Faculty of Electrical Engineering,
University of Žilina, Slovak Republic

PROGRAM

of the 8th International Conference

ELEKTRO 2010

Žilina, Slovak Republic, May 24 –25, 2010

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PROGRAM

Monday 24 May 2010

8:00 – 10:00 Registration
10:00 – 10:15 Opening Ceremony *(Aula 1)*
10:15 – 12:30 Invited Lectures *(Aula 1)*

Power quality implications of distributed / alternative energy options
Dr. S. Mark Halpin, Professor, Auburn University, Auburn, AL, USA IEEE Fellow, IAS Past President, IAS Distinguish Lecturer

Power Electronics for Photovoltaic Generation Systems
Alfio Consoli, Professor, University of Catania, Italy, IEEE Fellow, Distinguished Lecturer of the IEEE-IAS and a member of the Advisory Committee of the IEEE Power Electronics Society (PELS)

Optical switching - what next?
Ivan Glesk, Professor, Electronic and Electrical Engineering Department at University of Strathclyde, Glasgow, United Kingdom as a Professor of Broadband Communication Systems.

12:30 – 14:00 Lunch
14:00 – 15:30 Sessions *(rooms AF14, AF104, AF106, AF108)*
15:30 – 15:45 Coffee Break
15:45 – 17:00 Sessions *(rooms AF14, AF104, AF106, AF108)*
17:00 – 18:00 IEEE/IAS/IES Meeting *(room AF106)*
19:00 Conference Gala Dinner *(Hotel Slovakia)*

Tuesday 25 May 2010

8:00 – 9:00 Registration
9:00 – 9:45 Invited Lectures *(Aula 1)*

Satellite Communications - Challenges and Developments
Otto Koudelka, Professor, Head of the Institute of Communications Networks and Satellite Communications at Graz University of Technology, Austria, *Head of the Institute of Applied Systems Technology (Joanneum Research)*

9:45 – 10:15 Coffee Break
10:15 – 12:30 Sessions *(rooms AF104, AF106, AF108)*
12:30 – 13:00 Closing Sessions *(Aula 1)*
13:00 – 14:00 Lunch

MONDAY 24 MAY 2010

TA2 Mechatronics and Electronics *(AF104)*

14:00 – 15:30

chairman: Consoli A., co-chairman: Hargaš L.

Dobrucký, B., Beňová, M., Frívaldský, M., Praženica, M.: Control Strategies of 2-stage Combine LLC- and Direct Converter – Modelling and Comparison

Donátová, M.: Evaluation of Various Magnetic Circuits in Magnetohydrodynamic Pump with Permanent Magnets

Himmelstoss, F. A., Votzi, H. L.: Combined Forward-Flyback-Converter with only Two Diodes

Hock O., Štofan S., Čuntala J., Hlubik J.: Aplication FPGA Circuit for Switching Element of Control Center CATV Network

Špánik, P., Čuntala, J., Frivaldský, M., Glapa, N., Madleňák, D.: Thermal Simulation of Electrochemical Double Layer Capacitor

Coffee Break

15:45 – 17:00

chairman: Consoli A., co-chairman: Hargaš L.

Stork, M., Hrusak, J., Mayer, D.: Coupled Oscillators and State Space Energy Approach

Kandráč, J. , Frívaldský, M., Špánik, P.: Modified Design of the Main Circuit of LLC Resonant Converter with Hight Switching Frequency

Praženica, M., Kašša, J., Dobrucký, B., Podmanický, M.: Research of Two-Stage Electronic System with Two-Phase Orthogonal Output using Single-Phase Matrix Converters

Figura, R., Szychta, E., Szychta, L., Kiraga, K.: Analysis of the Estimation Error of the Squirrel-Cage Induction Motor's Efficiency

TA3 Power Electrical Systems *(AF106)*

14:00 – 15:30

chairman: Halpin M., co-chairman: Łukasik Z.

Halpin, M.: ANSI/IEEE Circuit Breaker Ratings for Short-Circuit Protection

Asenova, I., Georgiev, D.: Neural Networks for Short-Term Load Forecast in Electric Energy System

Höger, M.: Simulation of a Power Substation's Control System Operation

Kurčík, P.: Bearing Fault Detection in Variable Speed Induction Machines with Vector Control

Minárech, P., Vittek, J.: Energy Demands of the Position Drives Employing PMSM Control by Forces Dynamics

Hraško, M., Turček, J., Altus, J.: Wind Turbine Characteristics

Coffee Break

15:45 – 17:00
chairman: Halpin M., co-chairman: Łukasik Z.

Hraško, M., Altus, J.: Wind Turbine Generators

Turček, J., Hraško, M., Altus, J.: Influence of Photovoltaic Power Plants on the Operation of Power System

Wojciechowski, J., Kwiecień, K., Łukasik, Z., Olczykowski, Z.: Modeling of Changes in Load Traction in DC Traction System

Vonkomer, J., Žalman, M.: New Method for Smooth Transient between Sensor and Sensorless Direct Vector Control of Induction Machines

Wojciechowski, J., Ciszewski, T., Kornaszewski, M., Łukasik, Z.: Contractual Power as a Part of Economically Responsible Powering Strategy in Railway Companies

TA4 Control and Information Systems in Transport and Industry *(AF14)*

14:00 – 15:30
chairman: Mikulski J., co-chairman: Holečko P.

Ciszewski, T., Chrzan, M., Jackowski, S., Łukasik, Z.: Calculation of CPSK Error Rate in Dominant NCPSK Interference

Vestenický, M., Vestenický, P.: Sensor Unit for LPG Concentration Measurement

Výrostko, M.: Cryptoanalysis Tools Applied in Cryptography Protocols Recommended within Railway Applications

Cherneva, G., Mihova, M.: A PSpice Based Modeling and Simulation of Chaotic Processes in Third-Order Nonlinear Circuit

Lobotková, Z., Janota, A.: Specification of a Transport System Using SYSML

Coffee Break

15:45 – 17:00
chairman: Holečko P., co-chairman: Nagy P.

Mikulski, J., Młyńczak, J.: Electrodynamic Wagon Retarder

Slezák, J., Spalek, J.: Technical-Economic Study Relating to the Usage of the Safety Related Control Systems Operated by the Provision of the Czech

Slivka, M.: Formal and Semiformal Methods in Railway Safety Systems

Ždánsky, J., Hrbček, J.: Programming of Common and Safety Control Systems

TA5 Trends in Theoretical and Applied Electrical Engineering *(AF108)*

14:00 – 15:30

chairman: Doležel I., co-chairman: Franek J.

Janoušek, L., Smetana, M.: Ambiguity of Eddy Current Non-destructive Evaluation of Conductive Cracks

Smetana, M., Janoušek, L.: Pulsed Eddy Currents – Application to Detection of Deeper Flaws in Conductive Materials

Fiala, P., Jirku, T., Drexler, P., Dohnal, P.: Antenna-Based Sensors for Partial Discharge Detection in High Voltage Power Transformer

Michniaková, M.: Comparison between Pulsed and Harmonic Excitation in Eddy Current Non-destructive Testing

Doležel, I., Ulrych, B.: Modeling of Volumetric Joule Losses in Very Thin Plates using Analogy between Magnetic and Electric Vector Potentials

Fiala, P., Szabó, Z., Dohnal, P.: EMHD Model Used for Linear Moving Objects Analysis, Application

Coffee Break

15:45 – 17:00

chairman: Fiala P., co-chairman: Drexler P.

Strapáčová, T., Čápová, K., Janoušek, L.: An Eddy Current Techniques for Detecting Single Leg Fracture in Artificial Heart Valve

Alman, M.: Excitation Coil Parameters Influence on Eddy Current Distribution in ECT Applications

Franek, J., Kollár, M.: Solution of a Case of Static Field with Mixed-Boundary Conditions

Fiala, P., Kubásek, R., Al Khaddour, M.: Outline of Noice Spectroscopy Potentialitie

Tvarožek, P., Martinček, I.: Controling Fundamental Mode Properties by Microstructure Filling

TUESDAY 25 MAY 2010

TA1 Information and Communication Technologies and Services

(AF106)

10:15 – 12:30

chairman: Jarina R., co-chairman: Hudec R.

Adamec, B., Hottmar, V.: Improvement the Network Transfer Quality of Different End-User Applications

Jurisová, E., Müllerová, J.: A Numerical Study on Absorptive Optical Bistability in a Nonlinear Fabry-Perot Cavity

Kubizniak, P.: Effective Utilization of Wavelengths in Passive Optical Networks

Švarný, J.: Assessment of Unspecified Features of Integrated Interferometric Electro-Optic Modulator

Jelšovka, D., Kamencay, P.: Reconstruction Visual Hull from Uncalibrated Images using Two Planar Mirrors

Kamencay, P., Jelšovka, D.: 3D Reconstruction of a Stereo Pair Images

Al-Khaddour, M., Kubasek, R.: Measuremenf of X-ray Radiation in-Plane and the Methods of Protection

Dulik, M.: Control and Communication in Solar Tracking Systems

Paleček, J., Vestenický, M.: Passive Electronic Componets Parameters Modelling with Genetic Algorithm

Lekourgeotes, A., Kotsopoulos, S.: Performance of Proxy MIPv6 in Convergent Wireless Networks

TA2 Mechatronics and Electronics *(AF104)*

10:15 – 12:30

chairman: Pavlásek P., co-chairman: Drgoňa P.

Brtník, B., Matoušek, D.: Transformation Graph of an Operational Amplifier Concerning Transient Frequency

Koscova, M., Exnar, Z., Dulik, M.: Fuzzy Control of Solar Engine Injection

Drgoňa, P., Príkopová, A., Bobek, V., Priečinský, M.: Sofisticated Method for Identification and Design of Digital Control System

Hurtuk, P., Kondelová, A.: Switching Power Supply with Synchronous Rectifiers for Electroplating

Kolpach M., Kállay F.: Research of McKibben Pneumatic Artificial Muscle Control

Priečinský, M., Bobek, V., Drgoňa, P., Hurtuk, P.: Simply Digital Control of Buck Converter

Jeck, P.: Principal of Controlling of 3-phase Inverter with Float Processor

Kiraga, K., Szychta, E., Kowol, M.: Distribution of Magnetic Induction and Magnetic Intensity across a Railway Rail and Its Enviroment

Luft, M., Cioć, R., Pietruszczak, D.: Measurement Transducer Modelled by Means of Classical Integral-Order Differential Equation and Fractional Calculus

TA5 Trends in Theoretical and Applied Electrical Engineering *(AF108)*

10:15 – 12:30
chairman: Štork M., co-chairman: Čáp I.

Gombárska, D., Czippelová, B., Čáp, I.: Investigation of Terminal Segment Influence in Cardiovascular System Modelling

Stork, M., Novak, J., Zeman, V.: Cardiac Output Estimation Based on Spiroergometric Examination

Isteníková, K., Faktorová, D.: Influence of Biological Materials Dielectric Parameters on Electromagnetic Wave Propagation

Barabáš, J. Radil, R.: Electromagnetic Fields and Biosystems – Outline of Possible Mechanisms of Action

Radil, R., Barabáš, J., Janoušek, L.: Recent Aspects of Low Frequency Electromagnetic Field Cancer Therapy

Kriz, T., Ostanina, K.: Influence of Noise in Tissue Image Reconstruction

Ostanina, K., Dědková, J.: Significant Parameters of Image Reconstruction Convergence

Babušiak, B., Gála, M.: Identification of the Eye-blink Artifacts in the EEG

Gála, M., Babušiak, B., Novák, V.: Detection of NREM2 Stage