



**FACULTY OF ELECTRICAL
ENGINEERING**
UNIVERSITY
OF WEST BOHEMIA

Department of Theory of Electrical Engineering

PROGRAM OF ISTET 2013

**International Symposium
on Theoretical Electrical Engineering**

**24th – 26th June 2013
Pilsen, Czech Republic**

Sunday, 23rd June, 2013

16:00 – 19:00	Registration (Angelo Hotel Pilsen, U Prazdroje 6,301 00 Pilsen, Czech Republic)
19:00 – 21:30	Dinner (Na Spilce Restaurant, U Prazdroje 7, 304 97 Plzeň, Czech Republic)

Monday, 24th June, 2013

08:00 – 09:00	Registration (SECESE Conference and Meeting Centre, U Prazdroje 7, 304 97 Plzeň, Czech Republic)
09:00 – 09:30	Opening Ceremony of the Conference ISTET 2013

Oral session O1 **Chairman** Dolezel, I., Brauer, H.

09:30 – 10:00	Marcusa, D., Kuczmann, M.: Parallel Edge Finite Element Method to Solve Eddy Current Field Problems
10:00 – 10:30	Brauer, H., Uhlig, R.P., Zec, M., Carlstedt, M., Porzig, K., Ziolkowski, M., Toepfer, H., Ziolkowski, M.: Lorentz Force Eddy Current Testing

10:30 – 11:00 Coffee break

Oral session O2 **Chairman** Kuczmann, M., Mladenov, V.

11:00 - 11:30	Gratkowski S., Szymanik B.: Resistance of thin disks and rings
11:00 – 11:30	Lewandowski, M., Walczak, J.: Combinatorial method for optimal sizing and placement of active power filters

12:00 – 13:30 **Lunch**
(Na Spilce Restaurant)

13:30 – 14:30 **Poster session P1 (Electromagnetic and coupled fields – part I)**

14:45 – 15:45 **Poster session P2 (Signal processing and identification – part I)**
(SECESE Conference and Meeting Centre)

15:45 – 16:15 Coffee break

16:15 - 17:15 **Poster session P3 (Applications (Examples) – part I)**
(SECESE Conference and Meeting Centre)

17:15 – 18:30 **Meeting of the Scientific Committee**

19:00 – 23:00 **Welcome party - social evening**
dress code casual

 20:00 *Historical fencing – group of historical fencing Kargen*

 21:30 *Fire show – group of historical fencing Kargen*
(SECESE Conference and Meeting Centre)

Tuesday, 25th June, 2013

Oral session O3

Chairman Karban, P., Lewandowski, M.
(SECESE Conference and Meeting Centre)

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- 09:00 – 09:30 Mladenov, V., Kirilov, S.:
Investigation of memristors own parasitic parameters and mutual inductances between neighbouring elements of memristor matrix and their influence on the characteristics
- 09:30 – 10:00 Dmitrievskii, V., Prakht, V., Sarapulov F.:
Computer-aided analysis of induction heating the moving cylindrical ferromagnetic billets
- 10:00 – 10:30 Polcar, P.: Ferrofluid Force Enhancement of Electromechanical Actuator
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10:30 – 11:00 Coffee break

Oral session O4

Chairman Forzan, M., Sikora, R.
(SECESE Conference and Meeting Centre)

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- 11:00 – 11:30 Hidaka, Y., Sato, T., Igarashi, H.:
Stochastic Topology Optimization Based on Level-Set Method
- 11:30 – 12:00 Barba, P. Di, Forzan, M., Sieni, E.:
Multi-objective design of a power inductor: a benchmark of inverse induction heating
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12:00 – 13:30 **Lunch**
(Na Spilce Restaurant)

13:30 – 14:30 **Poster session P4 (Electromagnetic and coupled fields – part II)**

14:45 – 15:45 **Poster session P5 (Applications (Examples) – part II)**
(SECESE Conference and Meeting Centre)

15:45 – 16:15 Coffee break

16:15 – 17:15 **Poster session P6**
(Networks and system theory + New approaches in educating theoretical electrical engineering + Signal processing and identification – part II)
(SECESE Conference and Meeting Centre)

18:00 – ??? Optional social program
Karts
(Meeting at Angelo Hotel Pilsen, U Prazdroje 6, Pilsen, Czech Republic – 6 p.m.)

19:00 – 21:30 **Dinner**
(Na Spilce Restaurant)

Wednesday, 26th June, 2013

Oral session O5	Chairman Dmitrievskii, V., Khrenkov, N. N. (SECESE Conference and Meeting Centre)
09:00 – 09:30	Teister, L., Sieroń-Stołtny, K., Ciešlar, G., Teister, M., Sieroń, A.: Impact of selected electromagnetic fields on bone turnover markers in rats
09:30 – 10:00	Mosa, A. H., Chedjou, J. Ch, Ali, M., Kyamakya, K.: Input Variant Particle Swarm Optimization for Solving Ordinary and Partial Differential Equations with Constraints
10:00 – 10:30	Strupinskiy, M. L., Khrenkov, N. N., Kuvaldin, A. B., Fedin, M. A., Rashevskaya, M. A.: Waveform of Inductor Current at Low-Temperature Induction Heating
10:30 – 10:45	Coffee break
Oral session O6	Chairman Zagirnyak, M., Cvetkovski, G. (SECESE Conference and Meeting Centre)
10:45 – 11:15	Dolezel, I., Barglik, J., Smalcerz, A., Przulucki, R.: 3D Modeling of Induction Hardening of Teeth Wheels
11:15 – 11:45	Cvetkovski, G., Petkovska, L., Lefley, P., Ahmed, S.: Particle Swarm Design Optimisation of Single Phase Permanent Magnet Brushless DC Motor
11:45 – 12:00	Closing Ceremony of the Conference ISTET 2013
12:00 – 13:30	Lunch (Na Spilce Restaurant)

Poster session P1 (Electromagnetic and coupled fields – part I)

Berens Michael, John Werner, Mathis Wolfgang, Nietsch Alexander, Wang Yuanhao	Analysis and design of phased patch array with a MoM-solver	P1-01
Berberovic Sead, Ciganovic Vedran, Štih Željko, Župan Tomislav	Analysis of Human Exposure due to Wireless Power Transfer in 100-200 kHz Range	P1-02
Sowa Marcin, Spałek Dariusz	Analytical-numerical method with an application of the nonlinear boundary condition	P1-03
Aleksic Slavoljub, Cvetković Nenad, Ilić Saša, Krstić Dejan, Tasić Dragan, Vučković Dragan	Application of Hybrid Boundary Element Method on Modelling of Hemispherical Ground Inhomogeneity	P1-04
Krawczyk Zuzanna, Starzyński Jacek	Approximation of MRI Scanner Stray Magnetic Field with Simplified Models	P1-05
Doubek Jiří, Janiš Roman, Kuba Jan, Kyncl Jan, Musálek Lubomír	Behaviour of Ferrofluidic Liquid in Heat Pipe Affected by External Magnetic Field	P1-06
Kurgan Eugeniusz	Calculation of the Magnetic Force Acting on a Particle in the Magnetic Field	P1-07
Beković Miloš, Hamler Anton, Jesenik Marko, Trlep Mladen	Computation of Self and Mutual Inductances in Nonlinear Magnetic Systems	P1-08
Miskovic Branko	Deductive Exposition of EM Theory	P1-09
Karban Pavel, Slobodník Karel	Detection of Surface Crack Using Eddy Currents	P1-10
Hamar Roman, Kropík Petr, Šroubová Lenka	Electromagnetic Field along the Power Overhead Line at Point Where the Line Route Changes Direction	P1-11
Tiunov Vasili	Electromagnetic fields, characteristics and practical structures of linear induction machines with a short operating body	P1-12
Ulrych Bohuš, Voráček Lukáš	Electromagnetically controlled low-pressure hydraulic valve	P1-13

Poster session P2 (Signal processing and identification – part I)

Thang Manh Hoang, Vu Van Yem, Xuan Quyen Nguyen	A Chaos-based Direct-Sequence/Spread-Spectrum Communication Scheme	P2-01
Beritelli Francesco, Capizzi Giacomo	A New Approach to Heart Sounds Biometric Recognition Based on Gram-PNN	P2-02
Reit Marco, Stoop Ruedi, Wolfgang Mathis	Analysis of Cascaded Canonical Dissipative Systems and LTI Filter Sections	P2-03
Baniukiewicz Piotr, Chady Tomasz, Ryszard Sikora	Application of artificial intelligence methods in nondestructive testing	P2-04
Psuj Grzegorz	Data Fusion of Matrix Transducer's Signals for Evaluation of Train Hollow Axles	P2-05
Osowski Stanislaw, Siwek Krzysztof	Data mining methods for prediction of air pollution	P2-06

Szupiluk Ryszard, Ząbkowski Tomasz	EGLD system for noise identification in predictors ensemble context	P2-07
Gugała Karol, Karoń Igor, Kolanowski Krzysztof, Majchrzycki Mateusz, Rybarczyk Andrzej, Świetlicka Aleksandra	Gradient method of learning for stochastic kinetic model of neuron	P2-08
Gugała Karol, Karoń Igor, Kolanowski Krzysztof, Majchrzycki Mateusz, Rybarczyk Andrzej, Świetlicka Aleksandra	Multi-agent system based on Artificial Neural Network for terrain exploration	P2-09
Gugała Karol, Karoń Igor, Kolanowski Krzysztof, Majchrzycki Mateusz, Rybarczyk Andrzej, Świetlicka Aleksandra	Nine-Axis IMU sensor fusion using the AHRS algorithm and neural networks	P2-10
Chabanov Evgenii, Shulakov Nikolai, Sudakov Anatolii	Novel approaches to analysis of transition processes identification error by probability-statistical methods during sudden symmetric short-circuit tests of synchronous machines	P2-11
Pánek David	On strongly non-linear systems discretization	P2-12
Arditti David, Kontorovich Valeri, Ramos-Alarcon Fernando	On the divergence calculation of the EKF for chaotic signals	P2-13

Poster session P3 (Applications (Examples) – part I)

Pantelyat Michael, Rudenko Elena K., Shuzhenko Mykola G.	3D FE Analysis of Transient Electromagnetic-Thermal Phenomena in a Turbogenerator Rotor	P3-01
John Werner, Mathis Wolfgang, Stegemann Sebastian, Vennemann Thomas, Widemann Christian	A Direct Power Injection Setup for the Susceptibility Measurement of Battery Management Systems Using a Battery Stack Emulator	P3-02
Piwowar Anna, Walczak Janusz	Connections of parametric sections	P3-03
Bytchkov Sergey, Fatkullin Salavat, Frizen Vasiliy, Sarapulov Fedor, Tarasov Fedor	Control System of Multifunctional Melting Unit	P3-04
Pantelyat Michael	Coupled Magneto-Thermo-Mechanical Phenomena in Electromagnetic Devices: Main Interactions and their Graphical Representation	P3-05
Denisenko Viktor, Moiseichenkov Alexandr, Plastun Anatoly	Development And Application Of New Generation Of Multi-Functional Brushless Exiting Devices With Non-Conventional Combination Methods	P3-06
Kuvaldin Alexandr, Lepeshkin Alexander, Lepeshkin Stepan	Dual-frequency power supply system and inductors for heating of rotating disks in an electromagnetic field	P3-07
Kuczmann Miklós	Dynamic Preisach Model Identification Applying FEM and Measured BH Curve	P3-08

Korenkova T.V., Kravets O.M., Zagirnyak Mykhaylo	Dynamic loads control in a pump complex with adjustable pipeline valves	P3-09
Palka Ryszard, Paplicki Piotr, Wardach Marcin	Electric Controlled Permanent Magnet Excited Synchronous Machine design	P3-10
Putz Łukasz, Typańska Dorota	Evaluation of the energy efficiency of LED lighting arrangement in the lobby	P3-11
Kantor Zoltan, Polik Zoltan	Finite element modeling and identification of metallic materials step responses	P3-12
Ciešlar Grzegorz, Sieroń Aleksander, Sieroń - Stołtny Karolina	Impact of selected electromagnetic fields on prooxidant/antioxidant balance in liver of rats	P3-13
Fatkullin Salavat, Frizen Vasilii, Luzgin Vladislav, Petrov Alexander	Induction Melting Casting System With Controlled Movement Of Metal For High Quality Cast Iron Production	P3-14
Balabozov Iosko, Gueorgiev Vultchan, Hinov Krastyo, Karastoyanov Dimitar, Yatchev Ivan	Influence of Different Geometric Parameters on the Static Force Characteristics of an Electromagnetic Actuator for Braille Screen	P3-15
Chady Tomasz, Kowalczyk Jacek, Psuj Grzegorz, Spsychalski Ireneusz	Inspection of Train Hollow Axles by Measuring AC Field Vector	P3-16

Poster session P4 (Electromagnetic and coupled fields – part II)

Hariram Adithya, Kyncl Jan, Novák Zdeněk	Equivalent Circuit Model for a Single Phase Transformer	P4-01
Borodin Eugeniy, Borodin Mikhail, Tomashevskiy Dmitriy	Exact Domain Integration in the Boundary Element Method for 2D Poisson Equation	P4-02
Aleksic Slavoljub, Ilić Saša, Peric Mirjana, Raicevic Nebojsa	Examples of HBEM application for multilayer problems solving	P4-03
Doležel Ivo, Kacerovský Jan, Karban Pavel, Mach František, Štarman Václav	Experimental Study of Triboelectric Separator for Mixture of Plastic Particles	P4-04
Miskovic Branko	Inductive Elaboration of EM Theory	P4-05
Cazacu Emil, Ioniță Valentin, Petrescu Lucian	Inrush Current Investigation for Single Phase Power Transformers by Means of Magnetic Material Core Characteristics	P4-06
Buchau A., Göhner P., Matthias Juettner, Rauscher M., Rucker W. M.	Iterative Solution of Multiphysics Problems using Software Agents Designed as Physics Experts	P4-07
Igarashi Hajime, Sato Yuki	Model Order Reduction Applied to Optimization of Electromagnetic Devices	P4-08
Makowski Krzysztof, Wilk Marcin Józef	Optimization of a single-phase capacitor induction motor by applying a field-circuit model	P4-09

Aiello Giovanni, Alfonzetti Salvatore, Chiarello Viviana, Salerno Nunzio	Solar Cell Optimization by means of Metallic Nanodisks	P4-10
Aiello Giovanni, Alfonzetti Salvatore, Salerno Nunzio	Solution of Skin-Effect Problems by means of the Hybrid SDBCI Method	P4-11
Frizen Vasilij, Sarapulov Fedor	The model of lump charging in the moving magnetic field	P4-12

Poster session P5 (Applications (Examples) – part II)

Engert Sonja, Granzner Ralf, Schwierz Frank, Toepfer Hannes	Mathematical analysis of random telegraph noise in low-power applications of MOSFETs	P5-01
Dmitrievskii Anton, Dmitrievskii Vladimir, Prakht Vladimir	Mathematical modeling a single-phase flux reversal machine	P5-02
Dmitrievskii Vladimir, Klimarev Vladimir, Prakht Vladimir	Measurement and Computation of Power Losses in Soft Magnetic Composite Materials	P5-03
Caramia Raffaele, Palka Ryszard, Piotuch Rafal, Wardach Marcin	Multiobjective Geometry Optimization of a SPMSM Using an Evolutionary Algorithm	P5-04
Gugała Karol, Karoń Igor, Kolanowski Krzysztof, Majchrzycki Mateusz, Rybarczyk Andrzej, Świetlicka Aleksandra	Neural controller implementation in embedded system with use of FPGA coprocessor	P5-05
Dmitrievskii Vladimir, Prakht Vladimir	Peculiarities of 3D finite element modeling of a synchronous reluctance motor with a distributed winding	P5-06
Nikitina A.V., Prus V.V., Zagirnyak Mykhaylo	Power processes quality estimation and compensation for poor quality in low-voltage electric networks	P5-07
Gajowniczek Krzysztof, Ząbkowski Tomasz	Short term electricity forecasting using smart meter data	P5-08
Bojilov Gancho, Iatcheva Ilona, Saykova Ilona	Study of Low Frequency Electric Field Treatment of Granular Materials	P5-09
Iovine Renato, La Spada Luigi, Tarparelli Richard, Vegni Lucio	Surface Plasmon Resonance of Nanoshell Particles with PMMA-Graphene Core	P5-10
Plastun Anatoly	Synthesis And Properties Direct Shaping Of An Additive Subset Of Non-Conventional Combined Independent Brushless Exciting Devices For Synchronous Generators	P5-11
Lopato Przemyslaw	Terahertz inspection of dielectric and composite materials using Synthetic Aperture Focusing Technique	P5-12
Putz Łukasz, Typańska Dorota	Testing of a TSI unit – an electronically controlled engine with a gasoline direct injection system	P5-13
Kotlan Vaclav, Koudela Lukáš	The shrink-fit using the rotation heating	P5-14

Andreev Andrey, Iatcheva Ilona, Stancheva Rumena	Theoretical Model of Electromagnetic Flowmeter, Verification and Sensitivity Increasing	P5-15
Gugała Karol, Karoń Igor, Kolanowski Krzysztof, Majchrzycki Mateusz, Rybarczyk Andrzej, Świetlicka Aleksandra	Time synchronization in distributed sensor network	P5-16
Hamler Anton, Jesenik Marko, Trlep Mladen	Finding a Crack's Position and its Parameters on the basis of Non-Destructive testing, using Eddy Currents	P5-17

Poster session P6 (Networks and system theory + New approaches in educating theoretical electrical engineering + Signal processing and identification – part II)

Hrušák Josef, Mayer Daniel, Štork Milan	Analysis and Synthesis of Realizable Non-equilibrium Dissipative Structures	P6-01
Kirilov Stoyan, Mladenov Valeri	Analysis of temperature influence on titaniumdioxide memristor characteristics at pulse mode	P6-02
Markowski Konrad	Determination of Positive Realization of Two Dmensional Systems Using Digraph Theory and GPU Computing Method	P6-03
Ossowski Marek, Tadeusiewicz Michal	Finding multiple DC operating points of MOS circuits fabricated in submicrometer technology	P6-04
Kolev Lubomir	Global solution of a class of interval parameter optimization problems	P6-05
Hałgas Stanisław, Tadeusiewicz Michal	Multiple soft fault diagnosis of analog circuits using restart homotopy method	P6-06
Grabowski Dariusz	Quadratic Polynomial Form of Electric Arc Furnace Equation	P6-07
Grabowski Dariusz, Mazurkiewicz Seweryn, Walczak Janusz	Stochastic models of lumped elements	P6-08
Lyubimov Eduard	Practice of electrotechnical calculations conducting in the environment of MathCAD and Multisim	P6-09
Stępień Rafał, Walczak Janusz	The Method of Improving Pseudo Random Signal Generating Rate of the LFSR Generators	P6-10

Poster format

We recommend to prepare the A1 poster size (portrait). Select the font size of your choice. The conference logo can be placed in the header, but it is not necessary.