

Contents

01	Kawsar NASSEREDDINE, Marek TURZYNSKI, Mykola LUKIANOV, Natalia STRZELECKA - Key activities to improve energy management in DC microgrids connected by urban traction	1
02	Janusz DUDCZYK, Roman CZYBA, Krzysztof SKRZYPCZYK - Multi-Sensory Data Fusion Applied to UAV Detection	7
03	Sami Mohammed BENNIHI, Seddik TOUHAMI, Wessim AKSA - Modeling of the Electrostatic Separation Process in a Novel Turntable Installation for the Plastic Waste Recycling Process	15
04	Redha Djamel Mohammedi, Aissa SOULI, Abdelhafid HELLAL - Design of a computer code to evaluate the influence of the harmonics in the transient stability studies of electrical networks	21
05	Panuschai Sribumrung, Suksun Nungam - Direct Torque Control of Permanent Magnet Synchronous Motors using Feedback Passivation	26
06	Hari Agus Sujono, Ribut Wijaya P. Nainggolan - Drip Irrigation Control System based on Mamdani Fuzzy Logic and Internet of Things (IoT)	35
07	Afaneen Anwer Abbood, Hanan Mikhael D. Habbi - Heuristic Optimization of PV Energy Penetration to Resilience System Frequency Fluctuation	40
08	Alicja STARCZEWSKA, Krzysztof DANIEC, Jarosław HOMA, Aleksander NAWRAT - Development of the system for testing Ethernet network and network applications performance and security, including RFC 2544 test and DDoS attack resistance test	45
09	Mirosław WCIŚLIK, Robert KAZAŁA - Parameters and characteristics of the electrical system of a three-phase steelmaking arc furnace	51
10	Adrian HALINKA, Dariusz LAMBER - Measurement system for monitoring the operation of photovoltaics sources in the LV network – a case study	56
11	Marian Wnuk, Rafał Nogty - Overview of methods used to determine propagation losses inside the object	61
12	Kazimierz J. PLUCIŃSKI – Notes on the interpretation of conductivity measurement results of GST-based PCM structures in reset state with respect to the origin of conductivity drift	70
13	Andriy CHABAN - Mathematical modeling of transient processes in the Cardan shaft drive train in an electric truck	74
14	Krystyna Krzywdzińska-Kornak, Mateusz Suliga - Analysis of operating states of multi-channel permanent magnet synchronous motors	78
15	Łukasz DRÓŻDŹ, Jerzy ROJ1 - Application of the reductive interval arithmetic to current evaluation of the measurement path metrological properties	83
16	Abdelhakim Idir, Fouad Berrabah, Canale Laurent- Slack - A Comparative Study between Fractionalized and Fractional Order PID Controllers for Control of a Stable System Based on Particle Swarm Optimization Algorithm	87
17	Hryhorii KALETNIK, Vitalii YAROPUD, Ihor KUPCHUK, Eichyn ALIEV, Ihor BABYN, . Petro LAVRENIUK - Modeling of the technological process of walnut drying in a convective dryer	91
18	Ghalem Abdelhak, Naceri Abdellatif, Djeriri Youcef - Backstepping control of a wind energy conversion systems based on a DFIG connected to the grid	98
19	Mahmood T. Alkhayyat, Laith A. Khalaf, Mohammed Y. Suliman - Adaptive Control for Power Management Based on Renewable Energy	104
20	Astrit HULAJ, Bahri PREBREZA, Xhevahir BAJRAMI - Compressing big data generated by IoT devices deployed along the green borderline	109
21	Rezoug Nabil, Zerikat Mokhtar, Chekroun Soufyane - Hybrid Approach to implement adaptive Neuro-Fuzzy Inference system for Trajectory Tracking navigation control of a wheeled mobile robot	114
22	Sabir BAGHIROV, Oleksandr PITIÁKOV, Svitlana SHPAK, Svitlana KYSLYTSIA, Tamara SAKHNO, Hryhorii KOZHUSHKO - Research of Problems Flicker Level of LED Lamps and Luminaires for General Lighting	119
23	Najla Ilyana Ab Majid, Nik Noordini Nik Abd Malik, Lhassane Idoumghar, Nor Aini Zakaria, Muhammad Zahid Zainul Abidin - Collaborative Beamforming Optimization using Imperialist Competitive Algorithm	124
24	Ziyad k. FAREJ, Amer Farhan SHEET, Noora Mazin SHEET - Review on Wireless Capsule Endoscopy System Issues, Challenges, and Technologies	130
25	Yassine YAKHELEF, Messaoud BOULOUH - Stability robustness and accuracy improvement of double PI based DC drive system subjected to load torque changes	138
26	Soupagorn VISAWAPHATRADHANADHORN, Paiwan KERDTUAD, Kunjana CHAIAMARIT - Hardware in the loop simulation of single-phase PWM rectifiers for improved power quality via ASWFA	144
27	Mostafa M. Mostafa, Mahmoud Shaker, Shady Zahran, Mohamed EL-Said Nasr, Azhar A. Hamdi - Augmented Doppler Filter Bank for Enhancing Targets Detection Based on Machine Learning	152
28	Ali Abdulaziz Alawad, Muhammad Tajammal Chughtai - IoT-based Real-time Passenger Safety System with Machine Vision at the Edge (Mez) Technology	159
29	Yotaka TUNGTRAGUL, Atirarj SUKSAWAD, Worawat SA-NGIAMVIBOOL - The Optimal Design of Finite Impulse Response High Pass Filter Using Bee Colony Algorithm	168
30	Abdulrahman W.H. AL-Askari - Computer-aided auscultation system for cardiac monitoring	173
31	Ivan KOSTIUKOV, Svitlana LYTVYENKO, Olga LAVRINENKO - Mathematical model for the evaluation of dielectric properties of inner layers of insulation in three-core belted cables	177
32	Touka HAFSIA, Khaled NOURI, Asma BELHAJ, Hatem TLIJANI - Overview of an Improved and Speedy Features Detection Method for Digital Imagery	181
33	Padmanabha Sarma Avasarala, Saranya Govindakumar - Implementation of Chaotic Atom Search Optimized SWIN Transformer Architecture for Efficient Corpus Callosum Segmentation in Brain MRI Images	185
34	Rasha yasen Abed, Ghassan Abdullah Salman, Nesrallah Salman - Voltage Collapse Study of Power System under Load Shedding Point	190
35	Md Shaikh Abrar Kabir, Faisal Farhan, Adnan Amin Siddiquee, Oli Lowna Baroi, Taniza Marium, Md. Jakaria Rahimi - Effect of Input Channel Reduction on EEG Seizure Detection	195

Contents

36	Ammi Qasim Mohammed, Afaneen Anwer Alkhazraji - Multi Contingency Analysis In Power System Using Fast Decoupled Load Flow	201
37	Mohd Mawardi SAARI, Mohd Aafa Hadi Putera ZAINI, Umni Sabihah MOHD YUSDI, Nurul Ain NADZRI, Mohd Herwan SULAIMAN, Toshihiko KIWA - Assessment Of Surface Corrosion On Carbon Steel Plates Using A Differential Fluxgate Probe	207
38	Aleksandra PROSTAK, Remigiusz USZOK, Łukasz KOLIMAS - Development of an office-friendly CNC mill	211
39	Tomasz DRABEK, Paweł DYBOWSKI, Paweł MULARZ, Sebastian WILCZYŃSKI - Operation and control of the test bench for high-voltage electric motors	215
40	Maciej GWOZDZIEWICZ, Marek CIURYS - Line Start Permanent Magnet Synchronous Motor rotor designing methodology	220
41	Marek HRECZKA, Wojciech BURLIKOWSKI, Marta DUDEK-BURLIKOWSKA, Janusz HETMAŃCZYK, Aleksandra Kolano-BURIAN, Roman KOLANO - Brushless DC motors with core made of amorphous and nanocrystalline mater	228
42	Dariusz ŚWIERCZYŃSKI, Artur MORADEWICZ, Przemysław SZOSTAK¹ - Propulsion System with On-Board Charger for E-COMMERCE	234
43	Maciej MARYNOWSKI, Milena KURZAWA, Paweł IDZIAK - DC-DC converter with class E inverter cooperating with a transformer with split secondary winding	239
44	Filip STASZAK, Andrzej KSIĄŻKIEWICZ, Rafał M. WOJCIECHOWSK - Automatic voltage regulation system (LVRSys) designed to work in low voltage networks	244
45	Szczepan OPACH, Tomasz WOLNIK - Parametrization of the thermal model of induction motor with outer rotor	250
46	Dariusz ŚWIERCZYŃSKI, Artur MORADEWICZ, Przemysław SZOSTAK - A modern power electronic system for SMR	258
47	Emil KRÓL, Marcin MACIAŻEK - Impact of housing on traction motor noise	262
48	Piotr DUKALSKI, Jan MIKOŚ, Bartłomiej BĘDKOWSKI, Łukasz CYGANIK, Adam LITWINOWICZ, Wojciech GAWRON, Robert TYRTANIA, Maciej ADAMIECKI, Kacper KUDZIA - An electrified delivery vehicle weighing up to 3.5 t as a research platform for a hybrid drive with wheel hub motors	267
49	Borys BOROWIK, Michał SOBIEPAŃSKI² - Design and kinematical analysis of parallel SCARA type model	272
50	Andrzej CHABAN, Marek LIS, Andrzej SZAFRANIEC, Yevhen FEDIV - A mathematical model of an electric drive system including GTO thyristors	276
51	Krzysztof CIURA, Andrzej JĄDERKO, Luiza RAKOWSKA - Mechanical Vibration Monitoring of Vertical Axis Wind Turbines	280
52	Bartosz DOMINIKOWSKI - Error detection of isolation amplifiers in measurement systems	284
53	Ryszard GOLEMAN - Modelling of a single-phase induction motor with a 50Hz/150Hz magnetic frequency converter	288
54	Damian GZIEŁ, Andrzej JĄDERKO - Analysis of the operation of pot core inductor in power electronic converter	292
55	Wiktoria KACZMAREK, Leszek KASPRZYK - Identification of equivalent circuit parameters of lithium-ion cells	296
56	Zinoviy KOHUT - The batteries analysis in a hybrid photovoltaic system for a small prosumer of photovoltaic energy	300
57	Ewa KORZENIEWSKA, Rafał ZAWIŚLAK, Szymon PRZYBYŁ, Anna BILSKA, Piotr SARNA - Selection of wireless communication technology for data transmission between wearable electronics devices and the receiver	303
58	Piotr KRUPSKI, Joanna MICHAŁOWSKA - Analysis of the possibility of using LC passive filtration methods in reducing the radiated emission of brushed universal motors	307
59	Agnieszka Joanna DRZYMAŁA, Ewa KORZENIEWSKA - Comparative analysis of the profitability of private investors and enterprises in the photovoltaic investment in the light of the amended RES Act in Poland	311
60	Marek KUCHTA, Benedykt JAKUBOWSKI - Calibration methods of measurement stations for testing pulsed EM fields	315
61	Ewa ŁADA-TONDYRA, Andrzej KRAWCZYK - 80 Years of the Finite Element Method	319
62	Marek LIS, Michał KOBIERSKI, Marek CHMIEL - Thermal impact of the magnetic field as a harmful effect of preparing the device structure	323
63	Jacek MAJCHER - Determination of rapeseed moisture based on electrical parameters - a review	327
64	Andrzej POPENDA, Marcjan NOWAK, Arkadiusz WINTER - Optimal configuration of the artificial neural network to estimate the speed of the BLDC motor	331
65	Paweł PTAK, Tomasz PRAUZNER, Henryk NOGA, Piotr MIGO, Agnieszka Gajewska - Thickness measurement system for testing the condition of protective layers of power equipment	335
66	Jan SIKORA - Numerical modelling of acoustic and ultrasound scattering problems with an arbitrarily shaped scatterer	339
67	Stanisław Mikołaj SŁUPSKI, Ryszard GOLEMAN - Selection of operating parameters in technical equipment diagnostics using vehicle testing as an illustrative example	343
68	Karolina TRZYNIEC, Małgorzata BANACH, Maria STACHURSKA - Application of the study of bioelectric brain activity to assess the level of drivers' attention	347
69	Dariusz WÓJCIK, Dariusz MAJEREK - Uncovering insights with language modeling. Analyzing Przegląd Elektrotechniczny with GPT	351
70	Tomasz PRAUZNER, Kacper PRAUZNER, Paweł PTAK, Henryk NOGA, Piotr Migo, Tomasz PIOTROWSKI - Technical artifacts in QEEG research - results of own research	355