

Contents

01	Jacek F. GIERAS - Design of high-speed permanent magnet machines	1
02	Ali BAGHERI, Mohsen ALIZADEH - Designing a Passive Filter for Reducing Harmonic Distortion in the Hybrid Micro-grid Including Wind Turbine, Solar Cell and Nonlinear Load	9
03	Taher GHOMIAN, Shahab MEHRAEEN - A Hybrid Structure for Energy Harvesting from Human Body Thermal Radiation and Mechanical Movement	13
04	Parandhaman BALAMURUGAN, Natarajan SENTHIL KUMAR - Regulation of Current Harmonics in Grid with Dead-beat Controlled Shunt Active Power Filter	17
05	Mostefa KOULALI, Karim NEGADI², Mohamed MANKOUR, Abdelkader MEZAOUAR, Abderrahmane BERKANI, Bachir BOUMEDIENE - Adaptive Fuzzy Control of Hybrid PV/Fuel Cell and Battery System using Three-Level T type Inverter	24
06	Soukaina ESSAGHIR, Mohamed BENCHAGRA, Noureddine EL BARBRI - Robust VF and PQ Control of a Photovoltaic System Connected to Grid with Battery Storage Management	32
07	Haitham ALSAIF - New Compact Ship-Shape Antenna for the Fifth Generation Bands	39
08	Mikhail ANDREEV, Aleksey SUVOROV, Alisher ASKAROV, Anton KIEVETS, Vladimir RUDNIK - Impact of renewables on relay protection operation	42
09	Zehor OUDNI, Azouaou BERKACHE, Hamid MEHADENE, Hassane MOHELLEBI, Jinyi LEE - Comparative study to assess reliability in the presence of two geometric defect shapes for non-destructive testing	48
10	Dawid WAJNERT - Comparison of two constructions of hybrid magnetic bearings	53
11	Tomasz WOLNIK - Investigation of properties of disk-type motor electromagnetic circuit using alternative materials in stator/rotor core	59
12	Dariusz CAŁUS, Oleksandr MAKARCHUK – Analysis of interaction of forces of working elements in electromagnetic mill	64
13	Barbara WILK - Method for assessing the autonomic nervous system based on analysis of the heart rate fluctuations and skin conductivity changes during diagnostic tests	70
14	Magdalena NIZIOŁ, Wiesław SABAT - Modeling of Artificial Mains Network for electromagnetic disturbances measurements in the frequency range of 150 kHz – 30 MHz	75
15	Bartłomiej ADAMSKI, Krzysztof WRÓBEL - Simulation studies of a switched reluctance drive with a variable windings configuration power supply system	81
16	Andrzej ANDRZEJEWSKI - Time-Optimal Position Control of DC Motor Servo Drive	85
17	Janusz BARAN, Andrzej JĄDERKO - A method of maximum power point tracking for a variable speed wind turbine system	89
18	Rafał BIAŁEK, Michał WIŚNIOS, Marek KUCHTA - Prototype testing of a magnetic field detector, HPEM pulses in particular	93
19	Urszula SOLER, Mariusz BUSIŁO - Taming with technology. On the example of UK electrification and 5G telecommunications technology	97
20	Jerzy CHUDORLIŃSKI, Leszek KSIĄŻEK, Mariusz KUCHAREK, Piotr PRYSTUPIUK - Power supply and diagnostics system for medical devices for physical therapy with magnetic field and light	101
21	Katarzyna CIOSK - Analysis of SAR coefficient in the base station antenna field	105
22	Paweł CZAJA, Wojciech PLUTA - Magnetic properties of additive transformer cores of residual current devices	109
23	Andrzej ERD, Józef STOKLOSA - Factors affecting the formation of damage to electronic components and systems in electric vehicles, and actions to reduce their significance	113
24	Piotr GOŁĄBEK, Ludwik MADEJ - Automatic qualification of B-scan traces of ultrasound railway diagnostic measurements by means of a deep learning model	117
25	Ryszard GOLEMAN, Henryka D. STRYCZEWSKA, Tomasz GIŻEWSKI - A new method of analysis of breaking magnet damages in induction watt-hour meters	121
26	Andrey GRISHKEVICH - Simulation models for assessment of structural reliability indicators distribution for power supply systems	125
27	Jacek GUMIELA, Lech SITNIK², Dariusz SZTAFROWSKI - Measuring identification of electromagnetic field emissions in electrical cars	128
28	Stanisław ISKIERKA, Iwona ISKIERKA - Induction hardening of flat elements in a flow-through method	132
29	Jacek KAMIŃSKI, Robert PIETRACHO - Determining the optimal hybrid power plant structure with wind-solar type sources	136
30	Paweł KIELAN, Marcin CIECIURA - System for examination of human movement system dysfunctions	140
31	Ewa KORZENIEWSKA, Andrzej KRAWCZYK, Ewa ŁADA-TONDYRA, Jolanta PLEWAKO - 5G technology as a stage of development of wireless communication	144
32	Viktoriya KOVALCHUK, Tetyana KORENKOVA - The operation modes of a power-efficient system of control of a pumping plant variable-frequency electric drive	148
33	Zbigniew KOWALCZYK - Technical and economic analysis of the implementation of power connections in selected rural agglomeration facilities	152

PRZEGŁĄD ELEKTROTECHNICZNY Vol 2019, No 12

Contents

34	Oleksii KRAVETS, Tetyana KORENKOVA - The variable-frequency electric drive of the pipeline valves in the problems of the reduction of dynamic loads in a pumping complex	156
35	Marek LIS, Andriy CHABAN, Andrzej SZAFRANIEC, Vitaliy LEVONIUK, Radosław FIGURA - Mathematical modelling of transient electromagnetic processes in a power grid	160
36	Michał MAJKA, Janusz KOZAK - The principle of operation of a three-windings superconducting fault current limiter	1164
37	Monika MAŃKO, Sebastian STYŁA - Design and numerical simulation of a RF coil using the COMSOL Multiphysics software	168
38	Dániel MARCSA - Noise and Vibration Analysis of a Distribution Transformer	172
39	Paweł A. MAZUREK - Analysis of the configuration of electrodes in relation to conducted disturbances in a plasma reactor	176
40	Krzysztof NEĘCKA, Małgorzata TROJANOWSKA - Exposure to low frequency magnetic fields in residential buildings	180
41	Krzysztof OLESIAK - A fuzzy decision model in designing an industrial robot's trajectory	184
42	Tomasz RYMARCZYK, Edward KOZŁOWSKI, Konrad NIDERLA, Paweł RYMARCZYK, Piotr BEDNARCZUK, Jan SIKORA - Machine learning in image reconstruction by multi-sensor electrodes	188
43	Tomasz RYMARCZYK, Grzegorz KŁOSOWSKI, Edward KOZŁOWSKI, Paweł RYMARCZYK, Piotr BEDNARCZUK, Jan SIKORA - Application of multi-source data for process analysis in electrical tomography	192
44	Andrzej POPENDA - Mathematical modelling of transmission shafts based on electrical and mechanical similarities	196
45	Maryna MIKHALIEVA, Lubomyra ODOSII, Yuryi SHABATURA, Hanna LUNKOVA, Natalia HOTS, Krzysztof PRZYSTUPA, Vitalii ATAMANIUK - Electrical Method for the Cyberphysical Control System of Non-Electrical Objects	200
46	Daniel RATAJ, Krzysztof TOMCZEWSKI - Determination of the effect of C-Dump capacitor value on drive with SRM motor	204
47	Antoni SAWICKI - The universal Mayr-Pentegov model of the electric arc	208
48	Przemysław SOBKIEWICZ, Paweł BIĘNKOWSKI, Paweł CAŁA - Estimating the temperature of breast malignant tissue during microwave ablation process	212
49	Klemen SREDENŠEK, Bojan ŠTUMBERGER ² , Miralem HADŽISELIMOVIĆ ² , Sebastijan SEME - Determination of the photovoltaic system efficiency using the optimization method	216
50	Andrzej SZAFRANIE - Analysis of transient electromagnetic processes using the theory of variational approaches	220
51	Grzegorz TATOŃ, Piotr KUTERBA, Bartosz LISOWSKI, Tomasz ROK, Eugeniusz ROKITA - The Influence of Electromagnetic Fields on the Human Health - Survey Studies	224
52	Karolina TRZYNIEC, Ernest POPARDOWSKI, Tadeusz JULISZEWSKI, Dariusz BARAN, Anna MIERNIK - Using emission of photons to evaluate the quality of exotic fruits	229
53	Mykhailo ZAGIRNYAK, Mariia MALIAKOVA, Andrii KALINOV - Automated method for formation and solving the instantaneous power components balances for the analysis of nonlinear electric circuits	233
54	Anna ZIELIŃSKA - Model for settlement electric vehicles charging and financing infrastructure for charging them with the support of blockchain environment	237
55	Magda ŻOŁUBAK, Aleksandra KAWALA-STERNIUK, Mariusz PELC - Analysis of cognitive changes based on EEG signals in third-trimester pregnant women – pilot study	242
56	Marek GAŁA, Janusz RAK, Kazimierz JAGIEŁA - Operation of AC arc furnace in the power system	246
57	Rafał SIKORSKI - Flexible multi-agent system for mobile robot group control	252
58	Henryk KOCOT, Agnieszka DZIENDZIEL - Impedance models of multi-circuit multi-voltage overhead power lines	257
59	Łukasz GRĄKOWSKI, Andrzej Ł. CHOJNACKI, Katarzyna GĘBCZYK, Kornelia BANASIK - Statistical Analysis and Modeling of the Reliability of Overhead Low Voltage Lines	261
60	Magdalena SIELACHOWSKA, Damian TYNIECKI, Maciej ZAJKOWSKI - Luminance distribution measurements in a classroom using the Skywatcher system	265
61	Dhaouia FEREKA, Mokhtar ZERIKAT, Abdelkader BELAID, Soufyane CHEKROUN - Performance improvement of ANFIS with sliding mode based on MRAS sensorless speed controller for induction motor drive	269
62	Krystyna Maria NOGA - Teaching Digital Technique in the faculty of Electrical Engineering at the Gdynia Maritime University	276