

SYMPOSIUM PROGRAM



JUNE 11, 2012
12:00-13:00 - Lunch
13:00-13.30 - Registration
13:30-14:00 - Opening Ceremony
<p>Dmitri Vinnikov, <i>General Chairman</i> Tõnu Lehtla, <i>Chairman of the Council of EGDK-II, Tallinn University of Technology</i> Arvi Hamburg, <i>Dean of Power Engineering Faculty, Tallinn University of Technology</i></p>
14:00-15:45 – PhD Thesis Defence
<p>Zoja Raud, <i>Dept. of Electrical Drives and Power Electronics, Tallinn University of Technology</i> Research and Development of an Active Learning Technology for University-Level Education in the Field of Electronics and Power Electronics</p> <p>Supervisors: Prof. Valery Vodovozov, <i>Tallinn University of Technology, Estonia</i> Prof. Tõnu Lehtla, <i>Tallinn University of Technology, Estonia</i></p> <p>Opponents: Prof. Johannes Steinbrunn, <i>Hawassa University, Ethiopia</i> Prof. Vanja Ambrožič, <i>University of Ljubljana, Slovenia</i></p>
15:45-16:00 - Coffee
16:00-17:45 – PhD Thesis Defence
<p>Andrei Blinov, <i>Dept. of Electrical Drives and Power Electronics, Tallinn University of Technology</i> Research of Switching Properties and Performance Improvement Methods of High-Voltage IGBT based DC/DC Converters</p> <p>Supervisor: Dr. Dmitri Vinnikov, <i>Tallinn University of Technology, Estonia</i></p> <p>Opponents: Prof. Enrique Romero-Cadaval, <i>University of Extremadura, Spain</i> Dr. Robert Smolenski, <i>University of Zielona Gora, Poland</i></p>
20:00-23.00 – Welcome Reception

JUNE 12, 2012
09:00-11:00 – Tutorials EDUCATIONAL ASPECTS Chairman: Prof. Tõnu Lehtla, Co-Chairman: M.Sc. Zoja Raud
Strategy and Challenges for Setting Up an Institute of Technology at Hawassa University, Ethiopia Prof. Johannes Steinbrunn, <i>Institute of Technology at Hawassa University, Ethiopia</i>
Active Learning Electrical Drives through Social Networking Prof. Valery Vodovozov, <i>Tallinn University of Technology, Estonia</i>
Structural Patterns in Engineering Research Papers Mare-Anne Laane, <i>Tallinn University of Technology, Estonia</i>
MS Word as a Tool for Preparing Scientific Paper Dr. Rain Lahtmets, <i>Tallinn University of Technology, Estonia</i>
Preparing a Scientific Paper for Publication Dr. Janis Zakis, <i>Tallinn University of Technology, Estonia</i>
11:00-12:30 – Tutorials ELECTRICAL DRIVES AND POWER ELECTRONICS Chairman: Dr. Robert Smolenski, Co-Chairman: M.Sc. Irena Milashevski
Different PWM Strategies of Multiphase Inverter-Fed AC Drives Prof. Sándor Halász, <i>Budapest University of Technology and Economics, Hungary</i>
Programmable Logic Technology - the Key to Optimal Control of Power Electronic Converters Prof. Ilya Galkin, <i>Riga Technical University, Latvia</i>
Multidisciplinary Optimisation of Electrical Energy Converters Prof. Istvan Vajda, <i>Budapest University of Technology and Economics, Hungary</i>
12:30-13:30 - Lunch
13:30-14:30 - Tutorials MECHATRONICS Chairman: Prof. Mart Tamre, Co-Chairman: M.Sc. Märt Juurma
Fuzzy Logic Control of Clutch for Hybrid Vehicle Prof. Trieu Minh Vu, <i>Tallinn University of Technology, Estonia</i>
Interdisciplinary Aspects and Studies on Energy Efficiency and Effectiveness of Products and Production Prof. Mart Tamre, <i>Tallinn University of Technology, Estonia</i>

14:30-16:00 – Regular Session MECHATRONICS - I Chairman: Prof. Trieu Minh Vu, Co-Chairman: M.Sc. Jelena Priss
Optimization Mini UAV Helicopter Energy Consumption by Changing Geometrical Parameters of Coaxial Rotor Pairs Dmitri Aleksandrov, <i>Tallinn University of Technology, Estonia</i>
Machinery Real Time Monitoring Application Planning for Workshop Tanel Aruväli, <i>Tallinn University of Technology, Estonia</i>
Low Speed Motion Feedback from the UGV Wheels by Single-Pole Magnetic Encoders Maido Hiimaa, <i>Tallinn University of Technology, Estonia</i>
Aerial Imagery Classification and Path Planning Robert Hudjakov, <i>Tallinn University of Technology, Estonia</i>
Infrared Radiation Excited Pigment Marking Technology Märt Juurma, <i>Tallinn University of Technology, Estonia</i>
Overview of Automatic Paper Sorting Ahti Põlder, <i>Tallinn University of Technology, Estonia</i>
16:00-17:00 - Dinner
17:00-18:15 – Regular Session MECHATRONICS - II Chairman: Prof. Mart Tamre, Co-Chairman: M.Sc. Tanel Aruväli
Architecture Management Approach for Integration of SME to Collaborative Network Igor Polyantchikov, <i>Tallinn University of Technology, Estonia</i>
Overview of Wear Problems in CFB Boilers Jelena Priss, <i>Tallinn University of Technology, Estonia</i>
Camera Gimbal Performance Improvement with Spinning-Mass Mechanical Gyroscopes Kristjan Tiimus, <i>Tallinn University of Technology, Estonia</i>
An Alternative Approach to Solving of The Inverse Kinematics Sergei Zhigailov, <i>Tallinn University of Technology, Estonia</i>
A Comperison of Local and Global Descriptos for Place Recognition in Robotics Dmitry Shvarts, <i>Tallinn University of Technology, Estonia</i>
20.00-23.00 – Social Session

JUNE 13, 2012
09:00-10:00 – Tutorials ELECTRICAL ENGINEERING Chairman: Prof. Enrique Romero-Cadaval, Co-Chairman: M.Sc. Andrei Blinov
Real Time Building Energy Management - Energy Model and Standard-based Infrastructure Dr. João Martins, <i>Universidade Nova de Lisboa, Portugal</i>
Energy Efficiency of Electric Lighting for Buildings Dr. Jelena Armas, <i>Eesti Energia Jaotusvõrk OÜ, Estonia</i>
10:00-11:00 – Special Session PhD THESES PRE-DEFENCE PRESENTATIONS Chairman: Prof. Johannes Steinbrunn, Co-Chairman: Dr. João Martins
New Converter Topologies for Integration of Hydrogen Based Long-Term Energy Storages to Renewable Energy Systems Anna Andrijanovits, <i>Tallinn University of Technology, Estonia</i>
Research and Development of Electronic Ballasts for Luminaries with Light Emitting Diodes for Energy Efficient Intellectual Lighting Systems Irena Milashevski, <i>Tallinn University of Technology, Estonia</i>
11:00-12:30 - Tutorials MINING ENGINEERING Chairman: Prof. Ingo Valgma, Co-Chairman: M.Sc. Julija Šommet
Mining and Tunnelling in Finland Prof. Mikael Rinne, <i>Aalto University, Finland</i>
Mining Technologies Prof. Piotr Czaja, <i>AGH University of Science and Technology, Poland</i>
12:30-14.00 – Lunch and Free Time
14:00-15:45 – PhD Thesis Defence
Veiko Karu, <i>Dept. of Mining, Tallinn University of Technology</i> Potential Usage of Underground Mined Area in Estonian Oil Shale Deposit Supervisor: Prof. Ingo Valgma, <i>Tallinn University of Technology, Estonia</i> Opponents: Prof. Piotr Czaja, <i>AGH University of Science and Technology, Poland</i> Prof. Mikael Rinne, <i>Aalto University, Finland</i>
16.00-17:00 - Dinner

17:00-18:00 – Regular Session MINING ENGINEERING Chairman: Prof. Mikael Rinne, Co-Chairman: M.Sc. Veiko Karu
Detection of Mine Collapses with Seismic Methods in the Estonian Oil Shale Mining Area <i>Merle Otsmaa, Tallinn University of Technology, Estonia</i>
Use of Oil Shale Fly Ash as a Binder Material in Stabilization of Soft Soils <i>Aleksander Pototski, Tallinn University of Technology, Estonia</i>
Blasting Parameters and Seismic Data – a Background Study <i>Merike Ring, Tallinn University of Technology, Estonia</i>
Features of Sustainable Assessment Methodology <i>Julija Šommet, Tallinn University of Technology, Estonia</i>
20.00-23.00 – Social Session

JUNE 14, 2012
09:00-11:00 – Special Session NEW TRENDS IN CONVERTER TOPOLOGIES AND CONTROL METHODS FOR ACTIVE POWER DISTRIBUTION GRIDS Chairman: Dr. Indrek Roasto, Co-Chairman: M.Sc. Carlos Roncero Clemente
Topologies and Control Principles of Power Electronic Transformers Dr. Indrek Roasto, <i>Tallinn University of Technology, Estonia</i>
Active Functions of Power Electronic Transformers Prof. Enrique Romero-Cadaval, <i>University of Extremadura, Spain</i>
Active Distribution Networks and EMC Issues Dr. Robert Smolenski, <i>University of Zielona Gora, Poland</i>
Communication Issues of Active Distribution Networks Dr. João Martins, <i>Universidade Nova de Lisboa, Portugal</i>
Dimensioning of Electricity Storage According to Small Renewable Systems Power Generation and Household Load Patterns Dr. Argo Rosin, <i>Tallinn University of Technology, Estonia</i>
Aging of Li-Ion Batteries Prof. Helmuth Biechl, <i>University of Applied Sciences Kempten, Germany</i>
11:00-12:30 – Regular Session ELECTRICAL ENGINEERING - I Chairman: Prof. Ilya Galkin, Co-Chairman: M.Sc. Anna Andrijanovits
Selection of Light Regulation Technique for Distributed Lighting System Irena Milashevski, <i>Tallinn University of Technology, Estonia</i>
Multi-Pump Control Applications for ABB ACQ 810 Industrial Drive Ilja Bakman, <i>Tallinn University of Technology, Estonia</i>
Integration of RES and LED Luminaries in DC based Street Lighting Infrastructure Alexander Suzdalenko, <i>Riga Technical University, Latvia</i>
Towards a Real-Time Building Energy Model Supported by DPWS and IEC 61850 José A. Oliveira-Lima, <i>Universidade Nova de Lisboa, Portugal</i>
Finding Requirements for Ballasts of Colored LED Matrices Olegs Tetervenoks, <i>Riga Technical University, Latvia</i>
Student and Employer Satisfaction Survey Concerning Acquisition of Production Automation Related Disciplines at Tallinn University of Technology Margus Müür, <i>Tallinn University of Technology, Estonia</i>
12:30-13:30 - Lunch

13:30-15:00 – Regular Session POWER ELECTRONICS Chairman: Prof. Sándor Halász, Co-Chairman: M.Sc. José A. Oliveira-Lima
Design of Passive Balancing for Electric Kart Battery Pack Kristaps Vitols, <i>Riga Technical University, Latvia</i>
Experimental Analysis of Extended Boost Quasi-Z-Source Inverters Silver Ott, <i>Tallinn University of Technology, Estonia</i>
New Modulation Technique for Three-Level Quasi-Z-Source Inverter Carlos Roncero Clemente, <i>University of Extremadura, Spain / Tallinn University of Technology, Estonia</i>
Improved Interface Converter for Supercapacitors Based on Single Phase Matrix Converter Maxim Vorobyov, <i>Riga Technical University, Latvia</i>
Implementation of the FPGA based Control System for a Three-Level Quasi-Z-Source Inverter Serhii Stepenko, <i>Tallinn University of Technology, Estonia</i>
15:00-16:00 – Regular Session ELECTRICAL DRIVES Chairman: Prof. Istvan Vajda, Co-Chairman: M.Sc. Maxim Vorobyov
HTS Axial Flux Disc Motor Analysis David Pereira Inácio, <i>Universidade Nova de Lisboa, Portugal</i>
Numerical Analysis of Switched Reluctance Motor/Generator for Kinetic Energy Storage with COMSOL Multiphysics FEM software Arpad Racz, <i>Budapest University of Technology and Economics, Hungary</i>
Switched Reluctance Motor Switching Strategy Comparison Pavels Suskis, <i>Riga Technical University, Latvia</i>
Hybrid Synchronous Motor with Improved Starting Torque Elena Suvorkova, <i>Budapest University of Technology and Economics, Hungary</i>
16:00-16:15 - Coffee
16:15-17:30 – Regular Session DISTRIBUTED ENERGY SYSTEMS AND SMART GRIDS Prof. Helmuth Biechl, Co-Chairman: M.Sc. Kristaps Vitols
Techno-Economic Analysis of Hydrogen Buffers for Distributed Energy Systems Anna Andrijanovits, <i>Tallinn University of Technology, Estonia</i>
Development of Experimental Microgrid in Tallinn University of Technology Kristjan Peterson, <i>Tallinn University of Technology, Estonia</i>
Economics of Renewable Generation in Estonian Electricity Market Izabella Knöš, <i>Tallinn University of Technology, Estonia</i>
Producing Electricity from Biogas: the New Possibilities for Farms Victor Astapov, <i>Tallinn University of Technology, Estonia</i>
18:00-19:00 - Dinner
19:00-23.00 – Social Session

JUNE 15, 2012
09:00-11:00 – Tutorials ELECTRICAL ENGINEERING Chairman: Dr. Argo Rosin, Co-Chairman: M.Sc. Arpad Racz
Self-Healing in Smart Grids Dr. Mohamed Abdel-Fattah, <i>Aalto University, Finland</i>
Power Quality in Power Networks Dr. Herwig Renner, <i>Graz University of Technology, Austria</i>
High-Performance Converters with the High-Frequency Section for Systems of Energy Influence upon Geology Objects Prof. Volodymyr Ivakhno, <i>National Technical University „Kharkov Polytechnic Institute“, Ukraine</i>
11:00-12:30 – Regular Session ELECTRICAL ENGINEERING - II Chairman: Dr. Mohamed Abdel-Fattah, Co-Chairman: M.Sc. Alexander Suzdalenko
Standard-based Infrastructure for Energy Saving and Product Traceability in Shop Floors Vasco Delgado-Gomes, <i>Universidade Nova de Lisboa, Portugal</i>
Building Energy Audit on Example of Office Building Georg Soots, <i>Tallinn University of Technology, Estonia</i>
Overview of Development in the Field of Energy Exchange between Electric Vehicles and Utility Network Marek Mägi, <i>Tallinn University of Technology, Estonia</i>
SOC Estimation for Li-Ion Batteries Based on Equivalent Circuit Diagrams and the Application of a Kalman Filter Ahmad Rahmoun, <i>University of Applied Sciences Kempten, Germany</i>
The Auxiliary Systems Influence on the Energy Efficiency of Diesel Electric Locomotives Anton Rassõlkin, <i>Tallinn University of Technology, Estonia</i>
Research of the Traction Drive with Hybrid Energy Storage System Genadijs Zaleskis, <i>Riga Technical University, Latvia</i>
12:30-14:00 – Lunch and Free Time

14:00-15:45 – PhD Thesis Defence
<p>Heigo Mölder, <i>Dept. of Fundamentals of Electrical Engineering and Electric Machines, Tallinn University of Technology</i></p> <p>Analysis of Liquid Metal Controlled Stirring Method in DC Electric Arc Furnace</p> <p>Supervisor: Prof. Jaan Järvi, <i>Tallinn University of Technology, Estonia</i></p> <p>Opponents: Dr. Juhani Tellinen, <i>GAMGA OY, Finland</i> Dr. Viktor Keskküla, <i>Tallinn University of Technology, Estonia</i></p>
15:45-16:00 - Coffee
16:00-17:45 – PhD Thesis Defence
<p>Lauri Kütt, <i>Dept. of Fundamentals of Electrical Engineering and Electric Machines, Tallinn University of Technology</i></p> <p>Analysis and Development of Inductive Current Sensor for Power Line On-Line Measurements of Fast Transients</p> <p>Supervisor: Prof. Jaan Järvi, <i>Tallinn University of Technology, Estonia</i></p> <p>Opponents: Dr. Herwig Renner, <i>Graz University of Technology, Austria</i> Dr. David Raisz, <i>Budapest University of Technology, Hungary</i></p>
20.00-23.00 – Gala Dinner and Awards Ceremony