



SLOVENSKÁ TECHNICKÁ  
UNIVERZITA V BRATISLAVE  
FAKULTA ELEKTROTECHNIKY  
A INFORMATIKY

# 2011



## INSTITUTE OF POWER AND APPLIED ELECTRICAL ENGINEERING

**ANNUAL REPORT**  
**SLOVAK UNIVERSITY OF TECHNOLOGY IN BRATISLAVA**

# INSTITUTE OF POWER AND APPLIED ELECTRICAL ENGINEERING

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**Director:**  
**prof. Ing. František Janíček, PhD.**

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**Deputy director:** prof. Ing. Justín Murín, DrSc.

Tel / Fax: +421-2-654 27 192 / E-mail: [justin.murin@stuba.sk](mailto:justin.murin@stuba.sk)

**Institute Secretary:** Mgr. Miriam Szabová / Tel: +421-2-602 91 831

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## General Information

Institute of Power and Applied Electrical Engineering FEI STU is specialized in development of the following areas: electrical power engineering, heavy current engineering, light engineering, electrotechnology, renewable energy, applied mechanics and mechatronics, economics and management in electrical power engineering and safety of electric equipment. The main role of the institute is integrated and developed factually related educational, scientific, research and development activities by creative way. The lecturers of institute are specialized in subjects in all three levels of accredited degree programs. The institute has well equipped laboratories in which are solved scientific and research projects in the domestic and foreign grants and also European programs. We consider an important part of our work cooperation with industry, where members of the institute are involved in solving of scientific and specialized tasks for the partners from Slovak Republic, as well as various European countries.

## Department of Applied Mechanics and Mechatronics

**Department chair:** prof. Ing. Justín Murín, DrSc.  
Tel / Fax: +421-2-654 27 192  
E-mail: [justin.murin@stuba.sk](mailto:justin.murin@stuba.sk)

Department of Applied Mechanics and Mechatronics was created from the Department of Mechanics FEI STU in 2011. The department's staff is involved in the pedagogical process of four bachelor, three master modules, and three PhD modules, covering the field of applied mechanics, thermomechanics, automotive mechatronics, and computational modelling and simulation of various engineering tasks in electrotechnics and power engineering. Within these modules students learn their theoretical base and solutions. The students learn how to create virtual geometries, model and simulate various engineering problems in the software environment of AutoCad, Solid-Edge, CATIA, ANSYS, ADAMS, MATHEMATICA and MATLAB.

Department's basic research focuses primarily on multiphysical systems' modelling and simulation utilizing parts made of new composite materials using the finite element method, as well as modelling of dynamics of mechatronical systems in cars. In addition, researchers are involved in projects focused on the modelling and multiphysical simulation of MEMS sensors and actuators. Applied research specializes on the modelling and simulation of mechanics, multiphysical problems in power engineering, renewable energy sources, electromobility and applied mechatronics.

## Department of Materials and Technologies

**Department chair:** doc. Ing. Jaroslav Lelák, PhD.  
Tel / Fax: +421-2-654 25 822  
E-mail: jaroslav.lelak@stuba.sk

Department of Materials and Technologies is concerned with the properties of materials and technological processes, mainly for the electric power engineering applications. Here, the electrical materials and material structures are investigated in a broad range of temperatures regarding the changes of their properties and reliability. The influence of various types of degradation processes on the material structures and electrical equipments is studied. The ageing tests are performed in order to study the effects of elevated temperature, high voltage and current, enhanced humidity, radiation and also the combination of these factors. The degradation processes are investigated by means of the methods of dielectric and impedance spectroscopy in a broad frequency range. Some other electro-physical and physical-chemistry methods are regularly used. The section is also aimed at the field of cables, conductors, and high voltage insulating systems. Another field of interest is the research of photovoltaic cells, modules and systems, in which the above mentioned techniques are used. An important area of the section's activity is oriented on the safety of electrical equipment and the relation to the safety at work. In all the mentioned fields the research is in close contact with the pedagogical process. A special attention is paid to cooperation with manufacturing practice.

## Department of Electrical Power Engineering

**Department chair:** doc. Ing. Anton Beláň, PhD.  
Tel.: +421-2-602 91 306 (249)  
Fax: +421-2-654 25 826, e-mail: anton.belan@stuba.sk

The department is engaged in research of efficient, ecological and economical generation, transmission

and consumption of electricity. Actual topics of interest are mainly the quality and reliability of power supply, integration of renewables into the power system, and the rationalization of production and consumption through smart-grids. Section also covers the high voltage technology, and has available a unique laboratory with testing hall, where tests are carried out on the facilities necessary for the power system. Rapid advances are also underway in area which is devoted to the team focused on lighting technology. Modern light sources are found in applications that were previously unknown and engineers are needed who understand them and can use them in practice.

## Department of Heavy Current Engineering

**Department chair:** doc. Ing. Ľudovít Hüttner, PhD  
Tel: +421-2-602 91 471  
Fax: +421-2-654 20 415, E-mail: ludovit.huttner@stuba.sk

The main goal of department is education of experts in the field of development, design, measurement and operation of electrical machines, devices, drives and power electronics. In cooperation with other sections of institute the section participates in teaching of Bachelor programmes Electrical Engineering and Automotive electronics, Master programmes Power Engineering and Applied Mechatronics and PhD programme Heavy Current Engineering. The education of electrical machines is oriented to theory, properties and application of individual types of electrical machines used in the industry, household appliances and automobiles. In the field of electrical devices the section is focusing on the utilization of various types of devices used in electrical power engineering, distribution networks and domestic electrical installation. Electrical drives together with power electronics are used for the electromechanical energy conversion in industrial applications, traction and automobiles. The devices of heavy current engineering represent an important part of economy – industry, services, traffic, computer technology. They are also widely used in the modern transport devices and in renewable energy sources.

## National Centre for Research and Application of Renewable Energy Sources

From the 2009, Institute of Power and Applied Electrical Engineering is actively involved in the project of European Fund for Regional Development in the

framework of the Operation Program Research and Development called 'National Centre for Research and Application of Renewable Energy Sources' (ITMS: 26240120016). According to the project proposal, the basic goal of the National centre is focusing of research activities of research teams on environmentally friendly renewable resources of energy, especially from biomass and solar energy. The project implementation assumes configuration of equipment and research teams with variable use enabling very large application range for producers of energy from renewable resources.

Since the 2010, Institute of Power and Applied Electrical Engineering has been also involved in the continuation of the project under name 'Finalizing of the National Centre for Research and Application of Renewable Energy Sources' (ITMS: 26240120028). Activities of the National Centre are via mentioned project orientated to the competition ability and success of Slovak university of technology in Bratislava in international research cooperation. Realization of top research also provides for the transfer of newest knowledge into the university's study programs educating young generation of specialists. Between the National centre's activities belong also organization of the international scientific event Power Engineering and international scientific conference Renewable energy sources.

## Competence centre for new materials, advanced technologies and power engineering

Since August 2011, SUT and IPAAE are involved in an extensive competence center project dedicated to research and technology transfer from academia to the industrial environment in the development of new materials, advanced technologies and energy. Project enjoys support from the European Regional Development Fund of the European Union (ITMS: 26240220073). The strategic objective of the project is to build an integrated competence center combining academic and industrial sector, which will support the selected key industries in Slovakia. Project solving is divided into two separate branches. The first is the creation of the center structure and purchase of equipment. Continual orientation of science research activities is directed by the science council of the centre. The second branch consists of the research activities focused mainly on smart energy networks, advanced technologies for energy and material recovery of biomass, research of materials for nuclear power plants, research on composite materials, the development of electronic devices and radiation detectors, the development of new semiconductor structures and other areas.



## I. STAFF OF INSTITUTION

### Professors:

prof. Ing. Viktor Ferency, CSc., prof. Ing. František Janíček, PhD., prof. Ing. Ľudovít Klug, PhD., prof. Ing. Justín Murín, DrSc., prof. Ing. Alfonz Smola, PhD.

### Associate Professors:

doc. Ing. Anton Belán, PhD., doc. Ing. Ivan Daruľa, PhD., doc. Ing. Žaneta Eleschová, PhD., doc. Ing. Dionýz Gašparovský, PhD., doc. Ing. Anna Grusková, PhD., doc. Ing. Ľudovít Hüttner, PhD., doc. Ing. Miroslav Kopča, PhD., doc. Ing. Vladimír Kutiš, PhD., doc. Ing. Jaroslav Lelák, PhD., doc. Ing. Pavol Šandrik, PhD., doc. Ing. Vladimír Šály, PhD., doc. Ing. Ferdinand Valent, PhD.

### Assistant Professors:

Ing. Ladislav Borba, PhD., Ing. Michal Duč-Anci, PhD., Ing. Vladimír Goga, PhD., Ing. Ľudovít Jurčacko, Ing. Andrej Kalaš, PhD., Ing. Attila Kment, PhD., Ing. František Krasňan, PhD., Ing. Viktor Kráľovič, Ing. Juraj Matej, PhD., Ing. Juraj Packa, PhD., Ing. Marek Pípa, PhD., Ing. Peter Poljovka, PhD., Ing. Tibor Sedlár, Mgr. Miroslava Smitková, PhD., Ing. Michal Váry, PhD.,

### Research Workers:

Ing. Vladimír Ďurman, PhD., Ing. Róbert Fric, PhD., Ing. Peter Janiga, Ing. Juraj Kubica, Ing. Michal Ružinský, PhD., Ing. Martin Smieško

### Part-time Workers:

Ing. Juraj Hrabovský, Ing. Tomáš Jediný, Ing. Juraj Paulech, Ing. Stanislav Stančík, prof. Ing. Miroslav Vereš, PhD.

### Technical Staff:

Katarína Beringerová, František Erdödy, Anna Ferenčíková, Ing. Miroslava Hošťáková, Jozef Hubač, Jana Jusková, Marián Kamendy, Katarína Kermietová, Katarína Knežíková, Mgr. Marta Liptáková, Eva Molotová, Zuzana Študentová

### PhD. Students:

Ing. Peter Arnold, Ing. Zlatko Baláš, Ing. Peter Bartko, Ing. Rastislav Belák, Ing. Ján Budaj, Ing. Martin Bugár, Ing. Miloš Glasa, Ing. Peter Hajduček, Ing. Vladimír Halička, Ing. Peter Heretik, Ing. Juraj Hrabovský, Ing. Ján Chudiváni, Ing. Matej Janík, Ing. Tomáš Jediný, Ing. Martin Kandl, Ing. Igor Kertész, Ing. Peter Koval, Ing. Viktor Kráľovič, Ing. Martin Kusko, Ing. Martin Liška, Ing. Emil Mojto, Ing. Juraj Paulech, Ing. Milan Perný, Ing. Anton Rusnák, Ing. Tibor Sedlár, Ing. Stanislav Stančík, Ing. Vladimír Staňák, Ing. Juraj Šedivý, Ing. Igor Šulc, Ing. Igor Tomiš, Mgr. Marián Uhrík, Ing. Milan Uhrík



## II. EQUIPMENT

### II. 1 Teaching and Research Laboratories

- Laboratory of Thermopower Machines and Devices
- Laboratory of Mechanics of Strength and Deformable Bodies
- Centre of Designing and Computational Mechanics
- Laboratory for Testing and Measurement of Electric Machines
- Laboratory of Special Electric Machines
- Laboratory of Short Circuit Tests (with a high current generator source 35 kA, 2 MVA, 440 V)
- Laboratory of Short Circuit Tests (with a capacitor source)
- Laboratory of Controlled Drives and Servosystems
- Laboratory of Power Electronics
- Common laboratories Schneider – FEI STU –FIIT STU
- Photovoltaic Laboratory
- High Voltage and Ageing Tests Laboratory
- Laboratory of Cables and Wires
- Laboratory of Health Protection at Work
- Laboratory of Dielectric Properties of Materials
- Laboratory of Electrical Components
- Laboratory of Liquid Dielectrics
- Laboratory of Magnetic Materials
- Laboratory of High Voltage Technology
- Laboratory of Lighting Technology
- Solar Energy Laboratory
- Laboratory of Electrical Installations
- Laboratory of Special Problems of Power Engineering
- Laboratory of Electrical Protections
- Laboratory of Renewable Energy Sources

### II. 2 Special Measuring Instruments, Software and Computers

- Measuring device Quantum X
- Insert Press Monitoring System DMF-P V3
- Boiler Gas Analyser Industrial Combustion Optimiser Neotronics
- Experimental Impulse Turbine F800 - Hilton, Ltd. England
- Advantech PC-LabCard PCI 1710 with equipment
- Digital Oscilloscope RIGOL DS1052E
- Waveform Generator RIGOL DG1012
- Horizon Fuel Cell Software Adaptor
- Renewable Energy Education Science Set
- GWL Power Lithium-Ion Battery Charger: 48V DC 30A
- IR Thermometer FLUKE 572
- Mathematica 6
- Matlab R14
- Catia V5
- SolidEdge V20
- NX5
- ANSYS Multiphysics Release 13
- MSC.Software
- AutoCAD

- IQ – 100
- Lucas-Nülle didactic equipment for subjects Power Electronics and Controlled Drives
- SIMOVERT, SIMOREG and VONSCH power converters
- Laboratory stands with digital signal processors TMS 320 C 50
- Computers room Schneider – FEI STU –FIIT STU
- Test Chambers for Combined Ageing Tests of Insulating Systems
- Solar Simulator for Photovoltaics
- Climatic Test Chamber FEUTRON
- Systems for Measuring of Complex Impedance
- Vibration Magnetometer PVM-1
- Solar Cells Electric Characterization Equipment
- Power network analyzer BK 550
- Cascade transformer, 1200 kV, 1500 kVA
- Impulse generator, 2500 kV, 100 kJ
- Installation system Instabus EIB
- Photometric integrator Ø 3 m
- Spectrofotometer
- Luminance meter



## III. TEACHING

### III. 1 Undergraduate Study (Bc.)

Subject, semester, hours per week for lectures and for seminars or practical exercises, name of the lecturer.

Basis of Engineering and Technical Documentation

(1st sem., 2-2 h) M. Vereš, T. Sedlár

CAD in Technical Documentation

(opt. sem., 1-3 h) A. Kalaš

Mechanics (for Electrotechnics)

(5th sem., 3-2 h) J. Murín

Mechanics (for Automotive Electronics)

(6th sem., 2-2 h) J. Murín

Introduction to Modelling and Simulation

(5th sem., 3-2 h) V. Kutiš, A. Beláň

Structural Elements and Systems

(5th sem., 2-2 h) M. Vereš

Design of Vehicles

(6th sem., 2-2 h) J. Matej

Continuum Mechanics

(5th sem., 2-2 h) J. Murín

Electric Machines  
(5th sem., 3-2 h) Ľ. Hüttner

Electric Apparatus and Distribution Stations  
(6th sem., 3-2 h) F. Valent, F. Janíček

Automotive electrotechnics  
(5th sem., 2-2 h) Ľ. Hüttner, L. Borba, A. Smola, J. Leľák

Safety and Protection of Health at Work I  
(1st sem., 1-2 h) M. Kopča, J. Packa

Safety and Protection of Health at Work  
(1st sem., 1-2 h) M. Kopča, V. Šály

Materials for Electrical Engineering  
(3rd sem., 2-3 h) V. Šály

Materials and Technology for Electrical Engineering  
(3rd sem., 2-3 h) J. Leľák

Safety and Protection of Health at Work II  
(4th sem., 1-4 h) M. Kopča, V. Šály

Technological Processes  
(6th sem., 2-3 h) V. Šály

Safety of Electric Equipment  
(6th sem., 2-1 h) M. Kopča

Transmission and Distribution of Electrical Energy  
(4th sem., 3-2 h) Ž. Eleschová

High Voltage Technology  
(5th sem., 2-3 h) P. Šandrik

Modelling and Simulation Basis  
(5th sem., 3-2 h) A. Beláň, V. Kutiš

Automotive Electrotechnics  
(6th sem., 3-2 h) A. Smola, Ľ. Hüttner

Energy Sources and Conversion  
(6th sem., 3-2 h) F. Janíček, I. Daruľa

Electrical Apparatus and Substations  
(6th sem., 3-2 h) F. Janíček, F. Valent

Lighting Technology  
(6th sem., 3-2 h) A. Smola

### III. 2 Graduate Study (Ing.)

Nuclear Power Facilities  
(1st sem., 2-2 h) V. Kutiš

CAE of Mechatronic Systems  
(1st sem., 3-2 h) V. Goga

Applied Mechanics  
(1st sem., 2-2 h) J. Murín

Vehicle Dynamics  
(1st sem., 2-2 h) V. Ferencey

Designing of Luminaires  
(2nd sem., 3-2 h) R. Fric

Designing by Higher CAD Systems  
(2nd sem., 1-3 h) R. Fric

Numerical Solution of Field Theory Problems  
(2nd sem., 3-2 h) J. Murín

Finite Element Methods for Mechatronics  
(1st sem., 2-3 h) J. Murín

Computational Solution of Field Theory Problem  
(2nd sem., 3-2 h) J. Murín

Power Units of Automobiles  
(2nd sem., 3-2 h) V. Ferencey

Virtual Prototyping of Mechatronic systems  
(3th sem., 2-3 h) J. Matej

Advanced Power Units of Automobiles  
(4th sem., 2-2 h) V. Ferencey

Design of Complex Mechatronic Systems  
(4th sem., 2-3 h) V. Ferencey, Š. Kozák

Electric Drives and Power Electronics  
(1st sem., 2-2 h) L. Borba

Selected Chapters from Electric Apparatus  
(1st sem., 2-2 h) F. Valent

Special Electric Machines  
(2nd sem., 3-2 h) Ľ. Klug

CAD of Electric Power Equipment  
(3rd sem., 2-2 h) Ľ. Klug, Ľ. Hüttner

Electronic Energy Converters  
(2nd sem., 2-2 h) L. Borba

Electric Traction Systems  
(3rd sem., 2-2 h) L. Borba

Utilization of Electrical Energy  
(3rd sem., 2-2 h) Ľ. Hüttner, A. Smola

Electric Heating Devices  
(3rd sem., 2-2 h) Ľ. Hüttner

Technology of Electronic Devices  
(1st sem., 2-2 h) M. Kopča

Renewable Energy Sources  
(1st sem., 2-1 h) M. Ružinský

Technology of Ceramic Composites  
(2nd sem., 2-2 h) A. Grusková

Materials Physics 2  
(2nd sem., 2-3 h) V. Ďurman

Photovoltaic Cells and Systems  
(3rd sem., 2-2 h) V. Šály

Quality Management  
(3rd sem., 2-1 h) P. Poljovka

Quality Management  
(4th sem., 2-1 h) P. Poljovka

Metallic and Optical Cables  
(3rd sem., 2-2 h) J. Leľák

Safety of Electric Equipment  
(2nd sem., 2-1 h) M. Kopča

Steady State in Power System  
(1st sem., 2-2 h) Ž. Eleschová

Electrical Networks  
(1st sem., 2-2 h) A. Beláň, M. Pípa

Theoretical Photometry and Colorimetry  
(1st sem., 2-2 h) D. Gašparovský, F. Krasňan

Light Sources and Ballasts  
(1st sem., 2-2 h) A. Smola

Electrical Part of Power Stations  
(2nd sem., 2-2 h) I. Daruľa

Transient Phenomena in Power System  
(2nd sem., 2-2 h) Ž. Eleschová

Diagnostics and Expert Systems  
(2nd sem., 2-2 h) P. Šandrik

Applied Electrical Power Engineering  
(2nd sem., 2-2 h) A. Beláň

Environmental Ecology

(3rd sem., 2-2 h) I. Daruľa, J. Kubica  
Luminaires  
(2nd sem., 2-2 h) D. Gašparovský  
Measurement of Light and Colours  
(2nd sem., 2-2 h) D. Gašparovský, F. Krasňan  
Power System Control  
(3rd sem., 2-2 h) A. Beláň  
Electrical Energy Utilization  
(3rd sem., 2-2 h) D. Gašparovský, Ľ. Hüttner  
Nonconventional Energy Sources  
(3rd sem., 2-2 h) I. Daruľa  
Protections and Automatics  
(3rd sem., 2-2 h) F. Janiček  
Electrical Lines  
(3rd sem., 2-2 h) D. Gašparovský  
Lighting Systems  
(3rd sem., 2-2 h) A. Smola, F. Krasňan  
Modelling and Power System Control  
(3rd sem., 2-2 h) A. Beláň  
Artificial Lighting  
(4th sem., 2-1 h) A. Smola

### III. 3 Undergraduate and Graduate Study for Foreign Students in English

All subjects can be lectured in English.

#### III. 4 Distance Study

Basis of Engineering and Technical Documentation  
(1st sem.) T. Sedlár  
Mechanics  
(5th sem.) J. Murín  
Introduction to Modelling and Simulation  
(5th sem.) V. Kutiš  
A. Beláň  
CAE of Mechatronic Systems  
(1st sem.) V. Goga  
Numerical Solution of Field Theory Problems  
(2nd sem.) J. Murín  
Applied Mechanics  
(1st sem.) J. Murín  
Electric Machines  
(3rd year) Ľ. Hüttner  
Electric Apparatus and Distribution Stations  
(6th sem., 3-2 h) Ľ. Hüttner, F. Janiček  
Electric Drives and Power Electronics  
(1st year) L. Borba  
Utilization of Electrical Energy  
(2nd year) Ľ. Hüttner, A. Smola  
Safety and Protection of Health at Work I  
(1st sem.) M. Kopča  
Safety and Protection of Health at Work II  
(4th sem.) M. Kopča  
Materials for Electrical Engineering  
(3rd sem.) J. Leľák  
Transmission and Distribution of Electrical Energy  
(4th sem., 3-2 h) Ž. Eleschová  
High Voltage Technology

(5th sem., 2-3 h) P. Šandrik  
Modelling and Simulation Basis  
(5th sem., 3-2 h) A. Beláň, V. Kutiš  
Automotive Electrotechnics  
(6th sem., 3-2 h) A. Smola, Ľ. Hüttner  
Energy Sources and Conversion  
(6th sem., 3-2 h) F. Janiček, I. Daruľa  
Electrical Apparatus and Substations  
(6th sem., 3-2 h) F. Janiček, F. Valent  
Lighting Technology  
(6th sem., 3-2 h) A. Smola  
Steady State in Power System  
(1st sem., 2-2 h) Ž. Eleschová  
Electrical Networks  
(1st sem., 2-2 h) A. Beláň, M. Pípa  
Theoretical Photometry and Colorimetry  
(1st sem., 2-2 h) D. Gašparovský, F. Krasňan  
Light Sources and Ballasts  
(1st sem., 2-2 h) A. Smola  
Electrical Part of Power Stations  
(2nd sem., 2-2 h) I. Daruľa  
Transient Phenomena in Power System  
(2nd sem., 2-2 h) Ž. Eleschová  
Diagnostics and Expert Systems  
(2nd sem., 2-2 h) P. Šandrik  
Applied Electrical Power Engineering  
(2nd sem., 2-2 h) A. Beláň  
Environmental Ecology  
(3rd sem., 2-2 h) I. Daruľa, J. Kubica  
Luminaires  
(2nd sem., 2-2 h) D. Gašparovský  
Measurement of Light and Colours  
(2nd sem., 2-2 h) D. Gašparovský, F. Krasňan  
Power System Control  
(3rd sem., 2-2 h) A. Beláň  
Electrical Energy Utilization  
(3rd sem., 2-2 h) D. Gašparovský, Ľ. Hüttner  
Nonconventional Energy Sources  
(3rd sem., 2-2 h) I. Daruľa  
Protections and Automatics  
(3rd sem., 2-2 h) F. Janiček  
Electrical Lines  
(3rd sem., 2-2 h) D. Gašparovský  
Lighting Systems  
(3rd sem., 2-2 h) A. Smola, F. Krasňan  
Modelling and Power System Control  
(3rd sem., 2-2 h) A. Beláň  
Artificial Lighting  
(4th sem., 2-1 h) A. Smola

## IV. RESEARCH PROJECTS

### IV. 1 National Scientific Projects

– Development of the New Multiphysical Beam Finite Elements with Composite or Functionally Graded Materials. VEGA 1/0093/10. Duration 2010-2011

- (completed) (J. Murín)
- Research of Hybrid Powertrain Control Strategies of Vehicle in the Term of Ecological Parameters, Economical Efficiency and Vehicle Performances. VEGA 1/0627/10. Duration 2010-2011 (completed) (V. Ferencey)
- Support of Technical Design and Construction of Vehicle with Electric Drivetrain at FEIT STU. OVVČ/2011. Duration 2011-2012 (solved) (V. Matej)
- Advanced piezoelectric MEMS pressure sensors. APVV-0450-10. Duration 2011-2014 (started) (principal investigator: T. Lalinsky - ELU SAV, co-workers: V. Kutiš KMECH FEI STU)
- Research and Development of New Information Technologies for Prediction and Solution of Crisis Situations and Security of Habitants CRISIS ITMS 26240220060. Duration 2011-2013 (started) (principal investigator: L. Hluchý - SAV, co-workers: V. Ferencey, J. Murín KMECH FEI STU)
- Research on Properties of Composite Materials Based on Micro-Filler for Electrical Insulation Systems, VEGA1/0445/10. Duration 2010-2011 (completed) (J. Lešák)
- Materials and Material Structures for Photovoltaic Cells and Modules, VEGA 1/0443/10. Duration 2010-2011 (completed) (V. Šály)
- Research and Preparation of Perspective Magnetic, Nanomagnetic and Hybrid Composite Materials for New Applications in Electrical Engineering and Automobile Industry, VEGA 1/0575/09. Duration 2009-2011 (completed) (J. Sláma, A. Grusková, V. Ďurman)
- Structural and Magnetic Changes of Disordered and Nanocrystalline Alloys, VEGA 1/0606/09. Duration 2009-2011 (completed) (J. Sitek, A. Grusková)
- Research and Synthesis of Electronic Composites and Magnetic Dielectrics, VEGA 1/0529/10. Duration 2010-2011 (completed) (R. Dosoudil, A. Grusková)
- Integrated analysis of the solar power plants. APVV-0280-10. Duration: 2011-2014 (started) (F. Janíček)
- Integrated Analysis of the Renewable Energy Sources. VEGA 1045/11 Duration: 2011-2014. (started) (M. Smitková)
- Power Quality and Reliability of Electricity Supply. VEGA 1/0687/09. Duration: 2009-2011 (completed) (F. Janíček)
- Integration of Renewable Energy Laboratory into Pedagogical Process Using Multimedia Interactive Web Interface. KEGA 3/7248/09 Duration: 2009-2011 (completed) (F. Janíček)
- Centre of Competence in New Materials, Advanced Technologies and Power Engineering. Duration: 2011-2014 (started). ITMS 26240220073. (F. Janíček)
- National Centre for Research and Applications of Renewable Energy Sources. Duration: 2009-2011 (completed). ITMS 26240120016. (F. Janíček)
- Finalizing of the National Centre for Research and

- Applications of Renewable Energy Sources. Duration: 2010-2012 (solved). ITMS 26240120028. (F. Janíček)
- Efficient control of generation and consumption of power from renewable energy sources (cooperation with Slovak Academy of Sciences). Duration: 2010-2013 (solved). ITMS 26240220028. (F. Janíček)
- Light and lightning technology research centre (cooperation with OMS spol. s r. o.). Duration: 2011-2014 (started). ITMS 26220220150. (A. Smola)
- Improvement of power system reliability (cooperation with VUJE a. s.). Duration: 2011-2013 (solved). ITMS 26220220077. (F. Janíček)
- Applied research of optimization and control of power systems with smart grids (cooperation with Microstep-HDO). Duration: 2011-2014 (started). ITMS 26240220069. (F. Janíček)
- Transformers for the power stations based on renewable energy sources (cooperation with BEZ Transformátory, a. s.). Duration: 2011-2014 (started). ITMS 26240220066. (F. Janíček)
- Wind and solar power accumulation system with vanadium batteries (cooperation with Hydrogen Slovakia). Duration: 2011-2014 (started). ITMS 26220220133. (F. Janíček)
- Research and Technology Transfer Support of Decentralised Energy Sources at STU Using Available Biomass. Duration: 2009-2011 (completed). ITMS 26240220028. (F. Janíček)
- Research and Technology Transfer Support of Low-Potential Heat for Electric Power Generation at STU. Duration: 2009-2011 (completed). ITMS 26220220023. (F. Janíček)

## IV. 2 International Scientific Projects

- Preparation and Characterization of Materials Based on Iron Oxides by Magnetic Methods, Czech /Slovak cooperation, ZS-4/2001-2015. Duration 2001-2015 (solved) (J. Šubrt, A. Grusková)



## V. COOPERATION

### V. 1 Cooperation in Slovakia

- Sova, a.s., Bratislava
- Škoda Auto Slovakia, s.r.o., Bratislava
- Institute of Construction and Architecture, Slovak



- Academy of Sciences
- IPT, s.r.o., Pezinok
- OMS, s.r.o., Senica
- SEZ, a.s., Dolný Kubín
- MyEnergy, a.s., Bratislava
- Ministry of Interior of the Slovak Republic
- Defense and Strategy Studies Institute, a.s.
- International Laser Centre, Bratislava
- Armed Forces Academy of General Milan Rastislav Štefánik, Liptovský Mikuláš
- KIWA, s.r.o., Nitra
- Siemens, s.r.o., Bratislava
- LEGRAND Slovakia, s.r.o.
- MOELLER Slovakia, s.r.o.
- OEZ Slovakia, s.r.o.
- SCHNEIDER-ELECTRIC, s.r.o.
- BSH Drives and Pumps, s.r.o., Michalovce
- PHOENIX CONTACT, s.r.o., Košice
- CHIRANA Medical, s.r.o., Stará Turá
- SCHRACK Technik, s.r.o.
- VUKI, a.s., Bratislava
- EZ-Elektromont, a.s., Bratislava
- MURAT, s.r.o., Pezinok
- BEZ, a.s., Bratislava
- HAKL, s.r.o., Bratislava
- DELTA ENERGY SYSTEMS, s.r.o., Bratislava
- SYLEX, s.r.o., Bratislava
- Elkond HHK, a.s., Trstená
- Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava
- Institute of Physics, Slovak Academy of Sciences, Bratislava
- VUSAPL, a.s., Nitra
- ELBA, a.s., Kremnica
- PPC Čab, a.s., Nové Sady
- TAU-CHEM, s.r.o., Bratislava
- All Deco, s.r.o., Jaslovské Bohunice
- Institute of Materials Research, Slovak Academy of Sciences, Košice
- Elektroservis, a.s., Bratislava
- SONY Slovakia, s.r.o., Nitra Plant
- UPJŠ Košice
- Nuclear Power Plants Research Institute (VÚJE, a.s.) Trnava
- Slovak Power Company (SE – Enel, a.s.) Bratislava
- Hydro Power Plants (SE-VET) Trenčín
- Nuclear Power Plants (SE-EBO) Jaslovské Bohunice
- Nuclear Power Plants (SE-EMO) Mochovce
- Nuclear Decommissioning Company (JAVYS, a.s.) Jaslovské Bohunice
- Nuclear Regulatory Authority of the Slovak Republic, Bratislava
- Slovak Electricity Transmission System (SEPS, a.s.) Bratislava
- Western Slovak Distribution Company (ZSE, a.s.) Bratislava
- Central Slovak Distribution Company (SSE, a.s.) Žilina

- Eastern Slovak Distribution Company (VSE, a.s.) Košice
- Regulatory Office for Network Industries (ÚRSO) Bratislava
- Faculty of Electrical Engineering and Information Technology TU Košice
- Faculty of Electrical Engineering ŽU Žilina
- University of Alexander Dubček, Trenčín
- Siemens, s.r.o., Bratislava
- ABB, s.r.o., Bratislava
- Microstep-HDO, a.s., Bratislava
- Philips Slovakia, s.r.o., Bratislava
- Osram Slovakia, s.r.o., Nové Zámky
- Slovak Telekom, a.s., Bratislava
- Slovnaft, a.s., Bratislava
- Orgeco, s.r.o., Nové Zámky
- AML, s.r.o., Nové Zámky
- SLOS, s.r.o., Banská Bystrica
- Bellux, s.r.o., Bratislava
- OMS, s.r.o., Senica
- Bellatrix, s.r.o., Košice
- ŽOS Trnava, a.s., Trnava
- Applied Precision, s.r.o.
- Slovak Institute of Metrology
- RELKO, s.r.o.
- Nafta, a.s.
- Polyservis, a.s.
- Schneider Electric Slovakia, s.r.o.
- Volkswagen Slovakia, a.s.
- Elektro Global Slovakia, s.r.o.

## V. 2 International Cooperation

- Energovýzkum, s.r.o., Brno, Czech Republic
- Vienna University of Technology, Austria
- Technical University Ilmenau, Germany
- University College of Swansea, United Kingdom
- FSB University Zagreb, Croatia
- TU Rijeka, Croatia
- TU Novi Sad, Serbia
- TU Niš, Serbia
- University of Defence, Brno, Czech Republic
- DEHN+SOHNE, Neumarkt, Germany
- OEZ Letohrad, Czech Republic
- HESS TRADING, Sodoměřice, Czech Republic
- M.SCHNEIDER, Vienna, Austria
- PHOENIX CONTACT, Brno, Czech Republic
- ABB Corporate Research, Baden Daettwil, Switzerland
- Institute of Anorganic Chemistry, Academy of Sciences, Řež, Czech Republic
- Piezoceram, s.r.o., Hradec Králové, Czech Republic
- Motorpal, a.s., Světlá Hora, Czech Republic
- Silcotec Europe, Ltd., Ireland
- PROTECH Group, s.r.o., Klatovy, Czech Republic
- Fraunhofer Institute for Solar Energy Systems ISE, Freiburg, Germany
- Solartec, s.r.o., Rožnov pod Radhoštěm, Czech Republic

- Foundation for Research and Technology, MRG-IESL, Heraklion, Crete, Greece
- WSC – World Solar Challenge, Adelaide, Australia
- Warsaw University of Technology, Poland
- WREN - World Renewable Energy Network, Reading, United Kingdom
- UA of BAJA CALIFORNIA, Mexicali, Mexico
- Aristotle University, Thessaloniki, Greece
- Angel Kunchev University of Rousse, Bulgaria
- TU Ilmenau, Germany
- Osram GmbH, München, Germany
- ABB, s.r.o., Brno, Czech Republic
- Czech Technical University in Prague, Czech Republic
- West Bohemian University Pilsen, Czech Republic
- Brno University of Technology, Czech Republic
- VŠB – Technical University of Ostrava, Czech Republic
- GE Lighting, Budapest, Hungary
- Tungsram Schröder, Budapest, Hungary
- Electrical Testing Facility, Prague, Czech Republic
- MEI Moscow, Russia
- Tashkent Institute of Irrigation and Melioration, Faculty of Electrification and Automation, Tashkent, Uzbekistan
- Saint Cyril and Methodius University, Faculty of Electrical Engineering and Information Technologies, Skopje, Macedonia
- Visteon, Nový Jičín, Czech Republic
- Helvar, Frankfurt, Germany
- Tridonic, Dornbirn, Austria
- Thorn Lighting CS, Prague, Czech Republic
- Politechnika Opolska, Opole, Poland
- Silesian University of Technology, Gliwice, Poland
- Tianjin University, Tianjin, China
- NKT Cables, Velké Meziříčí, Czech Republic

### V. 3 Contract-based Business Activities

- Long Time Combine Ageing Tests of Insulation Systems. Contract with ABB Corporate Research, Baden Daettwil, Switzerland (J. Lelák et al.)
- Treatment of Data&Signal Cables. Contract with Silcotec Europe Ltd. Ireland (J. Lelák et al.)
- Measurement of Dielectric Properties of Cables. Contract with VUJE jsc, Trnava VUJE (J. Lelák et al.)
- Impulse and AC Breakdown Voltage Tests of 22 kV XLPE Cables. Contract with NKT Cables Velké Meziříčí k.s., NKT Group, Czech Republic (J. Lelák et al.)
- Testing of High Voltage Ceramic Insulators and Fuse Holders. Contract with Polyservis s.r.o., Nitra (J. Lelák et al.)
- Expertise Water Penetration Cause to Power Cables in Grounds of KIA Motors Factory. Contract with Promt s.r.o. Martin (J. Lelák et al.)
- Type Tests of Traction Transformer 4900 kVA Typu TIT-4900-25/2x1700. Contract with EVPU, j.s.c. Nová Dubnica (J. Lelák et al.)
- Testing of High Voltage Joints. Contract with Murat

- Ltd. Pezinok (J. Lelák et al.)
- Verification of the Possibility of Water Removing from Power Cables in Grounds of KIA Motors Factory. Contract with Takenaka GmbH (J. Lelák et al.)
- Analysis of Solar Park Connection to Distribution Net. Contract with ZSE, a.s. (Ž. Eleschová, A. Beláň)
- Analysis of Impact of Renewable Sources on Power System of Slovak Republic. Contract with SEPS, a.s. (F. Janíček et al.)
- Load Flow Calculation in 22 kV Distribution Net – Node Žarnovica. Contract with SSE, a.s. (A. Beláň, Ž. Eleschová)



## VI. THESESES

### VI. 1 Master theses

Master theses supervised at the Departments of Institute of Power and Applied Electrical Engineering. The names of supervisors are in brackets.

- [1] Mojto, E.: Modeling the Mixing of Coolant Before Entering the Fuel Assemblies in Reactor WVER-440 (V. Kutiš)

- [2] Dzuba, J.: Dynamic Simulation of MEMS Piezoelectric Pressure Sensor (V. Kutiš)
- [3] Jeleník, O.: Structural Analysis of the Vessel for Small Pumping Hydro Power Plant (J. Murín)
- [4] Heretik, P.: Thermo-Mechanical Analysis of Fuel Cell (J. Murín)
- [5] Pagáč, M.: Optimal Design Preferences of Serial Hybrid Powertrain in Vehicle (J. Matej)
- [6] Krivosudský, P.: Optimal Cooperation of Serial Hybrid Powertrain in Vehicle (J. Matej)
- [7] Michlík, M.: Damping Vibration Control of Flexible Arm Traction Drive (V. Goga)
- [8] Durila, J.: Solution of Transient States of Synchronous Generator by MATLAB Program (L. Klug)
- [9] Firický, E.: Real Time Monitoring of PV Moduls Working Conditions (M. Vára)
- [10] Adamec, P.: Combined Production of Heat and Power (I. Daruľa)
- [11] Címer, A.: Sizing of Cable Connections in the Electrical Transmission and Distribution Networks (P. Arnold)
- [12] Cintula, B.: Risk Analysis of the Power System Collapse (Ž. Eleschová)
- [13] Čech, M.: Proposal for a PV Power Plant for the Selected Location (M. Pípa)
- [14] Ďurinda, J.: Energy Potential of Roofs of Public and Industrial City Buildings (I. Tomiš)
- [15] Faktor, M.: Accumulation of Electric Power (I. Daruľa)
- [16] Fedor, M.: Proposal for Design Solution of Goniophotometer (F. Krasňan)
- [17] Homola, P.: Energy Potential of Houses Roofs on Selected Site (I. Tomiš)
- [18] Hricko, T.: Typized Technology Proposal for Small Hydropower Plants (M. Pípa)
- [19] Chlepčok, M.: Possibilities for Evaluating and Improving Safety of Operation of Distribution Lines in Terms of Ecological Aspects of Bird Protection (A. Kment)
- [20] Kaločay, R.: Photovoltaic Power Generation and Storage for the House in Island Regime (I. Tomiš)
- [21] Jagelka, M.: Lighting in Historic Buildings (F. Krasňan)
- [22] Jusko, T.: Modern Systems of Public Lighting for the Future (D. Gašparovský)
- [23] Kaniščák, F.: Proposal of 100 MWp PV Power Plant with Partial Accumulation and Regulation of Power Supplied (I. Tomiš)
- [24] Kasenčák, L.: Illumination of Castles (A. Smola)
- [25] Korčok, J.: Illumination and Lighting of Svätotrojčné Public Square in Krupina (A. Smola)
- [26] Koutob, T.: Implementation of Off-grid Photovoltaic Systems in the Republic of Benin (I. Tomiš)
- [27] Krč-Jediný, T.: Electric Power Generation from Wind (I. Daruľa)
- [28] Kubinec, M.: Proposal for Functional Solar Power Plants with a Fixed Mounting Panels (M. Pípa)
- [29] Kubinský, M.: Illumination of Historical and Modern Landmarks (F. Krasňan)
- [30] Kukla, A.: Biomass for Energy Production (I. Daruľa)
- [31] Kulač, M.: Testing of Lightning Fixtures in Accordance with the Requirements of Technical Standards (D. Gašparovský)
- [32] Kulka, B.: Automobile Lightning (A. Smola)
- [33] Lang, P.: Legislation for Automobile Lightning (A. Smola)
- [34] Lehotský, J.: Poles for Outdoor Power Lines (M. Pípa)
- [35] Mészáros, T.: Proposal for Luminance Analyzer (F. Krasňan)
- [36] Mikulík, V.: Possibilities of Energy Savings in Lighting (F. Krasňan)
- [37] Molnárová, V.: Energy Savings Using Light Guides (A. Smola)
- [38] Mutňanský, P.: Evaluation and Visualization of Data System Measuring the Current (A. Kment)
- [39] Pavučok, J.: Cogeneration Project Source for the Selected Application (M. Pípa)
- [40] Pazdera, M.: Verification of the Illuminance Calculation by the Measurement (D. Gašparovský)
- [41] Pólya, P.: Small Hydroelectric Project for the Selected Location (M. Pípa)
- [42] Síleš, J.: Proposal for Lamp to Stimulate Biorhythms (F. Krasňan)
- [43] Škovran, M.: Proposal for PV Power Plant with Installed Capacity of 2 MW (I. Tomiš)
- [44] Štefka, B.: Minimisation of Higher Harmonics in the High-voltage Test Circuits (M. Pípa)
- [45] Viglaš, D.: Overview of the Current European Energy Legislation and Technical Standards (M. Liška)

## VI. 2 PhD. Theses

- [1] Horák, M.: Fault locating methods for distribution networks 22 kV (A. Beláň)



## VII. OTHER ACTIVITIES

- Participation with the Stuba Green Team on the Formula Student Electric Race Car Project. (V. Staňák)
- Expert in Mechanical Engineering (T. Sedlár)
- Activities in: Renewable Energy World/PennWell's International Directories, 2011-2012 Review Issue

- (M. Ružinský)
- Bilateral Agreement, Socrates Programme Higher Education (ERASMUS) STU Bratislava
- Angel Kunchev University of Rousse (V. Šály)
- The Accredited Educational Activity ‘The Education in the Area of Safety and Protection of Health at Work § 21, § 22, § 23’ (M. Kopča)
- The Accredited Educational Activity ‘The Electrical Minimum’ (M. Kopča)
- Participation on World Solar Challenge 2001, Across Australia, 16 – 23 October 2011, Darwin to Adelaide as scientific Support and Official Observer WSC 2011 (M. Ružinský)
- The Guarantee of the International Scientific Event ‘POWER ENGINEERING 2011’, Tatranské Matliare, May 2011 (F. Janíček)



## VIII. MEMBERSHIP IN INSTITUTIONS/ COMMITTEES

### VIII. 1 Membership in National Institutions/Committees

- Co-chairman in Slovak Society for Mechanics (J. Murín)
- Slovak Society for Mechanics (V. Kutiš)
- Vice President of Association of the Defence Industry of the Slovak Republic (V. Ferencey)
- Membership in the editorial board of journal: Mechanical Engineering (J. Murín)
- Member of Scientific Council of the FEI STU (J. Murín)
- Vice-chairman of Common departmental committee of scientific department 26-32-9 Electromechanical Energy Conversion in Slovak Republic (L. Hüttner)
- Member of Common departmental committee of scientific department 26-32-9 Electromechanical Energy Conversion in Slovak Republic (F. Valent)
- Members of Common departmental committee of scientific department 5.2.11 Electromechanical Energy Conversion at STU FEI (L. Klug, L. Hüttner, F. Valent)
- Member of Common departmental committee of scientific department 5.2.11
- Electromechanical Energy Conversion at University of Žilina (L. Hüttner)
- Member of IEE (L. Hüttner, F. Valent)
- Chairman of Technical Standardization Committee No. 43 (Electrical Power Engineering) at Slovak Institute for Standardization (A. Beláň)
- Chairman of Technical Standardization Committee No. 108 (Light and Lighting) at Slovak Institute for Standardization (A. Smola)
- Member of Technical Standardization Committee No. 20 (Light Fittings and Light Sources) at Slovak Institute for Standardization (A. Smola)
- Chairman of Technical Standardization Committee No. 84 (Electrical Installations and Protection against Electric Shock) at Slovak Institute for Standardization (D. Gašparovský)
- Member of Slovak Academy of Engineering Sciences (F. Janíček)
- Member of Academic Board of FEI STU in Bratislava (F. Janíček, V. Kutiš, J. Lelák)
- Member of Academic Board of STU in Bratislava (F. Janíček, J. Lelák)
- Member of Academic Board of Faculty of Mechatronics Trenčín University (F. Janíček)
- Member of Minister Economy Collegium (F. Janíček)
- Chairman of Council for State Programs of Ministry of Education SR and Ministry of Economy SR (F. Janíček)
- Member of Academic Board of Academy of the Armed Forces of General Milan Rastislav Štefánik in Liptovský Mikuláš (F. Janíček)
- Chairman of Expert Committee for Electrical Engineering, Information Technology, Automation and Control of Science and Technology Assistance Agency (F. Janíček)
- Member of Slovak Nuclear Forum (F. Janíček)
- Board of Trustees Chairman of Konfucius Institute at STU in Bratislava (F. Janíček)
- Chairman of Administer Group of SE-ENEL – STU (F. Janíček)
- Chairman of Slovak Committee of World Energy Council (F. Janíček)
- Director of Forensic Institute of Electrical and Computer Technology (A. Smola)
- Vicepresident of the Association of Slovak Scientific and Technological Societies (A. Smola)
- Members of the Slovak Lighting Society (A. Smola, F. Krasňan, P. Janiga, A. Rusnák)
- Chairman of the Slovak Lighting Society (D. Gašparovský)
- Member of the Presidium of Slovak Electrotechnical Association (D. Gašparovský)
- Members of the Slovak national Committee CIE (D. Gašparovský, A. Smola, F. Krasňan, P. Janiga, A. Rusnák)

- Chairman of Departmental Committee of Scientific Department 5.2.30 Electrical Power Engineering (F. Janíček)
- Members of Departmental Committee of Scientific Department 5.2.30 Electrical Power Engineering (A. Beláň, Ž. Eleschová, I. Daruľa, A. Smola)
- Members of Common Departmental Committee of Scientific Department 39-25-9 Nuclear Power Engineering (I. Daruľa)
- Members of Common Departmental Committee of Scientific Department 26-34-9 Electrical Power Engineering (F. Janíček, A. Smola)
- Member of Editorial Board of the Journal EE - Elektrotechnika a energetika (Journal of Electrical and Power Engineering), Bratislava (F. Janíček)
- Member of Editorial Board of the Journal of Electrical Engineering, Bratislava (F. Janíček)
- Member of Editorial Board of the Journal TZB Haustechnik (Technical Buildings Installations), Bratislava (A. Smola)
- Member of Editorial Board of the Internet Journal 'Ageing of Electroinsulation Systems' (A. Beláň)
- Head of the Institute of Experts at the Faculty of Electrical Engineering and Information Technology, STU Bratislava (A. Smola)
- Members of Program Board of the Conference Electrical Engineering, Information Technology and Telecommunication 'ELOSYS 2011', Trenčín, October 2011 (A. Beláň, F. Janíček, A. Smola)
- WREN - World Renewable Energy Council /Network, UK (M. Ružinský, V. Šály)
- CIGRE – International Council on Large Electric Systems, Paris (A. Beláň)
- CIRED – International Conference on Electricity Distribution, London (A. Beláň)
- IEEE - Institute of Electrical and Electronics Engineers, New Jersey (A. Beláň)
- Member of World Energy Council, London (F. Janíček)
- Member of Committee on Energy Research and Technology IEA, Paris (F. Janíček)
- IEC TC – International Electric Committee No. 42 – High Voltage Technology (P. Šandrik)
- CIE – International Commission on Illumination, Vienna (D. Gašparovský, A. Smola, F. Krasňan, M. Pípa)
- Honorary member 'Society friends of public lighting', CzR (A. Smola)
- Members of International Editorial Board of Internet Journal Energy Spectrum, Brno (F. Janíček, A. Smola)
- Member of Editorial Board of the Journal Světlo, Prague, Czech Republic (A. Smola)
- Member of Editorial Board of the Journal Electrical Engineering in Practice, Ostrava, Czech Republic (A. Beláň)
- Members of International Scientific Committee of the 12th International Scientific Conference Electric Power Engineering 2011, Dlouhé Strane, Czech Republic, May 2011 (A. Beláň, Ž. Eleschová, F. Janíček)
- Members of International Programme Committee of the 10th International Conference 'Energy – Ecology – Economy 2011', Tatranské Matliare, May 2011 (I. Daruľa, Ž. Eleschová, F. Janíček)

## VIII. 2 Membership in International Institutions/Committees

- Chair of Slovak branch of Central European Association for Computational Mechanics (CEACM) (J. Murín)
- European Community on Computational Methods in Applied Sciences (ECCOMAS) (J. Murín)
- International Association for Computational Mechanics (IACM) (J. Murín)
- Central European Association for Computational Mechanics (CEACM) (V. Kutíš)
- Institute for Mechanics of Materials and Structures, TU Vienna, Austria (J. Murín)
- Membership in the Scientific Editorial Advisory Board of Journal: Engineering Review, Croatia (M. Vereš)
- Member of the States Representatives Group on the Hydrogen and Fuel Cells programs in Europe (V. Ferencey)
- Membership in the editorial board of journal: Recent patents on Engineering (J. Murín)
- Member of Editorial board of the journal 'Electrical machines building and electrical equipment', Odessa National Polytechnic University, Ukraine (L. Hüttner)
- Senior Member, IEEE - EDS (Electron Devices Society), USA (M. Ružinský)
- Member of International Steering Committee of 'World Renewable Energy Forum and Exhibition', WREF, Denver, Colorado (M. Ružinský)



# PUBLICATIONS

## IX. 1 Journals

- [1] BUGÁR, M. - STAŇÁK, V. - FERENCEY, V.: Hybrid Powertrain Conceptual Design for Unmanned Ground Vehicle. In: Science & Military. - ISSN 1336-8885. - Vol. 6, No. 1 (2011), p. 13-19. (in English)
- [2] CHUDIVÁNI, J.: Brushless Motors. In: Posterus. - ISSN 1338-0087. - December (2011), <http://www.posterus.sk/?p=12326>. (in Slovak)
- [3] DRAHOŠ, P. - KUTIŠ, V. - DÚBRAVSKÝ, J. - SEDLÁR, T.: Design and Simulation of SMA Actuator. In: International Review of Automatic Control. - ISSN 1974-6059. - ISSN 1974-6067. - Vol. 4, No. 4 (2011), p. 588-593. (in English)
- [4] DUČ-ANCI, M.: Contribution to the Circuits of a Bridge Inverter and a Voltage Filter. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 17, No. 6 (2011), 24-25, 34. (in Slovak)
- [5] ĎURMAN, V. - LELÁK, J.: Radiation of Ageing of Flame Retardant XLPE Cables. In: ElectroScope. - ISSN 1802-4564. - No. 5: Diagnostika (2011), on-line. (in English)
- [6] FERENCEY, V. - STAŇÁK, V. - BUGÁR, M.: Failure Modes and Effect Analysis which is Applied to the Electric Powertrain System of Unmanned Ground Vehicle. In: Posterus. - ISSN 1338-0087. - July (2011), <http://www.posterus.sk/?p=10964>. (in English)
- [7] GAŠPAROVSKÝ, D. - MÁCHA, M.: Impact of Dirt on Optical Parts of Luminaires to the Change of their Photometric Parameters. In: Světlo. - ISSN 1212-0812. - Vol. 14, No. 2 (2011), p. 54-56. (in Slovak)
- [8] GLASA, M.: Computer Models of MOV Varistor Used in Overvoltage Protection. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 17, No. 5 (2011), p. 27-29. (in Slovak)
- [9] GLASA, M.: Protection Level Decrease of Degradated Varistors. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 17, No. 5 (2011), p. 30-35. (in Slovak)
- [10] GLASA, M.: The Credibility of Overvoltage Protection Computer Models. In: Posterus. - ISSN 1338-0087. - September (2011), <http://www.posterus.sk/?p=11578>. (in Slovak)
- [11] GLASA, M.: Varistor - Principle, Technology, Application. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 17, No. 6 (2011), p. 30-31. (in Slovak)
- [12] GOGA, V. - JEDINÝ, T. - KRÁLOVIČ, V. - MATEJ, J.: Virtual Mechatronic Model of Electronic Differential System - EDS. In: Strojnícky časopis = Journal of Mechanical Engineering. - ISSN 0039-2472. - Vol. 62, No. 3 (2011), p. 159-169. (in English)
- [13] JAKUBEC, J. - KUTIŠ, V.: Flow Simulations in Fuel Rod Bundle. In: Posterus. - ISSN 1338-0087. - December (2011), <http://www.posterus.sk/?p=12239>. (in English)
- [14] JANIČEK, F. - DARUĽA, I. - KOVAL, P. - LIŠKA, M. - JANIGA, P.: The Influence of Wind Power Plants upon the Size of the Regulation Margin. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 17, No. 2 (2011), p. 4-5. (in Slovak)
- [15] KERTÉSZ, I.: Issues of Lightning Arresters Protection. In: Posterus. - ISSN 1338-0087. - October (2011), <http://www.posterus.sk/?p=11824>. (in Slovak)
- [16] KERTÉSZ, I.: Protection of Lighting Arresters by Circuits Breakers. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 17, No. 6 (2011), p. 32-33. (in Slovak)
- [17] KOPČA, M. - VÁRY, M.: Diagnostics of Dielectric and Insulation System and their Lifetime Forecast. In: Elektrotechnický magazín. - ISSN 1210-5422. - Vol. 21, No. 11-12 (2011), p. 58-60. (in Slovak)
- [18] KOPČA, M. - VÁRY, M. - DOSOUDIL, R. - ĎURMAN, V. - LELÁK, J.: Long-Term Stability of Plastic-Ferrite Composites Using Accelerated Thermal Ageing Method. In: Electrotechnica, Electronica, Automatica. - ISSN 1582-5175. - Vol. 59, No. 3 (2011), p. 7-10. (in English)
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