

Contents

01	Tomasz CHADY, Ryszard SIKORA, Przemysław LOPATO, Grzegorz PSUJ, Barbara SZYMANIK, Krishnan BALASUBRAMANIAM, Prabhu RAJAGOPAL - Wind Turbine Blades Inspection Techniques	1
02	Grzegorz PSUJ, Barbara SZYMANIK - Fatigue Monitoring of Steel Structures using Electromagnetic and Infrared Thermography Inspection Methods	5
03	Hanwu LUO, Peng CHENG, Haibo LIU, Kai KANG, Fan YANG, Qi YANG - Investigation of Contact Resistance Influence on Power Cable Joint Temperature Based on 3-D Coupling Model	9
04	Stanisław GRATKOWSKI, Krzysztof STAWICKI and Marcin ZIOLKOWSKI - General Closed-Form Asymptotic Boundary Conditions for Finite Element Analysis of Exterior Electrical Field Problem	13
05	Anibal SANUDO, Anesio L. F. FILHO - Alternative Methodology to Evaluate the Performance of PQ monitors	17
06	Arkadiusz LEWICKI, Jarosław GUZIŃSKI, Patryk STRANKOWSKI - Five-Phase Voltage Source InverterSpace-Vector Modulation Method	26
07	Tomasz PAJCHROWSKI, Wojciech KOGUT - Adaptive control neural speed control for direct drive with PMSM motor	34
08	Piotr PURA, Grzegorz IWANSKI - Direct Torque Control of a Doubly-Fed Induction Generator Connected to Unbalanced Grid	40
09	Jacek RĄBKOWSKI - Design and construction of the H-bridge inverter using Gallium Nitride (GaN) Gate Injection Transistors	45
10	Krzysztof RAFAŁ, Sławomir BIELECKI, Tadeusz SKOCZKOWSKI - Dynamic voltage regulation in distribution system using inverter-based distributed generation	49
11	Michał ROLAK - Fault-tolerant operation of Multiphase Energy Conversion Systems	54
12	Piotr J. SERKIES – Comparison of the dynamic properties of full and cascade speed control based on the FDC method in two-mass drive	60
13	Piotr SOBĄŃSKI, Teresa ORŁOWSKA-KOWALSKA - Analysis of chosen IGBT faults diagnostic variables in AC/DC line-side converter	66
14	Piotr SOBĄŃSKI - IGBTs Open-Circuit Faults Diagnostic Methods for the Voltage Inverter Fed Induction Motor Drives	72
15	Robert STALA, Andrzej MONDZIK, Adam KAWA, Adam PENCZEK, Stanisław PIRÓG - An Analysis Of Overload Conditions In Mosfet-Based Power Resonant DC-DC Step-Up Converters In Switched Capacitor Voltage Multiplier Topology	78
16	Grzegorz TARCHAŁA - Sliding mode adaptive induction motor speed estimator with modified adaptation algorithm	84
17	Karol WRÓBEL - The cascade speed controller of induction motor in dual mass system using prediction algorithms with a finite and infinite set of solutions	90
18	Grzegorz WRONA - AC-DC converter control algorithm with higher harmonics compensation function	94
19	Dominik ŁUCZAK, Adrian WÓJCIK - DSP implementation of state observers for electrical drive with elastic coupling	100
20	Marek ADAMOWICZ, Zbigniew KRZEMIŃSKI, Marcin MORAWIEC, Patryk STRANKOWSKI, Jarosław GUZIŃSKI - Five Phase Induction Motor Multiscalar Control	106
21	Marcin BASZYŃSKI, Stanisław PIRÓG - The modified unipolar modulation for BLDC motor with the control system	114
22	Tadeusz BIAŁOŃ, Arkadiusz LEWICKI, Roman NIESTRÓJ, Marian PASKO - Selection of gains of the integral observer of induction motor magnetic fluxes with the base transformation method	120
23	Stefan BROCK - Terminal sliding mode control of direct drive	124
24	Paweł BUŁKOWSKI - Bidirectional DC/AC/DC converter with galvanic isolation and serial resonance	130
25	Rafał NOWAK, Andrzej DĘBOWSKI, Piotr CHUDZIK, Marcin DROZD - Field weakening in asynchronous motors traction drives	136
26	Piotr CHUDZIK, Karol TATAR, Grzegorz LISOWSKI, Marcin KOWALSKI - The use of sinusoidal magnitude averaging with The Least Squares Method to reduce interference and to implement control algorithms	141
27	Maciej CISEK, Leszek JARZĘBOWICZ - Application of Angle Tracking Observer to Sensorless PMSM drive	146
28	Krzysztof DRÓŻDŹ - Application of a fuzzy unscented Kalman filter in an adaptive control structure of a two-mass system	150
29	Piotr FALKOWSKI, Marek KORZENIOWSKI, Adam RUSZCZYK, Krzysztof KÓSKA - Analysis and design of high efficiency DC/DC buck converter	156
30	Kazimierz GIERLOTKA, Grzegorz JAREK, Michał JELEŃ, Jarosław MICHALAK - Supporting the teaching process of electrical drive with use of the virtual platform ePEDlab	162

PRZEGLĄD ELEKTROTECHNICZNY Vol 2016, No 5

Contents

31	Agata GODLEWSKA, Andrzej SIKORSKI - Predictive input voltage control of current AC/DC converter	167
32	Piotr GRZEJSZCZAK - Study of high voltage MOSFET turn off process in high frequency converters	171
33	Marcin KAMIŃSKI - Adaptive neural controller for two-mass system	175
34	Marlena KWIATKOWSKA, Andrzej SZCZUREK, Paweł DRAĞ - The new prediction method for determining indoor air quality parameters changes based on differential-algebraic systems	181
35	Marek WYMYSŁO - Research on the relationship between delay error and measurement system processing errors	185
36	Beata KRUPANEK, Ryszard BOGACZ - Design and operation of the luminescence oxygen sensor based on the layers doped with ruthenium	188
37	Ryszard BOGACZ, Beata KRUPANEK - A method of dynamic error correction of pellistor sensor with flameproof shield	191
38	Khairuddin KHALID, Azah MOHAMED, Hussain SHAREEF, Maytham SABEEH - Event-based S-transform approach for nonintrusive load monitoring	194
39	Haulisson J.B. COSTA, Valentin O. RODA - A Scalable Soft Richardson Method for Detection in a Massive MIMO System	199
40	Stanislav KOVÁŘ, Jan VALOUCH - Electromagnetic susceptibility of IP camera	204
41	Hana URBANČOKOVA, Jan VALOUCH, Milan ADAMEK - Electromagnetic susceptibility of wireless relay against surge	209
42	Maciej SIWCZYŃSKI, Konrad HAWRON - The G, B distribution of modulation disordered operators – digital filters realization	212
43	Sebastian RÓŻOWICZ - The effect of parameter change of ignition system primary side R, L and C elements on the value of spark discharge energy	216
44	Arkadiusz DOBRZYCKI, Stanisław MIKULSKI - Using of wavelet transform in the analysis of AE signals accompanying the process of epoxy resins electrical treeing	221
45	Mirosław WOŁOSZYN, Kazimierz JAKUBIUK, Mateusz FLIS - Analysis of the influence of ferromagnetic contaminations in plastics on the measurements of disturbances of magnetic field of the Earth	224
46	Andrzej DOMINO, Piotr MAZUREK, Jan SIKORA, Krzysztof ZYMMER - Problems of appointing of the semiconductor power devices thermal parameters by experimental method	228
47	Mariusz KORKOSZ - The analysis of chosen structures of brushless electric machines designed to high-speed drives – simulation studies	233
48	Sebastian BARTEL, Tomasz TRAWIŃSKI - The influence of the micropump's winding shape and magnetic circuit configuration on the generated electromagnetic torque characteristic. Part I: FEM analysis	240
49	Julian WOSIK, Artur KOZŁOWSKI, Marian KALUS, Bogdan MIEDZINSKI - Performance of active power filter in transient under non-linear loading	245
50	Dariusz CZYŻEWSKI - Monitoring of road lighting installation with LED luminaires at Karmelicka street in Warsaw	250
51	Krzysztof PIĄTEK, Andrzej FIRLIT, Daniel WOJCIECHOWSKI - Field experience with Statcom in application to wind farms	253