

## Newsletter contents: EPE '14 ECCE Europe at a glance

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## EPE 2014 ECCE Europe: 26 – 28 August, Lappeenranta – Finland

The EPE'14 ECCE event attracts delegates from the full range of professions, expertise and business within power electronics.

Alongside the conference, we run an exhibition featuring suppliers and manufacturers whose business, products and services meet the needs of our delegates.

The conference and exhibition's aim is to help the delegates to achieve professional development by providing opportunities:

- To enhance knowledge and understanding of what is new in the field;
- To explore new ideas, products and services in the field;
- To learn about new technologies, tools, techniques that enable to develop new skills and unlock potential for professional growth and new perspectives into work and career development;
- To widen professional networks.

The EPE ECCE Europe exhibition showcases products and services out of the following fields: semiconductor components, passive components, instruments, busbars, software, education tools, etc.

**ABB** is the main industrial sponsor of the EPE'14 ECCE conference, joined by **VACON, ALSTOM, VISEDO, teknoCEA/CITCEA-UPC, ...**

ABB, Adwatec Oy, Alstom, AMS Technologies, Axco Motors, Cedrat, teknoCEA/CITCEA-UPC, ECPE, EPE'15 ECCE Europe, EPE'16 ECCE Europe, GaN Systems, Kontram, IEEE Pels, MathWorks, Mersen, Opal-RT Technologies, Plexim, Vacon and Visedo are exhibiting.

**Do not miss such an opportunity!**

**[Register now!](https://www.cborg.info/epe2014/)**

Just follow this link: <https://www.cborg.info/epe2014/>

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## **Technical programme**

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### **1     Keynotes**

#### **1.1     *Matti Kauhanen, Vice President, Head of Research and Development, Drives and Controls Business Unit, ABB Group***

##### **→ Power Electronics for Electric Drives – Advancement in technology and its implications – A Finnish Perspective**

Matti Kauhanen works currently as Head of Research & Development in Drives and Controls Business Unit at ABB. The Business Unit is responsible for Electric Drives (Frequency Converters, DC-converters) and PLC's within ABB Group. ABB is the global market leader in Variable Speed Drives business.

Mr. Kauhanen joined Strömberg in year 1984, and he has since then held various positions within the company in the areas of Research and Development: as a Design Engineer, AC-Drives Specialist, Design Manager, Technical Manager, Project Manager, R&D Manager (System AC) as well as Technology Manager (LBU and BU).

Mr. Kauhanen has 30 years' experience in Electric Drives, and he has been involved in the development of various products: Sami Star, Sami Flowstar, ACV700, ACS600 MultiDrive, APC1&2 (Application controller), AC80, ACS800, ACS880 etc.

Since the year 2000, Mr. Kauhanen has been responsible for technology and platform development for various products.

Building strong co-operation and common research projects with ABB Corporate Research and Universities enables competence development and high qualified experts for Drives' units in different locations.

Mr. Kauhanen holds a Master of Science degree in Electrical Engineering (Power Electronics, Control and Computer Technology) from Tampere University of Technology.

#### **1.2.     *Dr. Kimmo Rauma, CTO and co-founder of Visedo Oy, Finland***

##### **→ Power Electronics for hybrid work machines, a real-world case with under two-year payback time**

Kimmo Rauma was born in 1978. Kimmo received his M.Sc. and D.Sc. degrees in Electrical Engineering from Lappeenranta University of Technology in 2002 and 2006, respectively. Kimmo has worked with power electronics and product development in different companies over the last 14 years.

Today, Kimmo Rauma is the CTO and co-founder of Visedo Oy in Finland. Visedo Oy, founded in 2009, is a company designing and manufacturing inverters, DC/DC converters, motors, generators and energy storages for electric and hybrid electric mobile work machines, buses and marine vessels. Kimmo has been responsible for the technology and running the company for four years, and he is reporting to the board of directors. Kimmo is a member of the Electric Vehicle Systems Program steering group of the Finnish Funding Agency for Technology and Innovation.

Kimmo holds several patents and patent applications for power electronic control principles and solutions.

["Crushing fuel consumption"](#)

#### **1.3     *Timo Heikkilä, Vice President, Research and Development, Vacon Plc***

##### **→ Megatrends affecting frequency converters**

Timo Heikkilä works currently as Vice President, Research and Development in Vacon Plc – which is the world's largest company, in terms of revenues and product selection, that concentrates entirely on AC drives.

Timo Heikkilä was born in 1961. He received his M.Sc. degree from Lappeenranta University of Technology, department of Energy Engineering in 1987, specializing on thermal and fluid dynamics and energy economics. First nine years since graduation (1987-1996), Timo Heikkilä worked in consulting companies/engineering agencies mainly in the field of Building automation and industrial HVAC systems as a design engineer and project manager.

In 1996 Timo joined Nokia Networks, working in the beginning as a specialist in cooling technology for Base stations, then in various Technology management/R&D management positions within Electromechanics and overall HW development disciplines. In 2010 Timo joined Vacon, working the first 2 years as R&D Director for Vacon Drives Finland and since 2012 as Vice President, Research and Development for Vacon Plc.

*The dates of the keynotes are still to be confirmed. See the internet website for the latest available information.*

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## **2 Conference programme at a glance**

### **Tuesday 26 August 2014**

9h00: Opening session

9h30: Keynote 1

10h10: Lecture sessions

- LS1a: Topic 2: Advanced Power Converter Topologies (I)
- LS1b: Topic 8: Power Converters for Electric Vehicles
- LS1c: Topic 4: Drive Control
- LS1d: Topic 5: Wind Energy Systems
- LS1e: Topic 7: Power Supplies
- LS1f: Topic 3: Measurements Techniques

*11h30 Break*

11h50: Lecture sessions

- LS2a: Topic 2: Advanced Power Converter Topologies (II)
- LS2b: Topic 8: EV's Battery Chargers
- LS2c: Topic 4: Electrical Machines
- LS2d: Topic 5: Solar Energy Systems
- LS2f: Topic 3: Standards and Advanced Control Techniques for Power Converters (I)

*13h10 Lunch*

14h50: Dialogue sessions

- DS1a: Topic 2: Advanced Power Converter Topologies
- DS1b: Topic 3: Standard and Advanced Control Techniques for Power Converters
- DS1c: Topic 3: Measurements Techniques
- DS1d: Topic 4: Electrical Machines
- DS1e: Topic 4: High Performance Drives
- DS1f: Topic 5: Wind Energy Systems

16h00: Workshops and Vendors' sessions

### **Wednesday 27 August 2014**

9h00: Awards Ceremony

9h30: Keynote 2

10h10: Lecture sessions

- LS3a: Topic 2: Hard and Soft Switching Techniques
- LS3b: Topic 1: Packaging and System Integration
- LS3c: Topic 4: Inverters/Drive Issues
- LS3d: Topic 5: Renewable Energy Systems
- LS3e: Topic 3: Standards and Advanced Control Techniques for Power Converters (II)
- LS3f: Topic 6: HVDC & FACT's

*11h30 Coffee Break*

#### 11h50: Lecture sessions

- LS4a: Topic 2: Advanced Power Converter Topologies (III)
- LS4b: Topic 1: Wide Band gap devices
- LS4c: Topic 4: Faults and Fault Tolerance
- LS4d: Topic 5: Energy Storage Systems
- LS4f: Topic 6: Power Electronics in Transmission and Distribution Systems

13h10 *Lunch*

#### 14h50: Dialogue sessions

- DS2a: Topic 1: Active Components
- DS2b: Topic 1: New Materials and Active Devices
- DS2c: Topic 1: Power System Integration, Packaging & Thermal Management
- DS2d: Topic 2: Hard & Soft Switching Techniques
- DS2e: Topic 3: Measurement and Control
- DS2f: Topic 4: Adjustable Speed Drives
- DS2g: Topic 5: Renewable Energy and Storage Systems
- DS2h: Topic 6: Power Electronics in Transmission and Distribution Systems; HVDC & FACT's

#### 16h00: Workshops and Vendors' sessions

### **Thursday 28 August 2014**

#### 9h00: Closing session

#### 9h30: Keynote 3

#### 10h10: Lecture sessions

- LS5a: Topic 2: Power Factor Correction Techniques
- LS5b: Topic 1: Reliability
- LS5c: Topic 4: Special Drive Applications
- LS5d: Topic 3: Standards and Advanced Control Techniques for Power Converters (III)
- LS5e: Topic 9: Industry Specific Energy Conversion and Conditioning Technologies
- LS5f: Topic 6: Micro-grids

11h30 *Break*

#### 11h50: Lecture sessions

- LS6a: Topic 2: Advanced Power Converter Topologies (IV)
- LS6b: Topic 1: IGBTs
- LS6c: Topic 10: Education in Electrical Engineering
- LS6d: Topic 3: Measurement and Control
- LS6f: Topic 6: Fault Coordination and Protection of DC Grids

13h10 *Lunch*

#### 14h50: Dialogue sessions

- DS3a: Topic 1: Passive Components
- DS3b: Topic 1: Reliability
- DS3c: Topic 2: Power Factor Correction Techniques
- DS3d: Topic 4: Motion Control, Robotics, Special Drives
- DS3e: Topic 5: Solar Energy Systems
- DS3f: Topic 6: Grids & Smart Grids
- DS3g: Topic 7: Power Supplies
- DS3h: Topic 8: e-Mobility: Propulsion Systems & Power Converters
- DS3i: Topic 8: e-Mobility: Batteries and Management Systems; Chargers and Standards
- DS3j: Topic 9: Industry Specific Energy Conversion and Conditioning Technologies
- DS3k: Topic 10: Education in Electrical Engineering

#### 16h00: Workshops

### 3 Exhibitors

<i>Exhibitors – Alphabetic order</i>		<i>Stand number</i>
<b>1</b>	ABB	<b>1</b>
<b>2</b>	Adwaterc Oy	<b>10</b>
<b>3</b>	Alstom	<b>22</b>
<b>4</b>	AMS Technologies	<b>9</b>
<b>5</b>	Axco Motors	<b>19</b>
<b>6</b>	Cedrat	<b>15</b>
<b>7</b>	Citcea teknoCEA	<b>11</b>
<b>8</b>	ECPE	<b>20</b>
<b>9</b>	EPE'15 ECCE Europe	<b>14</b>
<b>10</b>	EPE'16 ECCE Europe	<b>17</b>
<b>11</b>	GaN Systems	<b>13</b>
<b>12</b>	Kontram	<b>21</b>
<b>13</b>	IEEE Pels	<b>18</b>
<b>14</b>	MathWorks	<b>5</b>
<b>15</b>	Mersen	<b>6</b>
<b>16</b>	Opal – RT Technologies	<b>4</b>
<b>17</b>	Plexim	<b>12</b>
<b>18</b>	Vacon	<b>2</b>
<b>19</b>	Visedo	<b>3</b>

The following companies will present their products during **vendor sessions**, starting on 26 and 27<sup>th</sup> August at 4 pm.

Tuesday 26 August	
16.00-16.20	Visedo
16.20-16.40	Cedrat
16.40-17.00	Alstom
17.00-17.20	MathWorks
17.20-17.40	Opal-RT
17.40-18.00	EPE'16
Wednesday 27 August	
17.20-17.40	Alstom

For accurate and current information, see the internet site ([www.epe2014.com](http://www.epe2014.com))

### 4 PELS Students and Young Professionals Reception

#### **Tuesday, 26 August, starting at 20h30**

Hosted by IEEE Power Electronics Society (PELS), this event is aimed at providing networking opportunity to students/young professionals. The reception will also feature panelists from both industry and academia. Panelists will share their wisdom, knowledge, and experience in the power electronics field over complimentary snacks and drinks.

- **What:** Panel discussion followed by group reception with complimentary snacks and drinks
- **Where:** Linnoituksen Krouvi , Vesiportinkuja 5, Lappeenranta : <http://www.linnoituksenkrouvi.fi/en/>
- **When:** Tuesday, August 26th @ 20:30 – following the conference welcome reception
- **Who:** Students/young professionals and invited guests

Please fill in the following RSVP:

[https://docs.google.com/forms/d/1pjLHedBb\\_fLJSEIFP3XX5SCYcD40hQ6FcUUbPug7DiU/viewform](https://docs.google.com/forms/d/1pjLHedBb_fLJSEIFP3XX5SCYcD40hQ6FcUUbPug7DiU/viewform)

Detailed event schedule:

- 20:30 Food and drink served
- 21:00 Opening speech & panel discussion
- 21:30 Networking

For more information about similar PELS students/young professionals' events, please go to

<http://www.ieee-pels.org/membership/pels-gold>

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## 5 Workshops and panel discussions

**Tuesday 26 August, starting at 16h00**

→ **Workshop on loss measurements in power electronics (devices and applications)**

- Peter Wilson - Director of Standards for the Power Electronics Society of the IEEE
- Ben Kemik - Yokogawa's power analyzer expert
- Rahul Kanchan – ABB CRC Västerås – Calorimetry
- Jyri Niinisto, HBM - Uncertainty in torque measurement

And more to be announced later...

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## 6 Tutorials

<b>T1</b>	Full day	<a href="#">Matrix Converters: Implementation and Industrial Applications</a>	<ul style="list-style-type: none"><li>• Liliana de Lillo, Lee Empringham, Univ. Nottingham</li><li>• Martin Shulz, Infineon</li><li>• Terry Takaku, Fuji Electric corp</li><li>• Jun Kang, Yaskawa</li></ul>
<b>T2</b>	Morning	<a href="#">Challenges on the Road to Future High-Voltage Multi-Terminal DC Networks</a>	<ul style="list-style-type: none"><li>• Pavol Bauer, Rodrigo Teixeira Pinto, Epameinondas Kontos, TU Delft</li><li>• Johan H Enslin, UNC Charlotte, NC, USA</li></ul>
<b>T3</b>	Full day	<a href="#">Hardware-in-the-Loop Based Power Electronics Grid Connected Control Systems</a>	<ul style="list-style-type: none"><li>• Vladimir A. Katić</li><li>• Zoran R. Ivanović</li><li>• Marko S. Vekić</li></ul> University of Novi Sad, Novi Sad, Serbia
<b>T4</b>	Afternoon	<a href="#">Recent Breakthroughs in Controls for Power Electronics</a>	<ul style="list-style-type: none"><li>• Sudip K. Mazumder, University of Illinois, Chicago, USA</li><li>• Tobias Geyer, ABB, Switzerland</li></ul>

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T5	Full day	<a href="#">Low-Voltage Direct Current (LVDC) Power Distribution for Public Utility Networks – Considerations of Converter and System Design</a>	<ul style="list-style-type: none"> <li>• Tero Kaipia</li> <li>• Pasi Nuutinen</li> <li>• Pasi Peltoniemi</li> <li>• Antti Pinomaa</li> </ul> LUT, Finland
T7	Full day	<a href="#">Model-based Design for Power Electronics Applications</a>	<ul style="list-style-type: none"> <li>• Juan Sagarduy PhD, Application Engineer / MathWorks Nordic</li> </ul>
T8	Full day	<a href="#">Power Conversion with SiC Devices and Power Modules</a>	<ul style="list-style-type: none"> <li>• Jacek Rabkowski, Warsaw University of Technology, Poland</li> <li>• Dimosthenis Pefitsis and</li> <li>• Hans-Peter Nee, KTH Royal Institute of Technology, Sweden</li> </ul>

## 7 Technical visits

### 7.1 Visit to **UPM Kaukas Biorefinery**

29 August 2014

#### → “The world’s first renewable diesel biorefinery”

The visit includes presentation of the UPM Kaukas biorefinery and paper mill in an auditorium, visits to the pulp mill control room and paper mill, and sightseeing on the area by bus.

**Price 60 €** (incl. registration fee)

*Note. Registration for UPM Kaukas technical visit will be open to all conference attendees. However, for technical and safety reasons, there is limit on the number of participants. Registration will be completed on a “first come – first served” basis. Once we reach our maximum limit of 100 delegates the registration for this visit will be closed.*

### 7.2 Visit to **Estlink 2**

29 August 2014

#### → “The second high voltage direct current (HVDC) interconnection between Estonia and Finland”

EstLink 2 is a high voltage DC interconnection between Estonia and Finland commissioned in February 2014. It is built by the Estonian and Finnish TSOs Elering and Fingrid. The transmission capacity of EstLink 2 is 650 MW. Together with EstLink 1, the transmission capacity between the two countries is 1000 MW.

The total length of Estlink 2 is about 170 km. It starts at the Püssi substation in Estonia and ends up at Anttila substation in Finland. There are 12 km underground cable in Estonia side, 145 km submarine cable at depth of up to 90 m under Gulf of Finland, and 14 km overhead line in Finland side. EstLink 2 allows electricity to flow in both directions, so the conversion from alternating current to direct current and back again is possible in both converter stations.

**Price: 60 €** (incl. registration fee)

*Note. Registration for Estlink 2 technical visit will be open to all conference attendees. However, for technical and safety reasons, there is limit on the number of participants. Registration will be completed on a “first come – first served” basis. Once we reach our maximum limit of 50 delegates the registration for this visit will be closed.*

**Register now!**

Just follow this link: <https://www.cborg.info/epe2014/>

**The Conference programme:**

Find more details about the programme by following this link: <http://www.epe2014.com/conference/conference-programme/>

**The Social Events:**

More information about the social events: <http://www.epe2014.com/conference/social-programme/>

**The trip to St Petersburg is confirmed: registration is still possible (till 2 July)**

**The sponsorship and exhibition:**

Exhibitors are listed on <http://www.epe2014.com/exhibition/>

⇒ For further information, please visit [www.epe2014.com](http://www.epe2014.com)

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