

# IEEE Benelux Young Researchers Symposium 2014

Ghent University  
Ghent, Belgium  
24-25 April 2014

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Electrical Energy Laboratory  
Ghent University



IEEE joint IAS & PELS & PES  
BENELUX Chapter

# Conference Program

Young Researchers Symposium Ghent, 24 – 25 April 2014

## Thursday Morning

8.30	Registration	Aisle Plateau
9.00	Welcome word <i>Prof. dr. ir. Luc Dupré</i>	Plateauzaal
9.15	Keynote speaker High speed electrical drives <i>Prof. dr. ir. Hans Vande Sande</i>	Plateauzaal
10.00	Lectures session 1 Electrical machines and devices 1	Plateauzaal
11.00	Coffee break	Aisle Plateau
11.30	Lectures session 2 Electrical machines and devices 2	Plateauzaal
12.30	Sandwich meal	Auditorium EELAB

## Thursday Afternoon

14.00	Lectures session 3 Renewable energy – Electrical power systems	Plateauzaal
15.30	Coffee break	
16.00	Lectures session 4 Renewable energy – Electrical power systems	Plateauzaal
18.30	Conference dinner	

## Friday Morning

8.30	Registration	Aisle Plateau
9.00	Keynote speaker Renewable Energy <i>Prof. dr. ir. Wil Kling</i>	Plateauzaal
9.45	Lectures session 5 Exploitation of electrical power systems	Plateauzaal
11.00	Coffee break	Aisle Plateau
11.30	Lectures session 6 Exploitation of electrical power systems	Plateauzaal
12.30	Sandwich meal	Auditorium EELAB

## Friday Afternoon

13.45	Lectures session 7 Electrical grids	Plateauzaal
15.00	Coffee break	
15.30	Lectures session 8 Power electronics	Plateauzaal
17.00	End of the symposium	

## Thursday morning

9.15 Keynote speaker Plateauzaal  
High speed electrical drives  
*Prof. dr. ir. Hans Vande Sande*

10.00 Lectures session 1 Plateauzaal  
**Electrical machines and devices 1**  
Chairman: Helm Jansen

- Analytical modeling of axial flux PMSM using a combined solution of magnetic equivalent circuit (MEC) and Maxwell's equations, *A. Hemeida, P. Sergeant*
- Trade-offs in design of high-speed permanent magnet generators for micro gas turbines, *M. Merdzan, A. Borisavljevic, E. Lomonova*
- Optimization and measurement of eddy current damping in a tuned mass damper, *T.A. Van Beek, K.J.W. Pluk, J.W. Jansen, E.A. Lomonova*
- Analysis On A Magneto-Acoustic Generator For Harvesting Energy From Low-Frequency Environmental Noise, *J. Bao, V. Klymko, B. L. J. Gysen, E. A. Lomonova*

11.00 Lectures session 2 Plateauzaal  
**Electrical machines and devices 2**  
Chairman: Peter Sergeant

- Harmonic Study Of A Diametrically Wound Synchronous Machine, *B. Hannon, P. Sergeant, L. Dupre*
- 3D Model Of Armature Field Of Helical (Faulhaber) Windings Including Rotor Eddy Currents, *S. Jumayev, A. Borisavljevic, K. Boynov, J. Pyrhönen, E. A. Lomonova*
- Modeling And Control Of An Induction Machine Based Electric Variable Transmission, *J. J.M. Druant*

- Mri-Compatible Transcranial Magnetic Stimulation Coil Array, *V.A. Fomichev, V. Klymko, J.W. Jansen, E.A. Lomonova*

## Thursday Afternoon

14.00 Lectures session 3

Plateauzaal

### **Renewable energy – Electrical power systems**

Chairman: Dirk Van Hertem

- Integration Of An Offshore Wind Farm To Britned In A Hybrid Multi-Terminal Hvdc Network, *E. Kontos, P. Bauer*
- Maximum Pv-Penetration In Low-Voltage Cable Networks, *R. Bernards, J.Morren, J.G. Sloopweg*
- Construction Of Aggregated Scenario Trees For The Day-Ahead Prediction Of Wind Power, *L. Exizidis, Z. De Greve, F. Vallee, J. Lobry*
- Positive Balancing Service By Solar Virtual Power Plants, *B. Zwaenepoel, T. Vandoorn, G. Van Eetvelde, L. Vandevelde*
- Overview Of Increasing The Penetration Of Renewable Energy Sources In The Distribution Grid By Control Strategies And Using Ancillary Services, *D. Bozalakov, T. L. Vandoorn, B. Meersman, L. Vandevelde*
- Provision Of Ancillary Services With Variable Speed Wind Turbines, *J. Van De Vyver, T. L. Vandoorn, J. D.M. De Kooning, B. Meersman, L. Vandevelde*

16.00 Lectures session 4

### **Renewable energy – Electrical power systems**

Chairman: Geert Deconinck

- Techno-Economic Optimisation Models For Low Carbon Business Park Energy Systems, *J. Timmerman, G. Van Eetvelde, L. Vandevelde*

- Transient Response Enhancement Of A Grid Connected Wind Farm Using Fly Wheel Energy, *T. A. Taj, H. M. Hasanein*
- Evaluating The Construction Of Prominent Scenarios For A Low-Carbon European Energy System In 2050, *A. Van Stiphout, G. Deconinck*
- Importance And Difficulties Of Comparing Reliability Assessment Methods And Criteria, *E. Heylen, D. Van Hertem*
- Wireless Synchronisation For Low Cost Wireless Sensor Networks Using Dcf-77, *J. Laveyne, G. Van Eetvelde, L. Vandeveldde*

## Friday Morning

9.00 Keynote speaker Plateauzaal  
 Renewable Energy  
*Prof. dr. ir. Wil Kling*

9.45 Lectures session 5 Plateauzaal  
**Exploitation of electrical power systems**  
 Chairman: Erik De Jong

- Optimized Parameter Selection For Assessing Building Energy Efficiency, *E. Mocanu, P. H. Nguyen, M. Gibescu, W. L. Kling*
- Flow Based Methodology: Effect On Prices, Volumes, Export And Welfare, *L. Gyselen, C. De Jonghe, R. Belmans*
- Negative Imbalance Prices: A Case Study For Belgium, *T. Brijs, C. De Jonghe, K. De Vos, R. Belmans*
- A Local Electricity Market Design For The Coordination Of Distributed Energy Resources In A Neighborhood, *M. Ampatzis, P. H. Nguyen, W. L. Kling*
- Capacity Management In A Generalized Smart Grid Framework, *A.N.M.M. Haque, P.H. Nguyen, W.L. Kling*

11.30 Lectures session 6

Plateauzaal

### **Exploitation of electrical power systems**

Chairman: Lieven Vandeveldelde

- A New Approach For The Voltage Regulation In Medium Voltage Networks Using The Experimental Design Method, *J.-F. Toubeau, F. Vallee, Zachari De Greve, Jacques Lobry*
- Six-Tuple Bid Model For Time-Shifting Devices In Agent Based Supply-Demand Matching Mechanism, *M. Babar, P.H. Nguyen V. Cuk, I.G. Kamphuis, W.L. Kling*
- Applying Agent-Based Coordination Mechanism To Mitigate Voltage Fluctuations, *V. M. A. M. Mansoor, P. H. Nguygen, W. L. Kling*
- Regulatory Barriers To Active Demand Response By Residential Electricity Consumers, *P. Van Dievel, K. De Vos, R. Belmans*

## **Friday Afternoon**

13.45 Lectures session 7

Plateauzaal

### **Electrical grids**

Chairman: Lieven Vandeveldelde

- Dynamic Optimisation For Power Dispatch In Microgrids, *C. Deckmyn, T. Vandoorn, M. Moradzadeh, L. Vandeveldelde*
- Method For Evaluating Smart Grid Concepts And Pilots, *E.A.M. Klaassen, J. Frunt, J.G. Slootweg*
- Applications Of Demand Side Management Strategies In The Residential Smart Grid, *E.F. Bijl, B. Asare-Bediako, W.L. Kling*
- Modelling Dynamics Of Electric And Electronic Components In Dc Distribution Grids, *M. Tuan Dat, J. Driesen*
- Methodology To Determine The Performance Indicators Of Electrical Grids That Use Backup Elements, *S. Peñate Vera*

**Power electronics**

Chairman: Alex Van den Bossche

- Sun Position Algorithm For Sun Tracking Applications, *A. A. Rizvi, A. El-Leathy, K. Addoweesh, M. Babar*
- Evaluation Of The Performance Of The Dc-Link Voltage Controller Of A Grid-Connected Ac/Dc-Dc/Ac Emulator Of Severe Grid Disturbances, *B. Tourgoutian, E. De Jong*
- The Extra L Opposed Current Converter, *E. Lemmen*
- 80kW Auxiliary Converter For Railway Applications, *N.H. Baars*
- Dc Link Voltage Modulation Of A Connected Grid Single Phase Inverter, *A. Van Den Bossche, J. M. V. Bikorimana*
- A Survey On The Sun Tracking Systems And its Principle For Getting Maximum Sun Radiation, *T. A. Khan*