

# E<sup>2</sup>DC Workshop Program 2016

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## 5<sup>o</sup> INTERNATIONAL WORKSHOP ON ENERGY-EFFICIENT DATA CENTRES

### E<sup>2</sup>DC 2015 JUNE 21<sup>st</sup> in Waterloo/Canada

#### Program schedule

**9:00 – 9:10**

*Registration and Opening Address*

**9:10 – 9:30**

*Introduction*

*Title: Energy Adaptive Data Centres*

*Speaker: Sonja Klingert (University of Mannheim)*

**9:30 – 10:30**

*Keynote*

*Title: Energy Consumption and Efficiency in Complex ICT Networks*

*Speaker: Dr. Heiko Lehmann, Research and Innovation Director for Smart Energy at T-Labs, the central R&D unit of Deutsche Telekom.*

**10:30 – 11:00**

*Coffee Break*

**11:00 – 12:30**

*Session 1 – Power Prediction and Power Planning*

*Session Chair: Paul J. Kuehn (University of Stuttgart/IKR)*

- Competitive Online Algorithms for Geographical Load Balancing in Data Centers with Energy Storage  
*Chi-Kin Chau (Masdar Institute of Science and Technology) Lin Yang (The Chinese University of Hong Kong)*
- Energy Supply Aware Power Planning for Flexible Loads  
*Florian Niedermeier, Fiodar Kazhamiaka, Hermann de Meer (University of Passau)*
- Learning-Based Power Prediction for Data Centre Operations via Deep Neural Networks  
*Yuanlong Li, Han Hu, Yonggang Wen (Nanyang Technological University), Jun Zhang (South China University of Technology)*
- DC4Cities Power Planning: Sensitivity to Renewable Energy Forecasting Errors  
*Ammar Alyousef, Florian Niedermeier, Hermann de Meer (University of Passau)*

*Joint Discussion*

**12:30 – 13:30**

*Lunch*

**13:30 – 14:30**

*Session 2 – Optimizing Data Center Energy Budget*

*Session Chair: Hermann de Meer (University of Passau)*

- Optimizing the Power Factor of Data Centers Connected to the Smart Grid  
*Tudor Cioara, Ionut Anghel, Ioan Salomie, Marcel Antal (Technical University of Cluj-Napoca), Massimo Bertoncini (Engineering Ingegneria Informatica)*
- Reducing energy costs in data centres using renewable energy sources and energy storage  
*Ariel Oleksiak, Wojciech Piątek (Poznan Supercomputing and Networking Center), Franciszek Sidorski, Konrad Kuczynski (Poznan University of Technology)*
- Evaluation Process of Demand Response Compensation Models for Data Centers  
*Benedikt Kirpes, Sonja Klingert (University of Mannheim)*

*Joint Discussion*

**14:30 – 15:00**

*Invited Paper*

Energy Efficiency and Performance of Cloud Data Centers - Which Role can Modeling Play?

*Paul J. Kuehn (University of Stuttgart/IKR)*

*Virtualization and Load Balancing are main objectives to reduce the power consumption and to improve the performance of data centres (DC). The talk addresses the question how modeling and mathematical performance evaluation methods can contribute to support energy-efficient use of resources and dynamic load balancing in virtualized service environments.*

**15:00 – 15:30**

*Coffee Break*

**15:30 – 16:45**

*Data Center Round Tables*

*Session Chair: Gunnar Schomaker (University of Paderborn/SICP)*

*The DC industry is an ongoing prospering domain. During the last decade we have seen many innovative infrastructure designs trying to handle environmental dependencies and new ICT solutions with increased volatile dynamics in demanding different resources. Eventually, the opportunities for DC architects, operators and direct customers to support “run green” and to keep all interest is still a challenge and has reached a new level of complexity. At 2-3 round tables we will discuss and try to assign existing technologies, trends, research results and future challenges within the operational stack of DCs. The aim is to reach an overview and common understanding about the impact of opportunities to reach holistic sustainability.*

**16:45 – 17:00**

*Closing of the Workshop*

*Gunnar Schomaker (University of Paderborn/SICP)*