

**Contents**

01	Krzysztof SIWEK <sup>1</sup> , Stanisław OSOWSKI - Deep neural networks and classical approach to face recognition – comparative analysis	1
02	Miklós KUCZMANN - Temperature and frequency dependent Preisach model	5
03	Zoltán BOSTERNÁK, Rastislav RÓKA - Bandwidth Scheduling Methods for the Upstream Traffic in Passive Optical Networks	9
04	Wiesław MARSZAŁEK - Autonomous implicit models of pinched hystereses with application to memristors	13
05	Emerson Carlos PEDRINO, Igor Felipe GALLON, Fredy João VALENTE, Márcio Merino FERNANDES, Osmar OGASHAWARA, Valentin Obac RODA - A Novel Methodology for Automated Generation of Flexible Hardware Architectures	17
06	Prungsak UTTAPHUT - Single VDCC-Based Electronically Tunable Voltage-Mode Second Order Universal Filter	22
07	Sarayut PHORNCHAROEN, Worawat SA-NGIAMVIBOOL - A proposed round robin scheduling algorithm for enhancing performance of CPU utilization	26
08	Jerzy Stanisław ZIELIŃSKI - Does Smart Grid need new Informatics Tools?	30
09	Abdelkader MEKRI, Abdelghani BOUKRERIS, Ben-Yssad KRALOUA, Ali HENNAD - Numerical modeling of plasma Actuator at high pressure	34
10	Arkadiusz AMBROZIAK, Magdalena STASIAK-BIENIECKA, Piotr BORKOWSKI - Thermal analysis of smart building	39
11	Adrian CHOJECKI, Piotr BORKOWSKI - Application of game theory in electrical engineering on the example of transformer tap control	43
12	Michał RODAK, Piotr BORKOWSKI - Magnetic field analysis of the Inductive Dynamic Drive	47
13	Jerzy BARGLIK - Induction hardening of steel elements with complex shapes	51
14	Jerzy ZGRAJA - Impedance matching in dual-frequency induction heating systems	55
15	Adam CIEŚLAK, Jerzy ZGRAJA - Influence of material properties of charge on electrical parameters of induction heating setup	59
16	Dariusz CZERWIŃSKI, Mieczysław PCIAN - Model of superconducting generator	63
17	Andrzej FRĄCZYK, Jacek KUCHARSKI - Compensation of heat power generation delays in the induction heating system of a rotating steel cylinder	67
18	Witold KOBOS - Impedance matching of the inverter for induction heating	71
19	Grzegorz KOMARZYNIEC - Temperature increase of the primary winding of a 14 kVA HTS transformer during the flow of the switching current	75
20	Piotr KRUPSKI, Henryka Danuta STRYCZEWSKA - Thermal imaging of surfaces treated by cooled plasma jet	79
21	Michał S. LASKAWSKI, Mirosław WCISLIK - Influence of signal sampling period in the control system on optimal settings of PI and PID controllers	83
22	Ryszard NIEDBAŁA, Marcin WESOŁOWSKI - Development of glow discharge devices for steel and cast iron nitrification	87
23	Antoni SAWICKI - Modified arc models in a SF <sub>6</sub> power circuit breaker	91
24	Piotr URBANEK - Methods of determination thermal conductivity in quasi industrial conditions	95
25	Zbigniew WARADZYN, Aleksander SKAŁA - Induction heating with a fixed control frequency guaranteeing ZVS at varying parameters of the resonant circuit	99
26	Mirosław WCISLIK, Paweł STRZĄBAŁA - Physical model of power circuit of three-phase electric arc furnace	103
27	Ayodeji OMISHORE, Petr MOHELNÍK, Denis MÍČEK - Light pipe prototype testing	107
28	Petr IVANIGA, Tomáš IVANIGA, Ján TURÁN, Ľuboš OVSENIK, Michal MÁRTON, Dávid SOLUS, Jakub ORAVEC, Tomáš HUSZANÍK - The Influence of FWM with AWG Multiplexor in DWDM System	113
29	Thanakorn DUJPEN, Worawat SA-NGIAMVIBOOL - The Measurement Technique of Surface Tension Using Inductance Values	118
30	Ilya TASHLYKOVA-BUSHKEVICH, Julia YAKOVENKO, Iuliana BUSHKEVICH, Vasiliy SHEPELEVICH, Henryk KOMSTA, Paweł ZUKOWSKI - Microstructure, elemental and phase composition and their influence on hydrophilic properties of rapidly solidified Al-In alloys	122
31	Igor TROYANCHUK, Nina TERESHKO, Maxim BUSHINSKY, Vera FEDOTOVA, Antoni ŚWIĆ, Tomasz N. KOŁTUNOWICZ - Magnetic and magnetotransport properties of nickel-doped manganites	126
32	Michał GETKA, Michał KARPOWICZ - Aspects of energy efficient performance control of an ACPI-compliant computer system processor in Linux	130
33	Piotr ŻMUDA, Andrzej DŁUGASZEK, Radosław WOŹNIAK - Calibration of distance measuring wheel using semi-automatic SKD-15 stand in the Central Military Calibration Laboratory	135
34	Andrzej RAŹNIAK, Magdalena DUDEK, Tomasz SIWEK, Piotr DUDEK, Wojciech KALAWA - Determination of Electrical and Efficiency Parameters of Air Cooling of Low-Temperature PEM Fuel Cell Stack with Power of 5kW	140
35	Łukasz LIS, Tomasz SIWEK, Karol SZTEKLER, Wojciech KALAWA - Possibilities of using mCHP systems in Poland	148
36	Artur NEMŚ, Magdalena NEMŚ, Adam RUZIEWICZ - Selection criteria and analysis of wind turbines for DHW	152
37	Volodymyr KHOMA, Małgorzata ZYGARLICKA, Yaroslav SOVYN, Yaroslav RESHETAR - An implementation of novel cryptographic algorithm "Kalyna"	157
38	Agnieszka Kamila GAD, Andrzej Ł. CHOJNACKI - Reliability functions of low voltage electrical connections	164
39	Waldemar SUSEK, Bronisław STEC, Michał KNIOLA, Mirosław CZYŻEWSKI - The concept of use a wideband noise radar in the ground penetrating applications	171
40	Michał MARZECKI, Daniel PACZESNY, Grzegorz TARAPATA - Inkjet printing technology for the case of the probe tube fabrication for measuring humidity in the nasal cavity	176
41	Przemysław DYBOWSKI, Dariusz KURZ - The analysis of the possibilities to control temperature in a building using the TELE TASK system automation	180
42	Marek MAGIERA - A no-wait scheduling method for assembly operations concerning multi-option electric devices	187
43	Sebastian RÓŻOWICZ - The effect of different ignition cables on spark plug durability	191
44	Paulina KANIA, Dariusz KANIA - The music signature in the process of representation and classification of the content of a piece of music	196