



Euroopa Liit  
Euroopa Sotsiaalfond



Eesti tuleviku heaks



TTÜ 1918



*10<sup>th</sup> International Symposium* **Pärnu 2011** *Winter School*

**“Topical Problems in the Field of Electrical and Power Engineering”  
and**

**“Doctoral School of Energy and Geotechnology II”**

**Symposium and Doctoral School Schedule  
Pärnu, Estonia  
10.-15.01.2011**

Begin	End	Type of activity	Names of Persons	Organisation
		<b>Monday, 10.01.2011 Morning</b>	Chairman: <b>Prof. Tõnu Lehtla</b>	
8.00		Bus departure from Rävälä pst 13, Tallinn		
8.15		Bus departure from Hotell Mihkli, Endla 23, Tallinn		
8.30		Bus departure from Tallinn University of Technology, Ehitajate tee 5, Tallinn		
10.30		Arrival to Pärnu Tervis SPA Hotel		
10.30	13.00	Accommodation in Pärnu Tervis SPA Hotel		
12.30	14.00	Lunch		
		<b>Monday, 10.01.2011 Afternoon</b>		
13.30	14.00	Registration of participants	Chairman: <b>Dr. Janis Zakis</b>	Tallinn University of Technology
14.00	14.30	<b>Official Opening of Symposium and Doctoral School</b>	Chairman: <b>Prof. Tõnu Lehtla</b>	Tallinn University of Technology
		Place: Conference room, 6th floor of Building 3 of SPA Tervis		
14.00	14.05	Welcoming and Opening Speech	Prof. Tõnu Lehtla	Tallinn University of Technology
14.05	14.10	In Memoriam of Prof. Juhana Laugis	Prof. Tõnu Lehtla	Tallinn University of Technology
14.10	14.20	Film presentation about Doctoral School of Energy and Geotechnology - II	Dr. Janis Zakis	Tallinn University of Technology
14.20	14.30	Tallinn University of Technology today	Prof. Andres Keevallik, TUT Rector	Tallinn University of Technology
14.30	18.00	<b>Invited lectures</b>	Chairman: <b>Prof. Marius Klytta</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis		
14.30	15.30	Structural optimisation of electrical machines. Case study: permanent magnet wind generator	Prof. Tapani Jokinen	Aalto University, School of Electrical Engineering
15.30	15.45	Coffee break		
15.45	18.00	Saliency analysis of PM machine	Dr. Juan Tapia	Lappeenranta University of Technology
18.00	20.00	Free time		
20.00	22.00	<b>Welcome Cocktail and Dinner</b>	Chairmen: <b>Prof. Tõnu Lehtla, Dr. Janis Zakis</b>	
		Place: Buffet Room, 1st floor of Building 1 of SPA Tervis		
Begin	End	Type of activity	Names of Persons	Organisation
		<b>Tuesday, 11.01.2011 Morning</b>		
6.30	10.00	Morning Gymnastics, Sauna and Breakfast		
10.00	12.30	<b>Invited lectures</b>	Chairman: <b>Prof. Tõnu Lehtla</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis		
10.00	10.30	Power Electronics the Key to Energy Efficiency	Prof. Leonid Ribickis	Riga Technical University
10.30	10.45	Bachelor and Master at the Faculty Electrotechnics and Information Technology of the Technical University of Middle Hesse	Prof. Marius Klytta	Technical University of Middle Hesse
10.45	11.00	Student Forum in 7th international IEEE Conference-Workshop Compatibility and Power Electronics (CPE 2011)	Dr. Janis Zakis	Tallinn University of Technology
11.00	11.15	Ways to Reduce Switching Losses in Motor Drive Inverters	Prof. Valery Vodovozov	Tallinn University of Technology
11.15	12.00	Simulation models of induction motors	Prof. Roma Rinkeviciene	Vilnius Gediminas Technical University
12.00	12.15	Motion control: servos vs frequency converter drives	Dr. Hardi Hõimoja	Tallinn University of Technology
12.15	12.30	Investigation of active filtering system efficiency for multi-level converter of electrical train	Prof. Ivars Raņķis, Inna Buņina, Artjoms Ļebedevs	Riga Technical University
12.30	12.45	Operation of Electrical Coil without Core With Damaged Windings Insulation	Prof. Ivars Raņķis, Edgars Dreimanis	Riga Technical University
12.45	13.00	"Manufacturing Planning and Control systems course" in TUT	Dr. Eduard Shevtshenko	Tallinn University of Technology
13.00	14.00	Lunch and free time		

Begin	End	Type of activity	Names of Persons	Organisation
<b>Tuesday, 11.01.2011 Afternoon</b>				
14.00	16.00	<b>Regular papers. Topic: Power Electronics</b>	Chairman: <b>Dr. Tanel Jalakas</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis	Co-chairman: <b>M.Sc. Alexander Suzdalenko</b>	
14.00	14.20	Implementation of Closed Current Loop Regulator using MSP430	Kristaps Vitols, Nadav Reinberg, Ilya Galkin, Alvis Sokolovs	Riga Technical University
14.20	14.40	Experimental Investigation of Electric Drive Dynamics	Sigitas Juraitis, Roma Rinkeviciene, Algirdas Smilgevicius	Vilnius Gediminas Technical University
14.40	15.00	Comparison of pulse width modulation schemes of quasi Z-source inverter	Silver Ott, Indrek Roasto, Dmitri Vinnikov	Tallinn University of Technology
15.00	15.20	Three-Phase bridge rectifier with PFC	Pavels Suskis, Ilya Galkin	Riga Technical University
15.20	15.40	Autonomous data logger design example	Alexander Suzdalenko, Ilya Galkin	Riga Technical University
15.40	16.00	Capacitance balancing for supercapacitive energy storage system	Ugis Sirmelis, Linards Grigans	Riga Technical University
16.00	16.20	<i>Coffee break</i>		
16.20	18.20	<b>Regular papers. Topic: Electrical Drives and Electrotechnology</b>	Chairman: <b>Assoc. Prof. Elmo Pettai</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis	Co-chairman: <b>M.Sc. Toomas Vaimann</b>	
16.20	16.40	CAN bus elements in robotic snake-like movement device control	Peteris Apse-Apsitis	Riga Technical University
16.40	17.00	Analyses of supply voltage magnitude and voltage variations in Estonian industrial companies	Toomas Vinnal, Heljut Kalda, Heigo Mölder	Tallinn University of Technology
17.00	17.20	Detection of broken rotor bars in three-phase squirrel-cage induction motor using fast Fourier transform	Toomas Vaimann, Ants Kallaste	Tallinn University of Technology
17.20	17.40	Review of the Estonian Railroad rolling stock and solutions for locomotive modernization	Anton Rassõlkin, Hardi Hõimoja, Elmo Pettai, Natalja Tšurkina	Tallinn University of Technology
17.40	18.00	Analysis of the Energy Efficient Usage Methods of Medium and High Payload Industrial Robots	Davis Meike	Riga Technical University
18.00	18.20	Static and Dynamic Models of the qZ Converters Family	Natalia Strzelecka	Gdynia Maritime University
18.20	19.00	<i>Dinner</i>		
19.30	23.00	<b>Social Session</b>		
		Place: To be specified during Symposium		
<b>Wednesday, 12.01.2011 Morning</b>				
6.30	10.00	<i>Morning Gymnastics, Sauna and Breakfast</i>		
10.00	12.45	<b>Invited lectures</b>	Chairman: <b>Prof. Roma Rinkeviciene</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis		
10.00	10.45	Lexical bundles in engineering research papers	Mare-Anne Laane	Tallinn University of Technology
10.45	11.15	Globalization in Micro-/Nanoelectronics Education and Research: a critical Analysis in the Context of the Bologna Process	Manfred Glesner	Technische Universität Darmstadt
11.15	11.45	Lighting for Museums	Dr. Jelena Armas	Tallinn University of Technology
11.45	12.45	Choice of Dimmer and its Control Solution for Smart LED Lamp	Prof. Ilya Galkin	Riga Technical University
12.45	14.00	<i>Lunch and free time</i>		
<b>Wednesday, 12.01.2011 Afternoon</b>				
14.00	16.40	<b>Regular papers. Topic: Power Electronics for Micro and Smart Grids</b>	Chairman: <b>Dr. Indrek Roasto</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis	Co-chairman: <b>M.Sc. Sigitas Juraitis</b>	
14.00	14.20	Control of an Uninterruptible Power Supply in a DC Microgrid System	Andriy Palamar, Mykola Karpinskyy	Tallinn University of Technology
14.20	14.40	New bidirectional multiport DC/DC converter for interfacing of hydrogen buffer with wind turbines	Anna Andrijanoviš, Dmitri Vinnikov	Tallinn University of Technology
14.40	15.00	Nord Pool Spot price fluctuation analysis for energy management of household appliances	Margus Müür, Aivar Auväärt, Argo Rosin, Denis Lebedev	Tallinn University of Technology
15.00	15.20	Biopower Fluidizer for Autonomous Providing Energy for Agricultural Enterprise	Volodymyr Lypnytskyy	Tallinn University of Technology
15.20	15.40	Converter for Interfacing PMSG based Wind Turbine with Distribution Network	Lauris Bisenieks, Dmitri Vinnikov, Ilya Galkin	Tallinn University of Technology/Riga Technical University
15.40	16.00	Overview of information and communication issues for smart grid solutions	Tanel Kivipõld, Jaan Niitsoo	Tallinn University of Technology
16.00	16.20		Georg Soots, Hardi Hõimoja, Elmo Pettai	Tallinn University of Technology
16.20	16.40	Magnetic field sensor coil in fast transient measurement application	Jaan Järvik, Lauri Kütt	Tallinn University of Technology
16.40	17.00	<i>Coffee break</i>		

<b>17.00</b>	<b>18.00</b>	<b>Regular papers. Topic: Mining and Geotechnology</b>	Chairman: <b>Prof. Ingo Valgma</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis	Co-chairman: <b>M.Sc. Julia Guleviťš</b>	
17.00	17.20	Hydraulic conductivity testing method for all-in aggregates and mining waste materials	Julia Sommet	Tallinn University of Technology
17.20	17.40	Abnormal oil rheological properties changing by ultrasound using different power	Maxim Kozachok, Eugene Krapivsky, Sergei Sabanov	Tallinn University of Technology/St. Petersburg State Mining Institute
17.40	18.00	Underground water pools as heat source for heat pumps in abandoned oil shale mines in Estonia	Veiko Karu	Tallinn University of Technology
18.00	18.20	Sustainable development and methods of quality assessment in the road construction aggregates production	Julia Gulevitch	Tallinn University of Technology
18.20	19.00	<i>Dinner</i>		
<b>19.30</b>	<b>23.00</b>	<b>Social Session</b>		
		Place: To be specified during Symposium		
Begin	End	Type of activity	Names of Persons	Organisation
		<b>Thursday, 13.01.2011 Morning</b>		
6.30	10.00	<i>Morning Gymnastics, Sauna and Breakfast</i>		
<b>10.00</b>	<b>12.30</b>	<b>Invited lectures</b>	Chairman: <b>Prof. Valery Vodovozov</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis		
10.00	10.30	Multifunctional Digital Signal Controller Board for Power Electronics: Design and Implementation	Indrek Roasto	Tallinn University of Technology
10.30	11.00	Basics of power semiconductor cooling	Tanel Jalakas	Tallinn University of Technology
11.00	12.30	Presentation skills training	Roman Zahharov	Tallinn University of Technology
12.30	14.00	<i>Lunch and free time</i>		
		<b>Thursday, 13.01.2011 Afternoon</b>		
<b>14.00</b>	<b>16.00</b>	<b>Regular papers. Topic: Power Electronics - II</b>	Chairman: <b>Dr. Hardi Hõimoja</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis	Co-chairman: <b>M.Sc. Kristaps Vītols</b>	
14.00	14.20	2 Switch forward inverter analysis for converters with load-dependent parametrical variations of parallel and series resonances	Helar Niilo	Tallinn University of Technology
14.20	14.40	Management of Learning Content in Power Electronics	Zoja Raud	Tallinn University of Technology
14.40	15.00	A Static Synchronous Compensator for Reactive Power Compensation under Distorted Mains Voltage Conditions	Raimonds Cimbals, Oskars Krievs, Leonids Ribickis	Riga Technical University
15.00	15.20	Current-fed double inductor push-pull DC/DC converter with closed loop control system	Aleksandrs Andreiciks, Ingars Steiks, Kristaps Vītols, Leonids Ribickis	Riga Technical University
15.20	15.40	Reducing power dissipation in semiconductors	Andrei Blinov, Dmitri Vinnikov	Tallinn University of Technology
15.40	16.00	Simulation Study of Inverter-Fed Motor Drives	Mikhail Egorov	Tallinn University of Technology
16.00	16.20	<i>Coffee break</i>		
<b>16.20</b>	<b>18.20</b>	<b>Regular papers. Topic: Mechatronics, Thermal and Mechanical Engineering - I</b>	Chairman: <b>Dr. Tauno Otto</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis	Co-chairman: <b>M.Sc. Mairo Hiimaa</b>	
16.20	16.40	NUMERICAL SIMULATION OF UPRISING GAS AND SOLIDS FLOW IN CFB BY EULER/EULER APPROCH	Alexander Shablinsky, Alexander Kartushinsky, Andres Siirde, Ülo Rudi	Tallinn University of Technology
16.40	17.00	In-process vibration monitoring on CNC lathe	Tanel Aruväli, Risto Serg, Tauno Otto	Tallinn University of Technology
17.00	17.20	Online CAD library applications and pitfalls	Kaimo Sonk	Tallinn University of Technology
17.20	17.40	Utilization of XML and Altova software for creating knowledge base	Ahti Põlder, Märt Juurma	Tallinn University of Technology
17.40	18.00	Energy Efficiency Aspects in Wood Production Value Chain	Märt Juurma, Ahti Põlder	Tallinn University of Technology
18.00	18.20	Some aspects of blended learning	Eduard Brindfeldt; Margus Mür; Aleksander Grinko	Tallinn University of Technology
18.20	19.00	<i>Dinner</i>		
<b>19.30</b>	<b>23.00</b>	<b>Social Session</b>		
		Place: To be specified during Symposium		

Begin	End	Type of activity	Names of Persons	Organisation
		<b>Friday, 14.01.2011 Morning</b>		
6.30	10.00	Morning Gymnastics, Sauna and Breakfast		
<b>10.00</b>	<b>12.30</b>	<b>Invited lectures</b>	Chairman: <b>Prof. Ilya Galkin</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis		
10.00	12.15	CUPS & V2G technology – elements of the SmartGrid infrastructure	Prof. Grzegorz Benysek	Institute of Electrical Engineering, University of Zielona Gora
12.15	12.30	Conducted EMI Issues in Distributed Systems	Dr. Robert Smolenski	Institute of Electrical Engineering, University of Zielona Gora
12.30	14.00	Lunch and free time		
		<b>Friday, 14.01.2011 Afternoon</b>		
<b>14.00</b>	<b>16.00</b>	<b>Regular papers. Topic: Mechatronics, Thermal and Mechanical Engineering - II</b>	Chairman: <b>Prof. Mart Tamre</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis	Co-chairman: <b>M.Sc. Merili Randmaa</b>	
14.00	14.20	Using Wireless Sensor Network Components in Practical Assignments of Master's Study Mechatronics Course	Maido Hiimeaa, Mart Tamre	Tallinn University of Technology
14.20	14.40	Preparation and estimation methods for transformation Small enterprises to Medium-size	Igor Polyantchikov, Jevgeni Sahnno, Marina Pribytkova, Eduard Shevthsenko	Tallinn University of Technology
14.40	15.00	Design of testing of production process in concordance with performance demand	Marina Pribytkova, Igor Polyantchikov, Tatjana Karaulova	Tallinn University of Technology
15.00	15.20	The Programs for Strength Calculation in Pipelines	Jelena Priss, Ivan Klevtsov	Tallinn University of Technology
15.20	15.40	Modularization impact to product end of life cycle	Viktoria Bashkite, Roman Zahharov	Tallinn University of Technology
15.40	16.00	Introducing proactive thinking in value alliance concept	Merili Randmaa	Tallinn University of Technology
16.00	16.20	Coffee break		
<b>16.20</b>	<b>18.40</b>	<b>Regular papers. Topic: Electrical Engineering and Lighting</b>	Chairman: <b>Dr. Jelena Armas</b>	
		Place: Conference room, 6th floor of Building 3 of SPA Tervis	Co-chairman: <b>M.Sc. Ansis Avotins</b>	
16.20	16.40	Power transformers diagnostic	Gerards Gavrilovs, Olegs Borscevskis	Riga Technical University
16.40	17.00	A hit correction in shooting simulator according weapon inclination	Juris Kiploks, Ivars Rankis	Riga Technical University
17.00	17.20	Illumination measurement stand for artificial light sources	Ansis Avotins, Olegs Tetervenoks, Ilya Galkin	Riga Technical University
17.20	17.40	Analysis of bidirectional dc-dc converter with current doubler rectifier	Viktor Beldjajev, Indrek Roasto	Tallinn University of Technology
17.40	18.00	A Concept of Using LED Lamps in conjunction with the Traditional Light Sources	Irena Milaševski, Jelena Armas, Raivo Teemets	Tallinn University of Technology
18.00	18.20	An overview of CFLs implementation	Jaan Niitsoo	Tallinn University of Technology
18.20	18.40	Modeling the integration of expert systems into railway electric transport safety control	Andrew Mor-Yaroslavtsev, Anatoly Levchenkov	Riga Technical University
<b>20.00</b>	<b>23.00</b>	<b>Closing and Awards Ceremony, Gala Dinner. Place: Buffet Room, 1st floor of Building 1 of SPA Tervis</b>	Chairmen: <b>Dr. Dmitri Vinnikov</b> <b>Dr. Janis Zakis</b>	
		<b>Saturday, 15.01.2011 Morning</b>		
6.30	10.00	Morning Gymnastics, Sauna and Breakfast		
<b>10.00</b>		<b>Bus departure from Pärnu Tervis SPA Hotel</b>		
	<b>12.00</b>	Arrival to Tallinn >> Rävåla 13 >> TTU, Ehitajate tee 5 >> Uniquestay Mihkli Hotel, Endla 23		