

Contents

01	Leszek S. CZARNECKI - Currents' Physical Components (CPC) – based Power Theory. A Review. Part I: Power Properties of Electrical Circuits and Systems	1
02	Apinan AURASOPON, Chiraphon TAKEANG - Hybrid Algorithm combining Lambda Iteration and Bee Colony Optimization to Solve an Economic Dispatch Problem with Prohibited Operating Zones	12
03	Benaoumeur IBARI, Laredj BENCHIKH, Kamel BOUZGOU, Reda Hanifi Elhachemi, Zoubir Ahmed-Foitih - Backstepping controller with force estimator applied for mobile robot	18
04	Diego FONSECA, Andres SALAZAR, Tomaz GONÇALVES, Elmer VILLARREAL - Electrical modelling of an electrical submersible pump system three-phase power cable used in power line communication	22
05	Rabeh CHEHDA, Noureddine BENOUZZA, Naouel KADA BELGHITRI - Stator Current Spectrum Analysis Applied on Short-Circuit Fault Diagnosis of SRM	27
06	Mariusz KOZAKIEWICZ, Maciej SOŁTYSIK, Joanna WRÓBEL - Selected elements of neighborly energy exchange- functional model and simulation assumptions	33
07	Paweł BUĆKO - Capacity mechanisms on electricity markets	40
08	Mariusz DRABECKI, Eugeniusz TOCZYŁOWSKI - Obtaining feasibility of power flows in the deregulated electricity market environment	44
09	Jerzy ANDRUSZKIEWICZ, Józef LORENC, Agnieszka WEYCHAN - Demand side response as a result of tariff programmes in Poland	48
10	Kazimierz BIELIŃSKI, Paweł MŁODZIKOWSKI - Selected results of investigations of the charging process of electric vehicle batteries	52
11	Anna GORCZYCA-GORAJ, Paweł KUBEK, Maksymilian PRZYGRODZKI - Model support of power system analysis	56
12	Dawid JÓZWIAK, Marcin DRECHNY – Analysis of the possibilities of using V2G technology for power system balancing	60
13	Piotr KACEJKO, Paweł PIJARSKI, Karolina GAŁĄZKA - Assessment of the efficiency of electricity generation in photovoltaic installations of industrial customers	64
14	Henryk KOCOT, Szymon CIURA, Agnieszka DZIENDZIEL - Real and computational simultaneity factors of peak load of consumers connected to the low voltage network	68
15	Sebastian KRUPIŃSKI, Piotr KUSZEWSKI, Józef PASKA - Financial efficiency of a 1,000 MW class coal-fired power unit on example of the Ostrołęka C power plant	72
16	Marek KULESA - Capacity market - first experience of certifications and auctions	78
17	Piotr MAKARSKI, Marek ŚCIBISZ, Jacek KAPICA - The supercapacitor as a short-term energy storage for a photovoltaic generator supplying ventilation systems	82
18	Józef PASKA, Piotr MARCHEL, Łukasz MICHALSKI - The costs of interruptions and limitations in electricity supply and their determination	86
19	Józef PASKA, Tomasz SURMA - New support scheme for high-efficient cogeneration	90
20	Józef PASKA, Mariusz KŁOS, Karol PAWLAK, Krzysztof ZAGRAJEK, Piotr MARCHEL, Magdalena BŁĘDZIŃSKA, Łukasz MICHALSKI, Paweł TERLIKOWSKI - Topologies of hybrid RES installations with the strategy of contracting energy	94
21	Maksymilian PRZYGRODZKI, Rafał GWÓŹDŹ, Łukasz WAKULIŃSKI - Nodal and Zonal Solutions of the Electricity Market Model	98
22	Radomir ROGUS, Łukasz MAZANEK - Analysis of ending the operation of the coal power plant scenarios and their impact on Poland's energy security	102
23	Radomir ROGUS, Łukasz MAZANEK - Spatial autocorrelation analysis of the RES generating power in Poland	106
24	Karol SIDOR, Piotr MILLER, Paweł PIJARSKI - Application of network configuration optimization to reduce costs of electricity loss	110
25	Piotr GÓRAL, Paweł PAWŁOWSKI, Adam DĄBROWSKI - Remote wireless control system for autonomous vehicle	114
26	Tomasz MARCINIĄK, Adam DĄBROWSKI, Radosław PUCHALSKI, Dominik DRATWIĄK, Wojciech MARCINIĄK - Application of STM32F410 microcontroller for presentation of digital signal processing	118
27	Adam DĄBROWSKI, Paweł PAWŁOWSKI - Astable multivibrator as an example of transistor circuit with feedback for teaching the basics of electronics	121
28	Tomasz MARCINIĄK, Damian CETNAROWICZ, Paweł PAWŁOWSKI, Adam DĄBROWSKI - Designing of analog filters for digital signal processing modules	125
29	Krzysztof GÓRECKI, Janusz ZAREBSKI, Witold J. STEPOWICZ, Paweł GÓRECKI, Damian BISEWSKI, Kalina DETKA, Przemysław PTAK, Jacek DĄBROWSKI, Małgorzata GODEWSKA, Kamil BARGIEŁ, Joanna SZELĄGOWSKA - Modelling an influence of an external electromagnetic field on characteristics of selected electronic components	130
30	Paweł GÓRECKI - The evaluation of accuracy of the selected models of IGBT, which are available at Infineon web-site	134

PRZEGŁĄD ELEKTROTECHNICZNY Vol 2019, No 10

Contents

31	Przemysław PTAK, Michał GENSIKOWSKI, Paweł KOŁODZIEJCZYK, Krzysztof GÓRECKI - Comparison of static properties of the selected photometric sensors	138
32	Ryszard STUDAŃSKI¹, Jerzy MIZERACZYK¹, Andrzej ŻAK - Filtration of the received signal transformed to cepstrum as a method of the reduction of multipath effect in a radio channel	142
33	Wojciech MACHERZYŃSKI, Piotr BUBA, Piotr POKRYSZKA, Grzegorz ILGIEWICZ, Regina PASZKIEWICZ - Electrochemical thickening with gold of thin metallic layers	146
34	Ewa RAJ, Salvatore MASSA, Janusz WOŹNY, Zbigniew LISIK - Electrothermal analysis of a package integrated with microchannel structure for disc type power semiconductor devices	150
35	Agnieszka MARTYCHOWIEC, Norbert KWIETNIEWSKI, Mariusz SOCHACKI - A review of SiC surface cleaning methods	154
36	Bartłomiej STONIO, Norbert KWIETNIEWSKI, Piotr FIREK, Mateusz SŁOWIKOWSKI, Krystian PAVŁOV, Mariusz SOCHACKI, Jan SZMIDT - Influence of masking materials on the quality of mapping in silicon carbide 4H-SiC dry etching processes in chlorine plasma	158
37	Agnieszka ZAWADZKA, Joanna PRAŻMOWSKA-CZAJKA, Kornelia INDYKIEWICZ, Regina PASZKIEWICZ - Selected aspects of photolithographic masks fabrication on sapphire substrates	162
38	Magdalena BUDNAROWSKA, Jerzy MIZERACZYK, Ryszard STUDAŃSKI, Damian BISEWSKI - Simulation studies of the electromagnetic properties of a planar metamaterial SRR-dielectric substrate structure in the microwave range	166
39	Andrzej STRAŚ, Krzysztof JACKIEWICZ, Tomasz MIAZGA, Tomasz BAŁKOWIEC, Michał GIERCZYŃSKI, Arkadiusz KASZEWSKI - GaN-based Modular Multilevel Converter	169
40	Piotr POKRYSZKA¹, Mateusz WOŚKO¹, Regina PASZKIEWICZ - The method of temperature calibration of the epitaxy process in the AIXTRON CCS 3x2" system	173
41	Grzegorz KAMIŃSKI, Łukasz ORDYSZEWSKI, Karol CIESIELSKI - Comparison of the geometrical structure of linear tubular and transformer motors	177
42	Tomasz CIECHULSKI, Stanisław OSOWSKI - The method of 24-hour load forecasting with application of fuzzy sets and C-means algorithm	185
43	Miroslaw SWIERCZ, Halina MROCZKOWSKA - Application of PCA for early leak detection in a pipeline system of a steam boiler	190
44	Piotr SIDYK - Some aspects of fault diagnosis of linear analog circuits using sensitivity analysis	204
45	Roberto QUINTAL-PALOMO, Mateusz DYBKOWSKI - Modelling and Co-Simulation of Small Wind Turbine with Permanent Magnet Synchronous Generator	207
46	Bartłomiej TWOREK, Rafał SETLAK - Application of aluminum wires for the construction of automotive electric system	214
47	Andrzej PAWLAK - A spectroradiometric method for evaluating photobiological safety of sources emitting optical radiation	219
48	Mateusz FELDZENSZTAJN, Adam MAZIKOWSKI, Tomasz CEGIELSKI - Lighting efficiency analysis using the example of basil growing	225