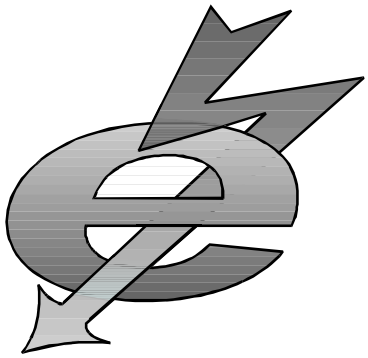
FACULTY OF ELECTRICAL AND POWER ENGINEERING



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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 MODELLING, SIMULATION, OPTIMAL DESIGN AND TESTING*

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 (Prof. dr. ing Ştefan Preitl)

RESEARCH TEAM

- Acad. Toma DORDEA
- Prof. dr. eng. Marius BIRIESCU
- Prof. dr. eng. Elena NICA
- Prof. dr. eng. Marius BABESCU
- Prof. dr. eng. Vladimir CREŢU
- Lect. dr. eng. Mihai MICEA
- Eng. Marţian MOŢ
- Eng. Gheorghe MADESCU
- Eng. Ileana TORAC

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.

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
- Lect. dr. eng. Lucian TUTELEA
- Lect. dr. eng. Alexandru HEDEŞ
- Assist. eng. Cristian LASCU
- PhD student Ioan Şerban
- PhD student Cristian Pitic
- PhD student Marcel Topor
- PhD student Răzvan Ancuţi
- PhD student George Iliescu
- PhD student Vasile Coroban

RESEARCH OFFERS

HARDWARE: Integration of intelligent motion control systems in various industries from process identification to commissioning and service. Prototyping of new systems for given specifications.
SOFTWARE: Electric motor - linear and rotary - design software aids (ELECTROMOTOR SOFT) in the form as software licensed products by request.

CONTACT PERSON

Prof. dr. eng. Ion BOLDEA
E-mail: boldea@lselinux.utt.ro

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
- Assist. eng. Ciprian ŞORÂNDARU
- Assist. eng. Octavian CORNEA

RESEARCH OFFERS

New drives with SRMs - from research to prototyping for various application 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. Gheorghe Atanasiu
E-mail: george@et.utt.ro

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. Gheorghe PĂPUŞOIU
- Eng. Ioan GHIUR
- Eng. Sorin MUŞUROI
- Eng. Liviu BĂJAN

RESEARCH OFFERS

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

CONTACT PERSON

Prof. dr. eng. Eugen Seracin
E-mail: seracin@et.utt.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 ultrasonics power electronics sources. A few prototypes have been built and tested.

RESEARCH BENEFICIARIES

Ministry of Research, ISIM Timişoara

RESEARCH TEAM

- Prof. dr. eng. Ioan ŞORA
- Lect. dr. eng. Dan NICOARĂ
- Lect. dr. eng. Alexandru HEDEŞ
- Assist. eng. Adriana TRĂISTARU

RESEARCH OFFERS

Low weight power electronics, including high-frequency power transformers, arc welding power sources, advanced power electronics ultrasonics sources (from research to prototyping), consulting in electrotechnologies and electric lighting devices.

CONTACT PERSON

Prof. dr. eng. Ioan Şora
E-mail: isora@et.utt.ro

Researches in *LOGIC OF THE CREATIVE PROCESS & CREATIVE ENGINEERING EDUCATION*

FIELD DESCRIPTION

In our days the logicization and algorithmization of creative processes constitute an important direction of development of innovation paradigm and they frames into the inventology domain following the efficientization of original technical creation. Therefore the integration of the paradigm of innovation into the engineering education is requested.

ACTIVITIES AND RESULTS

The researches concerning the complex development of inventics as a science of technical creation and as an educational discipline started in 1994 had as a result the elaboration of some general models of system concerning the object, the processuality and resources of technical creation, aimed to support the creative thinking and acting.

RESEARCH TEAM

- Prof. dr. eng. Stefan BARTZER

ACTIVITIES AND RESULTS

Efficient systemic and transdisciplinary approaches of technical creation's problems and engineering education, strategy elements and innovation tactic and technologic transfer, especially in the electrotechnical systems domain.

CONTACT PERSON

Prof dr. eng. Ştefan Bartzer
E-mail: sbartzer@et.utt.ro

MAIN PUBLICATIONS

PUBLISHED PAPERS

1. Miheţ, P. L., Blaabjerg, F., Boldea, I., *Wind Turbine Modeling and Simulation where Rotational Speed Is the variable,* IEEE Transaction – IA, vol. 40, no. 1/2004, pp. 3-10
2. Boldea, I., Tutelea, L., Pitic, C., *PM- Assisted Reluctance Synchronous Motor/Generator (PM – RSM) for Mild Hybrid Vehicles: Electromagnetic Design,* IEEE Transaction – IA, vol. 40, no. 2/2004, pp. 492-498
3. Lascu, C., Boldea, I., Blaabjerg, F., *Direct Torque Control of Sensorless Induction Motor Drives – A Sliding Mode Approach,* , IEEE Transaction – IA, vol. 40, no. 2/2004, pp. 582-590
4. Lascu, C., Boldea, I., Blaabjerg, F., *Variable Structure DTC – A Class of Fast and Robust Controllers for Induction Motor Drives,* IEEE Transaction – IE, vol. 51, no. 4/2004, pp. 785-792
5. Lascu, C., Trzynadlowski, A. M., *Combining the Principle of Sliding Mode, Direct Torque Control and Space – Vector Modulation in a High – Performance Sensorless AC Drive,* IEEE Transaction – IA, vol. 40, no.1/2004, pp. 170-177
6. Lascu, C., Trzynadlowski, A. M., *A Sensorless Hybrid DTC drive for High – Volume Low Cost Application,* , IEEE Transaction – IE, vol. 51, no. 5/2004, pp. 1048-1055
7. Boldea, I., *Linear Electromagnetic Actuators and Their Control,* EPE Journal, vol. 14, no. 1/2004, pp. 43-50
8. Kim, T. H., Lee, Y. H., Lee, J., Boldea, I., *Development of a Flux Concentration Type Linear Oscillatory Actuator,* IEEE Transaction on Magnetics, vol. 40, no. 4/2004, pp. 2092-2094
9. Dordea, T., Ocolişan, L., Torac, I., Moţ, M., Madescu, Gh., *The Influence of the End Coil on the Current Distribution in the Elementary Conductors of a Roebel Bar,* Rev. Roum. Sci. Techn. – Électrotechn. et. Énerg., vol. 49, no. 1, pp. 428 - 438
10. Nicoară, D., Şora, I., Hedeş, A., *Electromagnetic Harmonic Pollution Introduced by Ultrasonic Welding Equipments,* Rev. Sudura, nr. 1/2004, pp. 11-14
11. Hedeş, A., Şora, I., Nicoară, D., *Experimental Investigation on the Behaviour of an Inverter Arc Welder at the Mains Supply,* Journal of Electrical Engineering, www.jee.ro, no. 1/2004, paper no.3
12. Vlad, M., Nica, E., Şorândaru, C., Ghiur, I., Borza, I., *Aspects Regarding Optimal Design of an Induction Motor for Railway Switch,* ICEM 2004, Cracow, Poland, CD-rom Proceedings
13. Klumpner, I. D., Boldea, I., *Optimization Design of an Interior Permanent Magnet Synchronous Motor for an Automotive Active Steering System,* Proceedings of OPTIM 2004, Braşov, Romania, vol 2, pp. 129-134
14. Boldea, I., Topor, M., Tutelea, L., *Linear Flux Reversal PM Oscillo-Machine with Effective*

Flux Concentration, Proceedings of OPTIM 2004, Braşov, Romania, vol 2, pp. 59-64

15. Pitic, C. I., Tutelea, L., Boldea, I., Blaabjerg, F., *The PM – Assisted Reluctance Synchronous Starter/Generator (PM-RSM): Generator Experimental Characterization*, Proceedings of OPTIM 2004, Braşov, Romania, vol 2, pp. 275-282
16. Miheţ, P. L., Boldea, I., *Variable Speed Wind Turbine Using Induction Generators Connected to the Grid: Digital Simulation Versus Test Results*, Proceedings of OPTIM 2004, Braşov, Romania, vol 2, pp. 287-294
17. Miheţ, P. L., Boldea, I., E. Ritchie, *Performance of a Wind Turbine Induction Generators with Self Regulated Passive Elements in the Rotor*, Proceedings of OPTIM 2004, Braşov, Romania, vol 2, pp. 295-302
18. Şerban, I., Boldea, I., Blaabjerg, F., *Sensorless Doubly – Fed Induction Generator Control Under Power System Transients and Faults: the Influence of Magnetic saturation*, Proceedings of OPTIM 2004, Braşov, Romania, vol 2, pp. 311-318
19. Babău, R., Muntean, O., Scridon, S., Hedeş, A., Muntean, N., *REGEN 15kW – an Industrial Automation System for Small Scale Hydrogenerators Supplying Insular or Grid Consumers*, Proceedings of OPTIM 2004, Braşov, Romania, vol. 2, pp. 327-334
20. Lascu, C., Boldea, I., Blaabjerg, F., *A Class of Speed Sensorless Sliding Mode Observers for Direct Torque Controlled Induction MotorDrives*, Proceedings of OPTIM 2004, Braşov, Romania, vol. 3, pp.63-70
21. Scridon, S., Boldea, I., Tutelea, L., Blaabjerg, F., Ritchie, E., *BEGA – A Biaxial Excitation Generator for Automobiles: Comprehensive Characterization and Test Results*, Proceedings of OPTIM 2004, Braşov, Romania, vol. 3, pp.1682-1690
22. Klumpner, I. D., Boldea, I., *Comparative Optimization Design of an Interior PM Synchronous Motor for an Automotive Active Steering System*, Proceedings of IEEE-PESC, Aahen 2004, pp. 369 - 375
23. Boldea, I., *Starter/Alternator Systems for HEV and Their Control: A Review*, CD-rom Proceedings of ICEMS, Korea, 2004, Conference Number 00-1(INV-SO2-005) Invited Paper
24. Biriescu, M., Şorândaru, C., Liuba, Gh., Moţ, M., Madescu, Gh., *Determination of the Asynchronous Torque Characteristic of the Reversible Synchronous Hydrogenerator*, CD-rom Proceedings of ICEM, Poland, 2004, ISBN 83-921428-0-2
25. Şorândaru, C., Moţ. M., *Lab View Data Aquisition Software for Electrical Machines Laboratory*, CD-rom Proceedings of REV, Austria, 2004, ISBN 3-89958-090-7
26. Cornea, O, Şorândaru, C., *Experimental Determination of Flux – Current Position and Torque – Current Position Characteristics for a Switched Reluctance Motor*, Proceedings of OPTIM 2004, Braşov, Romania, vol. 3, pp. 117-124
27. Olărescu, V., Muşuroi, S., *Enhanced Simplified Control Algorithm for Surface – Mounted PM Synchronous Motors with Sinusoidal Excitation*, Proceedings of the 4th International Power Electronics and Motion Control Conference, China, 2004, pp. 1049-1053
28. Olărescu, V., Muşuroi, S., *The Simplify Control Algorithm for PM Synchronous Motors with Sinusoidal Current Control*, Proceedings of ICEM, Poland, 2004, pp. 1007-1008
29. Muşuroi, S., Torac, I., *A Simulink Model of a Direct Orientation Control Scheme for Torque Control Using a Current – Regulated PWM Inverter*, 1st International Scientific Conference on Information Technology and Quality, Grece, 2004, pp. 18-19
30. Băjan, L., Svoboda, M., Ghiur, I., *Induction Machine Scalar Control by Using dSPACE with Real Time Interface*, Proceedings of the 2nd International Conference on Robotics, Reşiţa, 2004, pp. 25-27
31. Ghiur, I., Băjan, L., Svoboda, M., *Inteligent Control Strategies using CAN Communication Standard*, Proceedings of the 2nd International Conference on Robotics, Reşiţa, 2004, pp. 81-83

PhD THESIS DEFENDED

1. Dodin, Marian *The Influence of High Level Time and Space Harmonics on Induction Machines*, PhD advisor: Prof. dr. eng. Dordea Toma
2. Popa Gabriel, *Contributions Regarding the Improvement of Industrial ElectroFilters Parameters for Biphasic Gas – Solid Particles Systems*, PhD advisor: Prof. dr. eng. Şora Ioan
3. Giurgiu Valentin, *Contributions Regarding the Transients of AC Electric Drives, ,* PhD advisor: Prof. dr. eng. Seracin Eugen

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DEPARTMENT OF ELECTROTECHNICS

MAIN RESEARCH FIELDS

- Galvanomagnetic effects studies

Keywords: transducers, circuits

- Special topics in electrical circuits

Keywords: circuits, networks

- Numerical simulation of electromagnetic fields

Keywords: electric & magnetic field, FEM, BEM

- Electromagnetic energy in industrial applications and electromagnetic field and high frequency waves in non homogenous medium

Keywords: electromagnetic field, energy, microwaves, laser waves

- Technical applications of magnetic liquids

Keywords: magnetic field, forces, geometry improvement

Researches in *GALVANOMAGNETIC EFECTS STUDIES*

FIELD DESCRIPTION

The domain refers to the analysis of electrical field in Hall plates and the behavior of Hall generator as a non-reciprocal circuit component. Also it refers to the determination of parameters of the Hall generator as function of the direction of magnetic induction.

ACTIVITIES AND RESULTS

We have developed computing methods of the electric field in the Hall plates. Introduction of the couple of system of transfer parameters components into the investigation has completely elucidated the problem of the Hall generator non-reciprocity, allowing for a most general formulation of the condition of non-reciprocity. They were achievement wattmeters Hall, ampermeters Hall, tesllameters Hall, and others.

RESEARCH TEAM

- Prof. doc. dr. eng. Constantin ŞORA, head of the team
- Prof. dr. eng. Ioan De SABATA
- Prof. dr. eng. Avram HELER
- Prof. dr. eng. Ioan VETREŞ

RESEARCH OFFERS

Consulting on the achievement of the Hall generator and for calculation of the electric field in the Hall plates

Researches in *SPECIAL TOPICS IN ELECTRICAL CIRCUITS*

FIELD DESCRIPTION

Lossy antireciprocal systems, like Hall plates, OA gyrators and DC-DC power converters. The second topics concern reliability optimization of medium power distribution networks.

ACTIVITIES AND RESULTS

Special features of the two-port transfer parameters of lossy antireciprocal systems, like Hall plates, OA gyrators and DC-DC power converters, were studied. Research has been done for the efficient grounding-faults detection in isolated-neutral distribution networks and the simulation of transients triggered by such fault. Some of the results are used for efficient trimming of the network's protective relays.

RESEARCH TEAM

- Prof. dr. eng. Dumitru TOADER, head of the team
- Prof. dr. eng. Ştefan HĂRĂGUŞ
- Prof. doc. dr. eng. Constantin ŞORA
- Lect. dr. eng. Constantin BLAJ
- Assist. eng. Ildiko TATAI
- Assist. eng. Daniela VESA

RESEARCH OFFERS

Tools and strategies for efficient detection of grounding-faults in isolated-neutral medium voltage distribution networks.

Researches in *NUMERICAL SIMULATION OF ELECTROMAGNETIC FIELDS*

FIELD DESCRIPTION

The use of numerical methods for solving electromagnetic and thermal fields in technical devices: galvanomagnetic devices, electromagnets and permanents magnets systems, magnetoelastic and high DC currents transducers, electrical machines, induction heating equipments.

ACTIVITIES AND RESULTS

Optimal design of special purposes electromagnets, high sensitivity relays with permanent magnets. Analysis of the electromagnetic and thermal field in induction heating equipments.

RESEARCH TEAM

- Prof. doc. dr. eng. Constantin ŞORA
- Prof. dr. eng. Ioan De SABATA
- Prof. dr. eng. Ioan VETREŞ
- Prof. dr. eng. Dumitru RADU
- Prof. dr. eng. Ştefan HĂRĂGUŞ
- Prof. dr. eng. Ioan BERE
- Assoc. prof. dr. eng. Eugen BĂRBULESCU
- Assoc. prof. dr. eng. Dumitru IRIMIA
- Assoc. prof. dr. eng. Mariana TITIHĂZAN
- Lect. dr. eng. Constantin BLAJ
- Lect. dr. eng. Marian GRECONICI
- Assist. eng. Daniela VESA

RESEARCH OFFERS

Optimal design of electromagnetic devices using numerical methods. The study of electromagnetic and thermal fields in induction heating devices. Dielectrics in high frequency electromagnetic fields.

Researches in *ELECTROMAGNETIC ENERGY IN INDUSTRIAL APPLICATIONS. ELECTROMAGNATIC FIELD AND HIGH FREQUENCY WAVES IN NON-HOMOGENOUS MEDIUM*

FIELD DESCRIPTION

The evaluation of electromagnetic energy in industrial application has a permanent importance, theoretical and economic. Also, the electromagnetic field and high frequency electromagnetic waves in the non-homogenous medium have numerous applications: telecommunications, industrial technology, medicine, biology, etc. Important are the theoretical aspects.

ACTIVITIES AND RESULTS

The evaluation of electromagnetic energy in rolling-mill plants and optimization of consume rate is the priority of research. The thermoelectric effects in non-homogenous medium and propagation of high frequency electromagnetic waves in different mediums are developed using advanced methods and programs, with important results.

RESEARCH TEAM

- Prof. dr. eng. Nicolae BOGOEVICI
- Prof. dr. eng. Dumitru DABA
- Prof. dr. eng. Dumitru TOADER
- Prof. dr. eng. Ştefan HĂRĂGUŞ
- Assoc. prof. dr. eng. Dumitru IRIMIA
- Lect. dr. eng. Constantin BLAJ
- Assist. eng. Ildiko TATAI

RESEARCH OFFERS

Optimization of consume rate of electromagnetic energy in rolling-mill plants. The calculation of termoelectrical effects. Propagation in mom homogenous medium of the electromagnetic waves, with the evaluation of electromagnetic energy.

Researches in *TEHNICAL APPLICATIONS OF MAGNETIC LIQUIDS*

FIELD DESCRIPTION

The magnetic liquids have found a large interest in technical applications such as: magneto gravimetric separation, magnetic bearings and seals, pressure and flow transducers, inclinometers, accelerometers. Most of these applications are based on the magnetic field forces, depending on the magnetic properties of magnetic liquid and the geometry of the devices. The research of our group is concerned with the adequate magnetic liquids and geometry of the devices, in order to improve their performances.

ACTIVITIES AND RESULTS

The analytical and numerical evaluation of the magnetic force that acts on the shaft of cylindrical bearings represents the main research of the group. There has been investigated the cylindrical bearing with permanent magnetized shaft and magnetic liquid, and the cylindrical bearing with alternating poles (sandwich type structure). An approximate analytical expression of the magnetic force that acts on the shaft has been established, analyzing the influence of the geometrical design of bearing and the magnetic properties of the liquid. The analytical results have been compared with the numerical results.

RESEARCH TEAM

- Prof. dr. eng. Ioan DE SABATA
- Lect. dr. eng. Marian GRECONICI
- Lect. dr. eng. Barbu NICOARĂ
- Lect. dr. eng. Constantin BLAJ

RESEARCH OFFERS

Magnetic field computation for magnetofluidic devices. Forces and energy evaluation in magnetic liquids. Geometry design improvement of ferrofluidic devices, based on field calculation.

PUBLICATIONS

PUBLISHED PAPERS

1. Şora, I., *Creşterea rezistenţei electrice a unei plăci Hall ca urmare a efectului magneto rezistiv electric*, Revue Roumaine de Science et Technologie, Electrotechnique et Energetique, vol. 49, nr. 1, pp. 32-38, Bucharest, 2004

2. Şora, I, *Some Remarks about Operational Amplifiers Based Girators and their Passivity*

Condition, Revue Roumaine de Science et Technologie, Electrotechnique et Energetique, vol. 49, nr. 1, pp. 39-45, Bucharest, 2004

3. Titihăzan, M., Greconici, M., Titihăzan, V., Toader, D., *Electromagnetical Coupling on a Double Circuit Hight Voltage 220 KV Electrical Overhead Lines*, Electronics, Vol.7, Nr.2, pp. 105-109 Banjaluka, Serbia and Montenegro, 2004
4. Toader, D., Iova, S., *The Calculation of the Single Phase Short Circuit Current in Microhzdroplants*, International Conference Foren 2004 Wec Regional Energy Forum, pp. 125-131, Neptun, 2004
5. Toader D., Hărăguş, Şt., Diaconu, I., Haţegan, D., Hristea V., Pinte, N., *Digital Protective Blocks for Medium Voltage Networks with Isolated Neutral-Point*, Fifth International World Energy Sistem Conference A Reliable World Energy Sistem, pp. 67-72, Oradea, 2004
6. Toader, D., *The Calculation of Distribution the Single-Phase Short-Circuit Current in the Station Earth*, National Sympozium of Teoretical Electrical Engineering, pp. 151-157, Bucharest, 2004
7. Toader, D., *To Influence the Earth Parameters on The Mutual Inductance Between Earth-Conductors Loops*, National Sympozium of Teoretical Electrical Engineering, pp. 157-163, Bucharest, 2004
8. Titihăzan, V., Titihăzan M., Toader, D., Curcan, G., Cimponeriu, A., Iuhasz, I., *Measuring Domain Extension of the 30 KV Electrostatic Voltmeter and Disturbances Compensation*, International Symposium on High Voltage and High Power Tests, SIMC EE, pp. 258-264, Băile Herculane, 2004
9. Toader D., Iova, S., *Mutual Inductance Calculation Between Earth Conductor Loops*, Conference on Etran, pp. 239-242 Cacak, Serbia, 2004
10. Greconici, M., *The Influence of the Geometrical Design on the Force Exerted on the Shaft of a Cylindrical Bearing With Magnetic Liquid*, Conference on Etran, pp. 265-268, Cacak, Serbia, 2004
11. Borza, I., Nicoară, B., *Human Protection Measures in the Execution and Exploitation of Buidings' Electrical Installation Systems*, International Symposium, vol.1, pp. 43-71, Arad, 2004
12. Borza, I., Nicoară, B., *Devices to Protect Humans Against Accidental Tensions Induced by Touch - Part I*, International Symposium, vol.2, pp. 38-48, Arad, 2004
13. Borza, I., Nicoară, B., *Devices to Protect Humans Against Accidental Tensions Induced by Touch - Part II*, International Symposium, vol.2, pp. 48-58, Arad, 2004
14. Bere, I., *Anizotropii cu polarizaţie permanentă, având direcţiile perincipale de polarizare ortogonale*, EEA - Electrotehnica, Electronica, Automatica, vol.52, nr.4, pp. 17-22, 2004

PHD THESIS

Ioan Dorin Haţegan: C*ontribuţii la analiza şi introducerea unei protecţii numerice perfomante în reţelele electrice de medie tensiune cu neutrul izolat*, PhD advisor: Prof. doc. dr. eng. Constantin Şora

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DEPARTMENT OF POWER ENGINEERING

MAIN RESEARCH FIELDS

- Electromagnetic Compatibility in Power Systems

Keywords: Electromagnetic field, Environement, 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 Apparatus and Equipments

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

- Power Quality

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

- Short-term energy and load curve 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

Researches in *ELECTROMAGNETIC COMPATIBILITY IN POWER SYSTEMS*

FIELD DESCRIPTION

Electromagnetical disturbances analysis, produced by high and low perturbation sources; coupling mode between sources and victims and against perturbation action to protect the energetical 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
- Assoc. prof. dr. eng. Ilona Bucatariu

transformer iron core, non-linear analyses methods

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-aluminium conductor insulated with XLPE

Tests on insulation of welding equipment

RESEARCH BENEFICIARIES

SC Electroconstrucţia ELCO Oradea S.A., ELECTRICA S.A. Timişoara, ISIM Timişoara

RESEARCH TEAM

- Prof. dr. eng. Viorel NEGRU
- Prof. dr. eng. Viorel TITIHĂZAN
- Prof. dr. eng. Adrian BUTA
- Assoc. prof. dr. eng. Adrian PANĂ
- Prof. 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 and 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
- Prof. dr. eng. Mircea NEMEȘ
- Lect. dr. eng. Gheorghe VUC
- Eng. Oana POP

RESEARCH OFFERS

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

Researches in *POWER APPARATUS AND EQUIPMENT*

FIELD DESCRIPTION

It's a very large category of electrical systems, which includes 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. Timișoara and Sibiu), S.C. TRANSELECTRICA S.A. (S.T. SIBIU), ELECTROPUTERE S.A. Craiova

RESEARCH TEAM

- Prof. dr. eng. Alexandru VASILIEVICI
- Prof. dr. eng. Lucian MOLDOVAN
- Prof. dr. eng. Iuliu DELESEGA
- Prof. dr. eng. Petru ANDEA
- Assoc. prof. dr. eng. Doru VĂTĂU
- Assist. eng. Flaviu FRIGURĂ
- Assist. eng. Eva ZENG
- Assist. eng. Cristian POPA

Researches in *POWER QUALITY*

FIELD DESCRIPTION

Analysis of harmonics, unsymmetrical operations and measurement of equivalent parameters 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. Adrian BUTA
- Assoc. prof. dr. eng. Adrian PANĂ
- Assist. eng. Ilona BUCATARIU
- Assist. eng. Gabriel LIMBEAN

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 *SHORT-TERM ENERGY AND LOAD CURVE FORECASTING*

FIELD DESCRIPTION

The analyzing of the energy consumption and of the power need for end consumers, in viewing of forecasting, of short-term forecasting algorithm and programs elaboration for energy and load curves on maximum interval by one week

ACTIVITIES AND RESULTS

Data acquisition in the substations of Romanian electrical power system
The data files processing and creating about the energy consumption and required power
The implementation and drawing up some programs as PRENPS

RESEARCH TEAM

- Prof. dr. eng. Adrian BUTA
- Prof. dr. eng. Bucur LUȘTREA
- Assoc. prof. dr. eng. Adrian PANĂ
- Assist. dr. eng. Ilona BUCATARIU
- Eng. Silviu COLBAN (SISE Banat)
- Eng. Gabriel LIMBEAN

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 word - wide restructuring of the power industry move away from the traditional monopolies and toward greater competition, in the

form a 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
- Lect. dr. eng. Gheorghe VUC
- Assist. eng. Ioan BORLEA
- Assoc. prof. dr. mat. Doru PĂUNESCU (Department of Mathematics)
- Eng. Oana POP

RESEARCH OFFERS

Digital model of power system.

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 this fields.

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
- Assist. eng. Ioan BORLEA
- Eng. Gabriel LIMBEAN
- Eng. Filip LUPEA
- Eng. Marius GROZA

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

Non linear transformer iron core modelling taking into account the hysteresis loop. Methods of model establishment and validation. Estimation of the transformer behavior under symmetrical (sinusoidal and non-sinusoidal) and asymmetrical supply conditions. Analyses of 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
- Assist. Eng. dr. Flaviu FRIGURĂ

RESEARCH OFFER

Modeling single-phase transformers and apparatuses with ferromagnetic core
Estimation of electromagnetic quantities: time variation shape, r.m.s., peak values, harmonic analyse over a wide range of conditions
Time and frequency analysis of electromagnetic quantities
Behavioural analysis of a complex system containing a transformer or an apparatus
Iron core power losses detailed analysis

PUBLICATIONS

BOOKS

1. Kilyeni Stefan, *Numerical Methods. Algorithms, Calculus Programs, Applications in Power Engineering*, 3th Edition, Orizonturi Universitare Publishing House, Timişoara, 2004, 366 pages, ISBN 973-638- 100-5 (published in Romanian)

2. Coman Voichita, *Electrical Transformer. Analyze and Application Modeling,* Orizonturi Universitare Publishing House, Timişoara, 2004, 128 pages, ISBN 973-638-109-9 (published in Romanian)
3. Surianu Flavius Dan, *Distribution Electrical Networks,* Orizonturi Universitare Publishing House, Timişoara, 2004, 208 pages, ISBN 973-638-113-7 (published in Romanian)
4. Moga Mihai, Bîca Petru, Lupea Filip, *Development Systems with Z80 Microprocessor. Applications,* Orizonturi Universitare Publishing House, Timişoara, 2004, 92 pages, ISBN 973-638-114-5 (published in Romanian)
5. Gheju Petru, Duşa Vasile, *Short Circuits in Electrical Installations,* Orizonturi Universitare Publishing House, Timişoara, 2004, 360 pages, ISBN 973-638-158-7 (published in Romanian)
6. Buta Adrian, *Power Engineering Bases. Electro-Magnetism and Electric Circuit. Lectures notes for powers audits,* Orizonturi Universitare Publishing House, Timişoara, 2004, 108 pages, ISBN 973-638-166-8 (published in Romanian)
7. Moga Mihai, Borlea Ioan, *Measure of Electric Magnifications. Lectures Notes for Powers Audits,* Orizonturi Universitare Publishing House, Timişoara, 2004, 132 pages, ISBN 973-638-167-6 (published in Romanian)
8. Gheju Petru, Duşa Vasile, *Elaboration and Analyze of Power Balances. Lectures Notes for Powers Audits,* Orizonturi Universitare Publishing House, Timişoara, 2004, 216 pages, ISBN 973-638-168-4 (published in Romanian)
9. Şurianu Flavius Dan, *Equipments and Power Installations. Lectures Notes for Power Managers,* Orizonturi Universitare Publishing House, Timişoara, 2004, 128 pages, ISBN 973-638-169-2 (published in Romanian)
10. Vuc Gheorghe, *Energy Administration and Management of Power Projects. Lectures Notes for Power Managers,* Orizonturi Universitare Publishing House, Timişoara, 2004, 180 pages, ISBN 973-638-170-6 (published in Romanian)
11. Vătău Doru, Jadaneanţ Mihai, Borlea Ioan, Ioan Laza, *Energy Efficient Utilization. Lectures Notes for Power Managers,* Orizonturi Universitare Publishing House, Timişoara, 198 pages, ISBN 973-638-171-4 (published in Romanian)
12. Kilyeni Ştefan, Groza Marius, Limbean Gabriel, *Numerical Methods. Algorithms, Calculus Programs, Applications in Power Engineering. Practical Works,* 3thEdition, Orizonturi Universitare Publishing House, Timişoara, 2004, 142 pages, ISBN 973-638-172-2 (published in Romanian)
13. Pana Adrian, *Power Engineering Bases. Function Regimes of Power Installations. Machines and Electric Drives. Lectures Notes for powers Audits,* Orizonturi Universitare Publishing House, Timişoara, 2004, 152 pages, ISBN 973-638-174-9 (published in Romanian)
14. Vătău Doru, Frigură Flaviu, Şurianu Flavius Dan, Cambronne J.P., Choylev N., Dana Uria, *Electric Materials,* Orizonturi Universitare Publishing House, Timişoara, 2004, 150 pages, ISBN 973-638-199-4 (published in Romanian)

PUBLISHED PAPERS

1. Titihăzan, V., Buta, A., Titihăzan, M., Şurianu, F.D., Pană, A., *Test in High Voltage About the Insulating Structure Performance,* Proceedings of the 7-th International Conference on Live Maintenance ICOLIM 2004, Bucharest, Romania, pp. 375-380
2. Vătău, D., Frigura, F., Şurianu, F.D., Cambronne, I.P, *A Few Aspects Corncerning the State Diagnosis of SF6 Insulation in Capsulated Installations,* XV-th International Conference on Gas Discharges and their Applications, 5-10 Sept. 2004, Toulouse, pp. 403-406
3. Frigură, F., Vătău, D., Şurianu, F.D., Cambronne, I.P, *A Few Aspects Concerning the Influence of the Electrodes on the Sf6 Insulations Dielectric Behavior,* XV-th International Conference on Gas Discharges and their Applications, 5-10 Sept. 2004, Toulouse, pp. 415-419
4. Duşa, V., Gheju, P., Bucatariu, I., *Representations of Synchronous Generator in Positive Sequence Network for the Calculations of Sustained Short-circuit Current with Asymmetrical Faults,* Fifth International Energy Systems Conference, Oradea, pp. 403-406
5. Buta, A., Stoian, A., Fecioru, I., Apetrei, Gh., Popovici, A., Colban, S., *Folosirea descompunerii spectrale la prognoza pe termen scurt a curbelor de sarcina,* Energetica, An 52, Nr.4, ISSN 1453-2360, pp. 161-170

6. Chiosa, N., Buta, A., Duşa, V., Gheju, P., Pană, A., Titihăzan, V., *Trecerea alimentarii serviciilor proprii ale staţiilor RET la tertiarul AF în condiţiile liberalizării pieţei de e.e. în Romania,* Energetica, An 52, Nr.4, ISSN 1453-2360, pp. 178-184

7. Buta, A., Pană, A., Jude, A., *Aplatizarea curbelor de sarcina, mijloc de eficientizare a sistemelor de energie,* Energetica, An 52, Nr.4, ISSN 1453-2360, pp. 520-524

8. Buta, A., Lupea, F., Pană, A., Ticula, E., Ciobanu, N., *Criteria for Harmonic Resonances Frequencies Identification in Harmonically Polluted Distribution Network, 2004,* Proceedings Regional Conference and Exhibition, CIRED Herceg Novi, 2004, R2-5, October 5-8, CD

9. Buta, A., Lustrea, B., Borlea, I., Vasar, C., Colban, S., *Problemes particuliers de l'utilisation des reseaux neuronaux artificiels dans la prevision de la consoumation d'energie a terme moyeu,* Proceedings of the Fifth International Word Energy Systems Conference, 2004, Oradea, vol.II, pp. 375-382

10. Buta, A., Lustrea, B., Borlea, I., Vasar, C., *Câteva aspecte ale prognozei consumului de energie pe termen mediu folosind reţele neuronale artificiale,* Proceedings, Sisteme de Inteligenţă artificială în Electroenergetică SIAE, Ed.II, Galati, pp. 46-54

11. Ticula, E., Buta, A., Pană, A., Lupoea, F., Ciobanu, N., *Sistem expert pentru identificarea regimurilor rezonante in reţelele de distribuţie poluate armonic,* Proceedings, Sisteme de Inteligenţă Artificială în Electroenergetică, SIAE, Ed.II, Galati, pp. 233-240

12. Buta, A., Stoian, A., Floroiu, I., Apetrei, Gh., Colban, S., Popovici, A., *Program complex pentru prognoza pe termen scurt a consumatorului de e.e. şi a curbelor de sarcina la consumatorii finali,* Lucrarile Simpozionului National de Informatică şi Telecomunicatii in Energetica, SIE 2004, Sibiu, noiembrie 2004, pp. 101-108

13. Ticula, E., Buta, A., Pană, A., *Metoda de identificare a regimurilor de rezonanta armonica ale reţelelor electrice de distribuţie poluate armonic,* Energetica, An 52, Nr.2, ISSN 1453-2360, pp. 62-67

14. Delesega, I., *Toroidal Contact Model Computational Results,* Electric Power Components and Systems, 32, 8, pp. 801-812

15. Delesega I., *A villa, osenergia minosegenek nehany figelemre melto jellemzoje,* Energetica, Elecktrotechnika Konferencia (ENELKO 2004) Cluj, pp. 25-39

16. Lustrea, B., Borlea, I., *Folosirea metodelor specifice inteligentei artificiale la monitorizarea regimului permanent normal al sistemelor electroenergetice,* Simpozionul Sisteme de Inteligenţă Artificială în Electroenergetică, Galati, 29-30 Sept. 2004, pp. 165-178

17. Nemeş, M., Paunescu, D., Vuc, Gh., *Expansion Planning of Power Systems. Opportunity and Risk,* WEC Regional Energy Forum, Section II, Neptun, June 13-18, 2004, pp. 81-88

18. Vuc, Gh., Deysi, A., Ogarcian, A., *Distributed Generation as a Choice in the Management of Power Market Liberalization Consequences,* WEC Regional Energy Forum, Section II, Neptun, June 13-18, 2004, pp. 121-128

19. Nemeş, M., Păunescu, D., Vuc, Gh., *Minimize of Hourly Cost by Gradual Penalty Tax,* IWESC 5th International World Energy Systems Conference, Oradea, 2004, ISSN 1198-0729, pp. 565-570

20. Nemeş, M., Vuc, Gh., Iova, S., Păunescu, D., *Electricity Market. Forecasting Next-Day Price,* Simpozionul Internaţional de Eficienţă în Energetică, Cluj, 2004, CD

21. Vuc, Gh., Nemeş, M., Păunescu, D., *Price Elasticity of Electricity Demand. Evolution Analysis in 1990-2003,* Simpozionul Internaţional de Eficienţă în Energetică, Cluj, 2004, CD

22. Vuc, Gh., Nemeş, M., Păunescu, D., *Network Active Power Losses in the Distributed Generation Presence. Optimal Algorithm for DG Installation,* Simpozionul Internaţional de Eficienţă în Energetică, Cluj, 2004, CD

23. Ardelean, I., Kilyeni, S., Chiosa, N., Groza, M., Vornic, N., Lupea, F., Zidaru, N., *Deviations from the Normal Scheme, Imposed by the Electric Networks Withdrawal from Operation During Maintenance a Possible Argument in Favor of Maintenance on Live Installations at Transelectrica,* Proceedings of the 7-th International Conference on Live Maintenance ICOLIM 2004, Bucharest, Romania, pp. 277-285

24. Preitl, S., Precup, R., Kilyeni, S., *Low Cost Fuzzy Controllers with pi Dynamics for Hydro-generators,* Proceedings of the Conference on Energetics and Electrical Engineering, 2004, Cluj, Romania, ISBN 973-86852-9-x, pp. 140-147

25. Preitl, S., Precup, R., Kilyeni, S., *Fuzzy Controllers with Dynamics for Hydro-generators Voltage and Speed Control*, Proceedings of the 6-th International Conference on Control of Power Systems 2004, Hugh Tatras, Slovak Republic, 2004, pp. 56-65

26. Vasilievici, A., Frigura, F., Popa, C., Zeng, E., *Solution Regarding Surge Protection Gears for Low Voltage Systems*, International World Energy System Conference, Oradea, 2004, Proceedings, vol. II, pp. 346-349

27. Vasilievici, A., Balasiu, F., Moraru, Gh., *Modernizing of Control Protection Systems in the 220 kV Fantanele Substation*, International World Energy System Conference, Oradea, 2004, Proceedings, vol. II, pp. 350-355

28. Vasilievici, A., Zeng, E., Popa, C., Frigura, F., *The Desing and Development of Nonstructural Methods for Wires and Cables Aging Process Testing and Infrastructure Validation as well as Visual Control Survaillance*, International World Energy System Conference, Oradea, 2004, Proceedings, vol. II, pp. 359-362

29. Vasilievici, A., Popa, C., Zeng, E., Frigura, F., *Complex Permittivity Measurements Trough Time Domain Reflectometry Method. Comparison with the Frecvency Domain Reflectometry Method (F.D.R.)*, International World Energy System Conference, Oradea, 2004, Proceedings, vol. II, pp. 363-366

30. Vasilievici, A., Huidan, S., *Improved Performance of the Automatic Control of the Aggregates in Natural Gas Compressor Stations*, International Conference OPTIM, 2004, Brasov, Proceedings, pp. 154-160

31. Vasilievici, A., Chimirel, C., Stanescu, C., *Contururile energetice ale sucursalelor de transport – C.N.T.E.E. Transelectrica S.A.*, Al V – lea Simpozion National de Informatica si Telecomunicatii in Energetica SIE 2004, Sibiu, 10 – 12 Nov. 2004, pp. 187-194

RESEARCH PROJECTS / CONTRACTS

1. Grant CNCSIS nr. 32940/2004, *Model digital al sistemului electroenergetic - partea a II-a*, Director: prof. dr. eng. Mircea Nemeş, Value: 242,500,000 ROL

2. Contract nr. 6301PS426/ 27.Feb.2004, *Qualite de l'energie electriques tranbsferee entre l'Europe de l'est et l'Europe de l'ouest*, Director: assoc. prof. dr. eng. Doru Vatau, Value: 29,000 EURO

3. Contract nr. 116/2004, *Masurarea tensiunilor induse in LEA 220 kV D.C. şi în porţiunile de paralelism cu LEA 110 kV*, Directors: prof. dr. eng. Flavius Dan Surianu, prof. dr. eng. Viorel Titihazan, Beneficiary: CNTR Transelectrica SA, Value: 100,000,000 ROL

4. Contract nr. 36/2004, *Incercarea a 18 buc. DRV-uri*, Directors: prof. dr. eng. Flavius Dan Surianu, prof. dr. eng. Viorel Titihazan, Beneficiary: CNTR Transelectrica SA, Value: 60,000,000 ROL

5. Contract nr. BC 117/2004 (54/14.07.2004), *Studiu privind introducerea unui sistem expert intr-o staţie de transformare de înaltă tensiune*, Director: prof. dr. eng. Adrian Buta, Beneficiary: CNTR Transelectrica SA, Value: 135,000,000 ROL

6. Contract nr. BC 176/2004(535/04.11.2004, *Studiul fenomenului de poluare electromagnetica produs in reţeaua de distribuţie a e.e. din gestiunea SDFEE Resita, de cuptoarele electrice de la CS Resita*, Director: prof. dr. eng. Adrian Buta, Beneficiary: SC Electrica SA Banat, Value: 75,000,000 ROL

7. Contract nr. BC 198/2004 (40/27.12.2004), *Software "Prognoza consum energetic"*, Director: prof. dr. eng. Adrian Buta, Beneficiary: SC Electrica SA Dobrogea, Value: 120,000,000 ROL

8. Contract nr. 94/2004, *Editări şi traduceri de documentaţii tehnice pentru instalaţiile de înalta tensiune*, Director: prof. dr. eng. Mihai Moga, Beneficiary: CNTR Transelectrica SA, Value: 1,290,000,000 ROL

9. Contract nr. 118/2004, *Studiu privind asigurarea serviciului de mentenanta in statiile care au fost sau urmeaza a fi retehnologizate. Studiu de caz, statia 400 kv Arad*, Director: prof. dr. eng. Stefan Kilyeni, Beneficiary: CNTR Transelectrica SA, Value: 150,000,000 ROL

10. Contract nr. 992/2004, *Cursuri de gestiunea energiei, Bilanturi electroenergetice si Bilanturi termoenergetice*, Director: prof. dr. eng. Stefan Kilyeni, Beneficiary: Continuing Education Departament of the "Politehnica" University of Timişoara, Value: 608,400,000 ROL

11. Contract nr.3-PP6/30.10.2003, CERES (2003-2005), *Studiul privind managementul stiintific al invatamantului superior de profil tehnic, acordat la cerintele economiei de piata*, Director: prof. dr. eng. Al. Vasilievici

PhD THESIS DEFENDED

Ilona Bucatari, *Contribuţii la studiul compensării serie a reţelelor de distribuţie*, PhD advisor: prof. dr. eng. Viorel Negru

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