

Contents

01	Jędrzej PIETRYKA, Marek ADAMOWICZ, Zbigniew KRZEMIŃSKI - 24V/12kV DC-DC converter with a matrix transformer for high-voltage capacitor chargers HVCC	1
02	Jacek KABZIŃSKI - Publications in the field of drive automation as a case study used for the competency exam for students of control and electrical engineering at the university of technology	8
03	Rafał KOPACZ - Quasi-two-level method as an universal approach for voltage balancing of series-connected SiC MOSFETs	14
04	Filip SZEWCZYK¹, Piotr CHUDZIK - Sliding Mode Control Restart Strategy for Rotating Induction Machine Using Time-Varying Switching Line	19
05	Zbigniew KACZMARCZYK, Marcin KASPRZAK, Paweł LASEK, Krzysztof PRZYBYŁA, Marcin SKÓRA, Krzysztof STANKIEWICZ - Implementation of a wireless energy transfer system based on capacitive coupling	29
06	Marcin JASTRZEBSKI, Jacek KABZIŃSKI, Przemysław MOSIOŁEK - Simple, robust servo position control	34
07	Łukasz CIEPLIŃSKI, Michał GWÓŹDŹ, Adam GULCZYŃSKI - AC power supply with tunable induction filter and active parallel compensation function	40
08	Sebastian GIZIEWSKI, Marek ADAMOWICZ - SiC-based high-speed drive with induction motor for high power fuel cell air turbochargers	46
09	Mariusz STĘPIEŃ, Paweł LASEK, Dawid MAŃKA, Patryk TYLUTKI - PBL Activities as an example of modern individual education in area of power electronics	55
10	Marcin GULCZYŃSKI, Marek ADAMOWICZ, Marek OLESZ - Off-line diagnostics of insulation condition in 6kV motor windings using acoustic imaging of partial discharges	60
11	Zbigniew KRZEMIŃSKI, Marek ADAMOWICZ - Comparison of the operation of a zigzag transformer with the active power electronic phases balancer in the LV line	68
12	Henryk KOCOT, Agnieszka DZIENDZIEL – Impact of the designed north-south HVDC line on the operation of the national transmission system	75
13	Konrad SEKLECKI, Leszek LITZBARSKI, Kuba WÓJCIK, Zuzanna CIEŚLIKOWSKA, Mirosław WŁAS, Jacek GROCHOWSKI - Photovoltaic installations in multi-family buildings	79
14	Leszek LITZBARSKI¹, Marek OLESZ², Konrad SEKLECKI - Measurement practice of photovoltaic installations leading to the determination of the actual technical condition	82
15	Łukasz Kajda, Sebastian Samul - LV regulation using MV/LV transformer with on-load tap changer, based on voltage measurements from AMI meters	85
16	Marek OLESZ, Marcin GULCZYŃSKI, Marek ADAMOWICZ - Diagnostic procedures for testing the insulation of electric machines	89
17	Adam MROZIŃSKI - Balancing of renewable energy sources in an energy cooperative with using optimal selection of members and energy storage	92
18	Paweł PANKOWSKI, Marek OLESZ - Optimization of medium voltage bushing for technological application	95
19	Robert KOWALAK - Operation characteristics of a low power three-plane photovoltaic installation - a case study	100
20	Bessam AMROUCHE, Haroune AOUZELLAG, Koussaila IFFOUZAR², Sabrina NACEF, Tahar Otmane CHERIF, Kaci GHEDAMSI - Power management for HEV based on PMSM using passivity control	106
21	Lenin Babu Chilakapati, T Gowri Manohar - Microgrid Power Quality Enhancement with Adaptive Control Strategies: A Literature Survey	113
22	Adil BAKRI, Ahmed KROBBA, Abderrahmane Amrouche - A New Regression Model Applied for Packet Loss Recovery Technique in Real-Time Communications	118
23	Amor OUNISSI, Azeddine KADDOURI, Rachid ABDESSEMED - Radial Basis Function Networks Based Synergetic Terminal Controller For Piezoelectric Actuator With Colman-Hodgdon Hysteresis Model	125
24	Mariusz KLIMEK, Adam KURNICKI - Online Calibration of Strain Gauge Based Force/Torque Sensor used for simple interaction human - manipulator	130
25	Piotr Kaczmarek - The influence of the load inductance in the secondary winding of the inductive current transformer on the distorted current transformation accuracy of distorted current harmonics	136
26	Artur BUGAŁA, Antoni ARENDACZ, Dorota BUGAŁA - Simulation analysis of a photovoltaic-thermal energy generator for residential prosumers in Matlab/Simulink	142
27	Taha Ahmad Hussein, DahamanIshak, Mohamad Tarnini - Reduced Components Count with Optimal Switching for Minimum THD in Multilevel Inverter	149

Contents

28	Saheed Lekan GBADAMOSI, Nnamdi I. NWULU, Solomon Oluwole AKINOLA - Exploring the effectiveness of a multilayer neural network model for gold price prediction	157
29	Haider Mehdi, Zakir Hussain, Syed Muhammad Atif Saleem - Analysis of Relay-Assisted Device-to-Device Communication over Fisher–Snedecor F Fading Channels	162
30	Zahira Ousaadi, Hamza Akroum, Abdelhakim Idir - Robustness Enhancement of Fractionalized Order Proportional Integral Controller for Speed Control of Indirect Field-Oriented Control Induction Motor	166
31	T. INTHASUTH, Y. KAEWJUMRAS, T. MAISEN, A. CHANGDEE, K. SUREEYA, W. BOONSONG - A Proxy-based Approach for Data Exchange and Interoperability between IEEE1888.4 Local and Global Storages	172
32	Hamid AOUDJEREGBA, Ahmed TAHOUR - A Robust Controller based on Backstepping-ADRC for WRSG Based Wind Turbine	176
33	Shaik Ruksana Begam, Loveswara Rao Burthi, Shobha Rani Depuru - Regenerative Braking in Electric Vehicles using BLDC motor with Modified Torque and Adaptive-Neuro-Fuzzy-Control	184
34	Sri Mawar SAID, Andi Muhammad ILYAS - Forecasting South Sulawesi Electrical Energy Consumption Using Artificial Neural Network	191
35	Sabrina Meddah, Abdelhakim Idir, Sid Ahmed Tadjer, Mohamed Zinelabidine Doghmane, Madjid Kidouche - PID Control Design of Strongly Coupled Axial-Torsional Vibrations in Rotary Drilling Systems	196
36	Darunee WATNAKORNBUNCHA, Noppadol AM-DEE, Adisak SANGSONGFA - Adaptive Deep Learning with Optimization Hybrid Convolutional Neural Network and Recurrent Neural Network for Prediction Lemon Fruit Ripeness	202
37	Fatiha Zaghrat, Ismail.K Bousserhane, Imane Chaoufi, Brahim Gasbaoui, Bosmaha Bouchiba, Asma Ben hmine - A comparison study using backstepping and PI controllers for Electric Vehicle	212
38	Norsaidah MUHAMAD NADZIR, Mohamad Kamal A. RAHIM, Mohamed HIMDI, Noor Asniza MURAD, Osman AYOP - Effect of CSRR Rotation on Size and Polarization of Antenna	216
39	Mas Haslinda MOHAMAD, Naim RAHIM, Elfarizanis BAHARUDIN, Mawarni MOHAMED YUNUS - Performance Analysis of Air Monitoring System Using 433 MHz LoRa Module	223
40	Tanakorn INTHASUTH, Hamdee YENG, Farida MAEHTIMOH, Yongyut KAEWJUMRAS, Wasana BOONSONG - Investigating an IoT-Integrated Cane System for Accurate Gait Analysis and Fall Detection	228
41	Hryhorii KALETNIK, Olena SOLONA, Borys KOTOV, Serhii STEPANENKO, Viktor SHVYDIA, Roman KALINICHENKO, Ihor TVERDOKHLIB, Yurii POLIEVODA - The usage of the elemental base of the vibratory mill with the spatial circulation movement of material to create drying rig	232
42	Yassine HABCHI, Riyadh BOUDDOU, Ameer Fethi AIMER - Image Classification of Leukemia Cancer Using Wavelet Deep Neural Network	238
43	Stanisław BEDNAREK - 60 T pulsed magnetic field in Bitter magnet made of tungsten and coiled by liquid helium	244
44	Jakub HYLA Wojciech SULEK - Non-Binary LDPC coding for Internet of Things	249
45	Maciej SKRZETUSZEWSKI, Sylwia GÓRNIK, ¹ Maciej ZAJKOWSKI - Overview of methodology related to multi-angled characterization of the spectral reflectance standards	257
46	Patrycja HELT, Tomasz GULCZYŃSKI, Dariusz BACZYŃSKI - Optimization of low voltage distribution network configuration using forecasts based on Advanced Metering Infrastructure data	262
47	Toufik ROUBACHE, Souad CHAOUCH - ANFIS Controller MPPT Algorithm for Solar powered Dual Three-Phase Induction Motor based EVs	269
48	Kamila BIAŁEK, Jacek JAKUBOWSKI, Rafał BIAŁEK - Parametrization of handwriting for the assessment of neurodegenerative disorders on the example of Parkinson's disease	275
49	Andriy CHABAN, Marek LIS, Andrzej SZAFRANIEC, Vitaliy LEVONIUK - Mathematical modelling of transient processes in a HVAC transmission line considering the effect lightning protection cables in the state of two-phase short-circuiting	278
50	Joanna MICHAŁOWSKA - Model Identification Of Correlation Of Avionic Parameters With Magnetic Field Intensity Using Neutral Networks	2821
51	Maryna MIKHALIEVA, Lubomyra ODOSII, Krzysztof PRZYSTUPA, Yurii SHABATURA, Volodymyr ROMANCHUK, Lidiya PARASHCHUK - Opportunities of electrical technologies for control of the quality parameters of light sensitive materials	285
52	Mykhaylo ZAGRNYAK, Oleksandr SALENKO, Walid ALNUSIRAT, Leonid GOLOVKO, Vadym OREL, Viktoriia KULYNYCH - Increasing the Strength of Thin-walled Products Obtained by FDM Using the Thin Surface Films	289
53	Sarawoot BOONKIRDRAM, Niwat ANGKAWISITPAN, Somchat SONASANG, Chuthong SUMMATTA - Design of Fail-Safe Window Comparator Circuits Using Unconditional Deterministic Optimization	293