On 16 December 2005, a young researcher Dr Ion Exteberria Otadui from IKERLAN Technological Center, Mondragon (Spain) has presented a four-hour Seminar on “Power Quality Improvement Using Power Electronics Devices” at our Institute. This was the last of the 42 events organized by the European Centre of Excellence PELINCEC granted by the European Commission (Contract No: ENK6-CT-2002-80669) and co-financed by the Polish Scientific Research Committee (KBN 143/E-365/SPB/5.PR UE/DZ 168/2003-2005) in the period of 2003-2005. During those three years we have organized 11 seminars and workshops (with 110 papers presented), 23 monothematic tutorials and one International Conference PELINCEC 2005 with 180 papers presented by participants from 26 countries.

Over 50 well-known professors and experts on Power Electronics and Intelligent Control visited our Institute giving lectures and tutorials for our MSc and PhD – students as well as for our research staff. Furthermore, during this period 48 members of the Institute of Control and Industrial Electronics revisited their colleagues in EU countries. As a result of those exchanges and scientific discussions we have been granted with: 2 Maria Curie Fellowships for PhD-study (3 years), 3 projects in VI Framework Program and 1 project in the Leonardo da Vinci Program. Other projects are in preparation.

There is no doubt that this common effort and activity have considerably strengthened the international position and visibility of our Institute and have stabilized our research groups.

However, not only the results measured in numbers are important. More important are all the new contacts and friendships that we have built up with our partners from EU and NIS countries during the PELINCEC Program implementation. Therefore, I am sure that in spite of the closing of the PELINCEC project, our cooperation and friendship will be continued, because we have a common passion: Power Electronics and Intelligent Control!

Finally, please allow me to express my deep thanks to the leaders of the PELINCEC Working Groups: Prof. Roman Barlik, Dr. Mieczyslaw Nowak, Prof. Bartlomiej Beliczyński, Prof. Andrzej Dzieliński, Prof. Włodzimerk Koczara, Prof. Lech Grzesiak – Co Director and Dr Marcin Iwanowski – Scientific Secretary, for their enthusiasm and effective daily cooperation during the three-year Program implementation.

I would like to thank our MSc and PhD students for their systematic participation in all the PELINCEC events.

Also, my thanks are directed to our administrative staff members Ms Grażyna Rabij, Ms Danuta Skrobek and Ms Katarzyna M. Brzozowska for their continuous help and patience!

Marian P. Kaźmierkowski

Table 1: PELINCEC Activities in Numbers

<table>
<thead>
<tr>
<th>Event</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conferences (number of papers)</td>
<td>-</td>
<td>-</td>
<td>1 (180)</td>
<td>1 (180)</td>
</tr>
<tr>
<td>Seminars and Workshops (number of papers)</td>
<td>3 (32)</td>
<td>7 (72)</td>
<td>1 (6)</td>
<td>11 (110)</td>
</tr>
<tr>
<td>Tutorials</td>
<td>3</td>
<td>8</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>Participants</td>
<td>175</td>
<td>622</td>
<td>430</td>
<td>1227</td>
</tr>
<tr>
<td>Visitors at ICIE</td>
<td>12</td>
<td>18</td>
<td>23</td>
<td>53</td>
</tr>
<tr>
<td>Visits to EU</td>
<td>11</td>
<td>18</td>
<td>19</td>
<td>48</td>
</tr>
<tr>
<td>Advisory Board (Assessment) Meetings</td>
<td>1</td>
<td>1(1)</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Journal Papers</td>
<td>27</td>
<td>38</td>
<td>44</td>
<td>109</td>
</tr>
<tr>
<td>Conference papers (International/Domestic)</td>
<td>60/30</td>
<td>55/27</td>
<td>59/31</td>
<td>174/88</td>
</tr>
<tr>
<td>Finished Theses (MSc,PhD)</td>
<td>88/2</td>
<td>90/6</td>
<td>87/7</td>
<td>265/15</td>
</tr>
<tr>
<td>Published Special Issues and Special Sections in Journals</td>
<td>-</td>
<td>2</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>
Table 2: PELINCEC Tutorials

<table>
<thead>
<tr>
<th>Topic</th>
<th>Speaker</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine learning with generalization capability as a regularized inverse problem</td>
<td>Vera Kurkova</td>
<td>16 Nov. 2005</td>
</tr>
<tr>
<td>Control of single-phase and multilevel grid connected inverters</td>
<td>Marco Liserre</td>
<td>2 Dec. 2005</td>
</tr>
<tr>
<td>Modelling and simulation. Methodological foundations and applications</td>
<td>Yuri Merkuriev</td>
<td>21-22 Nov. 2005</td>
</tr>
<tr>
<td>New space vector modulation techniques for inverters with multilevel topologies</td>
<td>Leopoldo García Franchuelo</td>
<td>18 Nov. 2005</td>
</tr>
<tr>
<td>Programmable Devices and its Application In the Measurement and Control Systems</td>
<td>Marek Zieliński</td>
<td>19 Oct. 2005</td>
</tr>
<tr>
<td>Multilevel Converters</td>
<td>Jose Rodriguez</td>
<td>19 Oct. 2005</td>
</tr>
<tr>
<td>Matrix Converters</td>
<td>Domenico Casadei</td>
<td>17 Oct. 2005</td>
</tr>
<tr>
<td>Wind Energy</td>
<td>Frede Blaabjerg</td>
<td>16 Oct. 2005</td>
</tr>
<tr>
<td>Direct Torque Control of Induction Motors</td>
<td>Giovanni Serra</td>
<td>16 Oct. 2005</td>
</tr>
<tr>
<td>Introduction to Wavelet Transform and Its Applications</td>
<td>Jan T. Bialasiewicz</td>
<td>24 Oct. 2005</td>
</tr>
<tr>
<td>Radio frequency unintended emission from arrangements of power electronic</td>
<td>Jan Sroka</td>
<td>28 Oct. 2004</td>
</tr>
<tr>
<td>Power Electronics for Electric and Hybrid Vehicles and Fuel Cells</td>
<td>Kaushik Rajashekara</td>
<td>28-29 June 2004</td>
</tr>
<tr>
<td>Review of PWM Techniques for Three-Phase Voltage Sources Converters</td>
<td>Graham Holmes</td>
<td>16 June 2004</td>
</tr>
<tr>
<td>Embedded System Design – A Systems Engineering Approach</td>
<td>Gerhard Hancke</td>
<td>15 June 2004</td>
</tr>
<tr>
<td>Ecopower - Development of a Decentralized Combined Power Generation System</td>
<td>Andrea Vezzini</td>
<td>7 June, 2004</td>
</tr>
<tr>
<td>Introduction to VHDL Design of Digital Electronic Circuits with Applications to Power Electronic Systems Modeling and FPGA based Controller</td>
<td>Marcian Cristea</td>
<td>14 May 2004</td>
</tr>
<tr>
<td>Wind Powered Energy Sources - Simulation and Application</td>
<td>Braima Dakyo</td>
<td>25 May 2004</td>
</tr>
<tr>
<td>Sensorless Control of PWM-Inverter-Fed Induction Motor Drives</td>
<td>Joachim Holtz</td>
<td>12 May 2004</td>
</tr>
<tr>
<td>Project Oriented Teaching in Power Electronics and Drives</td>
<td>Frede Blaabjerg</td>
<td>18 Dec. 2003</td>
</tr>
<tr>
<td>Control of variable speed electric generators: present status and perspective</td>
<td>Ion Boldea</td>
<td>15 Dec. 2003</td>
</tr>
</tbody>
</table>

Table 3: PELINCEC Seminars

<table>
<thead>
<tr>
<th>Topic</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrochemical Batteries And Other Methods Of Energy Storage Used In Uninterruptible Supply Systems And Distributed Generation</td>
<td>7 Dec. 2005</td>
</tr>
<tr>
<td>Harmonic Mitigation in Grid Using Active Filters</td>
<td>10 Dec. 2004</td>
</tr>
<tr>
<td>Power Control Using FACTS</td>
<td>9 Dec. 2004</td>
</tr>
<tr>
<td>Present and Future of Electrical Power Production in Poland</td>
<td>13 May 2004</td>
</tr>
<tr>
<td>Harmonic Distortions in Power Systems</td>
<td>15 Jan. 2004</td>
</tr>
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</table>

Table 4: PELINCEC Workshops

<table>
<thead>
<tr>
<th>Topic</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image Processing in Industrial Information Technology - Methods and Applications</td>
<td>14-15 Oct. 2004</td>
</tr>
<tr>
<td>Impact of Artificial Intelligence Methods and Models on Engineering Practice</td>
<td>11-12 Dec. 2003</td>
</tr>
<tr>
<td>New High Voltage Semiconductor Devices and its Application for Medium Voltage Converters</td>
<td>26 Nov. 2003</td>
</tr>
<tr>
<td>PELINCEC Workshop on Modern Control of Power Converters for Wind Energy and Drives</td>
<td>22 Oct. 2003</td>
</tr>
</tbody>
</table>
Winter 2005                PELINCEC Newsletter, No. 10                3


PELINCEC Executive Committee

Director: Prof. Marian P. Kaźmierkowski (mpk@isep.pw.edu.pl)
Co-Director: Prof. Lech Grzesiak (lmg@isep.pw.edu.pl)
Scientific Secretary: Dr Marcin Iwanowski (iwanowski@isep.pw.edu.pl)

Chairs of the PELINCEC Working Groups:

- WG1 — Power quality: Prof. Roman Barlik (barlik@isep.pw.edu.pl)
- WG2 — New topology of power electronic converters: Dr Mieczysław Nowak (mnowak@isep.pw.edu.pl)
- WG3 — Intelligent control and signal processing: Prof. Bartłomiej Beliczyński (bartek@isep.pw.edu.pl)
- WG4 — Industrial information technology: Prof. Andrzej Dzielinski (adziel@isep.pw.edu.pl)
- WG5 — Renewable energy: Prof. Włodzimierz Koczara (koczara@isep.pw.edu.pl)
- WG6 — Hybrid energy systems: Prof. Lech Grzesiak (lmg@isep.pw.edu.pl)

Electrochemical Batteries And Other Methods Of Energy Storage Used In Uninterruptible Supply Systems And Distributed Generation

PELINCEC Seminar, 7 December 2005

Józef Paska

- Reuvre of research in electrochemical batteries on Warsaw University of Technology by Dr Maciej Siekierski, Prof. Władysław Wieczorek.

This seminar was mainly directed to over 30 visitors from the Polish Power Industry and to companies interested in the problems of application of electrochemical batteries and other new developed storage systems in modern electrical energy systems. The following papers and presentation were given:

- General review of modern energy storage methods useful for distributed energy generation and uninterruptible supply by Prof. Dirk U. Sauer RWSTH Aachen/ Germany
- Battery diagnostic problems and battery recovery methods by Prof. Dirk U. Sauer RWSTH Aachen/ Germany
- Rules for lead-acid battery exploitations and capacity measurement in industry plants by Ing. Jacek Świątek
- Methods of energy storage in distributed energy generation - UE Project presentation by Dr. Piotr Biczel, Prof.

The kernel of the seminar were of course the two lectures given by Prof. Dirk U. Sauer, who is deeply engaged in European and World projects connected with distributed generation and autonomous supply. During his first lecture, Prof. Sauer done a detailed review of energy storage methods supported with impressive examples. The second lecture showed possibilities of better exploitation of classic lead batteries. Dr. Siekierski’s presentation was also very interesting. It showed a step by step development process of a new type of batteries. Over 50 persons (mainly PhD students and University-internal participants) took part in the seminar.

PELINCEC 2005: Selected Papers on Advanced Control of Electrical Drives and Hybrid Energy Systems (Prof. L.M. Grzesiak)
Przegląd Elektrotechniczny No 2, 2006

PELINCEC 2005: Control in Power Electronics and Drives* (Prof. M.P. Kaźmierkowski)
Bulletin of Polish Academy of Science No 2006

PELINCEC 2005: Selected Papers on “Power Quality” (Prof. R. Barlik)
Electrical Power Quality and Utilization

Table 5: Published Special Issues and Special Sections in Journals

<table>
<thead>
<tr>
<th>Title</th>
<th>Journal</th>
<th>No of papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>PELINCEC Workshop on „Modern Control of Power Converters for Wind Energy and Drives” (Prof. M.P. Kaźmierkowski)</td>
<td>Przegląd Elektrotechniczny No 4, 2004</td>
<td>7</td>
</tr>
<tr>
<td>WG3 PELINCEC Workshop: “Impact of Artificial Intelligence Methods and Models on Engineering Practice” (Prof. B. Beliczyński)</td>
<td>Przegląd Elektrotechniczny No 4, 2004</td>
<td>22</td>
</tr>
<tr>
<td>PELINCEC International Workshop on “Image Processing in Industrial Information Technology – Methods and Applications” (Prof. A. Dzielinski)</td>
<td>Przegląd Elektrotechniczny No 3, 2005</td>
<td>19</td>
</tr>
<tr>
<td>PELINCEC Workshop “Bridges Though Time: Intelligent Control Signal Processing and Real-Time Process Control” (Prof. B. Beliczyński)</td>
<td>Przegląd Elektrotechniczny No 1, 2006</td>
<td>11</td>
</tr>
<tr>
<td>PELINCEC 2005: Selected Papers on Advanced Control of Electrical Drives and Hybrid Energy Systems (Prof. L.M. Grzesiak)</td>
<td>Przegląd Elektrotechniczny No 2, 2006</td>
<td>21</td>
</tr>
<tr>
<td>PELINCEC 2005: Control in Power Electronics and Drives* (Prof. M.P. Kaźmierkowski)</td>
<td>Bulletin of Polish Academy of Science No 2006</td>
<td>12</td>
</tr>
<tr>
<td>PELINCEC 2005: Selected Papers on “Power Quality” (Prof. R. Barlik)</td>
<td>Electrical Power Quality and Utilization</td>
<td>10</td>
</tr>
</tbody>
</table>
In the late November 2005 WG4 of PELINCEC Centre of Excellence had a great pleasure of hosting a very interesting scientific event. This was a workshop on Discrete-events Modelling and Simulation. The scientific contribution to the workshop came from a world-class specialist in the area of modeling and simulation: Prof. Yuri Merkuryev from Riga Technical University, Riga, Latvia. Professor Merkuryev was supported in his efforts by Ms Jelena Pecherska also from Riga Technical University.

The objects of interest of simulation studies are complex systems of various natures: manufacturing systems, healthcare systems, service systems, transport systems, inventory systems, logistics systems, communication systems, data processing systems, etc. Most of such systems are rather complicated, so decisions about possible investments or changes should be informed decisions. Decision making in these areas can be effectively supported by discrete-event simulation. The areas where discrete-event simulation is traditionally most widely used are manufacturing and service systems.

Success of a simulation study is highly dependent on the correct use of the appropriate methodology. The main stages of a simulation study are: development of a conceptual model, development of a simulation model, and experimenting with a simulation model. Each stage has its own hidden dangers, for instance, experimenting with a model of a stochastic system once cannot provide necessary statistical information. The presented workshop was aimed at discussing the methodology of a common discrete-event simulation study.

The workshop was structured as follows. A brief insight into the simulation world, a general structure of a discrete event simulation study, and the main steps of a simulation study were presented on the day one of the event by prof. Y. Merkuryev. A sample spreadsheet-based simulation study of queuing system was presented on the day two by Ms J. Pecherska together with the conclusions outlining the main features of discrete-event spreadsheet-based simulation. The workshop was attended by over thirty people, mainly PhD students of the Institute of Control and Industrial Electronics. Also many of our colleagues, researchers from the Institute took an active part in the event. 

A discussion during the workshop. From left: Prof. Yuri Merkuryev and Dr Jelena Pecherska and Dr Krzysztof Amborski.

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A discussion during the workshop. From left: Prof. Yuri Merkuryev and Dr Jelena Pecherska and Dr Krzysztof Amborski.

During the social part the PELINCEC guests visited the Polish National Opera in Warsaw. From left: Prof. Marian P. Kaźmierkowski, Prof. Leopoldo G. Franquelo, Prof. Yuri Merkuryev and Dr Jelena Pecherska and Dr Krzysztof Amborski.
On Monday 24 October, 2005 Professor Białasiewicz, author of the book entitled “Wavelet and Approximations”, WNT 2000 (in Polish), has presented an introductory course devoted to basic theory and applications of wavelet transform. At the beginning, he explained the main differences between Fourier and wavelet transformation and basic properties of continuous as well as discrete wavelet transformation. In the second part, he discussed the relationship between scale and frequency of wavelet analysis using the Graphical User Interface of the Matlab Toolbox for examples of signal processing. Finally, he presented selected examples of application in image processing (algorithm ‘a trous’, conjugate gradient algorithm, etc.) and scalogram/coscalogram-based process study for diagnosis.

Professor Białasiewicz has also visited research laboratories of our Institute and discussed several PhD projects.

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The Pulse Width Modulation (PWM) is a basic energy processing method commonly used in Power Electronics. Therefore, a good understanding of theory and practice is very important for design of power electronic converters. Especially, for modern multilevel converters the PWM is not an easy task. In his four-hour course Professor Franquelo has presented in a very systematical way a new approach for Space Vector Modulation (SVM) techniques. This original (developed by him) approach is based on rectangular abc coordinate transformation and can be used for balanced and unbalanced three- and four-legs converters. So, this technique has general application nature and has been illustrated in very didactical way by Professor Franquelo. Several algorithms have been discussed in depth.

Professor Franquelo has also visited laboratories of our Institute and discussed PhD projects. As a result of the discussion, one ICIE PhD-student Wojtek Kolomyjski has visited the Laboratory of Power Electronics and Drives at the University of Sevilla, where he tested the new algorithm for three-level converters developed under Professor Franquelo’s supervision. The cooperation on this topic will be continued.
Dr Ion Etxeberria Otadui from IKERLAN Technological Center in Mondragon, Spain, has presented a Seminar on a very timely topic related to power quality. His Tutorial was divided into three parts: General aspects, Scientific/University experiences and Industrial experiences. In the first part he has discussed basic definitions, types of disturbances and how power electronics can be used for power quality improvements. In the second part, he presented developments and results of Dynamic Voltage Restorer (DVR) and Shunt Active Filter (SAF) investigations performed during his PhD study in the National Polytechnic Institute of Grenoble, France. In the last part Dr Otadui has presented several examples from industrial applications like Static Transfer Switch (STS), Static VAR compensator (SVC) for railway systems in France and UK as well as Static VAR generator STATCOM for wind generation systems. He also discussed market evolution in the area of power electronics for power electronics improvements. In his opinion this application will systematically grow-up in the next 5-10 years.

Dr Ion Etxeberria Otadui with Prof. M.P.Kaźmierkowski.

After the visit to the laboratories of our Institute, some areas of cooperation have been identified and results will be presented in a common paper submitted for the IEEE-ISIE Conference in Montreal, Canada, 2006.

Dr Otadui visited Power Electronics Company MEDCOM and in the social part of his stay in Warsaw he visited the Royal Castle, Wilanów as well as the Moscow Ballet performance in Kongresowa Hall.

PELINCEC Tutorial

Machine learning with generalization capability
as a regularized inverse problem

by

Prof. Vera Kurkova

Czech Academy of Sciences

In the early afternoon of November 16, 2005 Professor Vera Kurkova from Czech Academy of Sciences gave a seminar about machine learning. She treated machine learning as an inverse problem i.e. as a problem of finding unknown causes (such as shapes of functions) of known consequences (such as measured data). Moreover generalization capabilities were controlled via regularization in solutions. Apart from the math she used, her presentation was full of historical examples and remarks giving a proper perspective to the subject. Next day Professor Kurkova met with our students and she was talking to them on a similar subject gaining their attention.
PELINCEC Biographies

Vera Kurkova, received Her PhD in mathematics (topology) from Charles University, Prague. Since 1990, she is a scientist at Institute of Computer Science, Academy of Sciences of the Czech Republic, Prague (from 2002 Head of the Department of Theoretical Computer Science). Her research interests include mathematical theory of neurocomputing and learning, nonlinear approximation and optimization, supervision of graduate students. Prof. Kurkova published many journal papers (IEEE Trans. on Neural Networks, SIAM J. on Optimization, J. of Approximation Theory, Annals of Operations Research, Neural Networks, Neural Computation, Neurocomputing), wrote several chapters in books and articles in encyclopedias, coedited a book and a conference proceedings published by Springer-Verlag.

Jelena Pecherska comes from Riga, Latvia. She had worked for Riga Technical University from 1979 and obtained her master’s degree there. At the moment she is working at the Department of Modelling and Simulation of Riga Technical University as a lecturer. Her professional interests focus on the fields of methodology of discrete-event simulation, supply chains modeling, practical applications of discrete-event simulation and discrete-event simulation in education.

Jan T. Bialasiewicz is a professor in the Electrical Engineering Department of the University of Colorado at Denver and Health Sciences Center, Denver, Colorado. He also holds a position of a Professor at the Polish-Japanese Institute of Information Technology, Warsaw, Poland. He graduated with MSc degree from the Warsaw University of Technology, Poland and earned his PhD. and DSc degrees at the Silesian University of Technology, Poland, both in Electrical Engineering. In 1997, he was a Visiting Professor in the Faculty of Electronics, Warsaw University of Technology, Warsaw, Poland. In 2005 he was a Visiting Professor at the Catalonia University of Technology, Barcelona, Spain and a Visiting Professor at the Queensland University of Technology, Brisbane, Australia. For over 10 years, he has been consulting for the National Renewable Energy Laboratory’s National Wind Technology Center, Golden, Colorado. His research interests include control theory, modeling and identification of dynamic systems, renewable energy systems and theory and applications of wavelets. He is the author of two books and numerous research publications. Dr. Bialasiewicz is a Senior Member of IEEE, an Associate Editor of IEEE Transactions on Industrial Electronics, and Professional Engineer registered in Colorado.

Ion Etcheberria-Otadui received his BSc degree in Electronics from the University of Mondragon (Spain) in 1997, and the MSc and PhD degrees from the National Polytechnic Institute of Grenoble (France) in 1999 and 2003, respectively. Between 2003 and 2005, he was responsible for the Power Systems Area of the CIDAE Research Center (Spain). Since 2005 he has worked as a researcher for the IKERLAN Technological Center (Spain) participating in various research and industry projects. His main field of research is the application of power electronics devices to the distribution network for power quality improvement and distributed generation interfaces.

Leopoldo Garcia Franquelo received his MSc and PhD degrees in electrical engineering from the Universidad de Sevilla, Seville, Spain in 1977 and 1980 respectively. In 1978 he joined the Universidad de Sevilla as a Research Assistant, being Associated Professor in 1982 and Professor since 1986. From 1998 till 2005 he has been Director of the Electronics Engineering Department. Currently he is responsible for the PhD courses in the Department. His technical interests have started in 1978 with Microprocessor Industrial Electronics Applications, evolving to Electronics Power Applications and in the 90’s to Application Specific ICs design for the control of Power Converters. His current research interest lies on modulation techniques for multi-level inverters and its application to power electronic systems for renewable energy systems. He is leading a large research and teaching team in Spain. In the last five years his group activity can be summarized as: 33 Publications in International Journals, 160 in International Conferences, 10 Patents, advisor for 10 PhD dissertations and 84 R&D projects. His research team has been awarded with the “Excellence Status” by the Regional Government. He is IEEE member since 1984, Senior Member since 1996 and Fellow since 2005. He has been Vice-president of the Industrial Electronics Society Spanish Chapter (2002-2003), Member at large of the Industrial Electronics Society AdCom (2002-2003) and he is currently serving as Vice-President for Conferences of the Industrial Electronics Society since 2004.

Marco Liserre received his MSc and PhD degrees in Electrical Engineering from the Bari Polytechnic, respectively in 1998 and 2002. From November 2001 to January 2003 he was under contract with the Department of Electric and Electronic Engineering of the Bari Polytechnic as a researcher in the CLUSTER 13 (Electromagnetic compatibility) project. From March 2003 to December 2003 he was assistant researcher in the same Department. From January 2004 he is an assistant professor of the Bari Polytechnic. His research interests include Power Converters and Drives mainly in the Control of Converters, in the Power Quality and in the Distributed Generation. Marco Liserre is an Editor of the Newsletter of the Industrial Electronic Society.

Dirk Uwe Sauer was a research scientist and senior scientist at Fraunhofer Institute for Solar Energy Systems ISE, Freiburg/Germany from 1994 to 2003. Between 2001 and 2003 he was a managing director of the “Club for rural electrification”. Since 2003 he has appointment for Junior-Professorship at RWTH Aachen University for “Chemical Energy Conversion and Storage Systems”- battery data monitoring and analysis. His professional activity contain the following subjects: implementation and testing of battery operating strategies, accelerated life time testing for lead-acid batteries, developing of test procedure for batteries in autonomous power supply systems, supporting for design of battery laboratories development, neuronal networks and fuzzy logic, electrochemical impedance spectroscopy on batteries and fuel cells, impedance based models for simulation with very high dynamics performing laboratory and field experiments on lead-acid batteries supporting local battery manufacturers in developing and emerging countries to improve the quality of locally produced batteries for solar applications design and implementation of autonomous power supply systems, development and operation of design tools for autonomous power supply systems, development of concepts and systems designs for autonomous power supply systems with fuel cells, development of energy and power management systems for low voltage grids with distributed power generation and load management and many other selected problems in field of battery applications in energy systems.

Yuri Merkuryev graduated in 1976 from Riga Technical University as an engineer in “Automation and Remote Control”. Doctor of Engineering (Dr.sc.ing.) in Identification of Control Objects (1982), from Riga Technical University, “Minimax estimation of control objects model parameters under interval uncertainty of initial information”, Habilitated Doctor of Engineering (Dr.habil.sc.ing.) in Systems Simulation (1997), from Riga Technical University, “Methods for discrete-event systems simulation under limited resources”).
### PROGRAMME COMMITTEE

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- Gabriela Andrejkova, Slovakia
- Paulo de Carvalho, Portugal
- Ernesto Costa, Portugal
- Veronika Chvatalova, Czech Republic
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- Tadeusz. Kaczorek, Poland
- Tadeusz. Kaczorek, Poland (Past Chair)
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- Jozef Korbicz, Poland
- David Pearson, France
- Vera Kurkova, Czech Republic
- Mario Koeppen, Germany
- Ernesto Costa, Portugal
- Vera Kurkova, Czech Republic
- Katerina Hlavackova-Schindler, Czech Republic
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- Andrzej Dzielinski, Poland
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- Tadeusz. Kaczorek, Poland (Past Chair)
- Andrzej Dzieliński, Poland
- Marcin Iwanowski, Poland
- Grazyna Rabij, Poland
- Kevin Warwick
- IEEE Computer Society

Further information can be obtained from:
- Conference Chair: Bartłomiej Beliczynski
- Conference Organisers: Warsaw University of Technology
- Faculty of Electrical Engineering
- Institute of Control and Industrial Electronics
- Control Division

### TOPICS

Contributions are sought in the following topic areas list (the list is not exhaustive):

- **Neural Networks**: architectures, algorithms, approximation, complexity, associative memory, biological foundations, computational neuroscience, neurodynamics, neurocomputation.
- **Learning**: kernel methods, support vector machines, supervised and unsupervised learning, reinforcement learning, bayesian learning.
- **Evolutionary Computation**: genetic algorithms, genetic programming, multi-objective optimization, biological computation, classifier systems, artificial life, artificial immune systems, evolution strategies, ant colony optimization, particle swarm optimization, swarm intelligence, evolvable hardware.
- **Soft Computing**: fuzzy systems, rough systems, uncertain systems, hybrid systems, neurofuzzy controllers, embedded computing for intelligent systems, random search methods, probabilistic computing, chaotic computing, symbolic computing.
- **Bioinformatics and Computational Biology**: molecular computing, DNA computing, bioinformatics databases, computational genomics, computational proteomics, clustering, mapping gene expression and micro arrays, gene identification and annotation, molecular evolution, molecular sequence analysis, protein structure, protein classification.
- **Quantum Computing**: quantum control, supercomputing, autonomic computing.
- **Applications**: medicine, environment, quantitative socio-dynamics, pattern recognition, classification, signal processing, control, simulation, robotics, diagnostics, transport, defense, security, finance and business, data mining and intelligent databases, speech recognition and natural language processing, image processing and computer vision, real-time computational intelligence and games, grid computing.

### PROCEEDINGS

The conference proceedings will be published by Springer-Verlag.

### DEADLINES

- **Tutorials and Invited Session Proposals**: 4 June 2006
- **Paper Submission**: 10 September 2006
- **Notification of Acceptance**: 7 December 2006
- **Camera-ready Manuscripts**: 9 January 2007

### ORGANISERS

Warsaw University of Technology
Faculty of Electrical Engineering
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Control Division
Conference Chair: Bartłomiej Beliczynski