

**THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS CO-SPONSORED**

**2007**

**COMPATIBILITY IN POWER ELECTRONICS  
CONFERENCE**

**GDYNIA MARITIME UNIVERSITY**

**WITH COLLABORATION OF**

**TALLINN TECHNICAL UNIVERSITY, ESTONIA**

**UNIVERSITY OF CATALONIA, SPAIN**

**UNIVERSITY OF THE ARMED FORCES HAMBURG, GERMANY**

**UNIVERSITY OF APPLIED SCIENCES GIESSEN-FRIEDBERG, GERMANY**

**INSTITUTE OF ELECTRODYNAMICS OF THE UKRAINIAN ACADEMY OF SCIENCE, UKRAINE**

**NATIONAL UNIVERSITY "LVIV POLYTECHNICA", UKRAINE**

**GDANSK UNIVERSITY OF TECHNOLOGY POLAND**

**UNIVERSITY OF ZIELONA GÓRA, POLAND**

**UNDER PATRONAGE OF**

**GOVERNOR OF POMERANIA PROVINCE**

**POLAND**

**IN COOPERATION WITH**

**THE POLISH SOCIETY OF THEORETICAL AND APPLIED ELECTRICAL ENGINEERING - PTETIS**

**THE ASSOCIATION OF POLISH ELECTRICIANS - SEP**

**THE INSTITUTION OF ENGINEERING AND TECHNOLOGY – IET**

**FINANCIAL CO-SPONSORED BY**

**POLISH MINISTRY OF SCIENCE AND HIGHER EDUCATION, SUPPORT FOR SCIENTIFIC RESEARCH**

**GDYNIA, POLAND, 29 MAY – 1 JUNE, 2007**



## **HONORARY CHAIRMAN**

**JÓZEF LISOWSKI, RECTOR OF GDYNIA MARITIME UNIVERSITY, POLAND**

## **GENERAL CHAIRMAN**

**RYSZARD STRZELECKI, GDYNIA MARITIME UNIVERSITY, POLAND**

## **PROGRAM CO-CHAIRMAN**

**ANTONI ARIAS, UNIVERSITY POLYTECHNIC OF CATALONIA, SPAIN**  
**MAREK HARTMAN, IET-POLAND AREA, GDYNIA MARITIME ACADEMY., POLAND**

## **INTERNATIONAL ADVISORY BOARD**

**FREDE BLAABJERG, DENMARK, AALBORG UNIVERSITY**  
**ENRIQUE ROMERO CADAVAL, SPAIN, UNIVERSITY OF ESTREMADURA**  
**VALERY CHRISANOV, RUSSIA, ST. PETERSBURG STATE TELECOMMUNICATION UNIVERSITY**  
**BRAYIMA DAKYO, FRANCE, UNIVERSITY OF LEHAVRE**  
**ALI EMADI, USA, ILLINOIS INSTITUTE OF TECHNOLOGY**  
**SANDOR HALASZ, HUNGARY, BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS**  
**GRAHAME HOLMES, AUSTRALIA, MONASH UNIVERSITY**  
**JAAN JARVIK, ESTONIA, TALLINN TECHNICAL UNIVERSITY**  
**KAREL JEZERNIK, SLOVENIA, UNIVERSITY OF MARIBOR**  
**SERGEJ KALASCHNIKOW, AUSTRIA, VA TECH ELIN EBG ELEKTRONIK GMBH & Co**  
**ALEKSANDR KIRYLENKO, UKRAINE, INSTITUTE OF ELECTRODYNAMICS OF THE UKRAINIAN ACADEMY OF SCIENCE**  
**MARIUS KLYTTA, GERMANY, GIESSEN-FRIEDBERG UNIVERSITY OF APPLIED SCIENCE**  
**JOHANN KOLAR, SWITZERLAND, SWISS FEDERAL INSTITUTE OF TECHNOLOGY ZURICH**  
**JUHAN LAUGIS, ESTONIA, TALLINN UNIVERSITY OF TECHNOLOGY**  
**VIDMANTAS MACERAUSKAS, LITHUANIA, KAUNAS UNIVERSITY OF TECHNOLOGY**  
**ANTONIO MORENO MUNOZ, SPAIN, UNIVERSITY OF CÓRDOBA**  
**LEONIDS RIBICKIS, LATVIA, RIGA TECHNICAL UNIVERSITY**  
**DETLEF SCHULZ, GERMANY, UNIVERSITY OF THE ARMED FORCES HAMBURG**  
**PETRO STACHIV, UKRAINE, NATIONAL UNIVERSITY "LVIV POLYTECHNICA"**  
**PAOLO TENTI, ITALY, UNIVERSITY OF PADOVA**  
**HELMUT WEISS, AUSTRIA, UNIVERSITY OF LOEBEN**  
**QING-CHANG ZHONG, UNITED KINGDOM, UNIVERSITY OF LIVERPOOL**  
**VALERY ZHUIKOV, UKRAINE, NATIONAL TECHNICAL UNIVERSITY OF UKRAINE "KYIV POLYTECHNIC INSTITUTE"**  
**AHMED F. ZOBAA, EGYPT, CAIRO UNIVERSITY**

## **NATIONAL ADVISORY BOARD**

**GRZEGORZ BENYSEK, POLAND, UNIVERSITY OF ZIELONA GÓRA**  
**ELŻBIETA BOGALECKA, POLAND, GDANSK UNIVERSITY OF TECHNOLOGY**  
**PIOTR CHRZAN, POLAND, GDAŃSK UNIVERSITY OF TECHNOLOGY**  
**TADEUSZ CITKO, POLAND, BIAŁYSTOK UNIVERSITY OF TECHNOLOGY**  
**ANTONI DMOWSKI, POLAND, WARSAW UNIVERSITY OF TECHNOLOGY**  
**ZBIGNIEW FEDYCZAK, POLAND, UNIVERSITY OF ZIELONA GÓRA**  
**LESZEK FRĄCKOWIAK, POLAND, POZNAŃ UNIVERSITY OF TECHNOLOGY**  
**ZBIGNIEW HANZELKA, POLAND, AGH UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**MARIAN P. KAŻMIERKOWSKI, POLAND, IEEE-POLAND, WARSAW UNIVERSITY OF TECHNOLOGY**  
**WŁODZIMIERZ KOCZARA, POLAND, WARSAW UNIVERSITY OF TECHNOLOGY**  
**ADAM KEMPSKI, POLAND, UNIVERSITY OF ZIELONA GÓRA**  
**ZBIGNIEW KRZEMIŃSKI, POLAND, GDANSK UNIVERSITY OF TECHNOLOGY**  
**TERESA ORLOWSKA-KOWALSKA, POLAND, WROCLAW UNIVERSITY OF TECHNOLOGY**  
**MIECZYŚLAW RONKOWSKI, POLAND, GDANSK UNIVERSITY OF TECHNOLOGY**  
**ANDRZEJ SIKORSKI, POLAND, BIAŁYSTOK UNIVERSITY OF TECHNOLOGY**  
**HENRYK SUPRONOWICZ, POLAND, WARSAW UNIVERSITY OF TECHNOLOGY**

## **LOCAL ORGANIZING COMMITTEE**

**DANIEL WOJCIECHOWSKI, POLAND, GDYNIA MARITIME UNIVERSITY**  
**MAREK ADAMOWICZ, POLAND, GDYNIA MARITIME UNIVERSITY**

## **ABOUT 2007 COMPATIBILITY IN POWER ELECTRONICS CONFERENCE**

The idea of the Compatibility in Power Electronics (CPE) Conference is to offer discussion forum for the power electronics specialists, especially from the Middle and West Europe. The conference is the result of direct international cooperation. The name of the Conference in the first two editions was Power Electronics Devices Compatibility (PEDC), which has been changed to Compatibility in Power Electronics as a result of proposal of the Science Committee. The Conference CPE 2007 has the technical co-sponsorship of the Institute of Electrical and Electronics Engineers. Subject area of the conference covers widely understood compatibility in power electronics and is divided into the following topics:

- Power Quality, Alternative Energy and Distributed Systems
- Power Electronics Controllers for Power Systems (CT-2)
- Electro-Mechanical Energy Conversion (CT-3)
- EMI, ESI, Diagnostic and Losses Problems (CT-4)
- Special Power Electronics Systems and Applications (CT-5)

The Conference Proceedings are published in electronic format on CD-ROM without limitation of number of pages. For the CPE 2007 Conference the 88 papers were accepted based on two reviews of the full typescript versions. The best presented papers are to be published at "Electrical Power Quality and Utilization" Journal and recommended by Program Committee for publication at others Journals.

The organizing institution of this fifth edition of the Conference is Gdynia Maritime University in Poland. The Conference place is the hotel "Manor Prawdzic" in Gdansk-Jelitkowo, situated near The Old Town of Gdańsk, the city with over millennium history. The organizers believe in continuous growth of popularity of the Conference and approval from the Power Electronics specialists.

**The CPE 2005 Conference Organizers**

# CONFERENCE PROGRAM

## TOPICS

TOPIC 1. POWER QUALITY, ALTERNATIVE ENERGY AND DISTRIBUTED SYSTEMS

TOPIC 2. POWER ELECTRONICS CONTROLLERS FOR POWER SYSTEMS

TOPIC 3. ELECTRO-MECHANICAL ENERGY CONVERSION

TOPIC 4. EMI, ESI, DIAGNOSTIC AND LOSSES PROBLEMS

TOPIC 5. SPECIAL POWER ELECTRONICS SYSTEMS AND APPLICATIONS

## PROGRAM AT GLANCE

TUESDAY 29 MAY 2007		WEDNESDAY 30 MAY 2007		THURSDAY 31 MAY 2007		FRIDAY 1 JUNE 2007			
8:00	REGISTRATION DESK OPEN	09:00	TOPICS	09:00	TOPICS	09:00	TOPICS		
		11:00	1A, 3A	11:00	2B,3B	11:00	4c, 5c		
		11:30	TOPICS	11:30	TOPICS	11:30	TOPIC		
		13:30	2A,4A	13:30	4B,5B	13:30	1c		
		13:30	LUNCH	13:30	LUNCH	13:30	CLOSING		
		14:30		14:30		14:00	CEREMONY		
15:00	OPENING	14:30	AFTER LUNCH	14:30	AFTER LUNCH	15:00	REGISTRATION		
15:30	CEREMONY	16:00	BREAK	16:00	BREAK			DESK CLOSED	
15:45 18:00	COMPANIES PRESENTATION	16:00	TOPIC	16:00	TOPICS				
		18:00	1B,5A					18:00	2c, 3c
		18:00	SUPPER						
18:45									
19:00	WELCOME PARTY (SAILING SHIP "DAR POMORZA)	19:30	BAROQUE ORGAN CONCERT (OLIWA CATHE- DRAL)	19:00	BANQUET (HOTEL „MANOR PRAWDZIC")				

**OPENING CEREMONY – (15:00 HUNTERS HALL)**

Conference Chairmen: Prof. R. Strzelecki, Prof. A. Arias, Prof. M. Hartman

Rector Gdynia Maritime University  
Prof. Józef Lisowski  
Information about Gdynia Maritime University

**COMPANIES PRESENTATION – (15:45-18:00 HUNTERS HALL)**

- 1 Information about the Province of Pomerania
- 2 C&T Elmech Ltd, Pruszcz Gdański: <http://www.elmech.pl>  
"C&T elmech's Power Electronics"
- 3 MIRUS International Inc., Toronto, Canada: <http://www.mirusinternational.com/>
- 4 APS Energia, Zielonka k/Warszawy: <http://www.apsenergia.pl>  
"APS Energia AC and DC Solutions in Emergency Power Supply Field for Industrial Applications" J. Lechecki
- 5 MMB Drives Ltd, Gdańsk: <http://www.mmb-drives.com.pl>
- 6 ASTAT Ltd, Poznań: <http://www.astat.com.pl/>  
"Thermal management in power electronics - overview of new thermally conductive materials"  
M. Jurga
- 7 ITC Electronics Poland, Toruń: [http://www.itc-electronics.com/poland\\_eng.html](http://www.itc-electronics.com/poland_eng.html)
- 8 Gdańsk University of Technology: <http://www.pg.gda.pl>  
"Information about Gdańsk University of Technology, Faculty of Electrical and Control Engineering" – P.J. Chrzan

**TOPIC 1A – (09:00-11:00 KNIGHTS HALL): PROF. A. ARIAS**

1	Quasi-Instantaneous Generation of Reference Signals for Hybrid Compensator Control (1.1) L. Czarnecki	23
2	Why the new physical interpretations of the reactive power on terms of the CPC power theory is not true (1.2) M.T. Hartman	24
3	Electric Power Quality in Isolated Systems – Requirements and Examples of Analysis (1.4) D. Czarkowski, J. Mindykowski, M. Olesz, E. Szmit, M. Szweda	25
4	Automated Meter Reading Systems in Outage Management (1.5) A. Moreno-Muñoz, D. Oterino, A. Carmona, J. J Gonzales de la Rosa	25
5	Comparison of National Standards Requirements Established to Basic Electrical Energy Quality Indices (1.7) A. Smirnov, N. Borisenkova	26
6	An Estimation of Energy Interchange Process in Circuits with Nonlinear, Time-varying and Parametric Elements (1.3) S. Denysyuk, K. Minazova, M. Tymenko	24

**TOPIC 3A – (09:00-11:00 HUNTERS HALL): PROF. J. LAUGIS**

1	Design of a High Speed Switched Reluctance Motor for Spindle Drive (3.1) H. Kuß, T. Wichert, B. Szymański	43
2	Switched Reluctance Motor and its Mathematical Model (3.2) V. Tkachuk, M. Klytta	43
3	Magnetic Design of a Switched Reluctance Motor for Electric Power Tools (3.3) J. Wolff, W.R. Novender	44
4	Characteristics of the Synchronous Motors Determination by Results of Mathematical Simulation of a Magnetic Field (3.5) A. Podgornovs, A. Zviedris	45
5	Linear Motors in Mechatronic Systems (3.6) R. Rinkeviciene, A. Smilgevicius	46
6	Steady State Analysis of Twin Stator Doubly Fed Induction Generator (3.15) M. Adamowicz, R. Strzelecki, D. Wojciechowski	51

**COFFEE BREAK (11:00-11:30 HOTEL LOUNGE)**

**TOPIC 2A – (11:30-13:30 KNIGHTS HALL): PROF. D. SCHULTZ**

1	Power Electronic Converters in DC Microgrid (2.1) P. Biczal	33
2	Inverter Control for Three-Phase Grid Connected Fuel Cell Power System (2.2) M. Gaiceanu	33
3	Electronics and Power Electronics Devices in Dissipated Power Systems with Fuel Cells (2.3) A. Dmowski, T. Dzik	34
4	Interconnection of the Customer-Side Resources Using Single Phase VAPF (2.4) R. Strzelecki, G. Benysek, M. Jarnut	35
5	Control of Mains-Connected Inverters Supplying Active Power from Decentralised Energy Generation and Reactive Power for Power Quality Improvement (2.5) I. Merfert, A. Lindemann	35
6	Hybrid Power Line Conditioner Based on Two Parallel Converters Topology (2.6) M.I. Milanés Montenero, E. Romero Cadaval, F. Barrero González	36

**TOPIC 4A – (11:30-13:30 HUNTERS HALL): PROF. M. KLYTTA**

1	Method of Selection of dv/dt for EMI Current Ringing Attenuation (4.1) A. Kempski, R. Smoleński	53
2	Controlling Heat, Vibration and EMI in an Integral Motor (4.2) M. Ektesabi, H. Felic	53
3	Bus Bar Construction Considerations for Matrix Converters in Integrated AC Drives (4.3) A. Sokolovs, I. Galkins	54
4	Electromagnetic Field Measurements of Bow Thruster Drive with Frequency Converter (4.4) B. Pałczyńska, L. Spiralski, J. Wyszowski	54
5	High-Frequency Leakage Currents in Medium Power Adjustable Speed Drives Supplied from IT Mains (4.5) J. Szymański	55
6	Wiener Filtering Applied to Conducted EMI Estimation in Soft Switching Inverter (4.6) P. Musznicki, P.J. Chrzan and S.Mandrek	55

**LUNCH (13:30-14:30 HOTEL “MANOR PRAWDZIC” RESTAURANT)**

**TOPIC 1B – (16:00-18:00 KNIGHTS HALL): PROF. A. MORENO-MUÑOZ**

1	Experimental Investigation of Dependence of Power Quality from the Operation Mode of the Ultra High-Power Electric Arc Furnace (1.8) G.P. Kornilov, A.A. Nikolaev, T.R. Khramshin, A.N. Shemetov	27
2	Wind Turbine Harmonics caused by Unbalanced Grid Currents (1.10) K.D. Dettmann, S. Schostan, D. Schultz	28
3	Design and Testing of a Low Cost Peak-Power Tracking Controller for a Fixed Blade 1.2 kVA Wind Turbine (1.11) H. Gitano, S. Taib, M. Khdeir	29
4	A Simple Configuration and Control System for Grid Connected Synchronous Generators (1.12) L. Piegari, R. Rizo, P. Tricoli	29
5	Power Injection Control System and Experimental Model based on Manufacturer Characteristic Curves for Photovoltaic Generation System (1.13) A. Rico, E. Romero Cadaval, M.I. Milanés Montenero	30
6	Implementation of Maximum Power Point Tracking Control in Single Phase Utility Interconnected Photovoltaic Inverter (1.14) M. Boztepe, M. Çolak	31

**TOPIC 5A – (16:00-18:00 HUNTERS HALL): PROF. Z. FEDYCZAK**

1	Basic Properties Comparative Study of Matrix-Reactance Frequency Converter Based on Buck-Bost Topology with Venturini Control Strategies (5.6) P. Szcześniak	65
2	A New Software Implementation of Three-phase to Three-phase Matrix Converter Using PWM Modulation with Passive Load Condition (5.7) A.K. Jha, G.P. Yepuri, G.V. Krishna	65
3	Conditioning and Saving Ship Electrical Energy at Electromechanical Transient Aboard (5.8) V. Chrisanov	66
4	On-Board Power Supply Systems with High-Frequency On-Board Net for Space Vehicles (5.9) V. Yaskiv, P. Stachiv, M. Dyvak, O. Gurnik	66
5	The Using Permaloy Core for the Switching of the Plasma Gun Electrical Circuit with a Capacitive Storage (5.10) V.I. Fedun, O.N. Bulanchuk, Yu. E. Kolyada	67
6	Analysis an Simulation of the Unity Power Factor for AC Applicationn (5.11) C.C. Cerbulescu, D. Cerbulescu	67

**SUPPER (18:00-18:45 HOTEL RESTAURANT)****BAROQUE ORGAN CONCERT (19:30 OLIWA CATHEDRAL)****(BUS DEPARTURE – 19:00 FROM BEFORE HOTEL „MANOR PRAWDZIC”)**

**TOPIC 2B – (09:00-11:00 KNIGHTS HALL): PROF. A. DMOWSKI**

- |   |   |    |
|---|---|----|
| 1 | Hybrid UPS Based on Supercapacitor Energy Storage and Adjustable Speed Generator (2.8)<br>Z. Chłodnicki, W. Koczara, N. Al-Khayat                             | 37 |
| 2 | Operation of an Active Power Filter with Line Voltage SVM under non-ideal Conditions (2.9)<br>H.Zhang, A.M. Massoud, S.J.Finney, B.W. Williams, J.E. Fletcher | 37 |
| 3 | New Structure for Three-Phase, Four-Wires Shunt Active Filter (2.10)<br>M. Lamich, J. Balcells, D. Gonzáles, J. Gago  | 38 |
| 4 | Three Topologies and a Control Strategy for Harmonics Suppression in Single-Phase Systems Using a Shunt Active Power Filter (2.11)<br>M. Pakdel               | 39 |
| 5 | An Adaptive Hysteresis Band Current Controlled Shunt Active Power Filter (2.12)<br>A.N. Jog, N.G. Apte  | 39 |
| 6 | A Special Multi-Pulse Converter with Small Active Power Filter (2.16)<br>P. Mysiak, R. Strzelecki, D. Wojciechowski   | 41 |

**TOPIC 3B – (09:00-11:00 HUNTERS HALL): PROF. W. KOCZARA**

- |   |   |    |
|---|---|----|
| 1 | Discrete-Time Model of Voltage Source Inverter and Its Application (3.7)<br>S. Starostin, O. Perederiy  | 47 |
| 2 | Speed Control System Based on Estimator of Electromechanical Subsystem (3.8)<br>A. Andrzejewski   | 47 |
| 3 | Position Estimation with Voltage Pulse Test Signals for Permanent Magnet Synchronous Machines using Matrix Converters (3.9)<br>A. Arias, D. Saltiveri, C. Caruana, J. Pou, J. Gago, D. Gonzales | 48 |
| 4 | Artificial Intelligence Sensorless Control of Induction Motor (3.10)<br>H. Abu-Rub, A.K. Awwad, N. Motan  | 48 |
| 5 | Inverter Faults in Variable Voltage Variable Frequency Induction Motor Drive (3.11)<br>G. Mahmoud, M.I Masoud, I.F. El-Arabawy  | 49 |
| 6 | A Model Based Adaptive Predictive Algorithm Used for Motion Control (3.12)<br>R. Bălan, V. Mătieș, S.-D. Stan   | 50 |

**COFFEE BREAK (11:00-11:30 HOTEL LOUNGE)**

**TOPIC 4B – (11:30-13:30 KNIGHTS HALL): PROF. A. KEMPSKI**

1	A Case Study of Design Improvement Based on EMI Simulation (4.7) J. Ch. Le Bunetel, D. González, A. Arias, J. Gago	56
2	EMC Considerations on PCB Design for a High-Power Converter Control System (4.8) I. Roasto, D. Vinnikov, M. Klytta	56
3	Conduction Losses in DC/DC-Converters as Buck-Boost/Boost-Buck Synchronous Rectifier Types (4.9) R. Jaschke	57
4	AC Motor Windings Circuit Model for Common Mode EMI Currents Analysis (4.10) J. Łuszcz , I. Moson	57
5	Current Stabilization for Improving Electromagnetic Compatibility of Highly Varying Loads by Use of Saturable Reactor (4.18) V. Bolgov	61
6	EMC Education and Related Problems at Tallinn Technical University (4.11) J. Järvik, K. Janson, V. Bologov, P. Kroos	58

**TOPIC 5B – (11:30-13:30 HUNTERS HALL): PROF. E. ROMERO CADAVAL**

1	Hybrid Modulation Technique for the Neutral-Point-Clamped Converter (5.1) J. Zaragoza, J. Pou, S. Ceballos, J.L. Villatage, I. Gabiola	62
2	New Three-Level Voltage Source Inverter with Different 25 Space Voltage Vectors (5.2) M.H. Saied, M.Z. Mostafa, T.M. Abdel-Moneim, H.A. Yousef	63
3	Quasi Two-level Operation of a Five-level Inverter (5.3) G.P. Adam, S.J. Finney, B.W. Williams	63
4	Elimination of Subtractive and Quasi-Redundant Levels in Multi-Cell Converters (5.4) T. Christ, B. Orlik	64
5	Analysis an Simulation of the Three-Phase Controlled Inverter using Space Phasors and Spice Model (5.5) C.C. Cerbulescu, D. Cerbulescu	64
6	Development of 50-kW Isolated DC/DC Converter with High-Voltage IGBTs (5.13) T. Jalakas, D. Vinnikov, J. Laugis	68

**LUNCH (13:30-14:30 HOTEL “MANOR PRAWDZIC” RESTAURANT)**

**TOPIC 2C – (16:00-18:00 KNIGHTS HALL): PROF. Z. KRZEMIŃSKI**

1	Passive Filter Design for Three-Phase Inverter Interfacing in Distributed Generation (2.7) K.H. Ahmed, S.J. Finney, B.W. Williams	36
2	Fuzzy Sliding Mode Control of DSTATCOM (2.13) M. Uma, G. Uma	40
3	Modeling and Analysis of Three-Phase Hybrid Transformer Using Matrix Converter (2.14) Z. Fedyczak, J. Kaniewski	40
4	New Theoretical Approach to Input Current Shaping in AC-DC Power Converters (2.15) K. Janson, V. Bologov, T. Vinnal, J. Järvik	40
5	The Diode Rectifier with Current Modulator in DC Output Circuit (2.17) M. Krystkowiak	42
6	An Improved Method of Passive Input Current Waveshaping for Single-Phase Rectifier (2.18) H.A. Kazem	42

**TOPIC 3C – (16:00-18:00 HUNTERS HALL): PROF. V. CHRISANOV**

1	Multipole Synchronous Generators with Permanent Magnets and Tooth Windings for Low-power Wind Power Plants (3.4) J. Dashkova-Golovkina, N. Levin, V. Pugachov	44
2	Multiphase Induction Motors for Variable Speed Drives (3.13) D. Glukhov, O. Muravleva	50
3	The Effect of Subharmonics on the Flux in an Induction Cage Machine (3.14) P. Gnaciński, M. Pepliński, M. Szweda	51
4	Speed Control of Space Vector Modulated Inverter Driven Induction Motor with Active Filter (3.16) V. Srinath, P. Srinivas, R. Linga Swamy	51
5	AC Converter Drive System with Cascaded Inverter Compatible with Motor and Utility Grid (3.17) O. Plakhtyna, Z. Gientkowski, R. Żarnowski	52
6	The Educational Process of Automatics in Tallinn Center of Industrial Education (3.18) A. Grinko	52

**BANQUET (19:00 HOTEL “MANOR PRAWDZIC” RESTAURANT)**

**TOPIC 4C – (09:00-11:00 KNIGHTS HALL): PROF. M. HARTMAN**

1	Method of PLC Network Radiation Control (4.13) A. Rozvadovskiy	59
2	Dual Equivalent of Magnetic Circuits with Hysteresis (4.14) S. Güngör	59
3	Fault Signature Production for Rolling Element Bearings in Induction Motor (4.15) A. A. Elfeky, M. I. Masoud, I. F. El-Arabawy	60
4	Stator Inter-turn Faults Detection and Localization using Stator Currents and Concordia Patterns – Neural Network Applications (4.16) I.F. El-Arabawy, M.I. Masoud, A. El-Kader Mokhtari	60
5	Diagnostic of Converter State Using Wavelet Transformation (4.17) V. Zhuikov, T. Tereschenko, J. Petergerya, T. Khyzhnyak	61
6	Teaching on Competence-based Approach on Discipline “Electromagnetic Compatibility on Power Electronics Converters (4.12) G. S. Zinoviev	58

**TOPIC 5C – (09:00-11:00 HUNTERS HALL): PROF. P. CHRZAN**

1	Sliding Mode Controller Applied to PWM DC-DC Converters Based on an Averaged Model (5.14) C. Jaen, J. Pou, R. Pindado, V. Sala, J. Zaragoza	69
2	DSP Controlled Generator of Spatial Magnetic Field for Magnetotherapy (5.15) M. Gwózdź, R. Porada	69
3	Buck-Boost Inverters with Symmetrical Passive Four-terminal Networks (5.12) R. Strzelecki, M. Adamowicz, D. Wojciechowski	68
4	Analysis of Passive and Active Filters Using Modified Nodal Approach (5.16) E. Kelebekler, A. B. Yildiz	70

**COFFEE BREAK (11:00-11:30 HOTEL LOUNGE)**

**TOPIC 1C – (11:30-13:30 KNIGHTS HALL): PROF. R. STRZELECKI**

1	Analysis of the Stability an Electro-Energetic Grid with Great Load Converter Power Supply System (1.9) Z. Szymański	27
2	Neural Network and DSM Techniques Applied to a Industrial Consumer. A Case Study (1.15) P. Ravi Babu, V.P. Sree divya, P. Srikanth, D. Dheeraj singh, K. Varun	31
3	Fuzzy Logic and Differential Tariff Technique Applied to Water Heater for Peak Reductions (1.16) P. Ravi Babu, B. Vinay, K. Jhansi, M. Artthur	31
4	Application of DSM Techniques and Fuzzy Logic Applied to Milk Industry. A Case Study (1.17) P. Ravi Babu, S. Narasimha Rao, T. Murali Krishna K. Praveen Reddy	32
5	Lighting Performances for AC 500 kV Transmission Lines with Quadruple-Circuit on Single Tower (1.18) Y.Chai, W.Zhou, L. Xue, X. Liu, H. Su	32
6	Power Quality Monitoring as a Method of Black-out Protection (1.6) G. Grzeczka	26

**CLOSING CEREMONY (13:30-14:00 KNIGHTS HALL)**

Conference Chairmen: Prof. R. Strzelecki, Prof. A. Arias, Prof. M. Hartman