

Contents

01	Paweł STRĄCZYŃSKI, Łukasz GRUSZKA, Robert KAZAŁA, Tomasz GRZMIL - Energy consumption analysis for a 6-axis industrial robot in the packing process	1
02	Jakub DUK, Andrzej KOCIUBIŃSKI, Mariusz DUK, Karolina CZARNACKA - Automatic Setup for Characterizing Structures Exhibiting Magnetoresistive Effects	5
03	Ganesh CHALLA, Dr. M. Damodar REDDY - Slip Angle Controlled DTC of Open End Winding Induction Motor Drive Using Triple Randomized Decoupled PWM Based Acoustic Noise Mitigation for EV Application	9
04	Mirodil KOBILOV, Zafarjon TUYCHIEV, Tulkin JABBOROV, Abdullaev ABDUVOKHID - Modelling of the non-contact automatic voltage regulation system on single phase distribution transformers	14
05	Mehak SAINI, Surender K. GREWAL- An Efficient Deep Learning Network for MIMO Detection using Bayesian Optimization	18
06	Nessim Abderrahim BOURAHLA, Mustapha BENGHANEM, Hamid BOUZEBOUDJA, Abed BOUADI, Ali TAHRI - The solar photovoltaic energy capacity for a parking project at USTO University	21
07	Krzysztof MANIAK- Effect of clamp-type surge protection circuit configurations on EMC emissions from a flyback converter	26
08	Szymon BORYS, Wojciech KACZMAREK - Integration of the GoFa collaborative robot with a linear track using PROFINET	32
09	Jacek KLUCZNIK - Voltage control of export cables in offshore wind farms	37
10	Adam SMOLARCYK, Piotr KWACZYŃSKI- Modeling of internal faults in generators and transformers and protection against their effects	42
11	Dominik BODORA, Tomasz KŁOPOT, Krzysztof STEBEL - Adaptive DMC controller based on cloud computing	48
12	Sebastian BUDZAN1, Mateusz SZWEDKA – Integration of YOLO detection algorithm with trajectory prediction of pedestrians for advanced driver assistance system	53
13	Artur PIASECKI, Beata MACIEJEWSKA, Magdalena PIASECKA, Norbert DADAS - Comparative analyses of surface temperature measurements	59
14	Stanisław CZAPP, Konrad SEKLECKI, Leszek LITZBARSKI, Marek OLESZ - Risk of electric shock during firefighting in buildings with PV energy sources	66
15	Łukasz SOBOLEWSKI - Using Real-time Measurement Data to Forecast the Polish Time Scale UTC(PL) Using a GMDH Type Neural Network	73
16	Mariusz WIŚNIEWSKI - Procedure for reducing the uncertainty of instrument calibration on the GUM 50 m interferometric comparator	77
17	Łukasz DRÓŻDŹ, Jerzy ROJ - An algorithm for determining the resultant expanded uncertainty value in the case of analysis involving multiple sources of error signals	81
18	Grzegorz SADKOWSKI, Andrzej BIEŃ - Analysis of the Impact of Harmonic Components on Energy Measurement by an Electronic Meter – A Case Study	85
19	Wiesław MICZULSKI, Mariusz KRAJEWSKI, Sergiusz SIENKOWSKI - New intelligent temperature transducer	89
20	Adam KURNICKI, Bartłomiej STAŃCZYK, Bartosz KANIA - Identification and compensation of joint position measurement errors in ARIA drive modules	93
21	Krystian KRAWCZYK, Agnieszka MIRKOWSKA, Bartłomiej KOCJAN, Paweł ŻYŁKA - High stability constant temperature chamber upgrade and its characterisation	97
22	Krystian KRAWCZYK, Bartłomiej KOCJAN, Michał LISOWSKI - The concept of a system ensuring measurement traceability of high resistance standards with a comparison <i>ratio of 1:10</i>	101
23	Michał BOŁTRUKIEWICZ, Przemysław OTOMAŃSKI - Microcontrollers in frequency measurement	105
24	Piotr MAKLES, Andrzej BIEŃ - Reactive energy measurements issues in the aspect of legal regulations	109
25	Piotr POWROźNIK, Filip OPŁOTNY, Mateusz KOMAROWSKI, Igor KOROPIECKI, Krzysztof TURCHAN, Krzysztof PIOTROWSKI - Selection of database for efficient energy management in a power grid	113
26	Dariusz ELJASZ, Olaf HŁADKI - SAREF ontology in multi-criteria analysis of the use of wireless technologies for SmartCity applications	117
27	Andrzej POPŁAWSKI - Compression efficiency of H.264 and H.265 coders under conditions of frequent scene change	121
28	Daniel BELICA, Jarosław MARKIEWICZ, Piotr NOWAKOWSKI, Adam SZMYTKIEWICZ, Marcin TYLKOWSKI, Andrzej OLENCKI - Automatic calibration system with multi-product calibrator	125
29	Robert SZULIMI, Ryszard RYBSKI, Leszek FURMANKIEWICZ, Mirosław KOZIOŁ - Remote measurement laboratory using World Wide Web interface	129
30	Janusz KACZMAREK, Ryszard RYBSKI, Dariusz KAPELSKI - Method of measuring of the parasitic capacitance of high voltage sensors	133
31	Łukasz MACIOSZEK, Ryszard RYBSKI, Łukasz HAWRYLCZAK - Impedance spectroscopy study of electrochemical voltage source	137
32	Grzegorz LENTKA, Dariusz PALMOWSKI, Maciej BRZESKI - Measurement of timing parameters of selected real-time operating microsystems	141

Contents

33	Michał KACZMAREK - Procedure for evaluation of the wideband transformation accuracy of inductive voltage transformers for assignment of their optional classes of the 2023 IEC 61869-1 standard	145
34	Michał BONK, Paweł ZYDRON - The use of optical images and extended phase-resolved PD patterns to observe the electrical treeing process in silicone insulation	149
35	Tomasz PIOTROWSKI - Proposal of a new method for interpreting the concentrations of gases dissolved in mineral transformer oil	153
36	Krzysztof KOGUT, Krzysztof KASPRZYK, Henryk BRZEZIŃSKI, Renata KŁOŚ - Alternative for SF ₆ – review and Łukasiewicz – Institute of Electrical Engineering (Ł - IEL) approach to the subject	157
37	Mykhaylo ZAGIRNYAK, Dmytro MOLOSHAN, Volodymyr DRAHOBETSKYI, Dmytro SAVIELOV, Viktoriia KULYNYCH - Methods for Vibration Reducing in the Structural Elements of Vehicle Electrical Equipment	161
38	Mykhaylo ZAGIRNYAK - Concerning the Problem of the Calculation of Magnetic Field Force Action on an Energized Ferromagnetic Conductor	165
39	Konstanty W. MARSZAŁEK, Katarzyna DYNDĄŁ, Waldemar SZCZEPANIK - Chemical etching for antireflective, gradient n, layer preparation on glass surface	169
40	Marek ZASTĘPA - Commutator motor fault diagnosis using acoustic data with a transfer learning approach	173
41	Paweł ALBRECHTOWICZ, Bartłomiej BIESAGA - The short-circuit analysis in multi-parallel single cable lines	181
42	Piotr KAPLER - The Analysis of the Loss of Synchronism of a Synchronous Generator Using the Wavelet Coherence	186
43	Michał KRYSTKOWIAK, Dominik MATECKI - Medium and high power rectifier system with increased efficiency	192
44	Ryszard SIKORA - Do fractional derivatives make physical sense?	199
45	Sebastian ŁACHECIŃSKI - Storage of temporal data for the valid time on the IBM Db2 platform	201
46	Ala Eddine DJOKHRAB, Hatem GHOBANE, Abdelmalik TALEB-AHMED - Control system of a humanoid robot (NAO) by a laser scanner	206
47	Grzegorz KOSOBUDZKI, Monika SZAFRAŃSKA - Immunity testing of electricity meters against electromagnetic disturbances	212
48	Bartłomiej STADNIK, Artur WYMYSŁOWSKI - Overview Analysis of Micro-ROS System as an Embedded Solution for Microcontrollers in Automatics otics ications	217
49	Stanisław OLISZEWSKI, Kosuke SHIKATA, Radosław STANISŁAWSKI, Seiichiro KATSURA, Krzysztof SZABAT - Parallel IP – Resona ch for attenuating the effect sion in electric drives with flexible links	223
50	Rafał PRZESMYCKI, Marek BUGAJ - Measurement uncertainty in pulsed electromagnetic field in the HPM pulses form	227
51	Zbigniew SKORUPKA - Load Factor Measurement in Landing Gear Tests	232
52	Mariusz TALAGA, Adrian HALINKA - Analysis and research of frequency measurement algorithms in the power system based on the position of the measurement signal phasor, part 1	236
53	Karol BOLEK, Michał K. URBAŃSKI - A System for Simultaneous Measurement of Hysteresis Loops and Barkhausen Noise in Amorphous Ferromagnetic Ribbons	241
54	Mariusz TALAGA, Adrian HALINKA - Analysis and research of frequency measurement algorithms in the power system based on the position of the measurement signal phasor, part 2	247
55	Zygmunt Lech WARSZA, Jacek PUCHALSKI, Tomasz WIĘCEK - Variable Swap Method for Fitting Nonlinear Functions to Measurement Data and Their Uncertainties	252
56	Eligiusz PAWŁOWSKI - In situ investigation of thermal resistance of resistance temperature detectors	260
57	Mykhaylo DOROZHOVETS - Uncertainty of simultaneous measurement by two measuring instruments	264
58	Piotr KUBISZYN - Precise two-channel pulse width modulator with a sampling and hold system	268
59	Tomasz GARBOLINO - Analysis of masking of shorts in the network of connections by the MISR-based test response compactor	272
60	Dariusz JANCZAK - Indoor Positioning Based on Bluetooth maxRSSI Distance Estimator	281
61	Dariusz SAWICKI, Łukasz IZDEBSKI, Agnieszka WOLSKA, Mariusz WISEŁKA - Multiscreen Graphic Driver for Semi-Cave Virtual Reality in Vulkan Environment	287
62	Sebastian RÓŻOWICZ, Krzysztof BARAN, Marcin LEŚKO, Andrzej ZAWADZKI, Henryk WACHTA - The analysis of impact of roundabout lighting on traffic safety	294
63	Pożegnanie Profesora Jana Popczyka (Sławomir Cieślik)	297