

Contents

01	<b>Jan MACHOWSKI, Piotr KACEJKO, Sylwester ROBAK, Piotr MILLER, Marek WANCERZ</b> - Simplified stability criteria for long term planning of transmission network development	1
02	<b>Konrad GRYSZPANOWICZ</b> - Complex load models for analysing the power system voltage stability	8
03	<b>Janusz WIŚNIEWSKI, Jarosław TĘPIŃSKI, Włodzimierz KOCZARA</b> - Reactive power compensation for induction generator working at hydropower plant, based on voltage oriented control	14
04	<b>Adam SZELAĞ, Tadeusz MACIOŁEK</b> - A 3 kV DC electric traction system modernisation for increased speed and trains power demand - problems of analysis and synthesis	21
05	<b>Adam SZELAĞ, Marcin STECZEK</b> - Analysis of input impedance frequency characteristic of electric vehicles with a.c. motors supplied by 3 kV DC system for reducing disturbances in signalling track circuits caused by the harmonics in the vehicle's current	29
06	<b>Zofia WRÓBEL</b> - The railway devices modelling for the purpose of a lightning discharge analysis	34
07	<b>Adam PIŁAT, Jakub KŁOCEK</b> - Programmable Analog Hard Real-Time Controller	38
08	<b>J. C. MOREIRA, E. MIGUEZ, C. VILACHÁ, Antonio F. OTERO</b> - A Parallel Branch and Bound Approach to Optimal Power Flow with Discrete Variables	47
09	<b>Mariusz KORKOSZ</b> - The influence of windings configuration on properties of BLDC motor designed to hybrid drive of unmanned aerial vehicle	53
10	<b>Agnieszka FORMALCZYK, Sławomir GOLAK, Roman PRZYLUCKI</b> - Analysis of electromagnetic and flow fields in the channel of a device used for precious metals leaching from auto catalytic converters	57
11	<b>Zygmunt PIATEK, Bernard BARON, Tomasz SZCZEGIELNIAK, Dariusz KUSIAK, Artur PASIERBEK</b> - Exact closed form formula for mutual inductance of conductors of rectangular cross section	61
12	<b>Jacek LEŚNIKOWSKI</b> - Research of properties of signal textile line, made by sewing method	65
13	<b>Rafał KORUPCZYŃSKI, Hubert WROTEK</b> - Headlamp for electric vehicles, which are not drive on the public roads	70
14	<b>Paweł KEPA Wojciech ŻAGAN</b> - Research on vehicles visibility depending on the switching on the passing lights	74
15	<b>Adam POPOWICZ</b> - Optical identification of crystal defects in CCD matrix	79
16	<b>Michał KACZMAREK</b> - Method for Determine the Influence of Current Transformers on Estimated Power Quality Factors	83
17	<b>Riaz HUSSAIN, Mohsin JAMIL, Ayesha Maryam SIDDIQUI, Azfar YAQUB, Abrar AHMED, Sardar Muhammad GULFAM, Azhar YASIN, Raja Ali RIAZ, Ahmed Naseem ALVI, Atif SHAKEEL, Ali KHAQAN</b> - Vertical Handover Triggering Condition Estimation for a Mobile Node Moving Out of a WiFi Cell	86
18	<b>Mehdi ALEMI-ROSTAMI, Adib ABRISHAMIFAR</b> - Speed Sensorless Control of Induction Motor Based on a Non-Linear Flux and Speed Observer with Parameters Estimation and Considering Iron Loss	89
19	<b>Aneel RAHIM, Hyung YUN KONG, Muhammad SHER</b> - Efficient Mechanism to Exchange Relevant Messages in Vehicular Ad Hoc Networks	98
20	<b>Tayfun GUNDOĞDU, Guven KOMURGOZ</b> - The Impact of the Selection of Permanent Magnets on the Design of Permanent Magnet Machines – a Case Study: Permanent Magnet Synchronous Machine Design with High Efficiency	103
21	<b>Huaiqing Liao, Dong Liu, Wenpeng Yu, Yuhui Huang, Zhe Cao</b> - Power Supply & Storage Capability Index of Smart Grid and its Application	109
22	<b>Yinglong MA, Yongming SHANG, Ke LU</b> - Design of Stable Semantic Measurement for Ontology-Based Systems	115
23	<b>Amidaddin SHAHRIARI, Hazlie MOKHLIS, Mazaher KARIMI, Ab Halim ABU BAKAR, Hazlee Azil ILLIAS, Mohammad KAZEMINEJAD, Omid PALIZBAN</b> - Numerical Estimation of Inter Line Power Flow Controller Based on Injection Model of Synchronous Voltage Sources	121
24	<b>Majid BIABANI, Amirhossein SAJADI Masoud Aliakbar GOLKAR, Piotr BICZEL</b> - A Two Ways Communication-Based Distributed Control for Direct Load Control in Smart Distribution System	126
25	<b>Miroslav GUTTEN, Mikołaj BARTŁOMIEJCZYK, Milan ŠEBŮK</b> - Mathematical analysis of transformer insulation state by means of composite indicator	132
26	<b>Mladen MILEUSNIĆ, Aleksandar LEBL, Dragan MITIĆ, Žarko MARKOV</b> - Method for Reduction Indefinite Routing Loops Probability in the Mixed Telephone Network of Electric Power Utility	136
27	<b>Róbert BRÉDA, Tomáš PATZ</b> - Design of measurement chain to measure r.p.m. of an aviation turbo jet engine	141
28	<b>Qiang Gao, Gehao Sheng, Dantian Zhong, Maojun Wang, Yadong Liu, Xiuchen Jiang</b> - Development of Distributed On-line Monitoring System for Dielectric Loss Tangent of High Voltage Capacitive Apparatus	145
29	<b>Javed A. LAGHARI, Hazlie MOKHLIS, A. H. A. BAKAR, M. KARIMI, H. MOHAMMAD</b> - Comparison of Fuzzy and PID Based Governor's Response in Utilization of DG Spinning Reserve	149
30	<b>Mahdiyeh ESLAMI, Hussain SHAREEF, Azah MOHAMED, Mohammad KHAJEHZADEH</b> - Coordinated design of UPFC and PSS to improve power system stability	153
31	<b>Orhan KAPLAN</b> - Internet Based Speed Control and Torque Analysis of a 3-Phase Induction Motor	159
32	<b>Xingliang Jiang, Maoqiang Bi, Zhijin Zhang, Jianlin Hu, Yao Yuan</b> - Study on the Influence of Test Methods on AC and DC Pollution Flashover Performance of Different UHV Insulators	166
33	<b>Liu Liqun, Liu Chunxia</b> - A grid-connected PV power system total considers the MPPT and SSRF-SPLL control technologies	171
34	<b>Tahar BENMESSAOUD, Kamal MOHAMMEDI, Youcef SMAILI</b> - Influence of Maintenance on the Performance of a Wind farm	174
35	<b>Jianmin WU, Zhiying MOU, Yan ZHOU, Jianxun LI</b> - A Comparison of Bistatic Bearings-Only Tracking Methods	179

# PRZEGLĄD ELEKTROTECHNICZNY Vol 2013, No 3a

## Contents

36	<b>Asadollah KAZEMI, Azah MOHAMED, Hussain SHAREEF, Hadi ZAYANDEHROODI</b> - A Review of Power Quality Monitor Placement Methods in Transmission and Distribution Systems	185
37	<b>Wang Ende, Huang Shenghua</b> - Robust control of the three-phase voltage-source PWM rectifier using EKF load current observer	189
38	<b>Aitor LAKA, Jon Andoni BARRENA, Javier CHIVITE-ZABALZA, Miguel RODRIGUEZ-VIDAL</b> - Parallelization of Two Three-Phase Converters by Using Coupled Inductors Built on a Single Magnetic Core	194
39	<b>J.J. JAMIAN, M. M. AMAN, M.W. MUSTAFA, G. B. JASMON, H. MOKHLIS, A.H.A. BAKAR</b> - Comparative Study on Optimum DG Placement for Distribution Network	199
40	<b>Jelena NIKOLIĆ, Zoran PERIĆ, Danijela ALEKSIĆ</b> - Optimization of $\mu$ -law companding Quantizer for Laplacian source using Muller's method	206
41	<b>Dejan M. PETKOVIĆ, Vladimir B. STANKOVIĆ, Darko N. ZIGAR</b> - A class of electrostatic problems involving a circular annulus	209
42	<b>Bo XU, Jun ZHANG, Xu CAI, Hong QIN, Dong Min XI</b> - A Novel Arc Suppression Coil	213
43	<b>Lei SUN, Huali WANG, Guangjie XU</b> - A Real-Valued Direction-of-Arrival Estimation Method Based on Subspace Approximation	218
44	<b>Xing DENG, Xianggen YIN, Zhe ZHANG, Yi LIU</b> - A Novel Single-Phase Adaptive Reclosure Scheme for Double-Circuit Transmission Lines	223
45	<b>Zhe Liu<sup>1</sup>, Xiu Chen Wang<sup>1</sup> and Zhong Zhou</b> - Computation of shielding effectiveness for electromagnetic shielding blended fabric	228
46	<b>Faruk YALÇIN<sup>1</sup>, Uğur ARİFOĞLU</b> - A New Approach Based on Genetic Algorithm for Optimal Reactive Power Flow Solution in Multi-terminal AC-DC Systems	231
47	<b>Changjun HUANG, Jiming GUO, Xiaodong YU, Changzheng YUAN</b> - The error analysis of the three-pass differential interferometry	236
48	<b>Serhiy RENDZINYAK</b> - Simulation of Movable Ferromagnetic Solid Object in Induced Magnetic Field by Diakoptic Methods	241
49	<b>Alexander ABRAMOVITZ, Volodymyr YASKIV, Keyue SMEDLEY</b> - Power factor correction as the right step towards a safer environment	244
50	<b>Milan SMETANA, Tatiana STRAPACOVA</b> - Detection capabilities evaluation of the advanced sensor types in Eddy Current Testing	247
51	<b>Ivo DOLEŽEL, Lubomír MUSÁLEK, František MACH, Pavel KARBAN</b> - Induction Heating of Cylindrical Billets in Magnetic Field Produced by Permanent Magnets: Simulation and Experiments	250
52	<b>Mariya HOWYKOWYCZ</b> - Eddy currents computation on the basis of variation principle combined with invariant approximations technique	253
53	<b>Ladislav JANOUŠEK</b> - Effect of exciting system configuration on eddy currents distribution in non-destructive evaluation of materials	256
54	<b>Yuriy KOZAK, Bohdan MELNYK, Ivanna VASYLCHYSHYN</b> - Development of Macromodels using the Evolutionary Algorithms of Optimization	259
55	<b>Eugeniusz KURGAN</b> - Calculation of Forces in AC Dielectrophoretic Separation	262
56	<b>Orest LOZYNSKYI, Yaroslav PARANCHUK, Roman PARANCHUK</b> - Modeling of Power Control of Arc Steel Melting Furnace with Fuzzy Correction of Regulation Signal	265
57	<b>Michał KRUK, Stanisław OSOWSKI, Wojciech KOZŁOWSKI, Robert KOKTYSZ, Tomasz MARKIEWICZ, Janina SŁODKOWSKA</b> - Computer-assisted Fuhrman grading system for the analysis of clear-cell renal carcinoma: a pilot study	268
58	<b>Yaroslav PARANCHUK, Andrii MATSYHIN</b> - The system of arc lengths regulation of an electric arc furnace with a neuro-controller	271
59	<b>Piotr GAS</b> - Transient Temperature Distribution inside Human Brain during Interstitial Microwave Hyperthermia	274
60	<b>Dariusz PUCHALA, Mykhaylo YATSYMIRSKYY</b> - Fast Parametrized Biorthogonal Transforms With Normalized Basis Vectors	277
61	<b>Roman DMYTRYSHYN</b> - Condition Number for a Matrix	280
62	<b>Petro STAKHIV, Liliانا BYCZKOWSKA-LIPIŃSKA, Yuriy KOZAK</b> - The Impact of Calculation Precision on the Process of Mathematical Model Construction with the Use of Optimization	283
63	<b>C. VILACHÁ, Antonio F. OTERO, J. C. MOREIRA, E. MÍGUEZ</b> - Accelerated EMF Evaluation Using a SIMD Algorithm	286
64	<b>Wojciech BŁOTNICKI, Jozef WIORA, Stanisław WALUS</b> - Tracer flowmeter with a conductive sensor	293
65	<b>Piotr MURAWSKI, Bolesław KALICKI</b> - Use of Linear Predictive Coding coefficients for the qualification of healthy people and patients with sinusitis based on facial thermograms	298