

Contents

01	Mohamed M. EL-Shafhy, Alaa M. Abdel-hamed, Ebrahim A. Badran - Ferroresonance in Distribution Systems – State of the Art	1
02	Riad Bouzidi, Ismail Ghadbane, Mohammed Boukhari - Experimental Study of an Induction Motor Using Scalar Control Method Applied in Electric Vehicle	16
03	Abdelghaour HERIZI, Riyadh ROUABHI, Abderrahim ZEMMIT - Comparative study of the performance of a sliding, sliding-fuzzy type 1 and a sliding-fuzzy type 2 control of a permanent magnet synchronous machine	21
04	Aleksander OSTROWSKI, Dariusz KANIA - Car Universal LPG/CNG	30
05	Rachid Dehini, Ryma Berbaoui, Othmane Abdelkalek - Power flow and stability analyses of a UPQC system integrated into a distribution network	34
06	Nur HAMZAH, Firman FIRMAN, Muhammad Ruswandi DJALAL - Characteristic Analysis of Solar Panels on Clay and Ceramic Roof Tiles	39
07	Muhammed A Ibrahim, Ahmed Nasser B. Alsammak - Switched Reluctance Motor Drives Speed Control Using Optimized PID Controller	46
08	Oleh TSURKAN^{1,2}, Ihor KUPCHUK, Yurii POLIEVODA, Oleksandr WOZNIAK, Yaroslav HONTARUK, Yrii PRYSIAZHNIUK - Digital processing of one-dimensional signals based on the median filtering algorithm	51
09	Kamal BENABDALLAH, Abdallah Mansouri, Abdelhafid OMARI, DAAOU Bachir, Ramzi SALIM, Mourad BOUFADENE - Sliding mode controls induction motor drive under unknown load torque through a super twisting algorithm	57
10	Mokhtar BOUANANE, Abdelmadjid MENAD - Design and Implementation of BLDC Motor Speed Control Based on PI Regulator Using dspic30f4011 and IPM Inverter	62
11	Ahmad F. Al-allaf, Bashar H. Asker - Detecting the usage of a mobile phone during an online test using AI technology	67
12	Larbi MOURAD, Khelifi MUSTAPHA, Lahcene MOHAMED RIDA - An Efficient Approach for Optimization Of The Parameters In Transmission System Applied In DWT+SPIHT Using Whale Algorithm (WA)	71
13	Chandralekha Mohanachandran, Srinivasan Sumathi - Performance Evaluation of Forward Error Correcting Codes for Design of Power Line Carrier Communication Modem	79
14	Layth S Salman, Harith Al-Badrani - Mathematical modeling and engineering design of multi-level inverter based on selective harmonic elimination	83
15	Seyf Allah ZAANOUNE, Ahmed Wahid BELARBI, Hocine MOULAI, Abderrahmane ZIANI - Study of Sulfur Hexafluoride-Nitrogen Mixtures Contaminated by Copper Vapors in High Voltage Circuit Breakers	87
16	Riny Sulistyowati, Hari Agus Sujono, Yudha Cipta - Optimization Of Distributed Generation Placement Using Particle Swarm Optimization Method At Sampang Feeder	92
17	Valerii SEMENETS, Iryna SVYD, Ivan OBOD, Oleksandr MALTSEV, Waldemar WÓJCIK, Maria TKACH, Sviatoslav STAROKOZHEV - Method of Increasing the Relative Throughput of Requesting Radar Systems	97
18	Mykhaylo ZAGIRNYAK, Viktor LYASHENKO, Elena KOBILSKAYA - Modeling of a wire antenna electromagnetic field	102
19	Tetyana KORENKOVA, Viktoriya KOVALCHUK, Oleksandr SERDIUK, Mohamed Zaidan Qawaqzeh - The system of the pumping plant hydrodynamic protection in the event of an emergency shutdown of the power supply	105
20	Yurii POLIEVODA¹, Ihor KUPCHUK, Yaroslav HONTARUK, Iryna FURMAN, Mykola MYTKO - Method for determining homogeneity of fine dispersed mixtures based on the software analysis of photo cross-cut of the sample	109
21	Mariusz KRAJEWSKI, Sergiusz SIENKOWSKI - An analysis of an iterative least squares algorithm properties in measuring the frequency of a power grid	114
22	Piotr POWROŻNIK, Mirosław ĆWIETNIEWIC - The impact of the use of VPN technology on the time of data transfer between devices compliant with the Internet of Things concept	118
23	Maciej MALINOWSKI, Krzysztof KUBICZEK, Marian KAMPIK - High-precision wideband coaxial current shunts	123
24	Kordian DUDZIK, Krzysztof MUSIOŁ, Marian KAMPIK - Automated permuting capacitor device for calibration of high-precision impedance infrastructure	127
25	Łukasz SOBOLEWSKI - Quality of Predicting Time Scale Supervised by The Primary Frequency Standard by Means of GMDH Type Neural Network on The Example Of UTC(NPL) Timescale	131
26	Leszek FURMANKIEWICZ, Miroslaw KOZIOL, Ryszard RYBSKI, Robert SZULIM - Measurement system for testing current and linear displacement sensors in remote mode	135
27	Sergiusz SIENKOWSKI, Mariusz KRAJEWSKI - On the mean value estimation of a sinusoidal voltage	139
28	Wiesław MICZULSKI, Oliwia PERS - The optimisation of the usage of electricity from a wind turbine in a household	143
29	Łukasz MACIOSZEK, Sylwia ANDRZEJCZAK-GRZĄDKO, Joanna URBANIAK, Katarzyna DEMBIŃSKA - Modified impedimetric method in the unpasteurized beer microbiological contamination assessment	147
30	Tomasz GARSTKA, Marlena KRAKOWIAK, Marcin KWAPISZ - Integrated measuring head for Barkhausen testing	151
31	Jerzy ROJ, Łukasz DRÓZDZ - A method for estimating the uncertainty of the output quantities of measuring chains using discrete wave transformation algorithm	155
32	Ryszard BOGACZ, Beata KRUPANEK - Introduction to 6G. Specification, technologies, challenges	160
33	Beata KRUPANEK, Ryszard BOGACZ - Basic issues related to the Internet of Things in the 6G system	165
34	Łukasz MACIOSZEK, Norbert ŁUKANISZYN, Jakub KOSTEKI, Ryszard RYBSKI, Urszula KOŁODZIEJCZYK - Concept and implementation of the measurement system for the Odra river flood embankment remote state monitoring	169
35	Krzysztof DOWALLA, Piotr BILSKI, ROBERT ŁUKASZEWSKI, Augustyn WÓJCIK, Ryszard KOWALIK - Impact of sampling rate on the performance of NILM system with signal analysis in time domain	173
36	Małgorzata AUGUSTYN - Recognition of handwritten digits on the basis of signals from a 3-axis accelerometer using the DTW method taking into account various detection criteria	177
37	Magdalena NIZOŁ - Development of software for operating the measurement system compliant with the IEEE 1451 standard in the LabVIEW environment	181

Contents

38	Piotr OCHAŁ, Robert HANUS, Marcin ZYCH - Application of the convolutional neural network to identify the liquid-gas flow structure in a pipeline using histograms of signals from scintillation detectors	185
39	Barbara WILK - Determination of selected parameters of PPG signal and assessment of their variability during the fist clenching test	190
40	Damian HALLMANN, Piotr Jankowski - Simulation studies of the effect of selected supply voltage disturbances on the currents of a low-power induction motor	195
41	Adam PILSNIAK, Szymon PASKO, Przemysław ZACKIEWICZ, Aleksandra KOLANO-BURIAN1 - The modified ballistic method for determining magnetic characteristic	201
42	Adam CICHY - Measuring of the dielectric loss factor using two voltmeters method	205
43	Tadeusz BIAŁOŃ, Roman NIESTRÓJ, Tomasz ROGALA, Wojciech SKARKA - A novel fuel-cell power supply for an automated guided vehicle	209
44	Artur PASIERBEK - Power losses in high voltage cables	215
45	Emil KRÓL, Marcin MACIAŻEK - Vibroacoustic analysis methods of permanent magnets synchronous motors	218
46	MICHAŁ GOCKI, AGNIESZKA JAKUBOWSKA-CISZEK, PIOTR PRUSKI - Measurement estimation of fractional-order model parameters for a new class of symmetrical polymer supercapacitors.	224
47	Sebastian RÓŻOWICZ, Kamil P. PADUSZYNSKI, Henryk WACHTA - Negative contrast on pedestrian crossings	229
48	Paweł PIATEK, Paweł KOCWA, Łukasz ZAWADA - Evaluation Of The Tightening Quality Of Bolted Joints	234
49	Edyta KUCHARSKA, Katarzyna GROBLER-DĘBSKA, Jerzy BARANOWSKI, Waldemar BAUER, Natalia KASHPRUK - ERP Systems in Energy Industry - opportunities and challenges	239
50	Milena KURZAWA - Application of the Lanczos via Pade algorithm to determine the values of the parameters of the equivalent circuit of a inductor	243
51	Bartosz HAŁUSZCZAK, Łukasz PUTZ, Arkadiusz DOBRZYCKI, Stanisław MIKULSKI - Hybrid OFF-GRID installation as the as the power supply of summer house	248
52	Michał FILIPIAK, Ryszard NAWROWSKI, Dariusz KURZ, Remigiusz PIERZCHAŁA - Profitability Analysis of Using a Photovoltaic Installation in Cooperation with an Energy Storage for a Single-Family House	253
53	Dariusz KURZ, Ryszard NAWROWSKI, Michał FILIPIAK, Wojciech WĘGRZYN - Analysis of the possibility of managing and distributing electricity produced in a prosumer photovoltaic installation in a building with building automation	259
54	Jacek BARTMAN, Tadeusz KWATER, Bogdan KWIATKOWSKI, Damian MAZUR - Analysis of the coherence of parameters of electricity receivers in the context of non-invasive device identification	265
55	Tomasz KRASZEWSKI, Anna PIWOWAR, Renata FRĄCZEK, Piotr ŚWISZCZ, Łukasz BIS - Visual defect detection methods overview	269
56	Tomasz KRASZEWSKI, Radosław SOKÓŁ, Artur PASIERBEK, Marcin POŁOMSKI, Anna PIWOWAR - Evaluation of photogrammetric methods for fast identification of defects	273
57	Tadeusz BIAŁOŃ - Particle swarm optimization of an inductionmotor Luenberger observer	277
58	Kazimierz Kawa, Edyta Kucharska, Rafał Mularczyk - Impact of district heating substation control on the operating costs of real estate complexes	284
59	Barbara KULESZ, Andrzej SIKORA, Damian SŁOTA - Tool to identify parameters of insulation system in electrical machines	292
60	Damian GŁUCHY, Grzegorz TRZMIEL - Analysis of the impact of wind turbine power characteristics on the amount of generated energy	296
61	Piotr LEGUTKO - The use and influence of a magnetic field concentrator in the induction hardening of gears	301
62	Sebastian ŁACHECIŃSKI - Processing of temporal data for the transaction time on the MariaDB platform	307
63	Mohammad KAZEMINEJAD, Mozhdeh KARAMIFARD - Optimal and Economic Design of Stand-alone Hybrid Renewable Energy System Integrated with Battery Storage Using Artificial Electric Field Algorithm	313
64	Ryszard SROKA, Antoni CIEŚLA, Mikołaj SKOWRON - Electrical Sciences " at the University of Science and Technology (AGH) in Krakow – yesterday and today	320