Faculty of Electrical Engineering,
University of Žilina, Slovak Republic

PROGRAM

of the 9th International Conference

ELEKTRO 2012

Hotel Diplomat, Rajecke Teplice, Slovak Republic, May 21 –22, 2012

„Moderné vzdelávanie pre vedomostnú spoločnosť/Projekt je spolufinancovaný zo zdrojov EÚ“

Operačný program VZDELÁVANIE

Agentúra Ministerstva školstva, vedy, výskumu a športu SR pre štrukturálne fondy EÚ

Európska únia
Európsky sociálny fond

Názov projektu: Systematizácia transferu pokrokových technológií a poznatkov medzi priemyselnou sférou a univerzitným prostredím
ITMS: 26110230004
Aktivita: 1.1 Podpora výskumu a prenosu nových technológií a špičkovej odbornosti

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IAS/IES Joint Chapter Czechoslovakia Section IEEE

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PROGRAM

Monday 21 May 2012

8:30 – 10:00 Registration
10:00 – 10:15 Opening Ceremony – Congress room
10:15 – 12:00 Invited Lectures – Congress room

Insights from Control Theory into Deep Brain Stimulation for relief from Parkinson's disease
Annraoi M de Paor, National University of Ireland, Dublin, Ireland

Wind Power Electrical Drives for Permanent Magnet Generators - Development in Finland
Juha J. Pyrhönen et al., Lappeenranta University of Technology, Finland

Structural Health Monitoring: Sensors and Systems
Ladislav Janousek, Robert Hudec, University of Zilina, Zilina, Slovak Republic

12:00 – 13:00 Lunch
13:00 – 14:30 Sessions
14:20 – 14:40 Coffee Break
14:40 – 16:00 Sessions
16:00 – 17:00 Poster Section
17:00 – 18:00 IEEE/IAS/IES Meeting, Congress room
19:00 – Conference Gala Dinner

Tuesday 22 May 2012

8:00 – 9:00 Registration
9:00 – 10:20 Sessions
10:20 – 10:40 Coffee Break
10:40 – 12:00 Sessions
12:00 – 12:30 Poster Section
12:30 – 12:40 Closing ceremony, Congress room
12:40 – 13:30 Lunch

MONDAY 21 MAY 2012

TA1 Information and Communication Technologies and Services

13:00 – 14:20 – Winter Garden, ground floor
chairman: Schneider T., co-chairman: Brida P.

Thomas Schneider, Andrzej Wiatrek, Stefan Preußler, Ralf-Peter Braun, Michael Grigat: Maximum Transmittable Data Rates for Millimeter-Wave Fixed Wireless Links

Juraj Machaj, Peter Brida: Impact of Wi-Fi Access Points on Performance of RBF Localization Algorithm

Plamen Dimitrov Katev: Propagation Models for WiMAX at 3.5 GHz

Gabriel Cibira: Inter-channel CFAR detector

TA2 Mechatronics and Electronics

14:40 – 16:00– Winter Garden, ground floor
chairman: Cacciato M., co-chairman: Spanik P.

Peter Drgona , Jozef Sedo, Pavol Spanik, Michal Frivaldsky, Anna Simonova: Analysis of Currents with Utilization of Digital Measurement Device

Slavomir Kascak, Michal Prazenica, Marek Valco , Peter Cubon, Marek Klasovity: Vector Control of Two-Phase IM using dSpace

Jozef Kandrac, Martin Priecinsky, Michal Frivaldsky: Finding Possibilities of Detailed and Very Accurate Modeling of High Frequency Converter

Branislav Dobrucky, Mariana Benova and Slavomir Kacsak: LCTLC Resonant Converter Analysis with Direct AC and Rectifying Output

TA3 Power Electrical Systems

13:00 – 14:20– Congress room
chairman: Szabo L., co-chairman: Hrabovcova V.

Rares Terec, Virgil Chindris, Lorand Szabo, Pavol Rafajdus: Position Sensing System for Switched Reluctance Motor Control

Marek Franko, Jozef Ondrejicka, Jozef Kuchta: Development and Examination of Interior Permanent Magnet Synchronous Traction Motor

Lukas Kalamen, Pavol Rafajdus, Peter Sekerak, Valeria Hrabovcova: Representation of Saturation in Transformer Model used in Wind Turbines Simulator

Peter Sekerak, Valeria Hrabovcova, Matus Onufer, Lukas Kalamen, Pavol Rafajdus: Synchronous Motors with Different PM Materials

14:40 – 16:00– Congress room
chairman: Barbosa F., co-chairman: Bracinik P.

R. F. Mesquita Brandão, J. A. Beleza Carvalho and F. P. Maciel Barbosa: Forecast of Faults in a Wind Turbine Gearbox

Technodat - Ruplan Tool (invited)

Jan Turcek, Peter Sekerak, Daniel Hropko: Estimation of Load Angle Using Measured Parameters of Synchronous Machine

Miroslav Kovac, Peter Bracinik, Marek Hoger, Marek Roch: Autonomous Power Restoration of Medium Voltage Distribution Network

TA4 Control and Information Systems in Transport and Industry

13:00 – 14:20 – Lobby Bar, ground floor
chairman: Janota A., co-chairman: Mikulsky J.

Jerzy Mikulski: Introduction of Telematics For Transport (Invited)

Pavel Pribyl, Vit Fabera, Vladimir Faltus, Lukas Tyfa: Domain-Oriented Ontology For ITS Systems

Jakub Wosyka, Pavel Pribyl: Real-Time Travel Time Estimation on Highways Using Loop Detector Data and Licence Plate Recognition

Necmi Taspinar, Sitki Akkaya: Generalized Type-II Hybrid SR ARQ Scheme Using Punctured Convolutional Coding and Code Combining Technique in Multi-Carrier Code Division Multiple Access (MC-CDMA) Systems

14:40 – 16:00– Lobby Bar, ground floor
chairman: Franekova M., co-chairman: Pribyl P.

Karol Rastocny, Peter Nagy: Electronic Signalling Systems as a Part of Conventional Tracks Modernisation

Juraj Ilavsky, Karol Rastocny : Comprehensive Technical Safety Analysis Approach Including Common-Cause Failures

Lubomir Pekar, Jan Krupa and Karol Rastocny: Diagnostic Instrument for Testing the CAN Bus Used in the ZSB 2000

Michal Gregor, Juraj Spalek, Jan Capak: Use of Context Blocks in Genetic Programming for Evolution of Robot Morphology

TA5 Trends in Theoretical and Applied Electrical Engineering

14:40 – 16:00 – VIP room, third floor
chairman: Stork M., co-chairman: Janousek L.

Milan Stork: Synthesis of Nonlinear Electronic System Simulation and Construction

Ladislav Janousek: Impact of Selected Parameters on Eddy Current Attenuation in Conductive Materials

Irina Asenova, Franciszek Balik: Multiparameter Symbolic Sensitivity Analysis of Active Circuits by Using Nullor Model and Modified Coates Flow Graph

Elemír Usak: Influence of Heat Treatment on Magnetic Properties of Steel Sheet Material for Cable Routing System

TA6 Materials and Technologies for Electrical Engineering

13:00 – 14:20– VIP room, third floor
chairman: Bury P., co-chairman: Pudis D.

Jaroslav Mlynek, Radek Srb: Artificial Leather Production in the Automotive Industry

Eliska Jurisova, Libor Ladanyi and Jarmila Mullerova : Spectral Response of Optical Switches Based on Chalcogenide Bistable Fiber Bragg Gratings

Jozef Kudelcik, Peter Bury, Jozef Drga, Peter Kopcansky, Vlasta Zavisova, Milan Timko: The Anisotropy of Transformer Oil-Based Magnetic Fluids Studied by Acoustic Spectroscopy

Lubos Suslik, Dusan Pudis, Jaroslava Skriniarova, Jaroslav Kovac, Ivana Kubicova, Ivan Martincek, Jozef Novak, Stefan Hascik: 2D Photonic Structure with Square Symmetry in the GaAs/AlGaAs LED Surface

Poster Section – reception, ground floor

16:00 – 17:00

Liviu Emilian Somesan, Emil Padurariu, Ioan-Adrian Viorel and Lorand Szabo: Design of a Permanent Magnet Flux-Switching Machine

Kamil Kiraga, Elzbieta Szychta, Leszek Szychta: Determination of Rail Steel's Phase Composition by Means of X-Ray Diffraction Analysis

Juraj Zdansky, Peter Nagy: Influence of The Control System Structure With Safety PLC on Its Reliability and Safety

Petr Petvaldsky; Petr Bilik: The Concept of Application for Intelligent Building Management on a Saas Platform

Marek Novak, Miroslav Binas, Frantisek Jakab: Unobtrusive Anomaly Detection in Presence of Elderly in a Smart-home Environment

Tomas Mikluscak; Andrej Kapjor; Ales Janota; Ondrej Biros: Exploring Possibilities of Predictive Self-Programming Thermostats for Energy Savings

Ales Janota, Jan Halgas: A Methodology Applicable to Building a Classifier of Pavement Roughness Measurement Methods and Devices

Tomas Cakan, Vladimir Wieser: QoS Parameters Enhancement by using Directional Antennas in MANET

Andrej Tkac, Vladimir Wieser: Calculation of Impulse Response in Rician and Rayleigh Channel

Maria Michniakova, Ladislav Janousek: The Impact of Various Waveform Shapes on the Response Signal in Pulsed Eddy Current NDE

Roman Radil, Jan Barabas: Investigation of Low Frequency Electromagnetic Field Influence on Cell Proliferation Process

Viera Matkova, Tatiana Strapacova: Detection Sensors for Electromagnetic Nondestructive Evaluation

Peter Hurtuk, Roman Radvan, Michal Frivaldsky: Investigation of Possibilities to Increasing Efficiency of Full Bridge Converter Designed for Low Output Voltage and High Output Current Applications

Tomas Kapusta: EMI Filters for Photovoltaic Converters

Daniel Kacik, Peter Tatar: Modal Interferometer Based on Double Cladding Photonic Crystal Fiber for Refractive Index Measurement by Equalisation Wavelength

Inas Abuetwirat, Tomas Palai-Dany: Dielectric Properties of Niobium Oxide Film and Tantalum Oxide Film at Electrolytic Niobium and Tantalum Capacitors

Peter Hockicko, Peter Bury, Francisco Munoz.: Electrical and Dielectric Properties of LiPON Glasses

Ivan Martincek, Dusan Pudis: All-Optical Optofluidic Fiber Intensity Modulator

Ivana Kubicova, Dusan Pudis, Lubos Suslik, Jaroslava Skriniarova: Irregular 2D Structure in the Light Emitting Diode Surface Patterned by NSOM Lithography

Stefan Borik, Ivo Cap: Implementation of Wireless Data Transfer to Hotoplethysmographic Measurements

P. Castro Vide, F. Maciel Barbosa and J. Beleza Carvalho: Performance Metrics for Evaluation of a Mixed Measurement Based State Estimator

Vladimir Kacenka, Pavol Rafajdus, Pavol Makys, Vladimir Vavrus, Lorand Szabo: Static and Dynamic Fault Analysis of Switched Reluctance Motor

Bezawada Chakradhar, Potuganti : A New Piezoelectric Motor Design Utilizing Electric and Magnetic Fields

Jan Ivanecky, Daniel Hropko: Optimal Dispatch of Renewable Energy Sources Included in Virtual Power Plant Using Accelerated Particle Swarm Optimization

Isabel Maria Ferro Ferreira Couto Soares, Fernando Pires Maciel Barbosa: Energy Service Companies in Portugal and Throughout the World

Emil Padurariu, Liviu Emilian Somesan, Ioan-Adrian Viorel, Lorand Szabo: Large Power Permanent Magnet Transverse Flux Motor, Steady-State and Dynamic Behavior

TUESDAY 22 MAY 2012

TA1 Information and Communication Technologies and Services

09:00 – 10:20 – Winter Garden, ground floor
chairman: Chernoyarov O., co-chairman: Benco M.

Oleg V. Chernoyarov, Martin Breznan: Restoration of Signals and Images against Hindrances with use of the Generalized Spectra on the Basis of Orthogonal Functions

Dusan Koniar, Stanislav Stofan, Libor Hargas and Anna Simonova: Hardware Conditioning in Process of High Speed Imaging

Miroslav Uhrina, Jan Hlubik, Martin Vaculik: The Correlation Between Objective and Subjective Methods Used for Video Quality Evaluation

Miroslav Benco, Robert Hudec, Slavomir Matuska, Martina Zachariasova: One-dimensional Color-level Co-occurrence Matrices

10:40 – 12:00 – Winter Garden, ground floor
chairman: Dimkow S., co-chairman: Hudec R.

Svetoslav Dimkow, Vania Ivanova: Assessing Telecomunications Services Based on Standards ISO 10001 AND ISO 10002

Iva Petrikova, Zdenek Divis, Zdenek Tesar: Mathematical Model of Subscriber Extension Line

Juraj Palecek, Martin Vestenicky, Peter Vestenicky, Dasa Ticha: Optimization of RF Band Pass Filter by Genetic Algorithm

Daniel Benedikovic, Jan Litvik, Milan Dado: Modeling of Single-Channel Optical Transmission Systems with High-Order ASK and PSK Modulation Formats

TA 2 Mechatronics and Electronics

10:40 – 12:00 – Lobby Bar, ground floor
chairman: Scelba G., co-chairman: Scarella G.

Jan Hruby, Oldrich Turecek: Possibility of Using Knock Sensors

Ondrej Hock, Peter Drgona, Jozef Cuntala: PWM Modulator with Increased Reliability in FPGA Circuit

Marek Valco, Peter Cubon, Peter Jeck: Influence of Different Loads on the Inverter Output Voltage

Andrej Rybovic, Martin Priecinsky, Marek Paskala: Control of the Inverted Pendulum Using State Feedback

TA 3 Power Electrical Systems

09:00 – 10:20 – Congress room
chairman: Skala B., co-chairman: Pacha M.

Bohumil Skala: Life-time Test of the Pantographs for Main Line Vehicles

Georgi Pavlov: Trends of Modernization of Traction Drives for Electric Vehicles

Matej Pacha, Jiri Stepanek: Energy Savings and Performance Optimizations of Shunting Hybrid Locomotives

Marek Stulrajter, Marek Musak: Unconventional Method for PM Synchronous Motor Parameters Investigation

10:40 – 12:00– Congress room
chairman: Astrov I., co-chairman: Stulrajter M.

Jan Faber, Jan Vittek: Self-Calibration and Noise Reduction of Resolver Sensor in Servo Drive Application

Tatiana Radicova, Milan Zalman: LMPM Position Control with Luenberger Observer Using Genetic Algorithms

Peter Minarech, Jan Vittek, Vladimir Vavrus and Pavol Makys: Experimental Verification of New Energy Saving Position Control Algorithm for AC Drives

Igor Astrov, Andrus Pedai, Boris Gordon: Two-Rate Neural Control of TUAV with Coaxial Rotor and Ducted Fan Configuration for Enhanced Situational Awareness

TA 4 Control and Information Systems in Transport and Industry

09:00 – 10:20 – Lobby Bar, ground floor
chairman: Spalek J., co-chairman: Peniak P.

Peter Peniak: Creating model of open application interface for Material Flow Control systems

Martin Gazo, Stefan Kozak, Jozef Dubravsky: Active Magnetic Bearing Control in 3D Model

Slavka Jadlovska, Jan Sarnovsky: A Complex Overview of the Rotary Single Inverted Pendulum System

Peter Vestenicky, Martin Vestenicky, Juraj Palecek: Critical Resonant Frequency Calculation of Inductively Coupled RFID Transponder

TA 5 Trends in Theoretical and Applied Electrical Engineering

09:00 – 10:20 – VIP room, third floor
chairman: Dolezel I., co-chairman: Faktorova D.

Daniela Gombarska, Matej Horicka: Evaluation of Heart Rate Variability in Time - Frequency Domain

Antonin Predota, Zdenka Benesova, Lukas Koudela: Surge Phenomena in System of Transmission Line and Transformer Winding

Sona Pavlikova, Dusan Maga, Boris Simak: Graph Based Inversed Matrix in Electric Circuits Solutions

Lenka Sroubova, Roman Hamar, Petr Kropik: Steel Buried Pipeline Influenced Power Overhead Line

10:40 – 12:00– VIP room, third floor
chairman: Usak E., co-chairman: Cap I.

Zdenek Roubal, Petr Marcon, Martin Cap: Analysis of the Magnetic Properties of the Magnetic Closed Samples

Frantisek Mach, Pavel Kus, Pavel Karban, Ivo Dolezel: Optimized Arrangement of Device for Electrostatic Separation of Plastic Particles

Petr Polcar: Magnetorheological Brake Design and Experimental Verification

Ivo Dolezel, Martin Skopek, Bohus Ulrych, Lukas Voracek: Fixing Element with Permanent Magnet for Transport of Rails

Poster Section – Reception, ground floor

12:00 – 12:30

Daniel Korenciak: Application of LONWORKS Technology in Intelligent Buildings

Vojtech Simak, Dusan Nemec, Jozef Hrbcek: Calculation of Robot Position Utilizing Accelerometers in Non-Inertial Frame of Reference

Peter Matis, Juraj Spalek: A Smoke Spreading in Road Tunnel

Marek Vyrostko, Maria Franekova, Peter Luley, Tomas Ondrasina: Probabilistic Error Analysis of Encrypted Transmission for Safety-Related Railway Applications

Peter Holecko, Emilia Bubenikova, Rastislav Pirnik: Communication Systems in Transport - Hybrid ITS Interface

Mirosaw Luft, Radosaw Cio, Daniel Pietruszczak: Integrated Measurement System Based on the IEEE-488 Bus

Vladimir Sedlak, Daniela Durackova, Roman Zalusky: Investigation Impact of Environment for Performance of ICA for Speech Separation

Slavomir Matuska, Robert Hudec, Miroslav Benco: The Comparison of CPU Time Consumption for Image Processing Algorithm in Matlab and Opencv

Veronika Durcekova, Ladislav Schwartz, Nahid Shahmehri: Sophisticated Denial of Service Attacks Aimed at Application Layer

Martina Zachariasova, Robert Hudec, Miroslav Benco, Patrik Kamencay: The object recognition based on Scale-Invariant Feature Transform and Hybrid Segmentation

Filip Certik, Rastislav Roka: Analysis of Modulation Techniques Utilized in the Optical Transmission Medium

Jozef Jurcik: Analysis of Insulating State on Transformer Model Using PDC Method

Matej Kucera, Milan Sebok, Mikołaj Bartłomiejczyk : Electromagnetic Compatibility of ISDN Equipments

Jozef Sedlak, Martin Brandt, Robert Seewald: Influence of Remanent Magnetization on the Diagnostic of Distribution 25MVA Transformer by SFRA Method

Slavomir Matuska, Robert Hudec, Miroslav Benco: The Comparison of CPU Time Consumption for Image Processing Algorithm in Matlab and Opencv

Michal Hrkel, Jan Vittek, Zdeno Biel: Maximum Torque Per Ampere Control Strategy of Induction Motor with Iron Losses

Zdeno Biel, Jan Vittek, Michal Hrkel: Permanent Magnet Synchronous Motor Loss Minimization Control Strategies

Matej Palkovic, Pavol Makys: Influence of Static Friction and Stick-Slip Phenomena on Control Quality of SMPM

Galina Cherneva, Elena Dimkina: Chaotic Masking Approach based on the Duffing Oscillator

Sania Partovian, Mahdi Aliyari Shoorehdeli: Design and Validation of a Novel Real-Time Haptic Scissors

12:30 – 12:40 Closing ceremony, Congress room