FACULTY OF ELECTRICAL AND POWER ENGINEERING

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DEPARTMENT OF ELECTRIC MACHINES, DRIVES, ELECTRICAL LIGHTING AND ELECTROTECHNOLOGIES

MAIN RESEARCH FIELDS

- Electric machines and equipment modeling, simulation, optimal design and testing (EME)

Keywords: electric machines, electric equipment, field calculation, optimal design, computer aided testing.

- Power electronics and motion control (PEMC)

Keywords: electric machines and drives, power electronics, speed and position control, digital control.

- Switched reluctance motor drive (SRMD)

Keywords: electric machines and drives, reluctance motor, power electronics, digital control.

- Power industrial electric drives (PIED)

Keywords: electric machines and drives, power electronics, speed control.

- Electrical lighting and Electrotechnologies (ELE)

Keywords: electromagnetic fields, applied electrostatics, welding, electrothermal processes, ultrasonics, power electronics, lighting devices.

- Logic of the creative process (LCP)

Keywords: logicization, algorithmization, cybernettization, inventics, innovation.

Researches are organized in the centre **New system of intelligent motion of the electric machines.**

Researches in *ELECTRIC MACHINES AND EQUIPMENTS, OPTIMAL DESIGN, TESTING, MODELING AND SIMULATION*

FIELD DESCRIPTION

Electric machines modeling including saturation and frequency effect both in the lumped parameter or distributed parameter (field distribution) forms are paramount for global optimization design and new computer - aided testing and parameter identification methods, modeling and simulation.

ACTIVITIES AND RESULTS

Since 1980 aggressive theoretical and experimental work on ever better electric machine modeling, simulation, optimal design, testing and parameter identification has been taking place with the results of two U.P.T. codes for optimal design of large power a.c. machines and a few new testing and parameter identification techniques for electric machines. Most of the work resulted in prototypes tested (or built) in cooperation in industrial partners.

Due to the long time collaboration with the Faculty of Automation and Computer Science from Timişoara, in the field of data acquisition systems and digital signal processing, the D-109 Laboratory was affiliated at the research center in automation and computer science

RESEARCH BENEFICIARIES

Ministry of Hydro-Power plants such are Lotru-Ciunget, Slatina Aval-Drăgăneşti (hydro reversible generators of 14000 kVA), Iron Gates 1, Râul Mare Retezat (hydrogenerators of 175000 kVA), Turnu-Ruieni (hydrogenerators of 76500 kVA) and Nuclear Power Plant Cernavodă – Unit 2.

External cooperation – design and prototype of a low speed wind generator with HEXATRONIC Inc. – Canada.

RESEARCH TEAM

- Acad. Toma DORDEA
- Prof. dr. eng. Marius BIRIESCU
- Prof. dr. eng. Marius BABESCU
- Prof. dr. eng. Vladimir CREŢU
- Dr. eng. Gheorghe MADESCU, CS II
- Lect. dr. eng. Mihai MICEA
- Eng. Marţian MOŢ, CS III
- Assoc. prof. dr. eng. Sorin MUŞUROI
- Assoc. prof. dr. eng. Dan NICOARĂ
- Lect. Dr. eng. Ciprian Şorândaru
- Dr. eng. Ileana TORAC, CS II
- Eng. Lucian OCOLIŞAN, CS III

RESEARCH OFFERS

Advanced design methods of large a.c. machines including saturation and frequency effects, coupled with dynamic simulation, advanced design methods for ultrahigh torque induction motors, new design methods for capacitor induction motors, computer - aided parameters identification - software and hardware - for electric machines, consulting on large power electric machines design and testing.
Consulting regarding optimization,, efficiency improvement testing procedures and refurbishment of hydro-generators.

CONTACT PERSON

Prof. dr. eng. Marius BIRIESCU
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Researches in *INTELLIGENT MOTION CONTROL*

FIELD DESCRIPTION

Intelligent motion control integrates motors, static power converters, digital controllers, sensors in systems that perform industrial motion automation with high efficiency (low losses).

ACTIVITIES AND RESULTS

Research activities on linear and rotary motors & drives since 1975 with numerous prototypes built and tested. Integration of intelligent motion systems in Romanian industries up to 2000 kW units since 1994. Various applications of power electronics in energy conversion and digital control concerned with: wind and hydraulic energy conversion systems into electric energy by means of variable speed operation, starter-alternators with digital control designed for hybrid and electric vehicles, and PM machines-based digital control systems up to 150 rpm

RESEARCH BENEFICIARIES

Various Romanian industrial companies such as: Beespeed Automatizări Timişoara, UCM Reşiţa, Azomures Tg. Mureş, Aquatim Timisoara, SE Iernut, Electrocentrale Deva, CNCSIS, ANSTI etc.
External co-operations: Aalborg University Denmark, EBM Papst Germany, Casino University Italy

RESEARCH TEAM

- Prof. dr. eng. Ion BOLDEA
- Assoc. Prof. dr. eng. Nicolae MUNTEAN
- Assoc. Prof. dr. eng. Lucian TUTELEA
- Lect. dr. eng. Cristian LASCU
- Lect. dr. eng. Lucian Miheţ - POPA
- Ph.D. Student Răzvan ANCUŢI
- Ph.D. Student Marius FĂTU
- Ph.D. Student Sorin AGARLIŢĂ
- Ph.D. Student Lucian CIBU
- Ph.D. Student Codruţa PAICU
- Ph.D. Student Vlad GRĂDINARU
- Ph.D. Student Robert ANTAL
- Ph.D. Student Alin ŞTIRBAN
- Ph.D. Student Liviu IEPURE

RESEARCH OFFERS

HARDWARE: Integration of intelligent motion control systems in various industries (automotive electric actuators and renewable electric energy converters are key subjects of interest) from process identification to commissioning and service. Prototyping of new systems for given specifications.

SOFTWARE: Electric motor - linear and rotary - design software aids in the form as software licensed products by request.

Intelligent motion control system.

International intensive courses: in Germany at EBMPapst, in Italy at Vicenza Centro Produttivita, in Korea at Hanyang University from Seul and at KIMM (Korean National Institute of Machinery and Materials).

CONTACT PERSON

Prof. dr. eng. Ion BOLDEA
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Researches in *SWITCHED RELUCTANCE MOTOR DRIVES*

FIELD DESCRIPTION

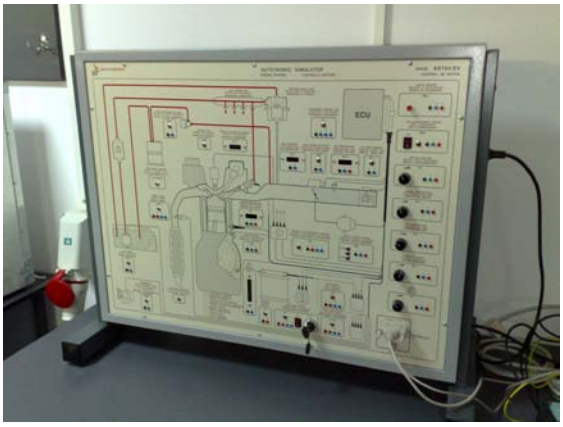
Switched reluctance motor (SRM) is a position-controlled power stepper motor with a very rugged topology and low costs but requires a specific static power converter and digital controller. Numerous potential applications in harsh environments look adequate for this kind of drive which drew world - wide attention in the last 10 years.

ACTIVITIES AND RESULTS

The actual activity aims at introducing the modeling, simulation and validation of the permanent and dynamic performances of the SR Drives

RESEARCH TEAM

- Prof. dr. eng. Gheorghe ATANASIU
- Prof. dr. eng. Dorin POPOVICI
- Lect. dr. eng. Alin ARGEŞEANU
- Lect. dr. eng. Ciprian ŞORÂNDARU
- Assist. eng. Octavian CORNEA
- Assist. eng. Valeriu OLĂRESCU
- Ph.D. Student Marcus SVOBODA



Automotive testing bench.

RESEARCH OFFERS

New drives with SRMs - from research to prototyping for various applications at variable speed, digital control of industrial drives with static power converters, medium power variable frequency motor drives (research and consulting)

CONTACT PERSON:

Prof. dr. eng. Dorin POPOVICI

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Researches in *POWER INDUSTRIAL ELECTRIC DRIVES*

FIELD DESCRIPTION

Power electric drives with variable speed are useful to increase productivity and quality in various processes and require means for speed control invariably. The load requirements are very specific and the best solution depends notably on the application.

ACTIVITIES AND RESULTS

Since 1980, with emphasis on overhead cranes using various static power converters, research efforts have been developed to define, design, built and test power drives with variable speed. New design methods and converter realizations have been obtained both with rotary or linear motors.

RESEARCH BENEFICIARIES

Mechanical works Timisoara, Ministry of Education, PROMPT Research Institute.

RESEARCH TEAM

- Prof. dr. eng. Eugen SERACIN
- Prof. dr. eng. Dorin POPOVICI
- Assoc. prof. dr. eng. Sorin MUŞUROI
- Assoc. prof. dr. eng. Ioan GHIUR
- Lect. Dr. eng. Ciprian ŞORÂNDARU
- Lect. Dr. Eng. Cristian LASCU
- Ph.D. Student Marcus SVOBODA

RESEARCH OFFERS

Optimal design methods for power industrial drives, current inverter power drives, linear motors conveyors.

CONTACT PERSON

Assoc. prof. dr. eng. Sorin MUŞUROI
E-mail: sorin.musuroi@et.upt.ro

Researches in *ELECTRIC LIGHTING AND EQUIPMENT FOR ELECTROTECHNOLOGIES*

FIELD DESCRIPTION

Modern lighting sources and lighting devices, optimal lighting design, power electronics for electric lighting, electrotechnologies - based on electromagnetic or electrostatic fields are widely used in the fabrications manufacturing systems and include electrothermal processes, welding power sources, power ultrasonics, electrostatic etching etc.

ACTIVITIES AND RESULTS

Since 1980 notable research efforts have been devoted to investigate induction - the welding process and the power sources, new electric welding and ultrasonic power electronics sources. A few prototypes have been built and tested. New researches have been oriented to ultrasonic enhancement of liquid magnetic processing and sonosinthesys of nano-materials.

RESEARCH BENEFICIARIES

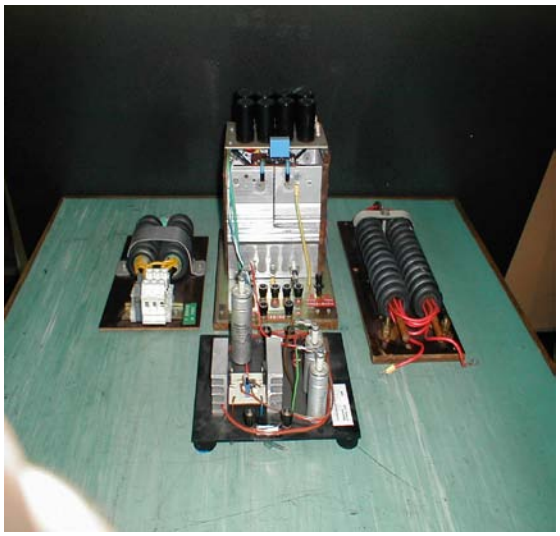
Ministry of Research, ISIM Timişoara

RESEARCH TEAM

- Prof. dr. eng. Ioan ŞORA
- Assoc. prof.. dr. eng. Dan NICOARĂ
- Assoc. prof. dr. eng. Alexandru HEDEŞ

RESEARCH OFFERS

Power electronics, for electrotechnologies, including high-frequency power transformers, arc welding power sources, advanced power electronics ultrasonics sources (from research to prototyping), ultrasonic processing of materials, consulting in electrotechnologies and electric lighting devices.



High frequency welding transformers.

CONTACT PERSON

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MAIN PUBLICATIONS

PUBLISHED PAPERS

1. Boldea, I., Paicu, M.C., Andreescu, G.D. *Active Flux Concept for Motion-Sensorless Unified AC Drives*, Power Electronics, IEEE Transactions on, Volume 23, Issue 5, pp. 2612 – 2618, ISSN 0885-8993
2. Boldea, I. *Control issues in adjustable speed drives*, Industrial Electronics Magazine, IEEE, Volume 2, Issue 3, pp. 32 – 50, ISSN 1932-4529

3. Fahmi, B., Boldea, I., *Guest Editorial*, Industrial Electronics, IEEE Transactions, Volume 55, pp. 479 – 480, ISSN 0278-0046

4. Tutelea, L.N., Myung Chin Kim, Topor, M.,Ju Lee, Boldea, I. *Linear Permanent Magnet Oscillatory Machine: Comprehensive Modeling for Transients With Validation by Experiments*, Industrial Electronics, IEEE Transactions, Volume 55, Issue 2, pp. 492 – 500, ISSN 0278-0046

5. Andreescu, G.D., Pitic, C.I., Blaabjerg, F., Boldea, I. *Combined Flux Observer With Signal Injection Enhancement for Wide Speed Range Sensorless Direct Torque Control of IPMSM Drives*, Energy Conversion, IEEE Transaction, Volume 23, pp. 393 – 402, ISSN 8858969

6. Pănoiu, M., Pănoiu, C., Şora, I., Rob, R. *Study about the possibility of fliker effect simulation caused by nonlinear power loads*, Proceedings of the International Conference on Systems Theory and Scientific Computation ISTASC 08, Rhodos, Greece, pp. 142-147, ISBN 978-960-6766-96-1

7. Pănoiu, C., Pănoiu, M., Şora, I. *Simulation results regarding harmonics filtering, reactive power compensation and load balancing on power loads*, Proceedings of the17th Iasted International Conference on Applied Simulation and Modelling ASM , Corfu, Greece, pp. 71-76, ISBN 978-0-88986-731-4

8. Iagăr, A., Popa, Gh., Şora, I. *Study about Electromagnetic Compatibility of Line Frequency Coreless Induction Furnaces*, Proceedings of the8th WSEAS International Conference on Power Systems PS, Santander, Cantabria, Spain, pp. 95-100, ISBN 978-960-474-006-2

9. Pănoiu, M., Pănoiu, C., Şora, I., Iordan, A. *Adaptive Control of the Active Power of an Electric Arc Furnace*, Proceedings of the4th WSEAS IASME International Conference on Dynamical Systems and Control CONTROL 08, Corfu, Greece, pp. 85-90, ISBN 978-960-474-014-7

10. Popa, Ct., Şora, I., Vaida, V., Popa, I., Deaconu, S. *Analysis of Mathematical Models of Current-Voltage Characteristic for Plate-Type Electrostatic Precipitators*, Proceedings of the 9th WSEAS International Conference on Automation and Information, Bucharest, pp. 288-292, ISBN 978-960-6766-77-0

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12. Miheţ-Popa, L., Proştean, O., Szeidert, I. *The soft-starters modeling, simulations and control implementation for 2 MW constant-speed wind turbines*, The International Review of Electrical Engineering – IREE, pp.129-135, ISBN 1827-6660

13. Boldea, I., Antal, R., Muntean, N. *Modified Z-Source Single-Phase Inverter with Two Switches*, Proceedings of IEEE International Symposium on Industrial Electronics, ISIE 08, Cambridge, UK, pp. 257-263, ISBN 978-1-4244-1666-0

14. Antal, R., Muntean, N., Boldea, I. *Modified Z-Source Single-Phase Inverter for Single-Phase PM Synchronous Motor Drives*, Proceedings of OPTIM 2008, Vol. II-A, pp. 245-250, ISBN 978-973-131-030-5

15. Olărescu, V., Muşuroi, S., Şorândaru, C., Atanasiu, Gh. *Enhanced Current-Sensorless Drive System for PMSMS Using Two Hall-Effect Sensors for Wide Speed Range*, Proceedings of the 11th International Conference on Optimization of Electrical and Electronic Equipment, OPTIM 2008, pp. 87-92, ISBN 978-973-131-030-5

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17. Dordea, T., Torac, I., Madescu, Gh., Moţ, M., Ocolişan, L. *Analytical estimation of the electric currents in the elementary conductors of a Roebel bar*, Proceedings of International Conference OPTIM 2008, pp. 33-38, ISBN 978-973-131-030-5

18. Babescu, M., Chioncel, C. *Stand alone power system with synchronous and asynchronous generators*, Proceedings of the 11th International Conference on Optimization of Electrical and Electronic Equipment, OPTIM 2008, pp. 155-161, ISBN 978-973-131-030-5

19. Muntean, N., Volosencu, C., Hedeş, A. *A Temperature Control System for Water Cooling Towers Based on Variable Speed Drives*, Proceedings of the 9th WSEAS International Conference on AUTOMATION and INFORMATION (ICAI'08) Bucharest, Romania, pp. 184-189, ISBN 978-960-6766-77-0

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Standard Simulink Library Components, OPTIM 2008, pp. 69-74, ISBN 978-973-131-030-5

21. Ştirban, A., Tutele, L. *FEM analysis of concentrated coils nonuniform slot (6+6/8) IPMSM fed with trapezoidal current*, Proceeding of the 18th International Conference OPTIM 2008, pp. 45-52, ISBN 978-973-131-030-5
22. Iepure, I., Tutelea, L., Boldea, I. *FEM analysis and control of a tapered airgap single phase PMSM*, Proceeding of the 18th International Conference OPTIM 2008, pp. 45-52, ISBN 978-973-131-030-5
23. Grădinaru, V., Tutelea, L., Boldea, I. *25 kW, 15 krpm, 6/4 PMSM: Optimal Design and Torque Pulsation Reduction via FEM*, Proceeding of the 18th International Conference OPTIM 2008, pp. 249-256, ISBN 978-973-131-030-5
24. Boldea, I., Paicu, M.C., Andreescu, Gh., Blaabjerg, F. *"Active Flux" Orientation Vector Sensorless Control of IPMSM*, Proceeding of the 18th International Conference OPTIM 2008, pp. 161-168, ISBN 978-973-131-030-5
25. Boldea, I., Agarliţă, S.C., Marignetti, F., Tutelea, L. *Electromagnetic, thermal and mechanical design of a linear PM valve actuator laboratory model*, Proceeding of the 18th International Conference OPTIM 2008, pp. 259-264, ISBN 978-973-131-030-5
26. Ancuţi, R., Boldea, I., Andreescu, Gh. D., Ileş-Klumpner, I. *Novel Motion Sensorless Control of High-Speed Small-Power Surface Mount PMSM Drives: With Experiments*, Proceeding of the 18th International Conference OPTIM 2008, pp. 11-18, ISBN 978-973-131-030-5
27. Pănoiu, M., Pănoiu, C., Şora, I., Iordan, A., Rob, R. *Using Simulation for Study the Possibility of Canceling Load Unbalance of Non-sinusoidal High Power Three-phase Loads*, WSEAS Transactions on Systems, Issue 7, Vol. 7, pp. 699-710, ISBN 1109-2777
28. Pănoiu, M., Pănoiu, C., Şora, I., Rob, R. *Simulation of the Fliker Phenomenon Based on Modeling the Electric Arc*, WSEAS Transactions on Systems, Issue 10, Vol. 7, pp. 1132-1142, ISBN 1109-2777
29. Popa, Ct., Şora, I., Vaida, V., Popa, I., Deaconu, S. *Analysis of Some Solutions that Improve Performances of Plate-Type Electrostatic Precipitators*, WSEAS Transactions on Circuits and Systems, Issue 8, Vol. 7, pp. 843-855, ISBN 1109-2734
30. Pănoiu, M., Pănoiu, C., Şora, I., Iordan, A. *Study about the Process Control of an Electric Arc Furnace using Simulations based an Adaptive Algorithm*, WSEAS Transactions on Information Science-Applications, Issue 11, Vol. 5, pp. 1628-1637, ISBN 1790-0832
31. Miheţ-Popa, L., Groza, V., Proştean, O., Szeidert, I. *Modeling and design of a grid connection control mode for a small variable-speed wind turbine system*, IEEE I2MTC-International instrumentation & measurement technology conference, pp. 288-293, ISBN 1-4244-1541-1
32. Miheţ-Popa, L., Proştean, O., Szeidert, I. *An experimental laboratory system for monitoring and detection of electrical drives systems with induction machines*, International Scientific Journal Facta Universitatis - NIS, series Electronics and Energetics, Vol. 21, No. 1, pp. 45-54, ISSN 0353-3670
33. Şorândaru, C., Muşuroi, S., Svoboda, M. *Matlab simulation of an auto-adaptive control system of a switched reluctance motor drive*, Buletinul Institutului Politehnic Iasi, pp.. 735-740, ISSN 1223-8139
34. Ghiur, I., Dobriţoiu, R., Svoboda, M. *Online Acqisition and Monitoring System of the Energy Consumers for Productive Units*, Scientific Bulletin of the Politehnica University of Timişoara, Transaction on Power Engineering, Tom 53(67) 2008 Special Issue, pp. 123-127, ISSN 1582 – 7194
35. Ghiur, I., Svoboda, M. *Performant Tehnical Solutions Regarding the Electric Energy Qualityat the Feeding of Industrial and Residential Objectives*, Scientific Bulletin of the Politehnica University of Timişoara, Transaction on Power Engineering, Tom 53(67) 2008 Special Issue, pp. 127-131, ISSN 1582 – 7194
36. Ancuţi, R., Boldea, I., Andreescu, Gh. D., Ileş, D. *Fast response Sensorless Control of High Speed Surface PM-SM: with Experiments*, Scientific Bulletin of the Politehnica University of Timişoara, Transaction on Power Engineering, Tom 53(67), pp. 7-13, ISSN 1582 – 7194
37. Boldea, I., Cibu, L., Teodorescu, R. *Investigation upon power capabilities for a classic automotive alternator*, Scientific Bulletin of the Politehnica University of Timişoara, Transaction on Power Engineering, Tom 53(67), pp. 39-45, ISSN 1582 – 7194
38. Coroban, V., Boldea, I., Andreescu, G.D., *Active flux based observer for motion sensorless control biaxial excitation generator-motor for automobiles (Bega),* Scientific Bulletin of the Politehnica University of Timişoara, Transaction on Power Engineering, Tom 53(67), pp. 81-87, ISSN 1582 – 7194

39. Fătu, M., Boldea, I., Tutelea, L., Andreescu, Gh. D. *Motion sensorless control for ALA reluctance synchronous motor using active-flux concept*, Scientific Bulletin of the Politehnica University of Timişoara, Transaction on Power Engineering, Tom 53(67), pp. 117-123, ISSN 1582 – 7194

40. Paicu, M., Tutelea, L., Andreescu, Gh.D., Boldea, I. *Active flux sensorless vector control of IPMSM for wide speed range*, Scientific Bulletin of the Politehnica University of Timişoara, Transaction on Power Engineering, Tom 53(67), pp. 181-189, ISSN 1582 – 7194

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42. Muşuroi, S., Gheorghiu, S., Dobref, V., Deliu, F., Svoboda, M., Şorândaru, C., Cornea, O. *Electric Drives with Field Orientated Control for Naval Mechanisms*, Scientific Bulletin of the Politehnica University of Timişoara, Transaction on Power Engineering, Tom 53(67), pp. 177-180, ISSN 1582-7194

43. Muşuroi, S., Olărescu, V., Şorândaru, C., Svoboda, M. *Monophasic rectifier with liniar dependence between the rectified voltage and command voltage*, Buletinul Institutului Politehnic Iaşi, Tomul LIV (LVIII), Fasc.4, pp. 775-782, ISSN 223-8139

44. Muşuroi, S., Svoboda, M. Olărescu, V., Şorândaru, C. *Moddeling and simulation of a version of fuzzy control for permanent magnet synchronous machine*, Buletinul Institutului Politehnic Iaşi, Tomul LIV (LVIII), Fasc.3, pp. 5-10, ISSN 223-8139

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46. Argeşeanu, A., Torac, I. *A new sensor structure for intelligent long distance transport*, Scientific Bulletin of the „Politehnica" University of Timisoara, Transactions on mechanics, Tom 53 (67), Fasc. S2, 2008. pp. 237-242, ISSN 1224-6077

47. Chioncel, C., Chioncel, P., Babescu, M. *The influence of the inertial torque by electrical drive with asynchronous machine*, Scientific Bulletin of the Politehnica University of Timişoara, Transaction on Power Engineering, Tom 53(67), pp. 57-60, ISSN 223-8139

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54. Cornea, O., Popovici, D. *On Two Dynamic Models for Switched Reluctance Motor Drive*, Scientific Bulletin of the Politehnica University of Timişoara, Transaction on Power Engineering, Tom 53(67), pp. 75-80, ISSN 223-8139

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56. Cucuiet, C., Nicolae, I., Cornea, O. *Educational XA Microcontroller Developement Board*, Scientific Bulletin of the Politehnica University of Timişoara, Transaction on Power Engineering, Tom 53(67), pp. 87-92, ISSN 223-8139

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59. Kairous, D., Belmadani, B., Benganem, M., Mihet-Popa, L. *Modeling, Analysis, and Control of a DFIG in variable speed wind turbine*, Proceedings of the International Conference on Modelling and Simulation in Engineering and Management (AMSE'08), pp. 61-70, 978-3-901509-68-1
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62. Şorândaru, C., Sfâşie, A., Muşuroi, S., Olărescu, V. *PLC Control of an industrial process using LabVIEW, International Conference on Remote Engineering and Virtual Instrumentation*, Proceedings of REV 2008, Duesseldorf, 02.7, ISBN 978-3-89958-352-6
63. Svoboda, M., Şorândaru, C., Olărescu, V., Muşuroi, S. *Modeling and simulation of a version of neuronal control of the permanent magnet synchronous machine*, 5th International Conference of Electric and Power Engineering, Buletinul Institutului Politehnic Iasi, pp. 11-17, ISSN 1223-8139
64. Argeşeanu, A., Cornea, O., Torac, I. *Adaptive algorithm for SRM drives torque optimization*, TEI of Piraeus&University of Paisley "The Contribution of Information Technology to Science, Society and Education"2008 , Prceedings of TEI Piraeus&University of Paisley , pp. 345-352, ISSN 1791-1133
65. Argeşeanu, A., Torac, I., Leban, K. *An absolute linear encoder with multiple codification system*, TEI of Piraeus&University of Paisley "The Contribution of Information Technology to Science, Society and Education"2008 , Proceedings of TEI Piraeus & University of Paisley , pp. 336-344, ISSN 1791-1133
66. Argeşeanu, A., Torac, I., Leban, K. *An Optimal Balancing Structure for Small and Medium Electrical Machine Rotors*, Internationa Scientific Conference "eRA-3" 2008, Prceedings of TEI Piraeus&University of Paisley , pp. 345-352, ISSN 1791-1133
67. Argeşeanu, A., Leban, K. *A New Sensor Structure for Solar Tracking Drives*, Internationa Scientific Conference "eRA-3" 2008, Prceedings of TEI Piraeus&University of Paisley , pp. 353- 358, ISSN 1791-1133
68. Dordea, T., Proca, V., Madescu, G., Greconici, M., Moţ, M. *Magnetic field analysis in the open stator-slots of high power hydro-generators*, Proc. of ECOS-2008, Cracow-Gliwice, Poland, pp.1185-1192, ISBN978-83-922381-4-0
69. Dordea, T., Torac, I., Madescu, Gh., Moţ, M., Ocolişan, l. *Analytical Method for the Calculus of i2r Losses in the Roebel Bar*, Proc. Of eRA-3 International Scientific Conference, Aegina Island, T 3, ISSN 1083-08998
70. Dordea, T., Torac, I., Madescu, Gh., Moţ, M., Ocolişan, l. *Efficiency improvement of high power generators trough computer aided optimum design of the Roebel bars*, International Scientific Conference eRA-3, Aegina Island, T 4, ISSN 1083-08998
71. Hedeş, A., Şora, I., Nicoară D. *Aspecte privind procesarea eficientă a puterii la înaltă frecvenţă la echipamentele pentru sudare cu arc electric*, Conferinţa Naţională a ASTR, Vol. Ingineria Românească: Trecut, Prezent şi Viitor, Cluj-Napoca, pp. 197-204, ISBN 978-973-713-223-9
72. Mihet-Popa, L. *Modelarea şi simularea turbinelor de vânt cu generatoare de inducţie conectate la reţea*, Conferinţa naţională a inginerilor, Sebeş, Ştiinţa şi inginerie, Vol. 13, pp. 73-80, ISBN 973-8130-82-4.

PhD THESIS DEFENDED

1. Bobocea, M. *Studiul poluării sistemelor electroenergetice de către maşinile electrice saturate de medie şi mică putere,* PhD supervisor: Ioan Novac
2. Stoian, O. *Stabilitatea dinamică a sistemelor electroenergetice alimentate de la generatoare sincrone şi generatoare asincrone*, PhD supervisor: Ioan Novac
3. Fătu, M. *High performance control of PM synchronous generator (PMSG) for wind*

energy Conversion, PhD supervisor: Ion Boldea

4. Moţ, M. *Determinarea parametrilor şi caracteristicilor maşinilor electrice de inducţie prin măsurarea valorilor momentane*, PhD supervisor: Toma Dordea
5. Ancuţi, R. *Răspunsul dinamic rapid al controlului fără senzori mecanici al acţionărilor cu motoare sincrone cu magneţi permanenţi superficiali, de mare viteză*, PhD supervisor: Ion Boldea
6. Băjan, L. *Sisteme de conducere cu reglaj vectorial fără fir şi fără traductoare pentru mărimi mecanice, destinate acţionărilor electrice de curent alternative*, PhD supervisor: Eugen Seracin.

ORGANIZED CONFERENCE

1. 11th *International Conference on Optimization of Electrical and Electronic Equipment*, May, 22-23, organized by: The Faculty of Electrical Engineering of the Transilvania University of Braşov, The Faculty of Electrical Engineering of the Politehnica University of Timişoara and The Faculty of Electrical Engineering of the Technical University of Cluj-Napoca in co-operation with The Institute of Electrical and Electronics Engineers IEEE and The Institution of Electrical Engineers IEE
2. 14th *National Conference on Electical Drives*, September, 25-26, organized by the Electrical Engineering Department of the Faculty of Electrical and Power Engineering of the Politehnica University of Timişoara

RESEARCH GRANTS

1. Boldea, I. *Tehnologii noi de actuatoare electrice pentru automobile*, CEEX X2C33/2006, P-CD, ANCS, value (2008): 264000 RON
2. Biriescu, M., Moţ, M., Irimia, D., Muşuroi, S., Greconici, M. *Optimizarea înfăşurărilor hidrogeneratoarelor electrice în vederea creşterii eficienţei energetice*, nr. 21028, PNCDI2 , value (2008): 2.000 RON
3. Biriescu, M., Moţ, M., Proştean, O., Kilyeni, Şt., Filip, I., Vasar, C., Szeidert, I., Ungureanu, D., Frigură-Iliasa, F., Vuc, Gh., Şorândaru, C., Popovici, D., Boraci, R., Bota, C. *Optimizarea funcţionării hidrogeneratoarelor electrice prin modernizarea sistemelor de excitaţie în vederea creşterii eficienţei energetice şi competitivităţii lor*, nr. 21040, PNCDI2, value (2008): 238.000 RON
4. Hedeş, A. *Sistem intergat de comanda si control pentru CA1…3, 100t/h si turboagregat TA ER 19, 7MW-1, 4/0, 3 la CT Sud Timisoara*, nr. 7/2008, 7000 RON

CONTACT

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DEPARTMENT OF POWER ENGINEERING

MAIN RESEARCH FIELDS

- Electromagnetic Compatibility in Power Systems

Keywords: electromagnetic field, environment, disturbance source, electromagnetic interference

- High Voltage Laboratory Tests and Quality Checking

Keywords: high voltage technique, overvoltages, testing record

- Modeling and Simulation of Electromagnetic Transients in Power Systems

Keywords: switching and lightning, overvoltages, transient response, simulation

- Power System Reliability

Keywords: loss of load probability, power system reliability, probability density function

- Power Apparatus and Equipments

Keywords: power apparatus, electrical equipment, switching devices, protection devices

- Power Quality

Keywords: harmonic analysis, data acquisition, computer aided statistical research

- Load forecasting

Keywords: energy forecasting, expert system

- Power System Restructuring

Keywords: power system, energy pool, transmission open access, ancillary services, independent system operator

- Power System Transient Stability and Voltage Stability

Keywords: power systems, power systems stability, transient stability, voltage stability

- Electrical Materials

Keywords: ferromagnetic materials, hysteresis loop, transformer iron core, non-linear analyses methods

- Electrical substations and Power plants

Keywords: electrical energy production, power transformer, switching devices, protection devices, secondary circuits

- Energy management

Keywords: energy efficiency, energy management systems, project feasibility

Researches in *ELECTROMAGNETIC COMPATIBILITY IN POWER SYSTEMS*

FIELD DESCRIPTION

Electromagnetically disturbances analysis produced by high and low perturbation sources; coupling mode between sources and victims and against perturbation action to protect the energetically field receptors analyses.

ACTIVITIES AND RESULTS

Over-voltage protection equipments, using ZnO varistors

Mathematics modeling and measurements of induced voltages in two-line circuit and adjacently circuits

RESEARCH BENEFICIARIES

RN Transelectrica S.A., Timişoara

RESEARCH TEAM

- Prof. dr. eng. Flavius Dan ŞURIANU
- Prof. dr. eng. Viorel TITIHĂZAN
- Lect dr. eng. Ilona BUCATARIU

Researches in *HIGH VOLTAGE LABORATORY TESTS AND QUALITY CHECKING*

FIELD DESCRIPTION

The purpose of high voltage tests consists of certifying the quality of insulation systems and emitting testing bulletins, optimal computation and experimental testing of insulation disturbance location and characteristic parameters measuring.

ACTIVITIES AND RESULTS

Tests on sparkover voltages (high voltages resistance variable arresters).

Tests on insulators of glass and composite insulators for a.c. overhead lines (Un > 1000 V).

Tests on medium voltage 20 kV steel-aluminum conductor insulated with XLPE.

Tests on insulation of welding equipment.

RESEARCH BENEFICIARIES

SC Electroconstrucţia ELCO Oradea S.A., S.C. Electrica Banat Timişoara, ISIM Timişoara

RESEARCH TEAM

- Prof. dr. eng. Flavius Dan ŞURIANU
- Assoc. prof. dr. eng. Viorel TITIHĂZAN
- Assoc. prof. dr. eng. Adrian PANĂ
- Lect dr. eng. Mariana TITIHĂZAN

Researches in *MODELING AND SIMULATION OF ELECTROMAGNETIC TRANSIENTS IN POWER SYSTEMS*

FIELD DESCRIPTION

Studies present the statistical results of a switching or a lightning overvoltage performed on electromagnetic transients. The probability of shielding failures and backflashover have been evaluated and compared to the characteristics of transmission lines in service. Overvoltages caused by line energization, single and

three phase reclosing have been investigated by statistical approach using ATP – EMTP.

ACTIVITIES AND RESULTS

In scientific research programs several models have been developed for calculation of switching or lightning overvoltages**.**

RESEARCH TEAM

- Prof. dr. eng. Corneliu VELICESCU
- Assoc. prof. dr. eng. Gheorghe VUC
- PhD Student Daniel DONDERA
- PhD Student Răzvan POPA

RESEARCH OFFERS

Power systems transients - modeling and simulation
Power systems reliability studies
Transformer iron core, non-linear analyses methods.

Researches in *POWER SYSTEMS RELIABILITY*

FIELD DESCRIPTION

The research presents for different power systems configuration the probable energy value, which cannon be supplied and the loss of load probability. To obtain the probability density function the different probabilistic models are used like Gram-Charlier expansion or Monte Carlo simulation.

ACTIVITIES AND RESULTS

The scientific papers are published in power system reliability area**.**

RESEARCH TEAM

- Prof. dr. eng. Corneliu VELICESCU
- Prof. dr. eng. Mircea NEMEŞ
- PhD Student Daniel DONDERA
- PhD Student Răzvan POPA
- PhD Student Felicia COROIU

RESEARCH OFFERS

Reliability evaluation of power system extension

Researches in *POWER APPARATUS AND EQUIPMENT*

FIELD DESCRIPTION

There are a very large category of electrical systems, which include all type of switching devices (from Low to High Voltage), all the equipment existing in power stations, protection systems (surge arresters, current protections), automatic equipment (relays, contactors), power electronic devices and digital command equipment (such as PLC-s).

ACTIVITIES AND RESULTS

Design of new electrical switching devices, equipment and installations
PCL's implementation for different applications
Software for digital command equipment
On-line systems for monitoring and diagnosis of electrical equipment

RESEARCH BENEFICIARIES

Ministry of Education and Research, S.C. Electrica S.A. (S.D. Timişoara and Sibiu), S.C. Transelectrica S.A. (S.T. Sibiu), Electroputere S.A. Craiova

RESEARCH TEAM

- Prof. dr. eng. Alexandru VASILIEVICI
- Prof. dr. eng. Iuliu DELESEGA
- Prof. dr. eng. Petru ANDEA
- Assoc. prof. dr. eng. Doru VĂTĂU
- Lect. dr. eng. Flaviu FRIGURĂ

Researches in *POWER QUALITY*

FIELD DESCRIPTION

Analysis of harmonics, unsymmetrical operations; equivalent parameter measurements for harmonic frequencies; evaluation of static reactive power compensation; control of passive power filter in electrical distribution systems.

ACTIVITIES AND RESULTS

Measurements were made in substations for Romanian National Electricity Company. A complex digital data acquisition system was used for the statistical estimation of harmonic distortion and unsymmetrical operation. New solutions were developed for the improvement of power quality in distribution systems.

RESEARCH BENEFICIARIES

National Agency of Scientific Research
Electrical Power Distribution Company – Electrica
National Power Transmission Company – Transelectrica

RESEARCH TEAM

- Prof. dr. eng. Vasile DUŞA
- Prof. dr. eng. Petru GHEJU
- Assoc. prof. dr. eng. Adrian PANĂ
- Lect. dr. eng. Ilona BUCATARIU

RESEARCH OFFERS

Measurement and characterization of harmonic distortion for large industrial loads, location of harmonics in power systems, estimation effects for harmonics and unbalanced load on power system's equipment, analysis of power quality.

Researches in *LOAD FORECASTING*

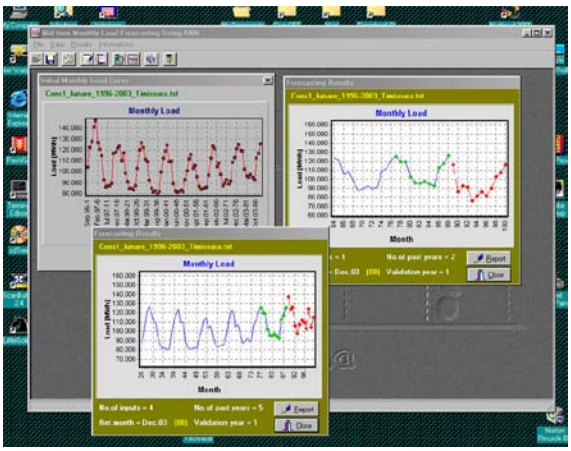
FIELD DESCRIPTION

Analysis of electrical energy and power need for short and mid-term load forecasting; algorithm and program development for monthly energy consumption and daily load curves.

ACTIVITIES AND RESULTS

Electrical load data acquisition from "Electrica Banat" substations and data files processing.

Development of PRENPS and PELTMRNA programs for short-term daily load curve forecasting, respectively for mid-term monthly load forecasting. Result analysis and forecast validation.



Load Forecast Software

RESEARCH TEAM

- Prof. dr. eng. Bucur LUŞTREA
- Assoc. prof. dr. eng. Adrian PANĂ
- Lect. dr. eng Ioan BORLEA
- Lect. dr. eng. Ilona BUCATARIU
- PhD Student Constantin BĂRBULESCU
- PhD Student Dan JIGORIA-OPREA

RESEARCH OFFERS

Short-term energy and load curve forecasting. Expert systems for the checking of used database at forecasting.

Researches in *POWER SYSTEM RESTRUCTURING*

FIELD DESCRIPTION

The unprecedented world - wide restructuring of the power industry move away from the traditional monopolies and toward greater competition, in the form an increased members of independent power producers and an unbundling of the main services that were until now provided by the utilities, has been building up for over a decade.

ACTIVITIES AND RESULTS

Managing risk on new market power and price stability
Pricing of network access

RESEARCH TEAM

- Prof. dr. eng. Mircea NEMEŞ
- Prof. dr. eng. Corneliu VELICESCU
- Assoc. prof. dr. eng. Gheorghe VUC
- Assoc. prof. dr. mat. Doru PĂUNESCU (Department of Mathematics)
- Eng. Oana POP

RESEARCH OFFERS

Digital model of power system
Optimal Power Price Simulator (OPP)

Researches in *POWER SYSTEM TRANSIENT STABILITY AND VOLTAGE STABILITY*

FIELD DESCRIPTION

Computer aided analysis and improvement of the stability of the electric power system (transient stability, dynamic stability and voltage stability). New control technique for stability improvement. Developing of the master studies in these fields.

Power Systems Optimization Laboratory

ACTIVITIES AND RESULTS

Advanced software for stability analysis

New control techniques for the improvement of the dynamic behavior of synchronous generators
PHARE postgraduate and PhD program

RESEARCH BENEFICIARIES

Ministry of Education and Research
Electrical Power Distribution Company – Electrica
National Power Transmission Company – Transelectrica

RESEARCH TEAM

- Prof. dr. eng. Stefan KILYENI
- Prof. dr. eng. Mircea NEMEŞ
- Prof. dr. eng. Ştefan PREITL
- Prof. dr. eng. Bucur LUŞTREA
- Prof. dr. eng. Mihai MOGA
- Prof. dr. eng. Radu Emil PRECUP
- Lect. dr. eng. Ioan BORLEA
- Phd. Student Constantin BĂRBULESCU
- Phd. Student Dan JIGORIA-OPREA

RESEARCH OFFERS

Software for stability analysis and improvement
Studies concerning dynamic behavior of power systems
Advanced control techniques for transient and voltage stability improvement

Researches in *APPLIED NON-LINEAR MODELING OF FERROMAGNETIC MATERIALS*

FIELD DESCRIPTION

The modeling of non linear transformer iron core considered the hysteresis loop. Modeling methods for establishment and validation. Estimation of the transformer behavior under symmetrical (sinusoidal and non-sinusoidal) and asymmetrical supply conditions. Analyses the main quantities. Iron core losses harmonic analyses.

ACTIVITIES AND RESULTS

Measurements were performed in the "National Research Center for Welding and Material Trials-ISIM" and the "Power Energy Department" laboratories. A complex digital system was used for data acquisition and harmonics analyze of the transformer currents and tension for different supply conditions. The proposed transformer model was implemented into a welding machine and validated (comparison between the simulated and the measured results showed a very good agreement). Simulations were performed over in order to estimate the welding performances over a wide range of condition defined through: different firing pulse angle, materials, forms and thickness of welding pieces.

RESEARCH BENEFICIARIES

National Research Center for Welding and Material Trials-ISIM, Timisoara
Power Energy Department of the "Politehnica" University of Timisoara
ICPE Bucharest - manufacturer of the welding transformer under test

RESEARCH TEAM

- Assoc. prof. dr. eng. Doru VĂTĂU
- Lect. Dr. Eng. Flaviu FRIGURĂ

RESEARCH OFFER

Modeling single-phase transformers and equipments with ferromagnetic core.

Estimation of electromagnetic quantities: time variation shape, r.m.s., peak values, harmonic analyze over a wide range of conditions.

Time and frequency analysis of electromagnetic quantities.

Behavioral analysis of a complex system containing a transformer or an apparatus.

Iron core power losses detailed analysis.

Researches in ELECTRICAL SUBSTATIONS AND POWER PLANTS

FIELD DESCRIPTION

Constructive solutions optimization used for electrical equipments and installations in electrical substations, operating principles and general characteristic optimization for the reliability and system management improvement.
Specific problems of planning for the electrical network operating control and command.

ACTIVITIES AND RESULTS

Solutions for the electrical substation auxiliaries supplying from the 220/110 kV autotransformer tertiary. Development of an expert system which offer informational support for substation operating recovery, which following a failure, that monitor continually all functions needed by protection and control and which come in to support for operating personnel.

RESEARCH TEAM

- Prof. dr. eng. Petru GHEJU
- Prof. dr. eng. Vasile DUŞA
- Prof. dr. eng. Bucur LUŞTREA
- Lect. dr. eng Ioan BORLEA
- Lect. dr. eng Ilona BUCATARIU
- Phd. Student Florin MOLNAR-MATEI
- Phd. Student Alexandru BĂLOI

RESEARCH OFFERS

The opportunity analysis of the implementation intelligent systems needed for filtering, cataloguing and store of the information provided from the protection and control systems in the electrical substations for substation remote control.

Researches in *ENERGY MANAGEMENT*

FIELD DESCRIPTION

Energy audit, energy management are the only means for sustainable energy use and best economical performance in entire society.

ACTIVITIES AND RESULTS

Measurements audit were made in substations for "Transelectrica" National Transmission Company. Were realized feasibilities studies for new solutions in auxiliary services supplying and for public lightning systems energy efficiency improvement.

RESEARCH BENEFICIARIES

National Agency of Scientific Research
Timisoara, Satu Mare City Councils
National Power Transmission Company – Transelectrica
Politehnica University from Timisoara

RESEARCH TEAM

- Prof. dr. eng. Flavius Dan ŞURIANU
- Assoc. prof. dr. eng. Gheorghe VUC
- Assoc. prof. dr. eng. Dan NICOARA
- Assoc. prof. dr. eng. Alexandru HEDES

RESEARCH OFFERS

Feasibility studies for energy efficiency projects, energy audits, energy policies advising.

PUBLICATIONS

BOOKS

1. Vuc, Gh. *Gestiunea energiei şi managementul proiectelor energetice*. Note de curs pentru managerii energetici. Ed. a 2-a, Manual pentru curs postuniversitar, Orizonturi Universitare, 180 p., ISBN 978-973-638-368-7
2. Kilyeni, Şt., Bărbulescu, C. *Metode numerice. Algoritme, programe, aplicatii in energetica. Lucrari practice*, Ed. a 4-a, Manual pentru studenti, Orizonturi Universitare, pag. 104 +CD , 104 p., ISBN 978-973-638-376-2
3. Kilyeni, Şt., Bărbulescu, C. *Tehnici de optimizare în ingineria energetică. Lucrări practice*, Ed. a 4-a, Manual pentru studenti, Orizonturi Universitare, 144 p. +CD , ISBN 978-973-638-375-5
4. Kilyeni, Şt. *Tehnice numerice de analiză asistată de calculator a regimurilor de funcţionare a sistemelor electroenergetice*, Monografie, Orizonturi Universitare, 432 p. +CD , ISBN 978-973-638-382-3
5. Moga, M. *Introducere în sisteme informatice pentru electroenergetică*, Manual pentru studení, Politehnica, Timişoara, 236 p., ISBN 978-973-625-755-1
6. Surianu, F. D. *Echipamente şi Instalaţii Electroenergetice*, Ediţia a II-a, Curs postuniversitar pentru managerii energetici, Editura Orizonturi Universitare Timişoara, 125 p., ISBN 978-973-638-366-3
7. Vătău, D., Surianu, F.D., Frigură-Iliasa, F.M., Cambronne, J.-P. *Considerations sur la qualitée de l'énergie électrique*, Monografie , Editura Orizonturi Universitare Timişoara, 135 p., ISBN 978-973-638-300-7
8. Vătău, D., Jădăneanţ, M., Borlea, I., Laza, I. *Utilizarea eficientă a energiei* , Ediţia a 2-a, note de curs, Editura Orizonturi Universitare Timişoara, 197 p., ISBN 978-973-638-369-4

PUBLISHED PAPERS

1. Surianu, F. D., Bărbulescu, C. *Complete Dynamic Behaviour Mathematical Modelling of Hydromechanical Equipment.Case study: Hydro Power Plant Raul Mare-Retezat, Romania*, WSEAS Transaction on Power Systems, ID 28-190, pp. 1790-1800
2. Bărbulescu, C., Vuc, Gh., Kilyeni, Şt. *Probabilistic Power Flow Approach for Complex Power System Analysis*, Proceedings of the IEEE International Conference Human System Interaction (HSI 2008), Krakow, Poland, pp. 551-556, ISBN 978-1-4244-0812-2
3. Pop, D.M., Ardelean, I., Chiosa, N., Kilyeni, Şt., Vuc, Gh., Bărbulescu, C. *Analysis of Contingencies Considering the New 400 kV Axle Administrated by Timisoara Transmission Branch*, Proceedings of the IEEE International Conference Human System Interaction (HSI 2008), Krakow, Poland, pp. 550-553, ISBN 978-1-4244-0812-2
4. Bărbulescu, C., Vuc, Gh., Kilyeni, Şt., Andea, P., Jigoria-Oprea, D. *Transmission Cost Allocation Mathods. Case Study for the South-West Side of the Romanian Power System*, Proceedings of the 8th WSEAS International Conference on Power Systems (PS' 08), Santander, Spain Power Systems and Power Technology, WSEAS Press, pp. 72-77, ISBN 978-960-474-066-2, ISSN 1790-5117
5. Bărbulescu, C., Vuc, Gh., Kilyeni, Şt. *Probabilistic Power Flow Using a New Instrument Designed for Stochastic Power System Analysis*, Proceedings of the 8th WSEAS International Conference on Elecric Power Systems, High Voltages, Electric Machines (POWER' 08), Venice, Italy, Recent Advances in Elecric Power Systems, High Voltages, Electric Machines, WSEAS Press, pp. 36-46, ISBN 978-960-474-026-0, ISSN 1790-5117
6. Moga, M., Molnar, F., Dale, L. *Simulation Software of the Voltage Sags Effects on Power System Loads*, Power systems and Power technology, Proceedings of the WSEAS International Conference, on Power Systems (PS'08), Id:599_235R, pp. 148 - 153, ISBN 978-960- 474-006-2, ISSN 1790-511
7. Şurianu, F. D., Bărbulescu, C. *Using Hydro Mathematical Model in Simulating Dynamic Behaviour of Hydromechanical Equipment of Hydro-Power Plant Raul Mare-Retezat, Romania*, Proceedings of 8th WSEAS International Conference on Simulation, Modelling and Optimization (SMO'08), Santander, Cantabria, Spain, September 23-25, 2008, ISBN 978-960-474-007-9
8. Şurianu, F. D. *Experimental Determination and Numerical Simulation of the Dynamic Insulation of a Large Consumer Unit*, Proceedings of WSEAS International Conference on Electric Power Systems, High Voltages, Electric Machines, Venice, Italy, 21-23 Nov, 2008, ISBN 978-960-474-026-0
9. Bucătariu, I., Şurianu, F. D., Duşa, V. *Cross-Section Determination of Earthing and Short-Circuiting Mobile Device for Fitted Overhead Lines and Substations With Digital Protections*, Proceedings of WSEAS International Conference on Electric Power

Systems, High Voltages, Electric Machines, Venice, Italy, 21-23 Nov., 2008, ISBN 978-960-474-026-0

10. Frigură-Iliasa, F., Frigură-Iliasa, M.,Mâţiu-Iovan, L., Vătău, D. *A Few Aspects Concerning the Modelling of Thermal Stability Control for a Low Voltage ZnO Varistor*, Proceedings of the 10th WSEAS International Conference on Automatic Control, Modelling & Simulation (ACMOS'08), Istanbul, Turkey, May 27-30, 2008, pp. 102-107, ISBN: 978-960-6766-63-3, ISSN: 1790-5117
11. Frigură-Iliasa, F., Biriescu, M., Madescu, Gh., Moţ, M., Grando, I. *A Few Aspects Concerning the Technical Solutions Applied for Control of Excitation in Synchronous Generators across Romania*, Proceedings of the 10th WSEAS International Conference on AUTOMATIC CONTROL, MODELLING & SIMULATION (ACMOS'08), Istanbul, Turkey, May 27-30, 2008, pp. 96-101, ISBN: 978-960-6766-63-3, ISSN: 1790-5117
12. Vătău, D., Frigură-Iliasa, F., Bărbulescu, C., Muşuroi, S. *A Few Aspects Concerning the On-voltage Working Techniques Applied at S.T. Timisoara, as a Way of Reducing All Maintenance Costs and to Increase the Availability of the Power Lines* , Proceedings of the 8th WSEAS International Conference on Power Systems (PS 2008), Santander, Cantabria, Spain, September 23-25, 2008, pp. 34-39, ISSN 1790-5117, ISBN 978-960-474-006-2
13. Vătău, D., Frigură-Iliasa, F., Bărbulescu, C., Muşuroi, S. *On-line Control of a Power Process. Fuzzy-Logic Applications*, Proceedings of the 8th WSEAS International Conference on Power Systems (PS 2008), Santander, Cantabria, Spain, September 23-25, 2008, pp. 227-280, ISSN 1790-5117, ISBN 978-960-474-006-2
14. Pană , A., Băloi, A. *A Quickly Method to Estimate Harmonic Conditions Changes in a Bus of an Electrical Network, as a Result of Transversal Impedance Installation*, Proceedings of the WSEAS International Conference on Power Systems, Santander, SPAIN, pp. 89-94, ISBN 978-960-474-006-2
15. Pop, O., Bărbulescu, C., Nemeş, M., Kilyeni, Şt. The Influence of the Common Structure Modification on the Allocation, Proceedings of World Academy of Science, Engineering and Technology (WASET), July 2008, Vol. 30, pp. 126-132, ISSN 1307-6884
16. Pop, O., Bărbulescu, C., Nemeş, M., Kilyeni, Şt. The Influence of the Common Structure Modification on the Active Power Losses Allocation, Proceedings of World Academy of Science, Engineering and Technology (WASET), July 2008, Vol. 31, pp. 660-665, ISSN 1307-6884
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RESEARCH GRANTS

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Studiu privind impactul utilizării surselor neconvenţionale pentru alimentarea serviciilor interne ale staţiilor, asupra siguranţei sistemului. Justificarea oportunităţii realizării unei aplicaţii pilot într-o staţie aparţinând ST Timişoara, contract 35/09.05.2008, Nr. UPT: BC 74/09/05/2008, value (2008): 8500+1615 TVA RON.

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