PPI, Stuttgart (DE)
2:30 PM	<b>Analysis of Electric Energy Consumption in the German Industry</b> Javied T., University of Erlangen-Nuremberg (DE)	<b>Green Factory Augsburg: A Platform for Research, Demonstration and Learning</b> Schmidt V., Fraunhofer IWU, Augsburg (DE)	<b>Energy Efficiency Optimization of Industrial Cleaning Systems</b> Kuebler F., Fraunhofer IPA, Bayreuth (DE)
3:00 PM	<b>EffiAkust: Noise Reduced Design of Fans and Production Plants Considering Psychoacoustic Evaluation Criteria</b> Münsterjohann S., University of Erlangen-Nuremberg (DE)	<b>Energy Concepts for Manufacturing Companies</b> Unterberger E., Fraunhofer IWU, Augsburg (DE)	<b>Improving Energy Efficiency in Industrial Workstations</b> Weeber M., Fraunhofer IPA, Bayreuth (DE)
3:30 PM	<b>BOMA: Energy-Efficient Electric Drives and Powertrains in Variable Speed Drive Applications</b> Hubert T., Technische Hochschule Nuernberg (DE)	<b>Simplified Product Life Cycle Assessments by Use of Intelligent Measurement Concepts</b> Gebbe C., Fraunhofer IWU, Augsburg (DE)	
4:00 PM	<b>Coffee Break in the exhibition hall 12</b>		
	<b>Session Green Factory G: Room Venedig I Green Electronics Production</b> Session Chair: Prof. Reichenberger T., Technische Hochschule Nuernberg (DE)	<b>Session Green Factory H: Room Venedig II Green Plastics Engineering</b> Session Chair: Prof. Reichel H., University of Applied Sciences Hof (DE)	<b>Session Green Factory I: Room Madrid Efficient Conversation Technologies</b> Session Chair: Dr. Böhner J., Fraunhofer Projektg. PPI, Stuttgart (DE)
4:45 PM	<b>REEP: Resource-Efficient Electronics Production</b> Esfandiyari A., University of Erlangen-Nuremberg (DE)	<b>Eco<sup>2</sup>Skin: Energy-Efficient Manufacture of Optical Multilayer Composites</b> Prof. Drummer D., University of Erlangen-Nuremberg (DE)	<b>Efficient Aluminium: Reduction of Energy Consumption for Hot Exposure of Precipitation-Hardenable Aluminum Alloys Precipitation</b> Lechner M., University of Erlangen-Nuremberg (DE)
5:15 PM	<b>RUDI<sup>S</sup>: Printability of Nanoscaled Silver Inks on Injection Molded Polymer Substrates</b> Bahr J., Technische Hochschule Nuernberg (DE)	<b>ReSAF: Resource-Efficient Powder- and Beam-Based Additive Serial Production</b> Prof. Drummer D., University of Erlangen-Nuremberg (DE)	<b>RehZahn: Resource-efficient production of ready to use gears by cold forging</b> Reiss A., University of Erlangen-Nuremberg (DE)
7:30 PM	<b>Evening Reception at the Historic Townhall of Nuremberg</b>		

## TIME SCHEDULE

Wednesday, October 1<sup>st</sup>, 2014



	Session Green Factory J: Room Venedig II Applications for Machine Tools Session Chair: Traschewski H., Verein Deutscher Ingenieure VDI, Duesseldorf (DE)	Session Green Factory K: Room Madrid Research Group Bayreuth Session Chair: Prof. Zäh Technische Unversitaet Muenchen (DE)
9:00 AM	<b>E<sup>2</sup>D: Increasing Energy Efficiency Through Damping of Machine Structures</b> Kleinwort R., Technische Unversitaet Muenchen (DE)	<b>Information Acquisition in Production Plants by Active Power Measurement</b> Reger A., Fraunhofer IPA, Bayreuth (DE)
9:30 AM	<b>eco-mill-5: Energetic Optimization of Rotary Machine Tables for Simultaneous 5-Axis Milling</b> Mueller J., University of Applied Sciences Schweinfurt-Würzburg (DE)	<b>Energy Efficiency Assessment of CFRP-Cutting Processes</b> Weeber M., Fraunhofer IPA, Bayreuth (DE)
10:00 AM	<b>GreenBearings: Minimization and Avoidance of Conventional Lubricants in Rolling Bearings by Tribological Coatings</b> Kröner J., University of Erlangen-Nuremberg (DE)	<b>Improving Energy Efficiency in Intralogistics</b> Lohr K., Fraunhofer IPA, Bayreuth (DE)
10:30 AM	Coffee Break in the exhibition hall 12	
	Session Green Factory L: Room Venedig II Sustainable Planning and Simulation Session Chair: Dr. Öchsner R., Fraunhofer IISB, Erlangen (DE)	Session Green Factory M: Room Madrid Processes and Production Machines (Research Group Augsburg) Session Chair: Prof. Reinhart G., Technische Unversitaet Muenchen (DE)
11:15 AM	<b>EffiPLAS: Energy Planning of Manufacturing Systems with Methods-Energy Measurement (MEM) and Multi-Domain Simulation Approach</b> Paryanto, University of Erlangen-Nuremberg (DE)	<b>Biological Cleaning of Additively Manufactured Parts</b> Dr. Gratz A., Fraunhofer IWU, Augsburg (DE)
11:45 AM	<b>KS-Sim: Development of a Methodology for Resource-Orienting Control of Plant Processes in the Sand-Lime Brick Industry</b> Donhauser T., University of Erlangen-Nuremberg (DE)	<b>Format Flexible and Resource Efficient Packaging Machines</b> Dr. Braunreuther S., Fraunhofer IWU, Augsburg (DE)
12:15 PM	<b>SimEM: Simulation-Based Development and Validation of Energy Management Concepts for Plant- and Machinery Engineering</b> Prof. Wenk M., OTH Amberg-Weiden (DE)	<b>Evaluation of the Resource Efficiency of Production Machines</b> Schmidt V., Fraunhofer IWU, Augsburg (DE)
12:45 PM	Lunch Break & Postersession in the exhibition hall 12	
	Session Green Factory N: Room Venedig II Efficient Electric Drives Production Session Chair: Prof. Dietz A., Technische Hochschule Nuernberg (DE)	Session Green Factory O: Room Madrid Welding and Melting Technologies Session Chair: Prof. Schlüter W., Ansbach University of Applied Sciences (DE)
2:15 PM	<b>E Magnetize: Energy-Efficient Magnetizing Technologies in Electrical Engineering</b> Meyer A., University of Erlangen-Nuremberg (DE)	<b>SmartMelting: Increasing Energy Efficiency in the Melting Operation in the Metal Industry</b> Ringleb A., Ansbach University of Applied Sciences (DE)
2:45 PM	<b>E Vertech: Energy-Efficient Joining Technologies in Electrical Engineering</b> Spreng S., University of Erlangen-Nuremberg (DE)	<b>EkuLeis: Energy Efficient Laser Beam Welding of Copper Alloys in Power Electronics – Current Results</b> Mann V., University of Erlangen-Nuremberg (DE)
3:15 PM	<b>E Solation: Energy-Efficient Insulation Technologies in Electrical Engineering</b> Hofmann B., University of Erlangen-Nuremberg (DE)	<b>ELISS: Energy-Efficient Laser Beam Joining of Body Materials Using Innovative Beam Sources and Beam Oscillation Strategies</b> Wesp J., University of Erlangen-Nuremberg (DE)
3:45 PM	Coffee Break in the exhibition hall 12	
	Closing Session: Room Paris	
4:15 PM	Buehler Mechatronic Award: Muhr P., Buehler Motor GmbH, Nuremberg (DE)	
4:40 PM	Best Paper Award: Prof. Feldmann K., University of Erlangen-Nuremberg (DE)	
4:50 PM	Green Factory Award: Dr. Kuttruff S., City of Nuremberg (DE)	
5:00 PM	Closing Words: Prof. Franke J., University of Erlangen-Nuremberg (DE)	

## POSTERSESSION IN THE EXHIBITION HALL 12

Tuesday, September 30<sup>th</sup>, 2014 and Wednesday, October 1<sup>st</sup>, 2014

Session Chair: Prof. Kremser A., Technische Hochschule Nuernberg (DE);

Dr. Dobroschke A., Schaeffler Group, Herzogenaurach (DE)

### Active Control of Gear Pair Vibration with an Electronically Commutated Motor as Actuator

Benzel T., Robert Bosch GmbH, Reutlingen (DE)

### Determination of the Prospective Energy Consumption of Manufacturing Technologies with Methods-Energy Measurement (MEM)

Bornschlegl M., Audi Planung GmbH, Ingolstadt (DE)

### Defect Reduction in the Production of Electric Drives by Downstream Compensation and Space-Resolved Inspection

Coupek D., University of Stuttgart (DE)

### Standardization and Innovation: Dissolving this Contradiction with Modular Production Architectures

Foerstmann R., RWTH Aachen University (DE)

### Minimization of Energy Needs in the Industry of Electric Drives Manufacturing Considering Process-Related Temperature Curves

Kohl J., University of Erlangen-Nuremberg (DE)

### E|Benchmark - a Pioneering Method for Process Planning and Sustainable Manufacturing Strategies for Processes in the Electric Drives Production

Kreitlein S., University of Erlangen-Nuremberg (DE)

### A Material Model for Lamination Stacks Based on Rough Contacts

Luscheider V., University of Erlangen-Nuremberg (DE)

### Rotor Balancing by Optimized Magnet Positioning during Algorithm-Controlled Assembly Process

Peter M., Karlsruhe Institute of Technology (DE)

### Optimization Approach of Wireless Power Transfer Systems for Electric Vehicles from a Process and Material Perspective

Risch F., University of Erlangen-Nuremberg (DE)

### Bi-Directional Charging System for Electric Vehicles

Hofmann M.,  
University of Applied Sciences Wuerzburg-Schweinfurt (DE)

### Simultaneous Contact less Charging of Multiple Electric Vehicles

Prof. Schmidt H.-P.,  
OTH Amberg-Weiden (DE)





### On the Effect of Material Processing: Microstructural and Magnetic Properties of Electrical Steel Sheets

Steentjes S., RWTH Aachen University (DE)

## TECHNICAL TOURS:

Monday, September 29<sup>th</sup>, 2014

Leading industrial companies and research institutes will offer the opportunity to visit their facilities to all participants.

Technical Tour A:	10:00 AM - 2:00 PM	EUR 100,-
Research on Electric Drives	<b>10:00 AM:</b> <b>Friedrich-Alexander-University of Erlangen Nuremberg</b> Egerlandstraße 7, Erlangen <b>12:30 PM:</b> <b>E Drive-Center</b> (Bavarian Technology Center for Electric Drives) Fuerther Str. 246b, Nuremberg	 
Technical Tour B:	10:00 AM - 2:00 PM	EUR 100,-
Electric Drives Production	<b>10:00 AM:</b> <b>Bühler Motor GmbH</b> Anne-Frank-Str. 33-35, Nuremberg <b>12:30 PM:</b> <b>Siemens AG, Drive Technologies Large Drives</b> Vogelweiherstr. 1-15, Nuremberg	 



## ON-SITE PLAN

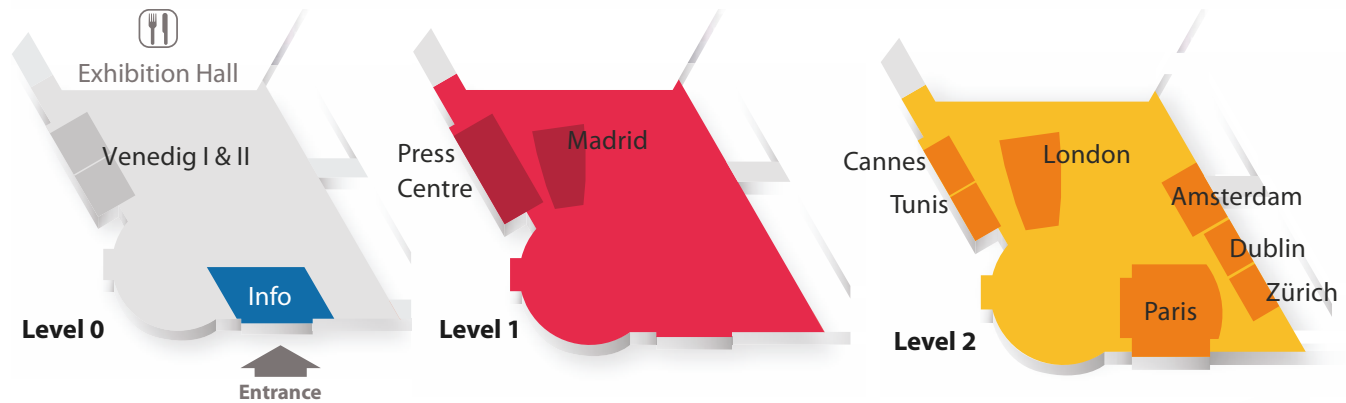
### Floor Plan

E|DPC 2014 will take place at the Exhibition Centre Nuremberg in hall 12 and within the Convention Center NCC West.

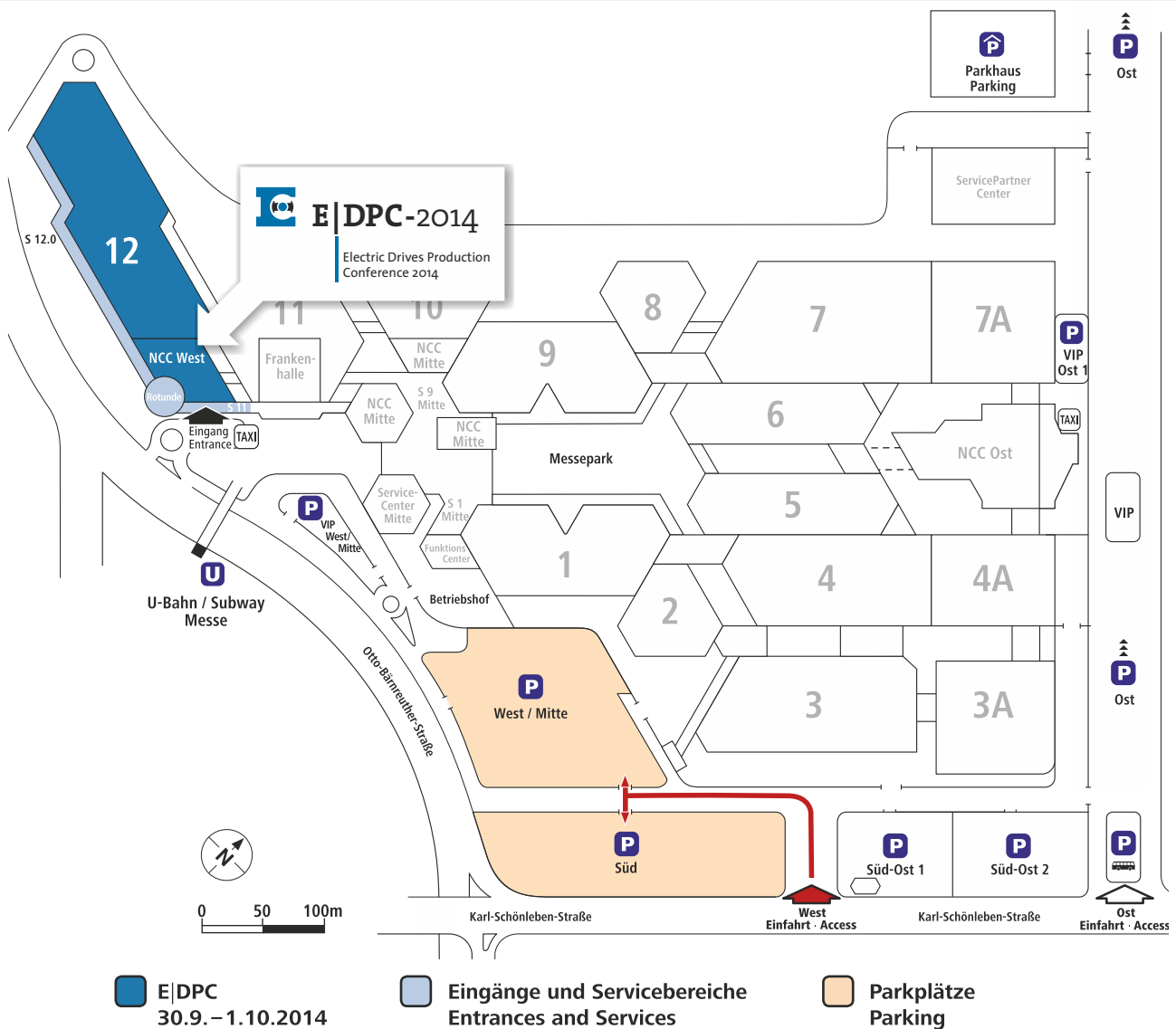
The subway station „Messe“ is located at the west entry of the Nuremberg Exhibition.

### You will find the

- Conference information desk located in level 0
- Exhibition taking place in hall 12
- Exhibition information desk located in Press Centre
- Conference in level 2



### Exhibition Centre Nuremberg



## EXHIBITION IN HALL 12

**Tuesday, September 30<sup>th</sup>, 2014 and Wednesday, October 1<sup>st</sup>, 2014**

The E|DPC exhibition showcases components, semi-finished goods and materials as well as production-related cutting-edge processes in the production of electric drives and generators.

Meet German and international providers of this technology. Find out about the latest products, innovations and trends, as well as current issues to produce your electric drive or generator. Visit the exhibition in hall 12 and take the chance to meet new dialogue partners from industry and science.

### Exhibition topics

The structure of the product groups are based on the elements and the production-related cutting-edge processes in the field of the production of electric drives and generators.

### Materials and Components

- Components
- Semi-Finished Goods and Materials

### Production-related cutting-edge processes

- Production Techniques / Manufacturing Facilities and Tools
- Quality, Testing / Measurement / Diagnostic Systems
- Software
- Electric Drives Manufacturing Services

## Exhibitors

Booth Number	Exhibitor	Booth Number	Exhibitor
358	AMA Verband für Sensorik und Messtechnik e.V.	227	Matesy GmbH
346	ATOP SpA	202	NRG Tech Ltd.
343	ATS Wickel- u. Montagetechnik AG	123	Rudolf Pack GmbH & Co. KG PACK Feindrähte
245	Aumann GmbH	256	PMG Füssen GmbH*
306	Bakker Magnetics B.V.	148	RUFF GmbH
243	bdtronic GmbH	154	Scheugenpflug AG Dosier- & Vergusstechnologie
117	Dr. Brockhaus Messtechnik GmbH & Co. KG	239	SCHLEICH GmbH
137	CD-adapco	227	SENSIS AG*
237	DOMEL D.O.O.	352	SICK Vertriebs-GmbH
254	ELANTAS Beck GmbH	201	Siemens AG Industry Sector
101	EMB - Elektromaschinenbau GmbH	144	SPS electronic GmbH
156	Forschungsvereinigung Antriebstechnik e. V. (FVA) im VDMA	145	Stiefelmayer-Lasertechnik GmbH & Co. KG
142	GKN Sinter Metals Engineering GmbH	119	TMC Sensortechnik GmbH
143	Hans Mayer Elektrotechnik GmbH	345	Friedrich-Alexander-Universität Erlangen-Nürnberg, Lehrstuhl FAPS
235	HEDRICH GmbH	136	Universität Erlangen-Nürnberg, LS FAPS Projekt: Green Factory Bavaria
354	Hübers Verfahrenstechnik Maschinenbau GmbH	221	VACUUMSCHMELZE GmbH & Co. KG
220	M-Pulse GmbH	141	Victrex Europa GmbH
301	MagCam NV	102	Gebr. Waasner Elektrotechnische Fabrik GmbH
210	Marsilli & Co. S.p.A	256	Wieland-Werke AG

\* Co-Exhibitors

### Exhibitors on the trade-press stand

Alexander Verlag.at GmbH, A Media, AGT Verlag Thum GmbH, Binkert Medien AG, b-Quadrat Verlags GmbH & Co. KG, Bundesverband eMobilität. e.V., Carl Hanser Verlag GmbH & Co. KG, I.G.T. Informationsgesellschaft Technik mbH,

publish-industry Verlag GmbH, TechTex-Verlag GmbH & Co. KG, TeDo-Verlag GmbH, VDE VERLAG GmbH, Vereinigte Fachverlage GmbH, Vogel Business Media GmbH & Co. KG, Weka Fachmedien GmbH, Win Verlag GmbH & Co.KG, Wincons AG

## EXHIBITION IN HALL 12

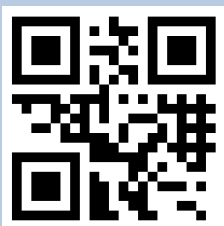
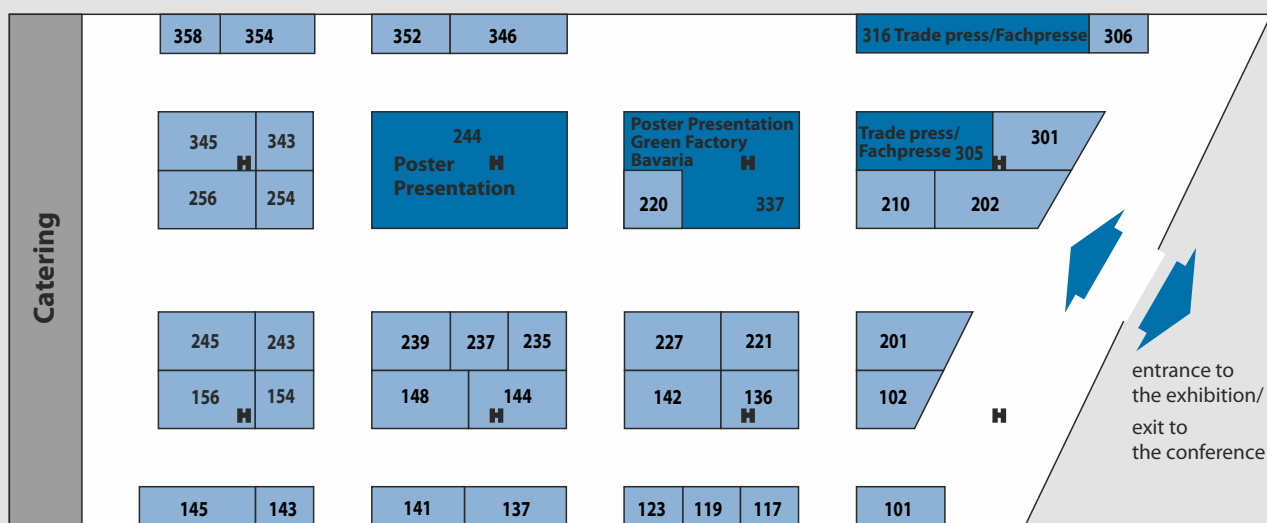
Tuesday, September 30<sup>th</sup>, 2014 and Wednesday, October 1<sup>st</sup>, 2014

At the exhibition you get first-hand information about materials, technologies and applications for the production of electric drives. It provides a specialized and unique platform for discussions and the exchange of information about innovations along the entire process chain.

You will receive trend-setting impulses for the use and processing of new materials, productive and flexible assembly technologies as well as innovative motor topologies and control concepts.

**Visit the exhibition and find the components for the production of your electric drive or generator.**

### E|DPC Exhibition Hall 12



*To get current information about the E|DPC Exhibition use the mobile homepage*

#### CONTACT MESAGO

**mesago**  
Messe Frankfurt Group

Franziska Hesse

Tel: +49 (711) 61 94 6 65

E-Mail: [franziska.hesse@mesago.com](mailto:franziska.hesse@mesago.com)

Web: [www.edpc-expo.com](http://www.edpc-expo.com)

## EXHIBITORS

Tuesday, September 30<sup>th</sup>, 2014 and Wednesday, October 1<sup>st</sup>, 2014



### AMA Verband für Sensorik und Messtechnik e.V.

Booth Number: 358  
Sophie-Charlotten-Str. 15  
14059 Berlin, Germany  
[www.ama-sensorik.de](http://www.ama-sensorik.de)

AMA Association for Sensors and Measurement is the most important network and representative of the interests of the key industry for technical innovations. AMA is the first contact for sensor and measuring technology and provides a comprehensive overview of products and services in its industry directory. AMA maintains an innovation dialogue with all individuals taking part in the innovation process at the leading trade fair SENSOR+TEST, at community stands of important fairs worldwide, and at the scientific conferences SENSOR and IRS<sup>2</sup>.



### ATOP SpA

Booth Number: 346  
Strada di S. Appiano 8/A  
50021 Barberino Val d'Elsa, Italy  
[www.atop.it](http://www.atop.it)

#### ATOP - Winding Technology and Flexible Manufacturing

Atop is a leading supplier for solutions to all needs of motor manufacturing for Universal Motor Stators and Armatures, BLDC Brushless Motors, Traction Motors for Hybrid or EV. We offer winding machines with Single/Multiple Flyerwinding, Wind & Insert, Single Pole Wire Feeder, Hair Pin Technology. We manufacture stand-alone machines as well as complete automatic production lines. We have a world wide sales and service network and we are certified EN ISO 9001:2008, ISO 14001 and EMAS.



### ATS Wickel- und Montagetechnik AG

Booth Number: 343  
Grosszelgstr. 21  
5436 Würenlos, Switzerland  
[www.atsautomation.com](http://www.atsautomation.com)

#### Advanced automation technology for the assembly of electric motors.

Turnkey solutions for manufacturing electric motors of any kind and for assembling armatures and stators. Engineering, manufacturing and worldwide delivery of standalone machines and fully automated assembly lines for electric motors and their components.



### Aumann GmbH

Booth Number: 245  
In der Tütenbeke 37  
32339 Espelkamp, Germany  
[www.aumann.com](http://www.aumann.com)

Aumann is known for innovative winding and automation technology. Over 70 years of experience make us a worldwide leading supplier in these domains. We develop complex manufacturing and assembly lines for the production of energy efficient electric motors, electromagnetic assemblies and mechatronic components for vehicle electrification.



### Bakker Magnetics B.V.

Booth Number: 306  
Sciencepark Eindhoven 5502  
5692 EL Son, Netherlands  
[www.bakkermagnetics.com](http://www.bakkermagnetics.com)

As a company, Bakker Magnetics is a passionate innovator with more than 40 years of experience in the broad field of applied magnetism and a great many patents and ground-breaking concepts have been developed by the company. This pioneering company can therefore rightly be regarded as being amongst the international vanguard.

## EXHIBITORS

Tuesday, September 30<sup>th</sup>, 2014 and Wednesday, October 1<sup>st</sup>, 2014



### **bdtronic GmbH**

Booth Number: 243  
Ahornweg 4  
97990 Weikersheim, Germany  
[www.bdtronic.de](http://www.bdtronic.de)

bdtronic is a leading manufacturer of special machines and process solutions for preparation and processing of liquid to paste-like reactive resins like polyurethanes, silicones and epoxies.

The product portfolio of bdtronic includes manual machines for small and medium production volumes as well as fully-automatic dispensing solutions for high production volumes. With this wide product range bdtronic serves all well-known manufacturer in the electronic and electrical industry, automotive industry, medical technology, filter as well as household goods industry. The progressive automation in the capital goods industry furthermore demands total process solutions, which bdtronic realizes with complex production lines. Technologies such as hot riveting, plasma pretreatment, transport and handling solutions can be easily integrated into any process chains. Since 1976 over 2,700 installed machines approves the trust of our customers in our technology leadership.

## **BROCKHAUS MESSTECHNIK**

### **Dr. Brockhaus Messtechnik GmbH & Co. KG**

Booth Number: 117  
Gustav-Adolf-Str. 4  
58507 Lüdenscheid, Germany  
[www.brockhaus.com](http://www.brockhaus.com)

BROCKHAUS is an internationally leading manufacturer of instrumentation devices and systems for the quality control and examination of magnetic materials.

Measurement of all magnetic properties in accordance with international standards.

#### Product program:

Electrical steel tester (power loss tester, Epstein tester, b/h loop tracer), Franklin tester, inline-measuring equipment, thickness-, width- and hole detection instruments, Hysteresisgraphs, AC/DC Hysteresisgraphs, XYZ scanner, Rotor tester, Rotational power loss tester 2D, Gaussmeter, Fluxmeter, coil systems, impulse magnetizing instruments, magnetizing devices, measuring and calibration service.



### **CD-adapco**

Booth Number: 137  
200 Shepherds Bush Road  
London W6 7NL, United Kingdom  
[www.cd-adapco.com](http://www.cd-adapco.com)

CD-adapco is the leading global CFD-focused provider of industrial strength engineering simulation software, support and services.

With over 30 years of experience we deliver the full-spectrum of CAE-solutions for fluid flow, heat transfer, chemistry, combustion and stress to allow more accuracy, productivity and flexibility in many application areas.

## **DOMEL**

### **DOMEL D.O.O.**

Booth Number: 237  
Otoki 21  
4228 Zelezniki, Slovenia  
[www.domel.com](http://www.domel.com)

Domel is one of the leading producers of motors for various applications. Its state of the art solutions are foundation for a long standing cooperation with world's leading manufactures in numerous branches of industry. Domel is, regarding its size, separated to different business units; one of them is BU components and tools, which provides rotor/stator laminations and stacks, overmoulded rotor/stator stacks and BMC thermosetting components, all from R&D support to series production.

Domel's high quality products, general reliability and environmental care, together with Domel's branch diversity, tradition, knowledge and reputation, are indicators of further development and strong factors to treat Domel as one of the most reliable suppliers in the near future.

## EXHIBITORS

Tuesday, September 30<sup>th</sup>, 2014 and Wednesday, October 1<sup>st</sup>, 2014



### ELANTAS Beck GmbH

Booth Number: 254  
Großmannstr. 105  
20539 Hamburg, Germany  
[www.elantas.com/beck](http://www.elantas.com/beck)

ELANTAS Beck GmbH, located in Hamburg, belongs to the division ELANTAS Electrical Insulation of the ALTANA group. As specialist for liquid insulating systems ELANTAS Beck produces and sells impregnating resins and -varnishes, potting compounds, adhesives and conformal coatings for the electronics and electrical industry. The products are found beside other materials in e.g. electrical motors, generators, transformers, circuit boards and sensors.

ELANTAS is always close to the customer and the market requirements. This is based on permanent consciousness for service along with strong technical competence in providing solutions. Due to consequent activities in research and development and a high innovative ability ELANTAS has established a leading position for liquid insulation materials.



### EMB - Elektromaschinenbau GmbH

Booth Number: 101  
Industriestr. 32  
88441 Mittelbiberach, Germany  
[www.embgmbh.de](http://www.embgmbh.de)

EMB develops and produces electrical drives in special equipment, which is well-known for its high quality and reliability at home and abroad.

EMB is your competent partner, when company-specific drive solutions are required instead of standard motors.

EMB motors are custom products and are produced in small series as well as individual items.

All EMB motors are supplied ready for installation. Additional equipment with tachometer or brakes is realized individually by the customer.



### Forschungsvereinigung Antriebstechnik e.V. (FVA) im VDMA

Booth Number: 156  
Lyoner Str. 18  
60528 Frankfurt, Germany  
[www.fva-net.de](http://www.fva-net.de)  
[www.vdma.org](http://www.vdma.org)

The VDMA represents over 3,100 mainly small/medium size member companies in the engineering industry, making it one of the largest and most important industrial associations in Europe.

Mechanical engineering is a key technology and a powerful engine driving the economy. Accounting for sales of € 205.8 billion (2013) and 986.000 employees (October 2012), mechanical engineering is one of the largest industrial sectors and employers in Germany.

The Power Transmission Engineering Association represents the interests of the largest group of suppliers to the mechanical engineering industry. We inform our members in a way relevant to their needs about all topics regarding drive technology. It is the leading national and international sector network for the power transmission engineering industry.

We promote the interests of your sector to customers and competing organizations, to the public, to national and international authorities, to politics and other business circles.

Our members deliver innovative system solutions and key technologies for future technological challenges.



### GKN Sinter Metals Engineering GmbH

Booth Number: 142  
Krebsöge 10  
42477 Radevormwald, Germany  
[www.gknsintermetals.com](http://www.gknsintermetals.com)

GKN Sinter Metals is the world's leading manufacturer of sintered structural parts. We'll showcase our new transversal fluxtype e-motor that has an incredibly higher performance to weight or to dimension ratio and saves high amounts of copper. These e-motor components offer an economical benefit and superior performance with electromechanical and soft magnetic properties.

For all your components we offer our capability "Design for Powder Metallurgy (DPM)", which is the creation of a customized design solution with added value regarding weight, function and assembly together with a broad variety of materials and a reliable PM series production process.



## EXHIBITORS

Tuesday, September 30<sup>th</sup>, 2014 and Wednesday, October 1<sup>st</sup>, 2014



### Hans Mayer Elektrotechnik GmbH

Booth Number: 143

Simonsohofer Str. 41

91207 Lauf an der Pegnitz, Germany

[www.hans-mayer-elektrotechnik.de](http://www.hans-mayer-elektrotechnik.de)

Flat hierarchies, a competent team and 100 percent commitment, makes the electrical Hans Mayer GmbH an ideal partner in prototyping and series production.



### HEDRICH GmbH

Booth Number: 235

Greifenthaler Str. 28

35630 Ehringshausen, Germany

[www.hedrich.com](http://www.hedrich.com)

We are a worldwide acting group of companies. With our subsidiaries, we develop and manufacture production equipment and complete production lines. Our customers range from the electrical and electronics industry, automotive industry and chemical industry. They are offered customized and innovative technical products as well as services meeting with their entire chain of requirements. Their benefit: Receiving all Hedrich system solutions from one source, in highest quality, worldwide.

Being active in more than 30 countries, we employ more than 290 people and fuse under one umbrella internationally acting companies. Our equipment and solutions for automation match exactly with each other. All customers can be assured that with our products they will obtain top quality, top innovative, best reliable and safe equipment and services.



### Hübers Verfahrenstechnik Maschinenbau GmbH

Booth Number: 354

Schlavenhorst 39

46395 Bocholt, Germany

[www.huebers.de](http://www.huebers.de)

Everywhere throughout the world where electrical or electronic parts have to be cast and impregnated with maximum precision and greatest economic efficiency, HÜBERS is rated one of the leading names in system engineering. The reason: HÜBERS continues to be one of the principal pioneers in resin casting technology and a world leader in this market.

HÜBERS is the market-oriented materials processing system supplier working concurrently with the electrical and the electronics industries as system users, and with casting material suppliers - in all aspects from research and development to all issues occurring in day-to-day production operations. HÜBERS has the know-how for optimum customer-specific solutions.



### M-Pulse GmbH

Booth Number: 220

Haunerbusch 110

58566 Kierspe, Germany

[www.m-puls.eu](http://www.m-puls.eu)

M-Pulse is versatile Partner for all interests of

- + Magnetising,
- + Magnetic Calibration,
- + Magnetic Measurement.

We supply

- + Magnetisers and magnetising coils
- + Fluxmeter with measurement coils
- + Hard- und softmagnetic measurement Setups

Our customers are many renowned producers of PM-Motors, loudspeakers etc.

## EXHIBITORS

Tuesday, September 30<sup>th</sup>, 2014 and Wednesday, October 1<sup>st</sup>, 2014



**MAGCAM**  
advanced  
magnet  
inspection

### MagCam NV

Booth Number: 301  
18, Romeinse Straat Research Park  
Haasrode  
3001 Leuven, Belgium  
[www.magcam.com](http://www.magcam.com)

Magcam offers the unique "magnetic field camera" for ultrafast and precise inspection of permanent magnets and PM rotors. Within 1 second, the measuring system records quantitative and high resolution 2D and 3D magnetic field distributions of uniaxial and multipolar permanent magnets and magnetic systems. It does this with high speed and without any moving parts.

Our versatile software analyzes in depth the quantitative magnetic images and extracts from them a large amount of quantitative magnetic properties.

The applications are situated in the field of automated quality control as well as in the development of magnets and magnetic systems, such as permanent magnet rotors.

Magcam's customers include motor and generator manufacturers, sensor developers (particularly for the automotive sector), magnet producers and suppliers, developers of medical devices, universities and research institutes.

## MARSILLI

### Marsilli & Co. S.p.A

Booth Number : 210  
Via per Ripalta Arpina 14  
26012 Castelleone, Italy  
[www.marsilli.com](http://www.marsilli.com)

Situated in Castelleone, Italy and founded in 1938, MARSILLI is one of the oldest coil-winding machine producers in the world.

Today as a global company, MARSILLI develops and builds a variety of machines for winding, soldering, welding of the coils, as well as semi and fully automated coil production and assembly lines. MARSILLI also specialises in general automation for the automotive, appliances, electro mechanic applications, lighting and many other industries. We recently became a solution provider for coil production equipment and precision assembly systems for electric motors, using the single coils or chain-type concept for the production of brushless motor stators developed with "open poles" design. Supported by an extensive and experienced after-sales service network in the main industrial zones around the world, MARSILLI can be your preferred choice for the above mentioned equipment in Europe, the Americas and Asia.



### Matesy GmbH

Booth Number: 227  
Otto-Schott-Str. 13  
07745 Jena, Germany  
[www.matesy.de](http://www.matesy.de)

The Matesy GmbH was founded in 2008 as a spin-off of the independent R & D facility Innovent technology development, Jena. The main focus of Matesy is the development and distribution of innovative magnetic, magneto-optical and optical components and sensor systems.

Our core competencies represent the magnetic 3D monitoring and the magneto-optical visualization as a basis for a wide range of products. Furthermore, the company is a service provider for the simulation and optimization of magnetic and optical systems as well as their design and procurement. In particular, measuring and calibration services for the characterization of magnetic components, systems and individual magnets are another expertise by Matesy.



### NRG Tech Ltd.

Booth Number: 202  
Milko Bichev str 13  
1527 Sofia, Bulgaria  
[www.nrbg.com](http://www.nrbg.com)

NRG Tech Ltd is Bulgarian company working in area of „Development of technologies, prototypes and production in the field of energy efficiency“. NRG Tech Ltd is beneficiary of Contract No. BG161PO003-1.1.05-0027-C0001 "Development of an innovative internal combustion linear motor for electric energy production" project proposal No. BG161PO003-1.1.05-0027, operation BG161PO003-1.1.05 "Development of innovations by start-up companies" Operational Programme Competitiveness 2007-2013.

## EXHIBITORS

Tuesday, September 30<sup>th</sup>, 2014 and Wednesday, October 1<sup>st</sup>, 2014

### **PACK** **Feindrähte**

#### **Rudolf Pack GmbH & Co. KG PACK Feindrähte**

Booth Number: 123  
Am Bäuweg 9-11  
51645 Gummersbach, Germany  
[www.pack-feindraehte.de](http://www.pack-feindraehte.de)

Founded: 1933

Production: Fine electric wire (magnet wire) made of enamelled copper and aluminium or of RUPALIT® high- frequency (HF) litz wire for the entire electrical engineering and power electronics industry.

#### Manufacturing modes:

- drawing
- enamelling
- bunching
- braiding
- wrapping
- extruding
- insulating
- shaping
- customising

#### Quality Features:

- RUPALIT® HF litz wire as focal point of our product range
- In-house production of enamelled wire
- High quality standards
- Customised solutions for special applications
- Flexible and speedy delivery, even for individual requirements
- 100% quality check of single copper strands
- Small quantities also available
- Production conforming to international standards (DIN, VDE, EN, IEC, UL),

as well as special customer orders:

- Distinguished, international clientele
- World-wide group of agents



#### **PMG Füssen GmbH**

Booth Number: 256  
Hiebelerstr. 4  
87629 Füssen, Germany  
[www.pmsgsinter.com](http://www.pmsgsinter.com)

With six production facilities on three continents and over 50 years of experience in R&D and production, the PMG group is a leading manufacturer of sintered components and systems for the automotive industry and of soft magnetic powder composites (SMC) for electrical applications in various industries.

While PMG's structural PM steel components are tailored solutions for automated and manual transmissions, engines, oil pumps and shock absorbers, the soft magnetic composite materials are designed for the requirements in electrical applications. PMG's SMC components, e.g. for transversal flux machines, are pressed near net-shape, allow for 3D magnetic flux and offer exceptional properties at elevated frequencies.



#### **RUFF GmbH**

Booth Number: 148  
Am Schammacher Feld 2  
85567 Grafing b. München, Germany  
[www.ruff-worldwide.com](http://www.ruff-worldwide.com)

The RUFF Group is a first class leading manufacturer of coil winding machines since more than 65 years. Our product range: Toroidal Winding Machines, Linear Winding Machines, Spiral Winding Machines and Tyre Regroovers - "Made in Germany".

Our sister company CAVENAGO offers Transformer production equipment: Lamination Insertion Machines, Transformer Welding Machines and Solder Pots - "Made in Italy".



#### **Scheugenpflug AG Dosier- & Vergusstechnologie**

Booth Number: 154  
Gewerbepark 23  
93333 Neustadt/Donau, Germany  
[www.scheugenpflug.de](http://www.scheugenpflug.de)

As technological leader Scheugenpflug offers an innovative portfolio of top products for dispensing and gluing. In less than 20 years the company evolved from building its first dispensing machine to the world's best. Key to success are a strong pioneering spirit, a knack for technology, the determination to reach goals and a motivated team. The focus is always on the customer's requirements and satisfaction.

Today, Scheugenpflug systems are used by leading manufacturers in all types of industries. The product portfolio covers production machinery of different sizes, ranging from compact but efficient manual work stations to all-in-one modular in-line solutions tailored to customer specifications.

## EXHIBITORS

Tuesday, September 30<sup>th</sup>, 2014 and Wednesday, October 1<sup>st</sup>, 2014



### SCHLEICH GmbH

Booth Number: 239  
An der Schleuse 11  
58675 Hemer, Germany  
[www.schleich.com](http://www.schleich.com)

SCHLEICH: Experience, competence and passion. Founded in 1952 as a repair shop for electrical machines, SCHLEICH became a globally-known manufacturer of coil-winding machines for electrical engineering and for the electric-motor industry. In 1987 we supplied the first PC-controlled surge testers for testing coils. This was a milestone within the company's history and the basis for the decision to specialize in developing testers. Owing to our consequent service and continuous further development, we are today one of the internationally leading manufacturers of electronic testers for the windings and motors. Every day each and every one of our 80 employees passionately works on guaranteeing and optimizing the high standard of our testers. Our customers, the sales department and our manufacturing staff contribute new ideas and improvements. Thus they are all part of the innovation process that leads us into technology leadership regarding safety and functional testing technology.



### SENIS AG

Booth Number: 227  
Neuhofstr. 5A  
6340 Baar, Switzerland  
[www.senis.ch](http://www.senis.ch)

SENIS provides magnetic field measurement instruments and current sensors: digital teslameters and analog magnetic transducers with the smallest 3-axis Hall probes, magnetic field mapping systems for testing permanent and electro-magnets, and miniature current sensors.

SENIS also performs the related consultancy and engineering services.



### SICK Vertriebs-GmbH

Booth Number: 352  
Willstätterstr. 30  
40549 Düsseldorf, Germany  
[www.sick.de](http://www.sick.de)

The company, founded in 1946, has a global presence with almost 50 subsidiaries and participations as well as numerous sales agencies. SICK currently employs more than 6,300 employees worldwide, and achieved sales of EUR 971.3 m in 2012.

The perfect basis for your automation: Sensors from SICK

From factory automation to logistics automation and process automation, SICK is one of the leading producers of sensors. As a technology and market leader, SICK's sensors and application solutions for industrial use create the perfect basis for reliable and efficient control of processes, for protecting people from accidents, and for preventing environmental damage.



### Siemens AG Industry Sector

Booth Number: 201  
Gleiwitzer Str. 555  
90475 Nürnberg, Germany  
[www.siemens.com](http://www.siemens.com)

The Siemens Drive Technologies Division (Nuremberg, Germany) is the world's leading supplier of products, systems, applications, solutions and services for the entire drive train, with electrical and mechanical components.

Drive Technologies serves all vertical markets in the production and process industries as well as the infrastructure/energy segment. With its products and solutions, the Division fulfills the key requirements of its customers for productivity, energy efficiency, and reliability. For more information, visit <http://www.siemens.com/drivetechnologies>.



### SPS electronic GmbH

Booth Number: 144  
Blätteräcker 18  
4523 Schwäbisch Hall, Germany  
[www.spselectronic.com](http://www.spselectronic.com)

SPS electronic GmbH ranks worldwide among the market leaders in the field of safety and function test devices. With its headquarters in Schwäbisch Hall SPS electronic forms together with its service center North in Twist, own subsidiaries in the Czech Republic, Great Britain and China as well as numerous sales partners a group of companies which offers a comprehensive range of testing products in the area of electrical safety.

The range of products of SPS electronic is completed through two main areas all of which are directly related to safety and quality assurance testing of electrical products: \*Customer specific solutions for test systems\*Impulse winding testers for electric motors, generators, transformers and coils. Due to the variety of products and years of application experience it is possible for SPS electronic to develop and to offer customer specific solutions.

## EXHIBITORS

Tuesday, September 30<sup>th</sup>, 2014 and Wednesday, October 1<sup>st</sup>, 2014



### Stiefelmayer-Lasertechnik GmbH & Co. KG

Booth Number: 145  
Rechbergstr. 42  
73770 Denkendorf, Germany  
www.stiefelmayer.de

#### LASER CUTTING AT THE HIGHEST LEVEL

STIEFELMAYER Lasertechnik - Precision by Tradition

Already in the 19th century STIEFELMAYER set new standards with the first measuring instruments and vernier calipers -and then in the 20th century again with their 3D measuring machines. Our wealth of experience as a family business in the fifth generation now forms the foundations for our laser technology. Laser technology by STIEFELMAYER is always needed where dynamics and precision unite in a form never known before.



### TMC Sensortechnik GmbH

Booth Number: 119  
Westliche Gewerbestr. 3  
75015 Bretten, Germany  
www.tmc.eu

Since 1995 TMC serves as your partner for all your needs in the thermal protection of your products. We are your specialist contact whether you handle electrical windings, transformers or motors. Our product range covers various versions of self-resetting as well as self-holding bi-metall switches exclusively 'made in Germany'. Moreover we offer PTC thermistors and supply all other sensors for temperature measurement such as KTY diodes and platinum elements.

Our products are subject to the highest applicable international standards (UL, EN, CSA, CQC) and we guarantee the highest consistent quality through our fully automated production lines. Challenges are unique, so our key competence is to provide qualified support when it comes to custom-designed solutions.



### Friedrich-Alexander-Universität Erlangen-Nürnberg Lehrstuhl für Fertigungsautomatisierung und Produktionssystematik (FAPS)

Booth Number: 345  
Fürther Str. 246 b  
90429 Nürnberg, Germany  
www.faps.de

At the "E|Drive-Center" (Bavarian Technology Center for Electric Drive Technology) of the Institute for Manufacturing Automation and Production Systems (FAPS) at Friedrich-Alexander-University Erlangen-Nürnberg (FAU) innovative drive concepts and associated production technologies are being researched with the objective to profitably transfer the discovered knowledge into industrial applications.

The main focus of the "E|Drive-Center" is the analysis and optimization of applications, the production-related interpretation as well as the design of production processes of components and systems of electric drives. Additionally, manufacturing and verification processes for components of contactless energy transfer in electric vehicles are being addressed.



### Green Factory Bavaria

Booth Number: 136  
Fürther Str. 246 b  
90429 Nürnberg, Germany  
www.greenfactorybavaria.net

#### Initial Situation and motivation:

The economy consumes almost half the energy in Germany. Producing enterprises expend up to 10% of their total cost on energy. The steady increasing energy demand with limited fossil resources and the tendential cost and investment intensive renewable energy will inevitably lead to further increases in expenditures on energy in manufacturing companies.

Together with the strong perception of an environmentally friendly behavior among customers, employees and society energy is developing into the most important strategic competitive factor. Therefore, companies increasingly consider the economical use of energy. The potential savings are enormous: up to 30% or about 10 billion euro in Germany annually.

## EXHIBITORS

Tuesday, September 30<sup>th</sup>, 2014 and Wednesday, October 1<sup>st</sup>, 2014



### VACUUMSCHMELZE

GmbH & Co. KG

Booth Number: 221

Grüner Weg 37

63450 Hanau, Germany

[www.vacuumschmelze.com](http://www.vacuumschmelze.com)

VACUUMSCHMELZE (VAC) with 4,100 employees worldwide, thereof 1,450 employees in Hanau, designs, produces and markets advanced materials, particularly with magnetic, but also other physical properties as well as related products.

In over 50 countries VAC Group today achieves annual sales of over 400 million euros and, with over 800 patents to the world's most innovative companies in the development of advanced industrial materials.



### Victrex Europa GmbH

Booth Number: 141

Langgasse 16

65719 Hofheim am Taunus, Germany

[www.victrex.com](http://www.victrex.com)

Victrex plc. is the leading manufacturer of Polyaryletherketones (PAEK) including VICTREX(R) PEEK Polymer, APTIV(R) films, VICOTE(R) Coatings and Victrex Pipes(TM). Victrex polymers are among the highest performing thermoplastic resins worldwide. They are an alternative to replace metal or to optimise performance and efficiency in thermoplastic based components.

Since decades, customers have relied on the excellent combination of properties that VICTREX® PEEK offers, in powertrain components but also in applications such as actuators and gears.

Victrex customers benefit from a combination of high strength, light weight, very good chemical resistance and mechanical strength. In this way VICTREX PEEK polymers make an important contribution where safety and efficiency are key criteria and are increasingly being chosen by engineers.

Among others, the Victrex portfolio comprises VICTREX® PEEK, VICTREX®WG™ (tribological series) and PEEK based APTIV® Films used in electrical insulation application.



### Gebr. Waasner

Elektrotechnische Fabrik GmbH

Booth Number: 102

Bamberger Str. 85

91301 Forchheim, Germany

[www.waasner.de](http://www.waasner.de)

The company Gebrüder Waasner is a specialist in the field of stamping technology and was founded in 1946.

Our product range includes the production of Transformer Core Laminations, Motor-Laminations, Motor-Lamination-Packages, Aluminium Die-Cast Rotors, Subassemblies for Motors, Transformer Sheet Strips, Strip slitting, Split Tape Cores, Toroidal Tape Cores, development and production of stamping tools.

## Wieland

### Wieland-Werke AG

Booth Number: 256

Graf-Arco-Str. 36

89079 Ulm, Germany

[www.wieland.de](http://www.wieland.de)

The Wieland group is one of the globally leading manufacturers of semi-finished products and special products made of copper and copper alloy: bands, sheets, tubes, poles, wires and profiles as well as sliding elements, finned tubes and heat exchangers.

Products from Wieland are being used wherever technological top performance is required. Wieland group consists of more than 30 producing corporations, cutting centers and commercial enterprises in Europe, Asia, South Africa and the USA. Wieland supplies customers from different sectors: electronics and electrical engineering, automobile industry, building industry, refrigeration / airconditioning and heating technology, as well as machine and apparatus construction. In cooperation with the customers the company based in Ulm develops solutions for individual and industrial applications. Especially for electrified and hybrid powertrains in the automobile Wieland develops and produces individual system components for electric motors.



## SOCIAL PROGRAM

Tuesday, September 30<sup>th</sup>, 2014

### EVENING RECEPTION

The E|DPC 2014 Evening Reception is an official stand-up reception, given by the Lord Mayor of the City of Nuremberg at the historic townhall of Nuremberg, Rathausplatz 2. Detailed technical discussions are guaranteed and accompanied by piano background music and a carried franconian buffet. All conference participants and exhibitors are eligible to register free of charge for the attendance of the evening reception.



### BUFFET

A regional buffet will be prepared and served.

### AGENDA of the Evening Reception

- 07:30 PM: **Welcome Address**  
Dr. Fraas M.  
Deputy mayor for economic affairs,  
City of Nuremberg
- 07:45 PM: **Opening of the buffet**
- 08:30 PM: **Guided Walking Tour A**  
08:45 PM: **Guided Walking Tour B**  
09:00 PM: **Guided Walking Tour A**  
09:15 PM: **Guided Walking Tour B**

### HOTEL RECOMMENDATION

For hotel recommendation please contact the tourist office Nuremberg:

Tel.: +49 (911) 2336 121  
<http://www.hotel.nuernberg.de>

### TOURIST INFORMATION

Nuremberg Convention and Tourist Office  
Frauentorgraben 3  
90443 Nuremberg

Tel.: +49 (911) 2336 0  
<http://www.tourismus.nuernberg.de/>

### GUIDED WALKING TOURS

Parallel to the evening reception several half-hour guided tours through the historic town of Nuremberg will be offered free of charge.

#### GUIDED WALKING TOUR A

##### *Medieval Dungeons*

Just walk downstairs and take a tour through the vaulted cellars below the historic townhall, built in Nuremberg's golden age. Let these medieval dungeons and the feeling of being imprisoned in the Middle Ages give you some goose bumps.



#### GUIDED WALKING TOUR B

##### *Nuremberg Old Town*

Take an exciting walk from the townhall, via the famous fountain "Schöner Brunnen" to the castle of Nuremberg. There you'll enjoy the beautiful view over Nuremberg.



Copyright City of Nuremberg

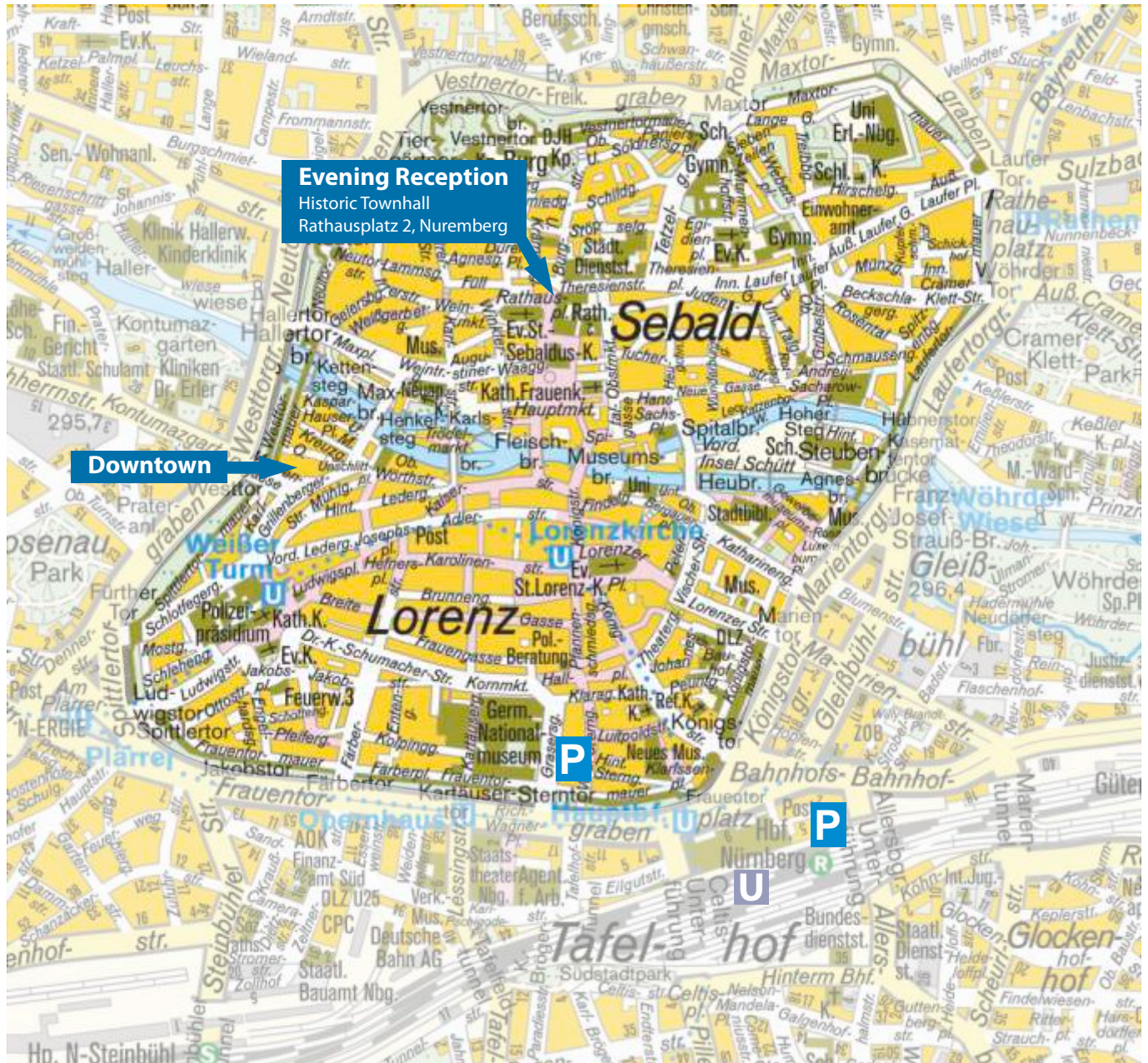


Historic townhall of Nuremberg

Copyright City of Nuremberg



## MAP OF THE CITY OF NUREMBERG



Copyright Bilder: City of Nuremberg

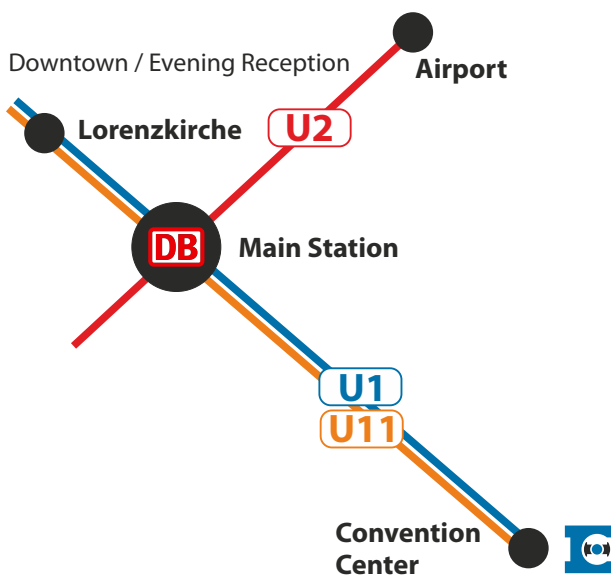


## APPROACH

### HIGHWAYS TO NUREMBERG



### SUBWAY LINES IN NUREMBERG



### BY CAR

You may reach E|DPC via car from **the highway**:

- A9: Take exit 52 - Fischbach
- A6: Take exit 59 - Langwasser
- A73: Take exit 34 - Zollhaus
- Your navigation system will find NuernbergMesse if you enter "Karl-Schoenleben-Strasse" as address or Messezentrum as a special destination.

### BY PUBLIC TRANSPORTATION

To reach E|DPC from **Nuremberg Main Station**:

- Take subway no. 1 or 11 in direction "Langwasser"
- Take stop "Messe"

To reach E|DPC from **Nuremberg Airport**:

- Take subway no. 2 in direction "Roethenbach"
- Take stop "Main Station"
- Take subway no. 1 or 11 in direction "Langwasser"
- Take stop "Messe"

Please find more Information on the website [www.vgn.de](http://www.vgn.de)

### EVENING RECEPTION

To reach the E|DPC Evening Reception from the Convention Center by **public transportation**:

- Take subway no. 1 or 11 in direction "Fuerth"
- Take stop "Lorenzkirche"
- 5 min on foot towards "Hauptmarkt"

After crossing the market square, the historic townhall is located on the right hand side.

To reach the Evening Reception from the Convention Center by **car**, enter the address "Rathausplatz 2" as destination in your navigation system. The next parking garage is "Hauptmarkt" located in Augustinerstraße 4.



EJ|DPC 2014 will take place at the Nuernberg Convention Center (NCC) West and hall 12 of NuernbergMesse on September 30<sup>th</sup> and October 1<sup>st</sup>, 2014. For your accommodation several hotels are booked all over the city. For prices and reservation, please use the reservation form on our website [www.edpc.eu](http://www.edpc.eu). Nuremberg boasts a unique mixture of tradition and modern times. Both people born here and people who moved here appreciate its extraordinary quality of life. At the same time, Nuremberg is a modern city with 500,000 inhabitants, and the centre of a prospering European metropolitan region with 2.5 million inhabitants. Its almost thousand years of history are still obvious in its cityscape. Please find more information at [www.nuernberg.de](http://www.nuernberg.de).



Copyright City of Nuremberg



Copyright Mesago Messe Frankfurt GmbH

## EXHIBITION

E|DPC 2014 will be completed by a focussed exhibition. Companies, research institutes and other organizations will be offered the opportunity to present their products and services to all participants. The exhibition is organized by the Mesago Messe Frankfurt GmbH. For any further questions regarding the E|DPC Exhibition please contact Ms. Franziska Hesse ([franziska.hesse@mesago.com](mailto:franziska.hesse@mesago.com)) or visit the website [www.edpc-expo.com](http://www.edpc-expo.com).

## SPONSORSHIP

Are you interested in supporting E|DPC 2014 and presenting your company or organization as a sponsor? E|DPC 2014 is the ideal platform for the individual advertising of your innovative products and services. For further information, please visit our website [www.edpc.eu/sponsoring-partners](http://www.edpc.eu/sponsoring-partners).

## REGISTRATION

Bv fax: +49 (911) 5302 9070

Online: [www.edpc.eu](http://www.edpc.eu)

By email: [service@edpc.eu](mailto:service@edpc.eu)

For the fax registration please use the following registration form:

Salutation \_\_\_\_\_ Title \_\_\_\_\_

First Name

Last Name \_\_\_\_\_

Company Name \_\_\_\_\_

Department

Street/Unit number

Postal Code                      City

Country \_\_\_\_\_

Phone

Fax \_\_\_\_\_ Mobile phone \_\_\_\_\_

email

**CONFERENCE FEE**

Includes access to all conference sessions (including the Green Factory sessions), access to the exhibition, participation at the evening reception, coffee and lunch breaks, conference proceedings (printed and electronic) as well as entitlement to participate at the tutorials and technical tours.

o Standard Fee	980,- € plus VAT
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o Standard Fee	580,- € plus VAT
o Reduced Fee*	580,- € plus VAT

I also register for

o Tutorial	#	100.- € plus VAT
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o Technical Tour Package	#	100.- € plus VAT
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- o Evening Reception \_\_\_\_\_ included

\* Reduced fee for International Program Committee members, speakers, exhibitors and university members. All prices plus VAT.

# RELEASE FORM

By registering to the E|DPC conference you agree to store, administrate and use your personal data for the generation of your invoice and for informing you continuously about the latest research results and technology transfer activities of the Institute for Factory Automation and Production Systems (FAPS) of the University of Erlangen-Nuremberg and of Mesago Messe Frankfurt GmbH plus affiliates. Your personal data will not be transferred to third parties. If you do not wish to receive further information, please inform us immediately.

With the registration you also agree that photographs of your person shall be taken during the conference E|DPC. The University of Erlangen-Nuremberg shall have the non-exclusive, transferable, worldwide right in perpetuity to exploit such photographs in any and all forms, including, but not limited to reporting on the aforementioned conference.

Cancellations received in writing prior to August 1<sup>st</sup>, 2014 will be refunded less a 100,- € plus VAT administration fee. After August 1<sup>st</sup>, 2014 the fee will be fully charged.

**Conference Organizer:**

E|DPC office, c/o FAPS-TT GmbH

Fuerther Straße 246b, D-90429 Nuremberg

## VENUE

NürnbergMesse GmbH - NCC  
Messezentrum, 90471 Nuremberg

Conference Coordinator  
Dr. Alexander Kuehl

phone: +49 (911) 5302 9090

fax: +49 (911) 5302 9070

email: [service@edpc.eu](mailto:service@edpc.eu)

web: [www.edpc.eu](http://www.edpc.eu)