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•••• STU
•••• FEI

SLOVAK UNIVERSITY OF
TECHNOLOGY IN BRATISLAVA
FACULTY OF ELECTRICAL ENGINEERING
AND INFORMATION TECHNOLOGY





FACULTY OF ELECTRICAL ENGINEERING AND INFORMATION TECHNOLOGY



<http://www.fei.stuba.sk>

Profile of the Faculty

The Faculty of Electrical Engineering and Information Technology of STU is one of the seven faculties of the Slovak University of Technology, the oldest and largest university of technology in Slovakia. Its substantial lines are modern, internationally accepted university study, intensive scientific and development research and cooperation with academic and industrial partners in Slovakia and abroad.

The beginnings of the Faculty of Electrical Engineering and Information Technology are dating back to the year 1940, when by the Government Decree at the Slovak University of Technology was established the Department of Mechanical and Electrical Engineering. By the opening the Department of Electrical Engineering in the year 1941, actually began the history of electrical higher education in Slovakia. In the year 1994 the Faculty of Electrical Engineering was renamed to the Faculty of Electrical Engineering and Information Technology.

Faculty of Electrical Engineering and Information Technology of STU in the long term ranks among the largest educational institutions in Slovakia and in the area of education of technical engineers has a long tradition. The Faculty of Electrical Engineering and Information Technology of STU is also the largest educational faculty focused on the raising of the university – educated professionals in the field of electrical engineering, informatics and information technologies. Study programs with their composition reflect the technical development as well as trends in society. They consist of interlinked system that highly covers the needs of labor market in Slovakia and abroad. Many of our graduates have found application as top professionals in the field and perform also top management positions.

In addition to gaining high – quality knowledge during the study students are in a position to be involved in the process of solving of research projects and also projects for commercial purposes. This may begin their careers already during their studies. Students of the faculty thereby are able to receive the possibility to complete a part of the study at foreign universities with which the

Faculty of Electrical Engineering and Information Technology have signed agreements on bilateral cooperation. The Faculty at the same time develops cooperation in research and technological cooperation with universities abroad. Year after year a relatively large group of the students completes one or two semesters at one of technical universities abroad.

By completing any of the Faculty study programs it is possible to gain an excellent potential for a good quality job in a wide spectrum of professions. Employment figure of the graduates of the Faculty comes up to hundred percent every year. This means a great prospect ahead for students within Slovakia and the European Union.

The Faculty of Electrical Engineering and Information Technology of STU consists of the seven institutes and two departments:

- Institute of Computer Science and Mathematics (ICSM) was established on May 1, 2011 and created from: Department of Applied Informatics and Information Technology and Department of Mathematics
- Institute of Control and Industrial Informatics (ICII) was established on March 3, 2006 by a fusion of three departments: Department of Automation and Control, Department of Automatic Control Systems and Department of Economics and Management, the last one being detached from the ICII in April 1, 2007.
- Institute of Electrical Engineering (IEE) was established on May 1, 2011 and created from: Department of Electromagnetic Theory and Department of Measurement.
- Institute of Electronics and Photonics (IEP) was established on May 1, 2011 and created from: Department of Microelectronics and Department of Radio and Electronics.
- Institute of Nuclear and Physical Engineering (INPE) was established on May 1, 2011 and created from: Department of Physics and Department of Nuclear Physics and Technology.



*Lecture of Dr. John Cohn
– American propagator of the science,
innovator and holder of 50 patents*



*Lecture of Prof. Július Kremaský
– Slovak scientist and university teacher, holder of the Prizes
of Ministry of Education of the Slovak Republic for Science
and Technology and Slovak Academy of Sciences
for the Popularisation of Science*



- Institute of Power and Applied Electrical Engineering (IPAAE) was established on May 1, 2011 and created from: Department of Electrical Machines and Devices, Department of Electrical Power Engineering, Department of Electrotechnology and Department of Mechanics.
- The Institute of Telecommunications (IT) was established on May 1, 2011 and was created from previous: Department of Telecommunications.
- Department of Languages (DL) was established on April 1, 1991.
- Department of Physical Education (DPE) was established in the year 1993.

The primary goal of Faculty institutes and departments is to link high quality education with research and development. Faculty of Electrical Engineering and Information Technology of STU in Bratislava has sustained its position as a major centre of research and development.

Information and telecommunication systems and technologies, electronics and electrical engineering and their applications, automated systems and methods of their control, power and nuclear engineering are considered as the most important scientific and research areas at FEI STU. Science and research at the Faculty of Electrical Engineering and Information Technology have to be primarily oriented on them.

As far as grant success rate is concerned, the Faculty belongs to the most successful institutions in Slovakia. This position must result in the quality that will be reflected in national and international projects, publications in CC international scientific journals, quotations, patents as well as participation of the Faculty teachers and researchers in practical applications of the latest technologies as well as in creating new development concepts of different sectors of Slovak national economy.

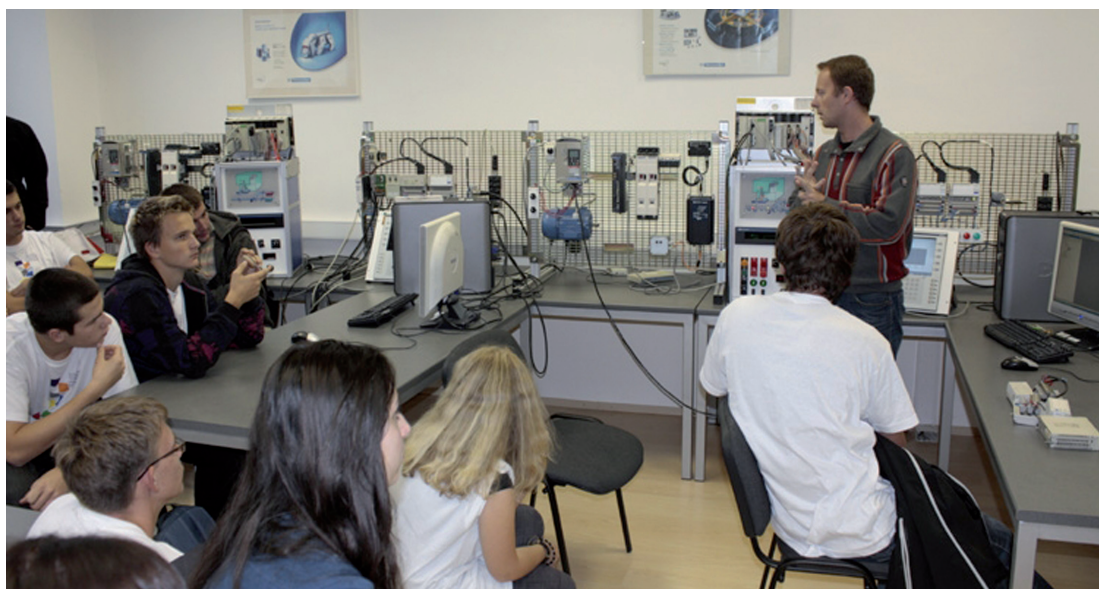
In the area of science and research the Faculty is also focused on funding science and research by involving Faculty staff in all forms of VEGA, KEGA and APVV projects, competence centers, centers of excellence, EU framework programs, bilateral and other international projects, government contracts as well as by funding from other sources. The main focus is also on the involvement of undergraduate and postgraduate students in research at the Faculty and in research centers in Slovakia and abroad. The number of PhD Students who have successfully completed their studies at FEI also represents a measurable indicator of quality. Quality is also reflected in individual teachers' and researchers' efforts the Faculty can benefit from.

This year the Faculty of Electrical Engineering and Information Technology celebrates the 70th Anniversary of Education in the field of Electrical Engineering and Computer Science.



STUDY PROGRAMS AND FACULTY MANAGEMENT

<http://www.fei.stuba.sk>



Bachelor (Bc.) programs:

Applied Informatics
Automotive Electronics
Electrical Engineering
Electronics
Industrial Informatics
Telecommunication

Master (Ing.) programs:

Applied Informatics
Applied Mechatronics
Cybernetics
Measuring and Information Technology
Microelectronics
Physical Engineering
Power Engineering
Radioelectronics
Robotics
Telecommunication

PhD. programs:

Applied Informatics
Applied Mathematics
Automation and Control
Condensed Matter Physics and Acoustics
Cybernetics
Electromagnetic Theory
Electrotechnology and Materials
Heavy Current Engineering
Measurement Science
Mechatronics
Metrology
Microelectronics
Nuclear Power Engineering
Physical Engineering
Power Engineering
Radioelectronics
Telecommunication



Management of the Faculty



Dean:
prof. RNDr. Gabriel Juhás, PhD.

Vice-deans:



prof. Ing. Peter Ballo, PhD.



Ing. Martin Foltin, PhD.



doc. Ing. Vladimír Jančárik, PhD.



doc. Dr. Ing. Miloš Oravec



doc. Ing. Jarmila Pavlovičová, PhD.



doc. Ing. Milan Žiška, PhD.

Scientific Council



Chairman:

prof. RNDr. Gabriel Juhás, PhD.



Vice-chairman:

doc. Ing. Milan Žiška, PhD.

prof. Ing. Peter Ballo, PhD.
prof. Ing. Ivan Baroňák, PhD.
prof. Ing. Július Cirák, CSc.
doc. Ing. Pavel Čičák, PhD.
prof. Ing. Daniel Donoval, DrSc.
prof. RNDr. Otokar Grošek, PhD.
prof. Ing. Peter Hubinský, PhD.
doc. Ing. Vladimír Jančárik, PhD.
prof. Ing. František Janíček, PhD.
prof. Ing. Jozef Jasenek, PhD.
prof. Ing. Štefan Kozák, PhD.
doc. RNDr. Ľubomír Marko, PhD.
prof. RNDr. Ľudovít Molnár, DrSc.
prof. Ing. Ján Murgaš, PhD.
prof. Ing. Justín Murín, DrSc.
doc. Dr. Ing. Miloš Oravec
doc. Ing. Jarmila Pavlovičová, PhD.
prof. Ing. Robert Redhammer, PhD.
prof. Ing. Vladimír Slugeň, DrSc.

prof. Ing. Viktor Smieško, PhD.
prof. Ing. František Uherek, PHD

External members

Ing. Miroslav Barus, PhD.
prof. Ing. Milan Dado, PhD.
doc. Ing. Ivan Hejda, PhD.
Ing. Emil Krondiak, PhD.
prof. RNDr. Jozef Masarik, DrSc.
prof. Ing. Karol Matiaško, PhD.
doc. Ing. Jozef Novák, DrSc.
doc. Ing. Mylan Tyšler, CSc.
Ing. Otto Verbich, PhD.
prof. Ing. Liberios Vokorokos, PhD.

Academic Senate

Chairman:



doc. Ing. Jaroslav Lelák, CSc.
(1.3.2011 – 31.10.2012)



prof. Ing. František Uherek, PhD.
(1.11.2012 – 31.10.2016)

Chairman of the Chamber of employees:

doc. Ing. Peter Drahoš, PhD.

Chairman of the Chamber of students:

Peter Beňo

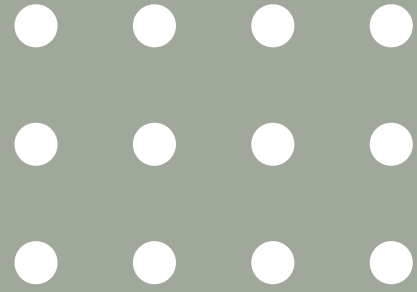
Chamber of employees

PhDr. Jarmila Belasová
doc. Ing. Mikuláš Bittera, PhD.
doc. Ing. Peter Bokes, PhD.
doc. Ing. Peter Drahoš, PhD.
PaedDr. Aleš Dunajčík
doc. Ing. Žaneta Eleschová, PhD.
Ing. Róbert Hincá, PhD.
prof. Ing. Peter Hubinský, PhD.
Ing. Erik Chromý, PhD.
Ing. Mgr. Matúš Jókay, PhD.
doc. Ing. Vladimír Kutiš, PhD.
doc. Ing. Rastislav Róka, PhD.
doc. RNDr. Boris Rudolf, PhD.
prof. Ing. Viera Stopjaková, PhD.
prof. Ing. František Uherek, PhD.
doc. Ing. Elemír Ušák, PhD.

Chamber of students

Peter Beňo
Michal Hanic
Martin Horniak
Ing. Martin Jagelka
Andrej Ralbovský
Marek Rapčík
Ing. Ľubomír Sládek
Filip Tehlár





**INSTITUTE
OF COMPUTER
SCIENCE
AND MATHEMATICS**





INSTITUTE OF COMPUTER SCIENCE AND MATHEMATICS

<http://www.fei.stuba.sk/>



Director:

prof. RNDr. Otokar Grošek, PhD.

e-mail: otokar.grosek@stuba.sk

Tel: +421-2-602 91 226, Fax: +421-2-654 20 415

Deputy Director:

Doc. RNDr. Ľubomír Marko, PhD.

Tel: +421-2-654 27 351, e-mail: lubomir.marko@stuba.sk

Fax : + 421-2-654 20 415

Institute Secretary:

RNDr. Elena Pastuchová, PhD.

Tel.: +421-2-602 91 303, e-mail: elena.pastuchova@stuba.sk

Fax. : + 421-2-654 20 415

Head of Administration Office:

Zuzana Šabíková

Tel: +421-2-602 91 266, e-mail: zuzana.sabikova@stuba.sk

Fax: +421-2-654 20 415

General Information

On May 1, 2011 was established the Institute of Computer Science and Mathematics as a union of two former Departments at FEI STU, namely Department of Informatics and Information Technology and Department of Mathematics. In fact we can count our history from the creation of the Department of Applied Informatics and Information Technology at FEI STU on Feb 1, 2004. 526 Bachelors, 249 Masters (Engineers) and 8 PhD Students have finished during this short period. The study program Applied Informatics possesses deep theoretical and methodological knowledge and practical skills from the essential areas of the core of Informatics. Further knowledge from measurement, data capture, processing and transmission of information and diagnostics of systems is included to the program. A graduate will also have knowledge about information and communication networks, will understand methods of modeling and simulation of systems and processes. To achieve this target, courses from the core fields of Information Systems and Software Engineering interlace with courses divided into four majors: Security of Information Technologies, Biometrics, Modeling and Simulation of Event Systems, and IT in Control and Decision Making. During the study principles of individual and team scientific work and research, formulation of problems, their solution and presentation are emphasized, respectively. A broad

professional career in the different branches of science, research, industry and services is open for graduates, like auditing large information and communication systems, design security systems to protect sensitive data, modeling of work-flow processes, and embedded systems, and design and use information systems and software products in the area of control engineering in various practical application domains. The Institute consists of 3 Departments, namely Department of IT Security, Department of Software Engineering and Department of Mathematics.

Departments of the Institute

Department of IT Security

Department chair: doc. Ing. Pavol Zajac, PhD.

Tel: +421-2-602 91 181

e-mail: pavol.zajac@stuba.sk

Fax: +421-2-654 20 415

Short history

The cryptology education at EF SVŠT began in 1984 with a course „Secret Communication in Computer Networks“ for postgraduate study (PhD) as the first in former Czechoslovakia. In 1986 O. Grošek (EF SVŠT) and K. Nemoga



(MÚ SAV) established a new research seminar CRYPTO, and except a short break 1989-1993, it is still a main center of cryptology research at FEI STU. In 1995 started a course Ciphering for students, along with the first Bachelor's projects and Diploma Theses in this area. Since the same year we had graduate students in the field of 25-11-9 Applied Informatics, and also (since 1997) 11-14-9 Applied Mathematics with the major Cryptology.

The first Masters degree programme in the field of Security of Information Technologies was established in 2000/2001 by the Department of Mathematics in cooperation with the former Department of Applied Informatics and Information Technology. After the creation of FIIT STU in 2003, the cryptology group of prof. Grošek created a core of the Department of Applied Informatics and Information Technology at FEI STU on Feb 1, 2004. On May 1, 2011 the Institute of Computer Science and Mathematics was established as a union of two former Departments at FEI STU. Since that time Crypto-group has formed the core of the Department of IT Security.

Awards 2012

- Ing. Viliam Hromada: A Note on Poly-Dragon, conference ELITECH, 12, SR, winning work in the section of Applied Informatics
- Bc. Martin Košdy: TimeZoner, StartupWeekend Bratislava 2, member of winning team

Activities 2012

- Organization of Central European Conference on Cryptology 2012.- Tatracrypt 2012, Smolenice, SR, 02.-04.7.2012

Directions, Future Trends, and Priorities

In the year 2012 we were able to increase the involvement of the Department in various research projects. The main research priorities indicated by the projects are:

1. side channel attacks (APVV, and NATO grant)
2. security of mobile devices (VEGA grant)

In 2013 we plan to improve the Laboratory of IT Security with the help of sponsors to include the measurement devices for the side channel research.

We continue the continual improvements of the educational process. We investigate the option to introduce new courses for students of non-security specializations. Furthermore, we try to increase the involvement of security-specialized students in our research activities.

Department of Software Engineering

Department chair: prof. RNDr. Gabriel Juhás, PhD.
Tel:+421 -2-602 91 135
e-mail: gabriel.juhás@stuba.sk
Fax:+421-2-602 91 415

Short history

History of the Department of Software Engineering began in February 2004 along with the development of the Department of Applied Informatics and Information Technology to teach students in the field of Advanced Web Technology. In September 2005 there was established a group of associated professor Juhás working in modeling, analysis, synthesis and verification of a wide range of event systems in various application areas. Other fields of research are architecture and software development, biometrics, eHealth and telemedicine. The first Master's degree student in the field of Modeling and Synthesis of Event Systems finished in 2009. In 2011 the group became a part of the Institute of Computer Science and Mathematics, and was named Department of Software Engineering. Machine Learning Group is active at the Department of Software Engineering, Institute of Computer Science and Mathematics. It consists of university teachers and PhD students at the Department, who together with the undergraduate students work mainly in the following areas:

- machine learning for biometrics
 - face recognition
 - iris recognition
- machine learning for communication networks
 - classification of traffic in communication networks
 - prediction of video traffic in communication networks

Machine Learning Group cooperates closely with the partners performing research in the above mentioned areas in Slovakia, as well as abroad, e.g. Politecnico di Torino (<http://www.polito.it/>), Vrije Universiteit Brussels (<http://www.vub.ac.be/>). Through Group's involvement in HBB-Next 7th Frame Programme project (<http://www.hbb-next.eu>) it closely cooperates with both the academia and private companies throughout Europe.

All the relevant information about Machine Learning Group (people, software systems, scientific projects, publications) can be found on its homepage <http://www.uim.elf.stuba.sk/kaivt/MLgroup>.

Awards 2012

- Ing. Igor Marček: Pretreatment Fundus Images as Part of an Automated Screening Method for Diabetic Retinopathy, Slovak Society of Cybernetic and Informatic Award

Activities 2012

- Support for organisation conference - Algorithms and Tools for Petri Nets (AWPN 2012), Vienna, Austria, 13.-14.9.2012

Directions, Future Trends, and Priorities

Telemedicine represents innovative shift in delivering medical services with application of information and communication technologies outside the health institutions. Applications of telemedicine services include mobile and wearable technologies to support tele-health for



management of chronic conditions and support general well being from infants to elderly. Other domains of tele-health systems research (including nonclinical domains) are in the scope of ongoing efforts to create the ground for identification and discussion of technological, social, cultural, economic and other drivers to gain wide acceptability of telemedicine services and systems.

National Centre of Telemedicine Services (NCTS) was opened on 1.12.2011 at Slovak University of Technology in Bratislava, Faculty of Electrical Engineering and Information Technology (FEI STU). A strategic partner of the NCTS is IBM Slovakia with important support to the Centre from Slovak Medical Chamber and WHO office in Slovakia.

Research and development in the Centre is aimed on "the complete loop system" including remote data collection (biomedical telemetry devices), data transmission and analytics to support experts review and feedback to medical personnel and patients. International state-of-the-art in related research domains is delivered through the close collaboration with distinguished experts in the field of biomedical engineering and health informatics – prof. Cerutti, prof. Allen, prof. Zhang (CUHK, China), prof. Akay (UH, USA) and other researchers grouped under NCTS's Scientific Advisory Board.

Tele-monitoring services are developed by the NCTS with close cooperation with its medical partners include acquisition of vital signs related to, e.g. blood pressure, body temperature, glycemia, ECG. The complex picture of patient status is completed with GPS data and VOIP tele-consultations. Management of patient conditions is supported by clinicians' applications related to management of acquired data and alarm generation supporting the prompt feedback to the patient and provision of professional help. The specific characterization of application is based on the requirements of medical personnel, related clinical process and target group (for example diabetes management, elderly citizens).

Department of Mathematics

Department chair: doc. RNDr. Ľubomír Marko, PhD.

e-mail: lubomir.marko@stuba.sk

Tel: +421-2-654 27 351, Fax: +421-2-654 20 415

Short history

The origin of the Department of Mathematics is the same as the origin of the Slovak Technical School of M.R. Štefánik (1938) and the first rector was a mathematician Jur Hronec too. In 1951 the Institutes of Mathematics were united into the unique Department of Mathematics of Slovak University of Technology (SVŠT), which was associated to Faculty of Electrical Engineering of SVŠT (EF SVŠT). The first head of the Department of Mathematics became academician Š. Schwarz. In 1984 the residence of EF SVŠT moved to Mlynská dolina (Bratislava). We remember famous researchers to be employed at the Department, namely professors

Hronec, Schwarz, Jakubík, Švec, Greguš, Mišík, Kluvánek, Riečan, Znáť, Eliáš, Ivan, Šulka, Gatiaľ, Porubský, Horák, Riečanová. In 2011 the Department of Mathematics was incorporated to the Institute of Informatics and Mathematics.

Directions, Future Trends, and Priorities

- Increased grant funding of the department.
- Continual improvement of educational process in mathematics.
- Improvement of pedagogical work with students, especially in the first semester.

I. STAFF

Professors

prof. RNDr. Igor Bock, PhD., prof. RNDr. Otokar Grošek, PhD., prof. RNDr. Gabriel Juhás, PhD.

Associate Professors

doc. RNDr. Jaroslav Fogel, PhD., doc. RNDr. Ľubomír Marko, PhD., doc. RNDr. Karol Nemoga, PhD., doc. RNDr. Vladimír Olejček, PhD., doc. Dr. Ing. Miloš Oravec, doc. RNDr. Boris Rudolf, PhD., doc. RNDr. Ladislav Satko, PhD., doc. Ing. Michal Šrámka, PhD., PhD., doc. RNDr. Peter Volauf, PhD., doc. RNDr. Michal Zajac, PhD., doc. Ing. Pavol Zajac, PhD.

Assistant Professors

Ing. Štefan Balogh, RNDr. Igor Brilla, PhD.
RNDr. Viera Čerňanová, PhD., RNDr. Karla Čipková, PhD., Ing. Alexander Hambalík, PhD., Ing. Mgr. Matúš Jókay, PhD., RNDr. Mária Kečkemetyová, PhD., RNDr. Igor Kossaczky, PhD., RNDr. Eva Kostrecová, PhD., Ing. Fedor Lehockí, PhD., RNDr. Ivica Marinová, PhD., Ing. Vladislav Novák, RNDr. Dávid Pancza, PhD., RNDr. Elena Pastuchová, PhD., RNDr. Marcel Polakovič, PhD., Mgr. Marek Sýs, PhD., Mgr. Zuzana Ševčíková, Ing. Milan Vojvoda, PhD., Mgr. Michal Zakopčan, PhD.

Research Workers

Ing. Ondrej Gallo, Ing. Igor Kazlov, Ing. Stanislav Marček, prof. RNDr. Zdenka Riečanová, PhD.

Technical Staff

Zuzana Šabíková (Head), Emília Komžíková, Mgr. Zuzana Šedová

PhD Students

Ing. Eugen Antal, Ing. Michal Braško, Ing. Lucia Cibulková, Ing. Csaba Cserba, Ing. Ondrej Gallo, Ing. Dávid Hrbatý, Ing. Viliam Hromada, Ing. Vojtěch Jirka, Ing. Igor Kazlov, Ing. Pavol Marák, Ing. Stanislav Marček, Ing. Ján Mazanec, Mgr. Michal Mikuš, Ing. Ľuboš Omelina, Ing. Alexandra Posoldová, Ing. Marek Repka, Mgr. Viktória Rozborová, Ing. Andrej Savka, Mgr. Andrea Tinajová, Ing. Juraj Varga, Ing. Milan Zelina, Mgr. Tomáš Žilka



II. EQUIPMENT

II. 1 Teaching and Research Laboratories

- IT Sec Laboratory
- DIEDC - Database Information Education and Demonstration Center
- Laboratory of Medical Informatics
- Laboratory of Communication Networks
- Experimental Laboratory of Institute
- Library of Department of Mathematics

II. 2 Special Measuring Instruments and Computers

- HP Proliant ML 150
2x CPU INTEL XEON 2,8 GHz
RAM 12 GB, HDD 35 GB
- MSDN Academic Alliance (MSDN AA) = Microsoft Developers Network Academic Alliance

III. TEACHING

III. 1 Undergraduate Study (Bc.)

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

- **Algorithms and Programming** (1st sem., 3-2h)
P. Zajac, G. Juhás, M. Sýs, I. Kossaczky
- **Analysis and Complexity of Algorithms** (6th sem., 3-1h)
M. Vojvoda
- **Basics of Finance** (2nd sem., 1-2h)
M. Zákopčan
- **Calculus 1** (1st sem., 4-2h)
L. Satko, M. Zajac, E. Pastuchová, M. Kečkemétyová, B. Rudolf
- **Calculus 2** (2nd sem., 4-2h)
L. Satko, K. Čípková, I. Brilla, V. Čerňanová, B. Rudolf
- **Calculus 3** (3rd sem., 3-2h)
Ľ. Marko, P. Volauf
- **Calculus 4** (4th sem., 3-2h)
V. Olejček, D. Pancza
- **Classical Ciphers** (4th sem., 2-2h)
O. Grošek
- **Communication Network 1** (4th sem., 3-1h)
M. Oravec
- **Communication Network 2** (6th sem., 4-1h)
A. Hambalík, M. Oravec
- **Computer Crimes** (6th sem., 2-2h)
E. Kostrecová
- **Cryptography** (5th sem., 2-2h)
O. Grošek
- **Database Systems** (3rd sem., 3-2h)
M. Vojvoda
- **Design of Database Systems** (4th sem., 3-1h)
I. Kossaczky

- **Fast Algorithms** (6th sem., 2-2h)
K. Nemoga
- **Information Security** (3rd sem., 2-2h)
E. Kostrecová
- **Introduction to Computer Science** (4th sem., 3-2h)
O. Grošek
- **Management of IT projects (32023)** (5th sem., 2-2h)
F. Lehocki
- **Mathematical Analysis1** (1st sem., 4-2h)
L. Satko, Ľ. Marko, M. Zákopčan
- **Linear Algebra I** (1st sem., 2-2h)
M. Zajac
- **Logic Systems** (1st sem., 4-1h)
V. Olejček, D. Pancza, M. Polakovič, V. Čerňanová
- **Object Oriented Programming** (3rd sem., 3-2h)
V. Novák
- **Operating Systems** (3rd sem., 3-2h)
M. Jókay
- **Partial Differential Equations** (4th sem., 2-2h)
I. Bock
- **Probability and Statistics** (6th sem., 2-2h)
P. Volauf
- **Programming Techniques** (2nd sem., 3-2h)
M. Sýs
- **Seminar Calculus 1** (1st sem., 0-2h)
L. Satko, B. Rudolf, M. Kečkemétyová
- **Seminar Calculus 2** (2nd sem., 0-2h)
L. Satko, I. Brilla, B. Rudolf
- **Software Application Development** (3rd+5th sem., 2-2h)
M. Šrámka
- **Software Architecture** (6th sem., 2-2h)
I. Kossaczky
- **Statistical Methods in Informatics** (4th sem., 3-2h)
E. Pastuchová, I. Marinová
- **Workflow Management Systems** (6th sem., 2-2h)
F. Lehocki

III. 2 Graduate Study (Ing.)

- **Analysis and Synthesis of Event Systems** (2nd sem., 3-2h)
G. Juhás
- **Basics of Macroeconomic Theory** (1st sem., 3-2h)
M. Zákopčan
- **Biometrics** (3rd sem., 3-2h)
M. Oravec
- **Ciphers in Communication Networks** (1st sem., 3-2h)
K. Nemoga
- **Coding** (1st sem., 3-1h)
K. Čípková
- **Coding Theory** (1st sem., 3-1h)
K. Čípková
- **Computer Graphics** (1st sem., 3-2h)
M. Sýs
- **Cryptanalysis** (3rd sem., 3-2h)
M. Vojvoda, P. Zajac, M. Sýs





- **Design of Ciphers** (2nd sem., 3-2h)
P. Zajac
- **Formal Methods** (3rd sem., 3-2h)
J. Fogel
- **Functional Analysis II** (4th sem., 2-2h)
M. Zajac
- **Fuzzy Systems** (1st sem., 3-2h)
P. Volauf
- **Machine Learning and Neural Networks** (1st+3rd sem., 3-2h)
M. Oravec
- **Mathematics** (1st sem., 3-2h)
I. Bock
- **Modelling and Simulations of Event Systems** (1st sem., 3-2h)
G. Juhás
- **Partial Differential Equations – Numerical Method of Solution** (1st sem., 2-2h)
I. Bock
- **Partial Differential Equations** (1st sem., 3-2h)
I. Bock
- **Practice of Security of Information Systems** (2nd sem., 3-2h)
M. Šramka
- **System Programming** (1st sem., 3-2h)
J. Fogel
- **Theory of Fuzzy Systems** (1st sem., 3-2h)
P. Volauf

III. 3 Undergraduate and Graduate Study for Foreign Students (in English Language)

- **Algorithms and Programming** (1st sem., 12h consul.)
J. Varga
- **Business Management** (2nd sem., 12h consul.)
F. Lehocki
- **Calculus 1** (1st sem., 12h consul.)
I. Brilla
- **Calculus 2** (2nd sem., 12h consul.)
M. Zajac
- **Classical Ciphers** (4th sem., 12h consul.)
O. Grošek
- **Communication Network** (4th sem., 12 h consul.)
Š. Balogh
- **Computer Architecture** (1st sem., 12h consul.)
M. Jókay
- **Computer Architecture** (2nd sem., 12h consul.)
M. Jókay
- **Databases Systems** (3rd sem., 12h consul.)
I. Kossaczky
- **Design of Database Systems** (2nd sem., 12h consul.)
I. Kossaczky
- **Discrete Mathematics** (2nd sem., 12h consul.)
I. Marinová
- **Object Oriented Programming** (3rd sem., 12h consul.)
M. Braško

- **Programming Techniques** (2nd sem., 12h consul.)
M. Sýs
- **Statistical Methods in Informatics** (4th sem., 12h consul.)
O. Grošek
- **Introduction into Engineering and Technical Documents** (1st sem., 6 h consul.)
Z. Ševčíková

III. 4 Distance Study

- **Algorithms and Programming** (1st sem., 6x2h consul.)
A. Hambalík
- **Calculus** (1st sem., 6x2h consul.)
I. Bock
- **Calculus 1** (1st sem., 6x2h consul.)
L. Marko
- **Calculus 2** (2nd sem., 6x2h consul.)
I. Brilla
- **Calculus 3** (3rd sem., 6x2h consul.)
L. Marko
- **Calculus 3** (3rd sem., 6x2h consul.)
P. Volauf
- **Calculus 4** (4th sem., 6x2h consul.)
V. Olejček
- **Logic Systems** (1st sem., 6x2h vonsul.)
D. Pancza

III. 7 Postgraduate Study

- **Applications and Extensions of Petri Nets**
G. Juhás/ M. Féder
- **Concurrent Systems**
G. Juhás
- **Cryptography in Computer Networks**
O. Grošek
- **Digital Image Processing - Theory and Methodology of Applications in Informatics**
M. Oravec
- **Elements of Functional Analysis**
Z. Riečanová
- **Formal Languages in Model Specification**
J. Fogel
- **Logic in Information Technology**
J. Fogel
- **Mathematics for PhD Students**
I. Bock
- **Quantum Structures**
Z. Riečanová
- **Stochastic Processes and Methods**
V. Olejček
- **Theory and Applications of Neural Networks**
M. Oravec
- **Topological Methods in Quantum Structures**
Z. Riečanová



IV. RESEARCH PROJECTS

IV. 1 National Scientific Projects

- Modernization of Education Process in Basic and Grammar Schools., ITMS: 26110130083, 26140130013 and ITMS: 26110130084, 26140130084, certified lector in the project, Duration: 2008 – 2013 (solved). (A. Hambalik)
- Centre of Excellence of SMART Technologies, Systems and Services II, ITMS: 26240120029, Duration: 01.01.2010 – 31.12.2012 (solved). (G. Juhás)
- Measuring, Communication and Information Systems for Monitoring of Cardiovascular Risk in Hypertension Patients, APVV 0513-10 Duration: 1.05.2011-30.06.2014 (started). (F. Lehocki)
- Modelling Uncertainty Quantum Structures, States, Fuzzy Relations and Evaluators with Application in the Probability Theory. VEGA 1/0297/11. Duration: 01.01.2011 – 31.12.2014 (started). (Z. Riečanová)
- Dynamic Contact Task, VEGA 1/0426/12 Duration: 01.2012-21.12.2015 (I. Bock)
- Uncertainty from the Point of View of Probability Theory, Algebra, Self-adjoint Operators and Quantum Structures, APVV-0178-11, Duration: 01.07.2012 – 31.12.2015 (Z. Riečanová)
- Digital Signatures Power Analysis Attack and Countermeasures, APVV-0586-11 Duration: 01.08.2012 - 31.07.2015 (O. Grošek)
- Knowledge Discovery - Large Data Structuring with Support Decision, OPVaV - ITMS : 262402 20063, Duration: 2011-2013 (G. Juhás)
- Competence Centre of Intelligent Technologies, OPVaV - ITMS : 262402 20072 Duration: 09/2011-12/2014 (G. Juhás)

IV. 2 International Scientific Projects

- Secure Implementation of Post-Quantum Cryptography, NATO-NPD: Sfp 984520 Duration: 2012-2013 (O.Grošek)
- HBB-NEXT Next-Generation Hybrid Broadcast Broadband, FP7-ICT-2011-7-287848 Duration: 2011-2013 (M. Oravec)
- ERASMUS Educational Project – Bilateral Agreement for the academic year 2012/14 SOCRATES programme - HIGHER EDUCATION

V. COOPERATION

V. 1 Cooperation in Slovakia

- National Security Authority, Bratislava
- Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava
- Association of the Infovek Project, Ministry of Education of the Slovak Republic – Project of Informatization of Regional School – PIRŠ
- Slovak Research and Development Agency, Bratislava

- Faculty of Chemical and Food Technology, STU, Bratislava
- Technical University, Zvolen
- J. Selye University, Komárno
- Bratislava Methodical and Pedagogical Centre
- Trenčín Methodical and Pedagogical Centre
- Virtual Academy of Bratislava Self-Governing Region
- University of Constantin the Philosopher, Nitra
- Department of Engineering Pedagogy and Psychology, MtF STU Bratislava
- Ministry of Finance of the SR
- Institute of Measurement, Slovak Academy of Sciences, Bratislava
- Slovak Standards Institute
- Ministry of Health of the SR, Strategic Targets of Health
- Security Authority of the Ministry of Defence of the SR
- Institute of Forensic Science of Police Corps, Bratislava
- ÚIPŠ Bratislava
- Elfa, Ltd. Košice
- Datalan, Ltd. Bratislava
- Centre of Distance Education (SDV ICV CUP REK), Bratislava
- Centire, Ltd. Bratislava
- Mathematical Institute, Slovak Academy of Sciences, Bratislava
- Faculty of Management, Comenius University, Bratislava
- Department of Mathematics and Descriptive Geometry, Faculty of Civil Engineering, STU, Bratislava
- Department of Structural Mechanics, Faculty of Civil Engineering, STU, Bratislava
- Department of Mathematical Analysis, FMPI, Comenius University, Bratislava
- Department of Mathematics, Armed Forces Academy, Liptovský Mikuláš
- Department of Mathematics, Faculty of Mechanical Engineering, STU, Bratislava
- Institute of Information Engineering, Automation and Mathematics, Faculty of Chemical and Food Technology, STU, Bratislava

V. 2 International Cooperation

- Institute of Informatics, Academy of Sciences of the Czech Republic, Prague, CzR
- University of LA LAGUNA, Department of Statistics, Operations Research and Computing, Tenerife, Spain
- Department of Information Systems Security, Concordia University College of Alberta, Canada
- Faculty of Informatics MU Brno, CzR
- Department of Mathematics, Faculty of Electrical Engineering, ČVUT Prague, CzR
- Lehrstuhl fuer Angewandte Informatik, Katholische Universitaet Eichstaett-Ingolstadt, Germany
- Fachgruppe Simulation und Modellierung, Institut fuer Systems Engineering, Universitaett Hannover, Germany
- Florida Atlantic University, Boca Raton, Florida, USA
- Department of Mathematics, University of Washington, Tacoma, Washington, USA





- Institute for Experimental Mathematics, University of Essen, Germany
- Department of Mathematics and Science, Indiana State University, USA
- Eszterházy Károly College, Eger, Hungary
- AINTEK A.E, Greece
- Virginia Tech, Blacksburg, Virginia, USA
- McMaster University, Hamilton, Canada
- University of Waterloo, Canada
- University of Toronto, Canada
- Universität Augsburg, Germany
- Institut for Informatikk, Universitetet i Bergen, Norway
- Laboratoire Hubert Curien, Université Jean Monnet, Saint-Etienne, France
- Ecole Nationale de Police, Montbéliard, France
- Technische Universiteit Eindhoven, Eindhoven, The Netherlands
- University of Southampton, UK
- MINT, Emmy Noether Verein, Ulm, Germany
- Institut für Algebra und Computermathematik TU Vienna, Austria
- Department of Mathematics, FEE CTU, Prague, CzR
- Academy of Sciences of the Czech Republic, Prague, CzR
- Department of Mathematics, Faculty of Natural Sciences of MU, Brno, CzR
- Institut de Mathématique, Université Louis Pasteur, Strasbourg, France
- Math. Institute, Polish Academy of Sciences, Warsaw, Poland
- University of Ljubljana, Slovenia
- Institute of Nuclear Physics, Academy of Sciences of the Czech Republic, Rez near Prague, CzR
- Department of Mathematics, Zhejiang University Hangzhou, China

V. 3 Contracts

none

VI. THESES

VI. 1 Masters Theses

Masters theses supervised at the Institute of Computer Science and Mathematics. The names of supervisors are in brackets.

- [1] Adamček, P.: Cryptanalysis of Keccak (P. Zajac)
- [2] Ajpek, M.: Use of CMS systems for implementing a remote office (B. Mišota)
- [3] Aust, P.: Advanced techniques of web applications speed optimization (Z. Janík)
- [4] Bachúrik, M.: Data synchronization for Drupal CMS (B. Mišota)
- [5] Baranec, M.: Form validation data model for workflow management system (G. Juhás)
- [6] Bédi, J.: Use of machine learning in ophthalmology (M. Oravec)
- [6] Boor, J.: Executing an attack on a stream cipher (generator) (M. Braško)
- [7] Brezovský, M.: Indoor Navigation System (V. Novák)
- [8] Bryndza, M.: Comparator of product attributes (M. Materák)
- [9] Ďuricová, M.: Development learning module „Introduction to Semiconductor“ (Ľ. Stuchlíková)
- [10] Ďuriš, J.: Security Mechanisms for the Control of Information Systems (E. Kostrecová)
- [11] Gajdošech, Š.: Visual Environment of Parallel Programming in C++ (I. Kazlov)
- [12] Garláty, D.: An information system for electronic prescription drugs from the perspective of pharmacist (Š. Balogh)
- [13] Haluska, P.: Web application development with the modern Ruby on Rails framework (M. Foltin)
- [14] Horvatovič, M.: Development of management application for Apple platform (M. Foltin)
- [15] Hrbatý, D.: Design and implementation of MAN network and information system on linux server for ISP (O. Gallo)
- [16] Chren, Š.: Development of management application for desktop platform in language Java (M. Foltin)
- [17] Chvojka, P.: Secret sharing schemes on nonstandard structures (L. Satko)
- [18] Illit, M.: Online control of real system (K. Žáková)
- [19] Jakuš, J.: OpenCL standard as a part of e-learning (Ľ. Stuchlíková)
- [20] Jirka: Application to Facilitate the Work of a Protected by Law Personal and Sensitive Information Manager for Smaller Organizations and Schools (A. Hambalík)
- [21] Kajanovič, L.: Automated web site generator (J. Chajdiak)
- [22] Koháry, R.: Generation of form for workflow management systems (G. Juhás)
- [23] Krejčí, P.: Detecting kernel level rootkits using system calls (Š. Balogh)
- [24] Kršáková, L.: Antiphishing Techniques (E. Kostrecová)
- [25] Kurcz, R.: Vizualization of dynamic systems in modern web browsers (P. Bisták)
- [26] Lajda, M.: Automatic support of UML development by transforming models (J. Fogel)
- [27] Lamper, L.: Modular, intelligent programming environment for effective server administration with optional parameters (A. Hambalík)
- [28] Loderer, M.: Cryptanalysis of JH function (P. Zajac)
- [29] Malina, M.: Modelling tool for creating web applications (S. Marček)
- [30] Marček, A.: Analysis of event systems (Z. Ševčíková)
- [31] Marčeková, M.: Interactive vector graphics in e-learning systems (Z. Janík)





- [32] Maringová, L.: Risks caused by publishing private information in social networks (M. Šrámka)
- [33] Marák, P.: A Solution for Automated Processing of Salient Features in Fingerprints (A. Hambalík)
- [34] Maslík, M.: Application development for Android platform (O. Gallo)
- [35] Minarovjeh, M.: Framework for statistical testing of pseudorandom sequences (M. Jókay)
- [36] Mlynár, P.: Developing of management web application (M. Foltin)
- [37] Morvaj, F.: Lattice reduction algorithms (M. Mikuš)
- [38] Mydlo, M.: Direct memory access (Š. Balogh)
- [39] Nagy, T.: Use of Artificial Intelligence in Ophthalmology (M. Oravec)
- [40] Nemčok, D.: Monitoring of version control systems (J. Mazanec)
- [41] Odlevák, Ľ.: Generating new patterns for biometric facial image recognition (M. Oravec)
- [42] Patáčik, I.: Design and implementation of VDI (Z. Ševčíková)
- [43] Plesnivý, M.: Analysis of the streaming media and their implementation in e-learning systems (P. Bisták)
- [44] Polák, M.: Remote experiment (P. Ballo)
- [45] Pozemková, I.: Attack on the A5/2 stream cipher (M. Vojvoda)
- [46] Pribila, V.: Possibilities of translation of workflow models into Petri nets (G. Juhás)
- [47] Prokop, M.: Analysis of parallel process synchronization (V. Novák)
- [48] Ragályi, R.: Online classification of network traffic (M. Zelina)
- [49] Ruman, A.: Information systems for ePrescription (Š. Balogh)
- [50] Sabó, J.: Refactoring function headers in C++ (V. Novák)
- [51] Schreiber, J.: Development of learning module „digital circuits“ (Ľ. Stuchlíková)
- [52] Skokan, L.: Malware detection using dynamic heuristic analyse (Š. Balogh)
- [53] Slivka, P.: Application Interface for Computer Algebra Systems (K. Žáková)
- [54] Stermenszky, Z.: Factoring polynomials over finite fields (K. Nemoga)
- [55] Suchý, J.: Creating web application for the collection of users logs and analysis tool (G. Juhás)
- [56] Suchý, M.: Petri net synthesis from workflow logs (G. Juhás)
- [57] Surový, P.: Possibilities of IP telephony protection (E. Kostrecová)
- [58] I. Šajtlava: Verification of concurrent programs written in Java (J. Fogel)
- [59] Tancík, P.: Biometric recognition of human face images using the methods of neural networks using feature extraction (M. Féder)
- [60] Toška, F.: Design of a system to work with information sources (M. Jókay)
- [61] Tušimová, L.: System to support and manage the learning process long hospitalized pediatric patients (F. Lehocki)
- [62] Vanek, P.: Module e-marketplace for Drupal CMS (B. Mišota)
- [63] Varga, R.: Using MVC architecture and ORM technology in modern web application development (M. Foltin)
- [64] Varga, R.: The classification of the operation of communication networks (M. Oravec)
- [65] Závody, M.: Data structures and their visualization (G. Juhás)
- [66] Zuber, T.: Implementation of a workflow management system (G. Juhás)
- [67] Žbirka, J.: Risks caused by publishing private information on web (M. Šrámka)

VI. 2 PhD. Theses

- [1] Böhm, P.: Cryptanalysis of ciphers Snow 2.0, Snow 3G and Sosemanuk (K. Nemoga)
- [2] Pilka, F.: Neural networks and data prediction (M. Oravec)

VI. 3 Habilitation Theses

- [1] Šrámka, M.: Privacy-preserving data analysis and publishing

VI.4 Inauguration Talk

- [1] Juhás, G.: Petri nets and their applications

VII. OTHER ACTIVITIES

- Seminar: Crypto (O. Grošek)
- Seminar: Machine Learning (M. Oravec)
- Seminar: Quantum structures (Z. Riečanová)
- Seminar: Variational inequalities and optimal control on mechanics (I. Bock)
- Seminar: Ordinary differential equations (B. Rudolf)
- Reviewer of ZentralblattMath (K. Nemoga, O. Grošek)

VIII. MEMBERSHIP IN INSTITUTIONS/COMMITTEES

VIII.1 Membership in National Institution/Committees

- Member of SSKI – Slovak Society for Cybernetics and Informatics (J. Fogel)
- Member of SBIMI – Society of Biomedical Engineering and Medical Informatics (F. Lehocki)
- Member of TC 37 of SÚTN (Slovak Standards Institute) (F. Lehocki)



- Member of JSMF- Union of Slovak Mathematicians and Physicists (I. Bock, M. Kečkemétyová, I. Marínová, V. Olejček, P.Volauf, E. Pastuchová, B. Rudolf, M. Polakovič, Z. Riečanová, L. Satko, M. Zajac, J. Fogel, O. Grošek, K. Nemoga)
- Member of Slovak Society for Mechanics (I. Bock, I. Brilla, L. Marko)
- Member of Slovak Statistical and Demographic Society (E. Pastuchová)
- Member of -Mathematica Slovaca, Springer (editors: I. Bock, M. Zajac)

VIII. 2 Membership in International Institution/Committees

- Member of AMS – American Mathematical Society (O. Grošek, I. Bock, V. Olejček, Z. Riečanová)
- Member of SIAM – Society for Industrial and Applied Mathematics (O. Grošek, V. Olejček, L. Marko, K. Nemoga)
- Member of IACR- International Association for Cryptologic Research (K. Nemoga)
- Member of IEEE (Institute of Electrical and Electronics Engineers) Institution of Engineering and Technology (M. Oravec)
- Member of The European Association for the Transfer of Technologies, Innovation and Industrial Information (F. Lehocki)
- Member of IEEE (Institute of Electrical and Electronics Engineers) Engineering in Medicine and Biology Society (F. Lehocki)
- Member of ISIMM - International Society for the Interaction of Mechanics and Mathematics (I. Brilla)
- Member of IQSA - International Quantum Structures Association (Z. Riečanová, V. Olejček)
- Member of Bernoulli's Society (Z. Riečanová, V. Olejček)
- Member of IACM - International Association for Computational Mechanics (I. Brilla, L. Marko)
- Member of - Emmy Noether Society (Z. Riečanová, I. Marínová, E. Pastuchová)
- Member of - GAMM - Gesellschaft für Angewandte Mathematik und Mechanik (I. Bock)
- Member of - ISSMO - Society for Structural and Multidisciplinary Optimization (I. Bock)

Membership in Editorial Boards of International Journals

- Member of Tatra Mountains Mathematical Publications, publisher: Mathematical Institut of SAS, (O. Grošek, K. Nemoga – managing editor)
- Member of - Zentralblath Math, publisher: De Gruyter, (K. Nemoga - managing editor of the Slovak Unit)
- Member of Journal of Mathematical Cryptology, (O. Grošek)
- Member of Central European Journal of Computer Science (CEJCS), publisher: Versita, co-published with (Springer Verlag, (M. Oravec – editor)
- Member of Transactions on Petri Nets and Other Models of Concurrency (Publisher: Springer Verlag), (G. Juhás)

- Member of Tatra Mountains Mathematical Publications, SAS (editor: Z. Riečanová)

IX. PUBLICATIONS

IX. 1 Journals

- [1] ADAMČEK, P. - LODERER, M. - ZAJAC, P.: A Comparison on Local Reduction and SAT-Solver Based Algebraic Cryptanalysis of JH and Keccak. In: Tatra Mountains Mathematical Publications. - ISSN 1210-3195. - Vol. 53 (2012), p. 1-20. (in English)
- [2] ANTAL, E.: The Mystery of the Rohoncz Codex. In: Crypto-World. - ISSN 1801-2140. - Vol. 14, No. 9-10 (2012), p. 21-28. (in Slovak)
- [3] BRAŠKO, M. - BOOR, J.: On Distinguishing Attack against the Reduced Version of the Cipher NLSv2. In: Tatra Mountains Mathematical Publications. - ISSN 1210-3195. - Vol. 53 (2012), p. 21-32. (in English)
- [4] GROŠEK, O. - HORÁK, P.: On Quasigroups with Few Associative Triples. In: Designs, Codes and Cryptography. - ISSN 0925-1022. - Vol. 64 (2012), p. 221-227. (in English)
- [5] HROMADA, V. - VOJVODA, M.: Fault Analysis of Stream Ciphers. (<http://www.posterus.sk/?p=12474>) In: Posterus. - ISSN 1338-0087. - Vol. 5, Iss. 1 (2012), on-line. (in Slovak)
- [6] JÓKAY, M. - BAROŠ, J.: On the Suitability of the Internet Multimedia Storage for Steganographic Information Transfer in MP4 Files. In: Kybernetika. - ISSN 0023-5954. - Vol. 48, No. 3 (2012), p. 522-535. (in English)
- [7] JÓKAY, M.: The Design of a Steganographic System Based on the Internal MP4 File Structures. In: International Journal of Computers and Communications. - ISSN 2074-1294. - Vol. 5, Iss. 4 (2012), p. 207-214. (in English)
- [8] KOSTRECOVÁ, E.: New Possibilities in Telecommunication Billing. In: Sdělovací technika. - ISSN 0036-9942. - Vol. 2012, Iss. 2 (2012), p. 20-21. (in English)
- [9] MIKUŠ, M.: Experiments with the Plaintext Space in Gentry's Somewhat Homomorphic Scheme. In: Tatra Mountains Mathematical Publications. - ISSN 1210-3195. - Vol. 53 (2012), p. 147-154. (in English)
- [10] OLEJČEK, V.: Fractal Construction of an Atomic Archimedean Effect Algebra with Non-Atomic Subalgebra of Sharp Elements. In: Kybernetika. - ISSN 0023-5954. - Vol. 48, No. 2 (2012), p. 294-298. (in English)
- [11] PILKA, F. - ORAVEC, M.: Neural Network Algorithms for Multi Step Ahead Prediction. In: The International Journal of Multimedia Technology. - ISSN 2225-1456. - Vol. 2, Iss. 4 (2012), p. 131-137. (in English)
- [12] PULMANNOVÁ, S. - RIEČANOVÁ, Z. - ZAJAC, M.: Topological Properties of Operator Generalized Effect Alge-



- bras. In: Reports on Mathematical Physics. - ISSN 0034-4877. - Vol. 69, No. 3 (2012), p. 311-317. (in English)
- [13] RIEČANOVÁ, Z. - ZAJAC, M.: Hilbert Space Effect-Representations of Effect Algebras. In: Reports on Mathematical Physics. - ISSN 0034-4877. - Vol. 70, Iss. 3 (2012), p. 283-290. (in English)
- [14] ROSINOVÁ, D. - NGUYEN, Q.T. - VESELÝ, V. - MARKO, L.: Robust Decentralized Controller Design: Subsystem Approach. In: Journal of Electrical Engineering. - ISSN 1335-3632. - Vol. 63, No. 1 (2012), p. 28-34. (in English)
- [15] RUDOLF, B. - MARKOŠOVÁ, M. - ČAJÁGI, M. - TIŇO, P.: Degree Distribution and Scaling in the Connecting-Nearest-Neighbors Model. In: Physical Review E. - ISSN 1539-3755. - Vol. 85 (2012), Art. No.026114. (in English)
- [16] ZAJAC, P. - JÓKAY, M.: Computing Indexes and Periods of All Boolean Matrices up to Dimension $N=8$. In: Computing and Informatics. - ISSN 1335-9150. - Vol. 31 (2012), p. 1329-1344. (in English)
- [17] ZAJAC, P. - ČAGALA, R.: Local Reduction and the Algebraic Cryptanalysis of the Block Cipher GOST. In: Periodica mathematica hungarica. - ISSN 0031-5303. - Vol. 65, Iss. 2 (2012), p. 239-255. (in English)
- [18] ZAJAC, P.: Solving Trivium-Based Boolean Equations Using the Method of Syllogism. In: Fundamenta Informaticae. - ISSN 0169-2968. - Vol. 114, No. 3-4 (2012), p. 359-373. (in English)
- [4] BALOGH, Š. - MYDLO, M.: New Possibilities for Reading Memory Contents by Enabling DMA Using NDIS Driver. In: Memics 2012. 8th Doctoral Workshop on Mathematical and Engineering Methods in Computer Science. Znojmo, October 25-28, 2012. - Brno : Novopress, 2012. - ISBN 978-80-87342-15-2. - 12 p. (in English)
- [5] BALOGH, Š. - SKOKAN, L.: Proposed Architecture for Dynamic Code Analysis. In: ELOSYS 2012 : Conference. Trenčín, Slovakia, 9-12 October 2012. - Bratislava: FEI STU, 2012. - ISSN 1335-2547. - p. 126-130. (in Slovak)
- [6] BALOGH, Š. - VARGA, J.: Threats in Mobile Security. In: ELITECH'12 : 14th Conference of Doctoral Students. Bratislava, Slovak Republic, 22 May 2012. - Bratislava : STU, 2012. - ISBN 978-80-227-3705-0. - CD Rom, [6] p. (in English)
- [7] BAN, J. - PAVLOVIČOVÁ, J. - FÉDER, M. - OMELINA, L. - ORAVEC, M.: Face Recognition Methods for Multimodal Interface. In: Proceedings of 2012 5th Joint IFIP Wireless and Mobile Networking Conference : Bratislava, Slovakia, September 19-20, 2012. - Piscataway : IEEE, 2012. - ISBN 978-1-4673-2994-1. - p. 110-113. (in English)
- [8] BAN, J. - FÉDER, M. - ORAVEC, M. - PAVLOVIČOVÁ, J.: Face Recognition of Images Corrupted by Transmission Errors. In: Proceedings Redžúr 2012: 6th International Workshop on Multimedia and Signal Processing. Vienna, Austria, April 11, 2012. - Bratislava : STU, 2012. - ISBN 978-80-227-3686-2. - p. 15-18. (in English)
- [9] BĚDI, J. - NAGY, T. - ORAVEC, M. - PAVLOVIČOVÁ, J.: Machine Learning Methods for Ophthalmology Diagnostics. In: ŠVOČ 2012 : Proceedings of Selected Works. Bratislava, Slovak Republic, 25.4.2012. - Bratislava : FEI STU, 2012. - ISBN 978-80-227-3697-8. - p. 16-20. (in English)
- [10] BOCK, I.: On a Dynamic Control Problem for a Mindlin-Timoshenko Beam with a Rigid Obstacle. In: 9th International Scientific Conference of Faculty of Civil Engineering : Košice, Slovak Republic, May 22-25, 2012. - Košice : Technical University, 2012. - ISBN 978-80-553-0905-7. - CD-Rom [6] p. (in English)
- [11] BRAŠKO, M.: On a Performance Optimization of the Cipher NLSv2. In: ISCAMI 2012 : Book of abstracts. Malenovice, Czech Republic, 10.-13.5.2012. - Ostrava: VŠB-Technical University of Ostrava, 2012. - p. 15. (in English)
- [12] BRAŠKO, M. - BOOR, J.: Practical Demonstration of the Distinguishing Attack against the Stream Cipher NLSv2. In: Tatrascript 2012 : 12th Central European Conference on Cryptology. Smolenice, Slovak Republic, July 2-4, 2012. - Bratislava : Slovak Academy of Sciences, 2012. - p. 13-14. (in English)

Reviews published in Journals

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IX. 2 Conference Proceedings

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IX. 3 Books

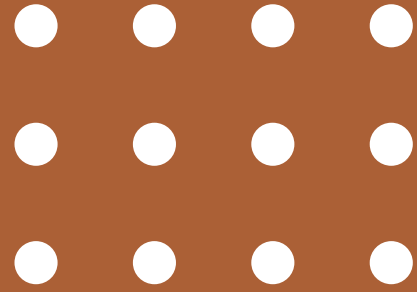
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IX. 4 Parts of Books

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INSTITUTE OF CONTROL AND INDUSTRIAL INFORMATICS





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Director of the Institute:

prof. Ing. Ján Murgaš, PhD.

e-mail: jan.murgas@stuba.sk

Tel: +421-2-602 91 781, Fax: +421-2-654 29 521

**Vice- Director for Science and Research, Foreign Relations,
and Industry Cooperation:** prof. Ing. Štefan Kozák, PhD.

Vice- Director for Teaching: doc. Ing. Eva Miklovičová, PhD.

Secretary: Mgr. Alena Foltinová

Office: Katarína Macková

General Information

Institute of Control and Industrial Informatics (ICII) is one of the top university institutes in Slovakia in the field of automation and control, industrial informatics, cybernetics, robotics and mechatronics. ICII was established in 2006 and consists of the former Department of Automation and Control, and the Department of Automatic Control Systems.

ICII is a technical guarantor of accredited study programmes Industrial Informatics (Bc), Applied Informatics - application domain Information Technologies in Control (Bc., Ing.), Cybernetics (Ing.), Robotics (Ing.), Applied Mechatronics (Ing.), and Applied Mechatronics (PhD.), Automation and Control (PhD.), Cybernetics (PhD.).

The basic research at ICII has been oriented to optimal control, decentralized, adaptive, robust and predictive control of complex systems, soft computing methods in control, and recently also to network and robust hybrid control approaches. The main application areas are drive systems, robotics, power engineering, manufacturing, and process engineering. Individual research teams prove their expertise by a rich publishing activity including international journals, monographs, and proceedings of important world-wide international conferences (IFAC, IEEE, ECC, etc.)

Departments of the Institute

Departments of the Institution Control and Industrial Informatics

The institute has 5 departments and administrative-economic body.

Department of Systems and Signals

Head of department: doc. Ing. Danica Rosinová, PhD.

Deputy-head: doc. Ing. Eva Miklovičová, PhD.

Department of Automatic Control Methods

Head of department: prof. Ing. Mikuláš Huba, PhD.

Deputy-head: doc. Ing. Katarína Žáková, PhD.

Department of Information and Communication Systems

Head of department: doc. Ing. Ivan Sekaj, PhD.

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Deputy-head: doc. Ing. František Duchoň, PhD.

Department of Applied Mechatronics

Head of department: prof. Ing. Štefan Kozák, PhD.

Deputy-head: prof. Ing. Milan Žalman, PhD.

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II. EQUIPMENT

II. 1 Teaching and Research Laboratories

- Adaptive Control Laboratory
- Continuous Process Control Laboratory (D-301)
- Optimization and Optimal Control Laboratory
- Multivariable Systems Laboratory
- Production Systems Modeling Laboratory
- Computational Intelligence Laboratory
- Joint Laboratory of Robotics (D-705)
- Actuators Laboratory
- Electronics Laboratory
- CAD CS Laboratory
- Automation Means Laboratory
- Sensors Laboratory
- SIEMENS Automation Technology Laboratory
- Smart Servosystems Laboratory
- Servosystems Laboratory
- Industrial Automation Laboratory
- Multimedia Systems Laboratory
- Nonlinear Systems Laboratory
- Robot Control Laboratory
- Mechatronics Laboratory
- Robotics Laboratory (basement D block - Ro)
- Special Systems Laboratory
- Real-Time Programming Tools Laboratory
- CAD Systems Laboratory
- Flying Devices Laboratory
- Control System Software Laboratory
- Discrete Event Systems Laboratory
- Laboratory of Embedded Control Systems
- Laboratory of PLC
- Laboratory of Applied Mechatronics
- Laboratory of Modeling and Simulation for Mechatronic Systems
- Laboratory of Bio-informatics and Info-Medicine

II. 2 Special Instruments and Computers

- Mechanical Setup Position Control Plant
- Laboratory Models: Inverted Pendulum, Crane, Helicopter Rack, Helicopter Model, Thermal Plant, Thermo-optical Model, Magnetic Levitation Syst., Two - Tank System, Three - Tank System, Two - Tank System with Two Pumps, Shell and Tube Heat Exchanger, Rotary Pendulum, Propeller Pendulum





- Digital Signal Processor Board for Real-Time Control
- Embedded MicroComputer Systems Development Tools for Atmel, Freescale, Intel
- CALYS 5 Digital Meas. and Calibr. Device for Process Measurement of Temperature
- Multitron PS 10 – Motion Control System
- Intelligent Mobile Robot System
- D Spice DS 1103 Developing System
- Programmable Controllers: MicroLogix, Honeywell, Modicon
- Distributed Control System Yokogawa Centum
- Programmable Controllers: Simatic S7-300, S7-200, UDC Honeywell, Modicon TSX Premium, Mirocrolgix 1000, Allen Bradley
- Allen Bradley Motor Drives, FLEX IIO Modules, Panel View 900
- Production Line Models with: Crane, Conveyors, Manipulators
- Networked Control System with CAN Bus & Ether CAT
- Transportation Model, Model for Ball Color Separation, Bouncing Ball Model, Tank Level Control Model, Magnetic Levitation Model, Helicopter Model, Railway Transfer Station Model
- Software: Matlab, MODES, WITNESS, LABREG, PROMOTIC, SAP ERP
- HMI Software - WinCC, WinCC Flexible, Protool
- Programming Software Step7 Professional
- DC Servo Drive System
- Software Wonderware InTouch
- RsLogix5000, RsLogix500, SoftLogix
- ControlNet, DeviceNet, EtherNet
- Emulate500, Emulate5000, LogixArchitect, RsLinx
- RsSQL, RsTune, RSView Supervisory Edition
- HW: ControlLogix PLC, CompactLogix, HMI
- Sinamics S 120
- B&R APC 620 + ACOPOS 1016
- SIMOVERT
- LEGO Mindstorm NXT 2.0
- XCode Developer Tool
- Mobile Robot Research Kit
- Indoor Mobile Robot
- Leica GPS1200
- Thermovision Camera TIM160
- Laser Scanner M2-iLAN-2-80/40
- iRobot Create Robotic Platforms
- Hexapod and Biped wWalking Robots

III. TEACHING

III. 1 Undergraduate Study (Bc.)

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

- | | |
|---|------------------|
| • Computer Architecture | (2nd sem., 3-2h) |
| R. Ravas, Š. Chamraz, P. Fodrek | |
| • Modeling and Simulation in Matlab | (2nd sem., 3-2h) |
| E. Miklovičová, M. Foltin | |
| • Unix/Linux – Real Time Systems | (3rd sem., 2-3h) |
| I. Sekaj, P. Fodrek | |
| • Automatic Control Theory 1 | (3rd sem., 2-3h) |
| M. Huba | |
| • Cybernetics 1 | (3rd sem., 2-2h) |
| D. Rosinová | |
| • Automatic Control Theory 2 | (4th sem., 2-3h) |
| J. Murgaš | |
| • Design of Web Applications | (4th sem., 2-2h) |
| K. Žáková | |
| • Electronics for Control Systems | (4th sem., 2-2h) |
| J. Šturcel, M. Toman | |
| • Instrumentation of Control Systems | (4th sem., 3-2h) |
| J. Šturcel, M. Toman, Š. Chamraz | |
| • Java-graphical Interface CS | (4th sem. 2-3h) |
| I. Sekaj, P. Fodrek | |
| • Cybernetics 2 | (4th sem., 2-2h) |
| J. Murgaš, J. Paulusová | |
| • Internet and Intranet Applications | (5th sem., 2-2h) |
| K. Žáková | |
| • Actuators | (5th sem., 2-3h) |
| M. Žalman, J. Dúbravský | |
| • Control Systems Software | (5th sem., 2-3h) |
| I. Hantuch, L. Kőrösi | |
| • Optimization | (5th sem., 2-2h) |
| D. Rosinová | |
| • Basic of Control Systems | (5th sem., 2-2h) |
| P. Hubinský | |
| • Sensor Systems for Cars | (5th sem., 2-2h) |
| V. Tvarožek, J. Šturcel | |
| • Automation 1 | (5th sem., 3-2h) |
| J. Murgaš, M. Mrosko | |
| • Monolithic Microcontrollers | (5th sem., 2-2h) |
| J. Šturcel, Š. Chamraz, R. Balogh | |
| • Applied Computational Intelligence | (5th sem., 2-2h) |
| I. Sekaj | |
| • Control Systems | (5th sem., 2-2h) |
| J. Murgaš, M. Mrosko | |
| • Industrial Communication Bus | (6th sem., 2-2h) |
| J. Šturcel, P. Drahoš | |
| • Industrial Communication Systems | (6th sem., 3-2h) |
| M. Žalman, I. Bélai | |
| • Robotics | (6th sem., 3-2h) |
| P. Hubinský | |
| • Continuous Processes | (6th sem., 3-2h) |
| E. Miklovičová | |
| • Nonlinear Systems | (6th sem., 2-3h) |
| M. Huba | |
| • Automation 2 | (6th sem., 2-2h) |
| M. Žalman, I. Bélai, J. Dúbravský | |
| • Introduction to Engineering | (1st sem., 2-2h) |
| K. Žáková | |



III. 2 Graduate Study (Ing.)

- **CAD of Software Systems** (1st sem., 3-2h)
I. Hantuch
- **Optimal Control** (1st sem., 3-2h)
A. Kozáková
- **Servosystems** (1st sem., 3-2h)
M. Žalman
- **Theory of Automatic Control 3** (1st sem., 2-3h)
M. Huba
- **Linear Systems Control** (1st sem., 2-3h)
V. Veselý, M. Hypišová
- **Modeling and Simulation of Processes** (1st sem., 3-2h)
E. Miklovičová, Z. Králová
- **Artificial Neural Nets** (1st sem., 3-2h)
I. Sekaj, S. Kajan
- **Internet and Intranet Applications** (1st sem., 2-3h)
K. Žáková
- **Matlab in Power Systems** (1st sem., 2-3h)
Š. Kozák
- **Digital Control Methods** (1st sem., 3-2h)
Š. Kozák, A. Kozáková
- **Sensor Microsystems** (1st sem., 3-2h)
V. Tvarožek, P. Drahoš
- **Computational Intelligence in Control** (1st sem., 3-2h)
I. Sekaj
- **Motion Control in Robotics** (1st sem., 3-2h)
J. Kardoš
- **Embedded Control Systems** (1st sem., 3-2h)
P. Hubinský, J. Rodina
- **CAD of Control Systems** (1st sem., 3-2h)
J. Šturcel, P. Drahoš
- **Telematics and Control** (1st sem., 3-2h)
M. Huba, P. Bisták
- **Modeling and Control of Dynamic Systems** (1st sem., 3-2h)
A. Vitko, D. Sovišová
- **Multivariable System Control** (1st sem., 3-2h)
V. Veselý
- **Evolutionary Computing** (2nd sem., 2-3h)
I. Sekaj
- **Databases of Control Systems** (2nd sem., 2-3h)
Z. Králová
- **Adaptive Control** (2nd sem., 3-2h)
J. Murgaš
- **Discrete Event Systems** (2nd sem., 3-2h)
A. Vitko
- **Advanced Control Theory 1** (2nd sem., 3-2h)
V. Veselý
- **Sensor Systems in CIM** (2nd sem., 3-2h)
J. Šturcel, M. Toman
- **Control Methods and Algorithms** (2nd sem., 3-2h)
J. Kardoš
- **Multimedia** (2nd sem., 2-3h)
M. Huba, P. Bisták
- **System Identification** (2nd sem., 2-3h)
E. Miklovičová
- **Modeling and Simulation of Mechatronic Systems** (2nd sem., 2-3h)
Š. Kozák
- **Software Development for Office Automation** (3rd sem., 3-2h)
J. Murgaš, M. Kratmüller
- **Smart Sensors Systems** (3rd sem., 3-2h)
J. Šturcel
- **Intelligent Systems** (3rd sem., 3-2h)
I. Sekaj, S. Kajan
- **Production Systems Modeling and Management** (3rd sem., 2-3h)
Z. Králová
- **Robots Modeling and Control** (3rd sem., 3-2h)
A. Vitko
- **Network Technologies** (3rd sem., 3-2h)
J. Murgaš, M. Foltin
- **Mobile Robotic Systems** (3rd sem., 3-2h)
F. Duchoň
- **Mechatronics** (3rd sem., 3-2h)
A. Vitko, M. Klůčik
- **Database and Visualization Systems** (3rd sem., 2-3h)
Z. Králová, L. Kőrösi, ? Cigánek
- **Distributed Embedded Comp. Systems** (3rd sem., 3-2h)
J. Šturcel, Š. Chamraz, R. Balogh
- **VSC Theory in Robotics** (3rd sem., 3-2h)
J. Kardoš
- **Advanced Methods of Contr. of Mechatr. Systems** (3rd sem., 3-2h)
Š. Kozák, J. Paulusová
- **Electrical Drives of Mechatronic Systems** (3rd sem., 2-2h)
I. Bélai, M. Uhrík
- **Control of Complex Systems** (4th sem., 3-2h)
D. Rosinová
- **Intelligent Servosystems** (4th sem., 3-2h)
M. Žalman
- **Telematics and Control** (4th sem., 3-2h)
M. Huba, P. Bisták
- **PLC Systems in Mechatronics** (4th sem., 2-2h)
J. Šturcel, L. Kőrösi, J. Osuský

III. 3 Undergraduate Study (Bc.)

Distance Learning Method

- **Algorithmisation and Programming** (1st sem.)
I. Sekaj, P. Fodrek
- **Introduction into Engineering** (1st sem.)
K. Žáková
- **Computer Architecture** (2nd sem.)
R. Ravas, Š. Chamraz, P. Fodrek
- **Unix/Linux - Real Time Systems** (5th sem.)
I. Sekaj, P. Fodrek





- **Automatic Control Theory 1** (5th sem.)
M. Huba, D. Savišová
- **Automatic Control Theory 2** (6th sem.)
J. Murgaš, M. Dúbravská
- **Instrumentation of Control Systems** (6th sem.)
J. Šturcel
- **Modeling and Simulation in Matlab** (6th sem.)
E. Miklovičová, M. Foltin
- **Java-graphical Interface CS** (6th sem.)
I. Sekaj, P. Fodrek
- **Actuators** (7th sem.)
M. Žalman, J. Dúbravský
- **Optimization** (7th sem.)
D. Rosinová
- **Control System Software** (7th sem.)
I. Hantuch, L. Kóroši
- **Industrial Communication Systems** (8th sem.)
M. Žalman, I. Béla
- **Robotics** (8th sem.)
P. Hubinský
- **Continuous Processes** (8th sem.)
E. Miklovičová
- **Nonlinear Systems** (8th sem.)
M. Huba, D. Savišová

III. 4 Graduate Study (Ing.)

Distance Learning Method

- **Motion Control in Robotics** (1st sem.)
J. Kardoš
- **Embedded Control Systems** (1st sem.)
P. Hubinský, J. Rodina
- **Telematics and Control** (1st sem.)
M. Huba, P. Bisták
- **Modeling and Control of Dynamic Systems** (1st sem.)
A. Vitko, D. Savišová
- **Optimal Control** (1st sem.)
A. Kozáková
- **Computational Intelligence in Control** (1st sem.)
I. Sekaj
- **Event Systems** (2nd sem.)
A. Vitko
- **Sensor Systems in CIM** (2nd sem.)
J. Šturcel, M. Toman
- **Computer Solution Fields** (2nd sem.)
V. Kutiš, M. Klúčik
- **Robots Modeling and Control** (3rd sem.)
A. Vitko
- **Mechatronics** (3rd sem.)
L. Jurišica, M. Klúčik
- **Telematics and Control** (4th sem.)
M. Huba, P. Bisták

IV. RESEARCH PROJECTS

IV. 1 National Scientific Projects

- Robust MPC for Hybrid Systems, VEGA 1/1105/11. Duration 2011-2013 (Š. Kozák)
- Research and Development of New Information Technologies for Prediction and Solution of Critical Situations and Protection of Citizens, OP VaV 26240220060. Duration 2011-2013 (Š. Kozák)
- Advanced Decentralized Control Methods in Network Control Systems, APVV-0211-10. Duration: 2011-2014 (V. Veselý)
- Integration and Development of Nonlinear and Robust Control Methods and their Integration to Control Flying Vehicles, VEGA 1/0656/09. Duration 2009-2012 (M. Huba)
- Modern Methods for Network Control Systems, VEGA 1/2256/12. Duration 2012-2015 (J. Murgaš)
- Advanced Methods of Robust and Optimal Control. VEGA 1/1241/12 Duration 2012-2015 (V. Veselý)
- Advanced Control Algorithms and Methods for Industrial Plants, SK-BG-0035-10 (V. Veselý)
- Optimization of the Mechatronic Systems Control, VEGA 1/0690/09. Duration 2009-2012 (L. Jurišica)
- Building Grant for the Centre of Excellence for Smart Technologies, Systems and Services 2 (SMART 2), ASF EÚ MS SR, ITMS 26240120029. Duration: 2010-2012 (J. Murgaš)
- Competence Center for Intelligent Technologies for Computerizing Systems and Services, ITMS 26240220072. Duration: 2011-2014 (J. Murgaš)
- Research on High-Tech Welding Technologies for Industrial Applications, Req-00048-0001. Duration: 2010-2013 (J. Murgaš)
- Laboratory for Teaching and Development of OpenSource Projects, KEGA 032STU-04/2011. Duration: 2011-2013 (M. Žalman)
- Bioinspired Multirobot Coordination System, APVV-0261-Hub-Sk5. Duration: 2011-2014 (P. Hubinský)
- Control of a Service Robot 7042 RSR. Duration: 2011-2012 (F. Duchoň)
- Advanced Inertial Measurement Unit for Mobile Robots, 7046 AIMU. Duration: 2011-2012 (J. Rodina)
- Intelligent Navigation of a Service Robot, VEGA 1/0177/11. Duration: 2011-2014 (A. Vitko)
- Research of the Service Robot Control with Dual Visual Perception, APVV-0539-11. Duration: 2012-2015 (F. Duchoň)
- Gender Differences in Etiopathogenesis of Social Stress-Related Cardiovascular and Behavioral Disorders in Individuals with Predisposition to Hypertension, APVV-0523-10. Duration: 2011 – 2014 (I. Sekaj)
- Fool Proof Check of Missing Screws on B/C. Duration: 2012-2013 (M. Foltin)





IV. 2 International Scientific Projects

- Autoweldlink. EÚ European Regional Development Fund ITMS 26240220033. Duration 2010-2014 (F. Duchoň)
- Cybernetics and Modern Methods of Control. CEEPUS CII-CZ-0404-02-1112. Duration: 2011-2012 (K. Žáková, P. Ľapák)

V. COOPERATION

V. 1 Cooperation in Slovakia

- ABB Bratislava, Ltd.
- ATEC Ltd., Bratislava
- AXESS Ltd., Bratislava
- Armed Forces Academy, Liptovský Mikuláš
- Business for Excellence Ltd., Bratislava
- ControlTech Industrial Automation Ltd., Trnava
- DATALAN Bratislava, Ltd.
- E-Academia Slovaca, n.o., Bratislava
- Eltis Ltd., Banská Bystrica
- Emerson Ltd., Bratislava
- Gratex International Ltd., Bratislava
- HMM Ltd., Bratislava
- Honeywell Ltd., Bratislava
- Institute of Informatics, Slovak Academy of Sciences, Bratislava
- Johnson Controls Ltd., Bratislava
- KFB Control Ltd., Bernolákovo
- Legrand Slovakia
- Meret Ltd., Bratislava
- MicroStep Ltd., Bratislava
- Microstep MIS Ltd., Bratislava
- NES Ltd., Nová Dubnica
- PosAm Ltd., Bratislava
- PPA Energo Ltd., Bratislava
- PROXY, Nové Mesto n/Váhom
- PZ Bratislava, Inc.
- Q – EX Trenčín, Inc.
- RELKO, spol. s r.o.
- RMC Nová Dubnica, Ltd.
- Samsung Electronics Slovakia s.r.o.
- S&A Ltd., Banská Bystrica
- SAP Slovakia, Ltd.
- SE Inc., Bratislava
- Schneider Electric Slovakia, Ltd.
- Siemens Ltd., Bratislava
- Slovak Electricity Transmission System Ltd., Bratislava
- Slovakodata, Inc., Bratislava
- Slovnaft Bratislava, Inc.
- SPP – Slovtransgaz Inc., Nitra
- SWH – Siemens Business Service, Bratislava
- Technical University of Košice
- Telegyr Systems (Slovakia) Ltd., Bratislava
- UMB Banská Bystrica
- UNIT Ltd., Bratislava

- University of Agriculture, Nitra
- University of Economics, Bratislava
- University of Žilina
- Volkswagen Slovakia Inc., Bratislava
- Vonsch Brezno, Ltd.
- VUJE Inc., Trnava
- Robotika Sk, Bratislava
- ME Inspection, Bratislava
- ZTS VVU Košice
- EVPU Nova Dubnica a.s.,
- Institut of Informatics, SAV, Bratislava
- Regotrans Rittmeyer, s.r.o., Bratislava
- Schneider Electric Slovakia, s.r.o., Bratislava
- Termoreg, s.r.o., Bratislava
- Faculty of Architecture, Slovak University of Technology in Bratislava

V. 2 International Cooperation

- Arzamas Polytechnic Institute of R. E. Alekseev Nizhny Novgorod State Technical University
- Norwegian University of Science and Technology, Trondheim, Norway
- Institute de Recherche en Communications et Cybernetique, C.N.R.S., Nantes, France
- Department of Mathematical Sciences, Chalmers University of Technology, Gothenburg, Sweden
- Budapest University of Technology and Economics, Budapest, Hungary
- Czech Technical University of Prague, Czech Republic
- Democritus University of Thrace, Xanthi, Greece
- Dynamic Future s.r.o. Ostrava, Czech Republic
- Eindhoven University, The Netherlands
- Electronics Research Institute, National Research Center, Giza, Egypt
- Faculty of Automatics, Technical University Sofia, Bulgaria
- Faculty of Industrial Organisation and Management, Silesian Technical University, Gliwice, Poland
- Fern Universität - Hagen, Germany
- Heilbronn University, Germany
- Humusoft Ltd., Praha, Czech Republic
- Hungarian Fuzzy Association, Hungary
- IIASA Laxenburg, Austria
- InnoC.at, Austria (Austria Association for Innovative Computer Science)
- Institute for Problems of Mechanical Engineering, St. Petersburg, Russia
- Institute of Information Theory and Automation, Academy of Sciences of the Czech Republic, Prague, Czech Republic
- Institute of Cybernetics at Tallinn University of Technology, Tallinn, Estonia
- Key Lab of Mathematics Mechanization, AMSS, Chinese Academy of Sciences, Beijing, China
- MES – DEA, Ltd., Switzerland





- Moscow Power Institute, Moscow, Russia
- Profibus International, Germany
- Schneider Electric, Germany
- Strasbourg University, BETA, Strasbourg, France
- Technical University of Brno, Czech Republic
- Technical University of Liberec, Czech Republic
- Technical University of Ostrava, Czech Republic
- Technical University of Tomas Bata in Zlín, Czech Republic
- Technical University of Ancona, Italy
- Technical University of Graz, Austria
- Technical University of Vienna, Austria
- University of Maribor, Slovenia
- University of Bochum, Germany
- University of Defence, Czech Republic
- University of West Bohemia in Pilsen, Czech Republic
- University of Zagreb, Croatia
- Vytautas Magnus University, Kaunas, Lithuania
- FH Technikum, Vienna, Austria
- Technical University Riga
- Faculdade de Engenharia da Universidade do Porto, Portugal
- Interoceanmetal Joint Organization (Bulgaria, Cuba, Czech Republic, Poland, Russia, Slovakia)

VI. THESES

VI. 1 Masters Theses

Masters theses supervised at the Institute of Control and Industrial Informatics. The names of supervisors are in brackets.

Alumni Cybernetics, June 2012

- [1] Baliga, P.: GPU powered scheduling algorithms (P. Fodrek)
- [2] Batora, V.: Internet application for education of subject; Nichtlineare Regelungen (M. Huba)
- [3] Bazylák, J.: Scheduling Algorithms for GPU (P. Fodrek)
- [4] Birkus, P.: Control of linear continuous systems (M. Dúbravská)
- [5] Capuliaková, K.: Home automation (L. Farkas)
- [6] Csontos, J.: The use of mobile devices in applications for remote laboratories (P. Bisták)
- [7] Gašparík, T.: Parallel genetic algorithms (I. Sekaj)
- [8] Horník, A.: Linux kernel modules (P. Fodrek)
- [9] Hudaček, M.: Computing-intensive task in Matlab (M. Blaho)
- [10] Chovancová, A.: Attitude stabilization of an aerial mobile robot (J. Rodina)
- [11] Ilka, A.: Modeling and control system of wind power plants with pumped storage hydro power plant (M. Ernek)
- [12] Kamhiyeh, T.: Controlling a Transport System (M. Blaho)

- [13] Karsay, A.: Process control design using PLC (M. Mrosko)
- [14] Kelemen, J.: Online training of artificial neural networks in PLC (L. Körösi)
- [15] Kurilla, J.: Usage of a 3D accelerometer for identification an eigen frequency of oscillations of a burden of a gantry crane (P. Hubinský)
- [16] Majerník, O.: Scheduling algorithms on the GPU (P. Fodrek)
- [17] Martinkovič, M.: Synthesis of robust controller for unstable object (V. Veselý)
- [18] Morvay, T.: Predictive control with constraints of input and output variables (E. Miklovičová)
- [19] Mucha, M.: Process optimization of project advertising campaign in Call center (M. Blaho)
- [20] Očadlík, M.: Design of discrete LQG regulator (A. Kozáková)
- [21] Pituch, J.: Design of LQR/LTR regulator (A. Kozáková)
- [22] Polák, T.: Robust control laboratory hydraulic system (V. Veselý)
- [23] Pytel, A.: Supervisory system for building automation (P. Drahoš)
- [24] Slačka, J.: Control of nonlinear systems (E. Miklovičová)
- [25] Soós, D.: Adaptive control of systems with time delay (J. Murgaš)
- [26] Ševčík, M.: Design of fuzzy predictive control (J. Paulusová)
- [27] Turcsek, D.: Fuzzy toolbox for PLC (L. Körösi)
- [28] Urban, E.: Predictive control of the power output of a thermal power plant (M. Ernek)
- [29] Vereš, Z.: Processing of image data for the purpose of monitoring and controlling of processes (P. Bisták)
- [30] Vincze, Z.: Optimization of the structure of neural networks with orthogonal activation function (L. Körösi)
- [31] Vyskoč, P.: Temperature control (P. Drahoš)

Alumni Robotics, June 2012

- [1] Benčat, J.: Odometry data processing of skid steer differential gear (A. Babinec)
- [2] Bielko, S.: Java Real-Time System in Control (M. Blaho)
- [3] Božidar, M.: Control of the Juggling system with one degree of freedom (M. Žalman)
- [4] Brezák, A.: Control of Gantry Crane model (I. Béla)
- [5] Čapucha, L.: Workstation with PLC accessible via the Internet (R. Balogh)
- [6] Dipčárová, J.: Hydraulic Control System (P. Ťapák)
- [7] Dravecký, M.: Tracking and recognition of objects by camera (J. Dorner)
- [8] Dunajčík, M.: Mobile robot longest possible trajectory determination by a visual system in different environments (P. Pászto)
- [9] Džalai, M.: Transport delay compensation in telematics systems (P. Folvarčík)



- [10] Fico, T.: Technical equipment for acupuncture diagnosis (J. Dúbravský)
- [11] Fischer, P.: Realization of KNX/EIB converter (P. Drahoš)
- [12] Fördős, T.: Text recognition using neural networks (L. Körösi)
- [13] Funiak, R.: Detection and evaluation of obstacles using the visual system for mobile robot navigation (P. Pásztó)
- [14] Grech, D.: Collection and evaluation of data from MEMS sensors (P. Hubinský)
- [15] Herda, L.: Control of two-level hydraulic system (P. Ľapák)
- [16] Jamrich, P.: Model of portal crane in the Microsoft Robotics Studio environment (P. Hubinský)
- [17] Jankovič, L.: Control of thermo-optical plant (P. Ľapák)
- [18] Jarčuška, M.: Testing parameters of stepper motor (J. Dúbravský)
- [19] Kostroš, J.: Design of intelligent sensorless BLDC motor control driver for mobile robots (J. Rodina)
- [20] Kotman, M.: Error minimization in k - nearest neighbor algorithm (Š. Balogh)
- [21] Kučera, R.: Control of thermal-optical plant (P. Ľapák)
- [22] Ludwig, T.: The use of OS X Snow Leopard server operating system in small and medium business I (M. Foltin)
- [23] Madola, M.: Robust control of multivariable system (D. Rosinová)
- [24] Maťuga, M.: Collect and review data from wireless sensor (P. Hubinský)
- [25] Meluš, M.: Communication system of remotely controlled inspection mobile robot (A. Babinec)
- [26] Mertinko, J.: Mobile robots in simulation software development (F. Duchoň)
- [27] Meščan, M.: Decentralized control for MIMO systems (D. Rosinová)
- [28] Molnár, M.: Security control application for an eccentric press (L. Körösi)
- [29] Morvaj, P.: Modules for mobile service robots (R. Balogh)
- [30] Mudrák, M.: Linear piezoelectric motor control and design (M. Klúčik)
- [31] Nagy, G.: Methodology of creating user-friendly interfaces (M. Foltin)
- [32] Ottinger, I.: Application of the Mac OS X Server in the small and medium enterprises (M. Foltin)
- [33] Profant, Ľ.: Safety automated workplace (P. Drahoš)
- [34] Puškár, T.: Neural controller design using genetic algorithm (S. Kajan)
- [35] Radičová, M.: Design of the modern GUI (M. Foltin)
- [36] Senko, M.: Model of two-wheel chassis in the program Blender (P. Hubinský)
- [37] Sivok, T.: Control of inverted pendulum (P. Ľapák)
- [38] Stránsky, P.: Navigation of a mobile robot using ARTToolkit (M. Huba)
- [39] Šilon, M.: Thesis: Face recognition using OpenCV (P. Pásztó)
- [40] Tichý, A.: Design of servosystem with synchronous motor (J. Dúbravský)
- [41] Tóth, L.: System for environmental variables monitoring (R. Balogh)
- [42] Varga, M.: Development of hardware and software solution to control for mobile robotic system (J. Dorner)
- [43] Varga, V.: Generating a grid map for a mobile robot using laser scanner (A. Babinec)
- [44] Zbihlej, I.: Designing the simple haptic master - slave device with 1 degree of freedom (P. Folvarčík)

Alumni Robotics, June 2012 (Distance Learning Method)

- [1] Baran, A.: Text editor for Mac OS X as open source project (M. Foltin)
- [2] Beták, M.: Modeling and simulation of stepper motor's parameters (M. Uhrík)
- [3] Bielik, B.: User interface design of intelligent bio-monitoring system using mobile communication (L. Majer)
- [4] Boháčik, M.: Design of intelligent PID controllers (M. Halás)
- [5] Borka, T.: Client-Server application for virtual lab on NET Framework (P. Bisták)
- [6] Čík, Ľ.: Anti-crash system control for keeping safe distance in front of a vehicle (P. Hubinský)
- [7] Endresl, M.: Using CakePHP framework for creating web applications (Z. Králová)
- [8] Fleško, V.: Simulation analysis of the packing line in a shoe company (Z. Králová)
- [9] Gašparová, M.: Automatic text recognition (J. Hanzel)
- [10] Grolmus, R.: PROFIBUS diagnostics (I. Béla)
- [11] Horváth, Š.: Visual system for mobile robot odometry (M. Klúčik)
- [12] Hronec, R.: Workstation with drives DCS 600 (I. Béla)
- [13] Jánošík, J.: Monitoring the network behavior of programs (P. Hubinský)
- [14] Jantošík, P.: Recognition and tracking of objects by methods of computer vision (J. Dorner)
- [15] Kanský, M.: Control system design of radial magnetic bearing (M. Žalman)
- [16] Kostelec, J.: Development of USB driver for Matlab (M. Halás)
- [17] Kováč, M.: Virtualization of web servers (I. Hantuch)
- [18] László, Z.: Distributed control systems based on PLC/PAC (L. Mrafko)
- [19] Lehotzký, R.: Adaptive control for manipulator of industrial robot (A. Vitko)



- [20] Magda, M.: Control of the real system via Internet (K. Žáková)
- [21] Martinka, J.: Automated line for bottling (L. Jurišica)
- [22] Popelka, V.: Construction of an IP camera for monitoring and control in remote laboratories (P. Bisták)
- [23] Slezák, I.: Control system of a belt conveyor (J. Dúbravský)
- [24] Sobolčiak, V.: System monitoring for integration platform TIBCO/SIEBEL CRM (I. Hantuch)
- [25] Vlč, I.: Information System for Company operating an Internet Information Town Portal of Companies and Organizations (Z. Králová)
- [26] Vrba, V.: Monitoring and inspection of a lackquer feeding system in polycarbonate pressings hard-coating process (J. Šturcel)
- [21] Sloboda, M.: Modeling of random processes and planning of experiments in manufacturing systems simulation (Z. Králová)
- [22] Stohl, M.: Display and data collection using the Simatic S7-1200 (M. Mrosko)
- [23] Svítok, S.: Development of modern graphical application for mobile devices with iOS (M. Foltin)
- [24] Šlauka, J.: Computational methods and their application in practice (S. Števo)
- [25] Ťažký, A.: Web applications development in language Ruby and framework Ruby on Rails (M. Foltin)
- [26] Varga, R.: Using MVC architecture and ORM technology in modern web application development (M. Foltin)
- [27] Zuštiak, J.: Smart building - Integration of Sonos and Foxtrot technologies (S. Števo)

Alumni Applied Informatics, Information technology in Management, June 2012

- [1] Aust, P.: Advanced techniques of web applications speed optimization (Z. Janík)
- [2] Haluska, P.: Web application development with the modern Ruby on Rails framework (M. Foltin)
- [3] Horvatovič M.: Development of management application for Apple platform (M. Foltin)
- [5] Chren, Š.: Development of management application for desktop platform in language Java (M. Foltin)
- [6] Illič, M.: Online control of the real system (K. Žáková)
- [7] Jeniš, M.: Personalized support of online experiments (K. Žáková)
- [8] Kašuba, M.: Model animation of robotized workplace (J. Kardoš)
- [9] Kovalčík, P.: Diagnostic of industrial Ethernet network (I. Bélai)
- [10] Kurcz, R.: Vizualization of dynamic systems in modern web browsers (P. Bisták)
- [11] Lovász, V.: Design, simulation and control of lighting - LED lighting (S. Števo)
- [12] Marčeková, M.: Interactive vector graphics in e-learning systems (Z. Janík)
- [13] Miklošik, M.: Design of control road network and light intersections (J. Dorner)
- [14] Mlynár, P.: Developing of management web application (M. Foltin)
- [15] Petrgál, M.: Intelligent building (S. Števo)
- [16] Plesnivý, M.: Analysis of the streaming media and their implementation in e-learning systems (P. Bisták)
- [17] Putz, E.: Development of Paralelel Evolutionary Algorithms (I. Sekaj)
- [18] Selický, P.: Servo control system (E. Miklovičová)
- [19] Siebert, M.: Use SmartPhones in the control system of mobile robots (I. Hantuch)
- [20] Slivka, P.: Application Interface for Computer Algebra Systems (K. Žáková)

VI. 2 PhD Theses

Automation and Control

- [1] Babinec, A.: Improvements of navigation capabilities of a robotic agent (A. Vitko)
- [2] Bachratý, M.: Distributed modular multi-robotic platform (P. Hubinský)
- [3] Blaho, M.: Type-2 fuzzy systems in networked control systems (J. Murgaš)
- [4] Dúbravský, J.: Contribution to the methods and algorithms of control of DC servo-drives (M. Žalman)
- [5] Pásztó, P.: Mobile robot navigation using visual system (P. Hubinský)
- [6] Šlezárová, A.: Modeling in virtual reality – airbots team control (I. Hantuch)
- [7] Valo, R.: Modification of selected optimisation methods for learning processes (Š. Kozák)
- [8] Vonkomer, J.: Self-commissioning speed servo drive with induction motor (M. Žalman)

Cybernetics

- [1] Nguyen Quang, T.: Robust control of dynamic systems (V. Veselý)
- [2] Švančara, J.: Simulation analysis of the High-Mix Low-Volume manufacturing system (Z. Králová)

VII. OTHER ACTIVITIES

Conferences organized the Institute:

- 14th Conference of Doctoral Students ELITECH'12 (A. Kozáková, D. Rosinová, Z. Králová, I. Sekaj)
- ISTROBOT: Competition of Mobile Robots, Bratislava, SK. April 2012 (R. Balogh, P. Hubinský, M. Foltin, M. Dekan)
- 10th International Scientific Conference CONTROL OF POWER SYSTEMS, CPS 2012, Tatranské Matliare, May 2012 (V. Veselý, E. Miklovičová)



- MOBILE ROBOTICS DAYS AT ELOSYS 2012, Trenčín, SK. 8.-12. October 2012 (F. Duchoň, A. Babinec, J. Rodina, L. Palkovič)

Other events:

Conferences Participation, Membership in Committees:

- 11th IFAC/IEEE International Conference on Programmable Devices and Embedded Systems (PDES 2012), 23-25 May 2012, Brno, Czech Republic (K. Žáková, M. Huba – IPC members)
- 10th International Conference on Emerging eLearning Technologies and Applications (ICETA 2012), 8-9 November 2012, High Tatras, Slovakia (K. Žáková, M. Huba – IPC members)
- 4th International Conference on Computer Supported Education (CSEDU 2012), 16–18 April 2012, Porto, Portugal (K. Žáková, IPC Member)
- Special Session “Challenges in Engineering Education Research” at IGIP International Conference on Engineering Pedagogy, 26-28 September 2012, Villach, Austria (K. Žáková, M. Huba – IPC members)
- International Conference Robotics in Education (RiE), Prague 2012 (R. Balogh, P. Hubinský)
- ELOSYS 2012, Trenčín (J. Murgaš, I. Sekaj, M. Foltin – PC members, Profibus exposition)
- IFAC Symposium ACE 2012, Nižnij Novgorod, Russia (M. Huba, Š. Kozák, A. Kozáková – IPC members; Š. Kozák, A. Kozáková, K. Žáková, P. Ťapák, I. Holíč, D. Vozák, R. Krasňanský - participants)
- INCOM 2012, 14th IFAC Symposium on Information Control Problems in Manufacturing, Bucharest, Romania (J. Švančara – participant)
- International Conference Cybernetics and Informatics 2012, Skalka pri Kremnici 2012 (Š. Kozák-chairman, J. Murgaš, V. Veselý, M. Huba, M. Žalman, A. Kozáková, D. Rosinová, I. Sekaj, K. Žáková, L. Kőrösi, P. Bisták, M. Mrosko, J. Osuský)
- Witness Conference, Hlubočky u Olomouce, Czech Republic, June 7-8, 2012 (Z. Králová – PC member)
- AT&P Journal (L. Jurišica, J. Šturcel, M. Žalman, I. Hantuch, J. Murgaš, V. Veselý – Editorial Board members)
- Selected Topics in Modeling and Control (V. Veselý - Editor, L. Jurišica, Editorial Board member)
- Transactions of the Institute of Measurement and Control (A. Vitko – Associate editor)
- CLAWAR Conference Maryland (A. Vitko – IPC member)
- Accreditations Board of SAS (L. Jurišica – member)
- Profibus Slovakia Association (P. Drahoš – chairman)
- Cooperation with Encyclopaedic Institute of the Slovak Academy of Sciences on the Slovak Encyclopaedia (Lexical Group Cybernetics): (L. Harsanyi, L. Jurišica, A. Kozáková, D. Rosinová, J. Šturcel, M. Žalman, K. Žáková)
- Accreditation Board of the Government of Slovakia. (Working Group - L. Jurišica, J. Murgaš – member)

- Computer Viruses Analysis ESET Ltd. Bratislava (P. Hubinský)
- Administration of Shareware Archive of Slovak Antivirus Centre (P. Hubinský)
- Slovak Society for Cybernetics and Informatics at SAS: Š. Kozák - chair of Main Committee, V. Veselý, M. Huba - vice-chairs, A. Kozáková – secretary)
- Journal of Cybernetics and Informatics: Š. Kozák - Editor in Chief, D. Rosinová - Managing Editor
- Journal of Electrical Engineering (V. Veselý - member of Editorial Board)
- Slovak Society for Operations Research (Z. Králová - council member)
- European Robotics Week-active-participation (R. Balogh)
- Freescale Race challenge – a European contest (R. Balogh, 2nd and 3rd places for students of STU FEI)
- Robotchallenge Wien – International Robotic Contest (R. Balogh, 1st place for students of STU FEI)

Projects:

- Schneider-Electric Courses, Automation and Control Systems (M. Mrosko)

VIII. MEMBERSHIP IN INSTITUTIONS/COMMITTEES

VIII. 1 Membership in National Institutions/Committees

- The Accreditation Commission - an advisory body to the Government, Working Group Research 16 (L. Jurišica, J. Murgaš, members)
- Accreditation Commission of the SAS (L. Jurišica, member)
- Faculty of Informatics and Information Technology (Š. Kozák, member of Scientific Board)
- Slovak Society for Operations Research (Z. Králová, member)
- Institute of Informatics Slovak Academy of Sciences (Š. Kozák, member of Scientific Board)

VIII. 2 Membership in International Institutions/Committees

- IEEE The Institute of Electrical and Electronics Engineers, Inc. (L. Jurišica, M. Žalman, J. Murgaš, V. Veselý, M. Huba)
- IEE The Institute of Electrical Engineers, Inc. (L. Jurišica, M. Žalman, Š. Kozák, M. Huba, P. Hubinský)
- IFAC Technical Committee: TC 1.2 Adaptive and Learning Systems (J. Murgaš - member)
- IFAC Technical Committee: TC 2.3 Nonlinear Control Systems (M. Huba, M. Halás - members)
- IFAC Technical Committee: TC 2.4 Optimal Control (A. Kozáková - member)
- IFAC Technical Committee: TC 2.5 Robust Control (V. Veselý, M. Huba - members)





- IFAC Technical Committee: TC 3.1 Computers for Control (Š. Kozák - member)
- IFAC Technical Committee: TC 3.2 Computational Intelligence in Control (Š. Kozák - member)
- IFAC Technical Committee: TC 4.3 Robotics (P. Hubinský - member)
- IFAC Technical Committee on Control Education (M. Huba - member)
- IFAC member of the CC4-Mechatronics, Robotics and Components (P. Hubinský)
- Profibus International (P. Drahoš)
- CLAWAR Association, member of the Board of Trustees (A. Vitko)
- IMEKO, member of the Technical Committee on Measurement and Control in Robotics (A. Vitko)
- Transactions of Inst. of Measurement and Control, associate editor (A. Vitko)
- European Coordination Committee for Artificial Intelligence-ECCAI (Š. Kozák - member)
- Slovak Society for Cybernetics and Informatics-SSKI (Š. Kozák, chairman, V. Veselý, M. Huba - members)

IX. PUBLICATIONS

IX. 1 Journals

- [1] BÉLAI, I. - ŽALMAN, M.: An Effective Predictive Controller Design for Asynchronous Motor. In: International Review of Automatic Control. - ISSN 1974-6059. - ISSN 1974-6067. - Vol. 5, No.4 (2012), p. 476-480. (in English)
- [2] BLAHO, M. - FOLTIN, M. - FODREK, P. - MURGAŠ, J.: Students Perspective on Improving Programming Courses. In: International Journal of Education and Information Technologies. - ISSN 2074-1316. - Vol. 6, Iss.1 (2012), p. 17-24. (in English)
- [3] BLAHO, M. - URBAN, M. - FODREK, P. - FOLTIN, M.: Wireless Network Effect on PI and Type-2 Fuzzy Logic Controller. In: International Journal of Communications. - ISSN 1998-4480. - Vol. 6, Iss. 1 (2012), p. 18-25. (in English)
- [4] BUCZ, Š. - KOZÁKOVÁ, A. - VESELÝ, V.: A Sine-Wave-Type Gain Margin Approach to Tune Robust PID Controllers for Systems with Unstable Zero. In: International Journal of Systems Control. - ISSN 1737-927X. - Vol. 3, Iss. 1 (2012), p. 5-12. (in English) eg.: B]
- [5] BUCZ, Š. - VESELÝ, V.: Modified Frequency Response Ziegler-Nichols Method for Specified Overshoot and Settling Time. In: Pro automatizaci, měřící a regulační techniku. - ISSN 1804-834X. - Vol. 2, No. 1 (2012), p. 54-58. (in Czech)
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- [10] DRAHOŠ, A. - BÉLAI, I.: Analysis Communication of Frequency Converters for Bus PROFIBUS. In: Automa. - ISSN 1210-9592. - Vol. 18, No. 12 (2012), p. 52-54. (in Slovak)
- [11] DRAHOŠ, P. - BÉLAI, I.: Analysis Communications of Intelligent Sensors for Bus PROFIBUS. In: Automa. - ISSN 1210-9592. - No. 8-9 (2012), p. 52-54. (in Slovak)
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- IX. 3 Books**
- [1] DUCHOŇ, F.: Localization and Navigation of Mobile Robots for the Indoor Environment. - Bratislava : Slovak University of Technology Press, 2012. - 162 p. - ISBN 978-80-227-3646-6. (in Slovak)
- [2] DUCHOŇ, F.: Sensors in Mobile Robotics. - Bratislava: Slovak University of Technology Press, 2012. - 97 p. - ISBN 978-80-227-3801-9. (in Slovak)
- IX. 4 Parts of Books**
- [1] ANGUELOVA, M. - HALÁS, M.: On Retarded Nonlinear Time-Delay Systems That Generate Neutral Input-Output Equations. In: Lecture Notes in Control and Information Sciences. - ISSN 0170-8643. - Vol. 423 : Time Delay Systems: Methods, Applications and New Trends. - Berlin Heidelberg: Springer, 2012. - ISSN 978-3-642-25220-4, p. 49-60. (in English)
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- [4] BUCZ, Š. - KOZÁKOVÁ, A.: PID Controller Design for Specified Performance. In: Introduction to PID Controllers - Theory, Tuning and Application to Frontier Areas. - Rijeka : InTech, 2012. - ISBN 978-953-307-927-1. - p. 3-30. (in English) [sig. 8/23/2012 - A1] [vnútrofakult. kateg.: 2]
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- [7] FODREK, P. - BLAHO, M. - FOLTIN, M. - LICHÝ, M. - MURGAŠ, T.: Linux Based Real-Time Control over Industrial Networks. In: Handbook of Research on Industrial Informatics and Manufacturing Intelligence: Innovations and Solutions. - Hershey: IGI Global, 2012. - ISBN 978-1-4666-0296-0. - p. 334-371. (in English)
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- [11] KOZÁKOVÁ, A. - VESELÝ, V.: Robust Multiloop Controller Design: Laboratory Project-Based Learning Practice. In: Selected Topics in Modelling and Control Vol. 8. - Bratislava : Slovak University of Technology Press, 2012. - ISBN 978-80-227-3840-8. - p. 130-135. (in English)
- [12] PALKOVIČ, L. - RODINA, J. - CHOVANEC, Ľ. - HUBINSKÝ, P.: MATLAB Simulink Block for MEMS Based Attitude Sensor. In: Selected Topics in Modelling and Control Vol. 8. - Bratislava : Slovak University of Technology Press, 2012. - ISBN 978-80-227-3840-8. - p. 116-120. (in English)
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- [17] TÁRNÍK, M.: Adaptive Posi-Cast Control for PMSM Speed Control. In: Selected Topics in Modelling and Control Vol. 8. - Bratislava : Slovak University of Technology Press, 2012. - ISBN 978-80-227-3840-8. - p. 84-87. (in English)
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IX. 5 Textbooks

- [1] BÉLAI, I. - DRAHOŠ, P.: Communication Systems for Automation. - Bratislava : Slovak University of Technology Press, 2012. - 195 p. - ISBN 978-80-227-3716-6. (in Slovak)



INSTITUTE OF ELECTRICAL ENGINEERING





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www.ue.fe.stuba.sk



Director of Institute:

prof. Ing. Viktor Smieško, PhD.

e-mail: viktor.smiesko@stuba.sk

Tel: ++421-2-602 91 894, Fax: ++421-2-654 40 227

Deputy Director of the Institute: doc. Ing. Ľubomír Šumichrast, CSc.

Tel: ++421-2-654 23 502, e-mail: lubormir.sumichrast@stuba.sk

Fax: 421-2-654 40 227

Secretary of the Institute: Ružena Nagyová

Tel: ++421-2-654 29 600, e-mail: ruzena.nagyova@stuba.sk,

Fax: ++421-2-654 40 227

General Information

The Institute of Electrical Engineering FEI STU is a direct successor of the Institute of Theory and Experimentation in Electrical Engineering at the Slovak Technical University (SVŠT). This Institute was the first establishment of the Department of Electrical Engineering at the Faculty of Mechanical and Electrical Engineering of SVŠT in Bratislava and hence, it became the foundation institution for education of electrical engineers in Slovakia. This institute was constituted together with the Faculty in 1941 and thus its 70th anniversary was celebrated last year. The founder of the Institute was Prof. Dr. Ing. Ľudovít Kneppo, DrSc. who was also appointed the first Dean of the Faculty of Electrical Engineering at SVŠT, after it gained its autonomy. Right from the beginning, the Institute addressed all theoretical and engineering aspects of electro-technology including measuring methods which were an integral part of the branch. Due to the broad scope of its scientific profile, several departments and working groups were formed within the institute. In the 1950s the Institute was renamed to Department of Theory and Experimentation in Electrical Engineering (KTEE) and as such it existed until 2011.

The Group of Electrical Measurement was gradually extending its profile. The initial year of education in the area of Measurement Technology, branch of Technical Cybernetics was 1974. Due to the growing volume and extent of work

both in teaching and research, the foundation of a separate Department of Measurement became inevitable. This happened by the split of KTEE in 1980, when the Department of Measurement (KMER) was established. On the 1st May 2011 these two departments merged and gave rise to the Institute of Electrical Engineering which concluded the evolution by returning to its roots after 31 years.

Departments of the Institute

Department of Measurement

Department Chair: doc. Ing. Mikuláš Bittera, PhD.

Department of High-frequency Techniques and Optoelectronics

Department Chair: prof. Ing. Jozef Jasenek, PhD.

Department of Electromagnetic Theory

Department Chair: doc. Ing. Elemír Ušák, PhD.

Department of Electromagnetic Structures and Systems Modelling

Department Chair: doc. Ing. René Hartánský, PhD.

I. STAFF

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Associate Professors

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Technical Staff

Mária Brunovská, Milan Brunovský, Marta Jančovičová, Ružena Nagyová, Alojz Vďačný

PhD Students

Ing. Jaroslav Erdziak, Ing. Miroslav Földi, Anton Krammer, Ing. Lukáš Maršálka, Ing. Jozef Mikuš, Ing. Lucia Noskovičová-Letanovská, Ing. Peter Sližik, Ing. Lukáš Šroba, Ing. Marek Šuplata, Ing. Gabriel Vályk

II. EQUIPMENT

II. 1 Teaching and Research Laboratories

- National HighTech Centre of Electromagnetic Compatibility (EMC) with a 4,5 x 4,5 x 8,5 m Semi-anechoic Shielded Chamber
- Laboratory of Distributed Measurement Systems
- Laboratory of Digital Signal Processing
- Laboratory of Electrical Measurements
- Laboratory of Nonelectrical Quantities Measurement
- Precise Measurement Laboratory
- Laboratory of Microprocessor Engineering
- Laboratory of Visual Systems
- Laboratory of Diagnostics Systems

- Laboratory of Power and Energy Measurement
- Laboratory of Electric Circuits
- Laboratory of Electromagnetic Field
- Laboratory of Optoelectronics
- Laboratory of Signal Processing
- Laboratory of Microwave Technology
- Laboratory of Pulse and Nonlinear Electrodynamics
- Laboratory of Electronics
- Laboratory of Applied Magnetism
- Laboratory of Magnetic Measurement
- Laboratory of Magnetic Materials Testing
- Laboratory of Magnetic Materials Technology
- Laboratory of Chemical Technology

II. 2 Special Measuring Instruments and Computers

- Calibrator DATRON 4700
- Digital Storage Oscilloscopes up to 1 GHz, 5 GSa/s
- VXI System (VX 4236 Digital Multimeter, VX 5520 VXI Slot Resource Manager, VX 1500 VXI Mainframe, VX 4223 Counter/Timer)
- GPIB System (NI GPIB Interfaces, Agilent 34401A Multimeters, 33120A Generators, 53131A Counters, E364XA Programmable Power Sources)
- EMC Design & Development System (8591A Spectrum Analyzer and 11945A Close Field Probe Set)
- EMC Analyzer Agilent E7405A up to 26GHz
- RF Measuring Receivers 9 kHz - 7 GHz (R&S - ESP17, ESHS10, ESVS10)
- Handheld Spectrum Analyzer R&S FSH 8 up to 8 GHz
- Time Domain EMI Measuring Receiver TDEMI 1G up to 1 GHz
- RF Network Analyzer Agilent E5071C-285 up to 8 GHz
- Impedance Measurement System Hioki 3522-50, DC - 100 kHz
- RF Signal Generators (Agilent E8257D up to 20 GHz and R&S SMH up to 2 GHz)
- RF Power Amplifiers (AG 1020 - 50 W 10 kHz-20MHz, AR 150W1000 - 150 W 80 MHz - 1 GHz, Prana AP32DT150 - 50 W 10 kHz - 1 GHz, Milmega AS0840-30/17 - 30 W 0.8 - 4 GHz, AR 1S4G11 - 1 W 4 - 10.6 GHz)
- Measuring Antenna Set (BiLog, Biconical, LPDA, Rod, Loop, Horn, Dipole) DC - 40 GHz
- Electromagnetic Field Intensity Meter (C.A. 42 DC - 400 kHz, HI6105 100 kHz - 6 GHz)
- Analyzers of Single Phase System HA1600 and 3-Phase System KEW6310;
- Programmable AC/DC Power Supply Chroma 61503 1500VA;
- Electrostatic Discharge Simulators up to 30 kV (Emtest ESD30N and Haefely PESD1600);
- Electric Fast Transient Simulators (Emtest EFT500N5 and Haefely PEFT);
- Surge Generator Emtest VSC500;
- Line Impedance Stabilization Networks (1-Phase ESH3-Z5 and 3-Phase NNK8121);
- Reference Noise Generator CGE 01 up to 18 GHz;



- Set of Impedance Stabilization and Coupling/Decoupling Networks;
- EM Field Simulation Computer Station ThinkStation D20 with FEKO Solver;
- Measurement Software (LabView, R&S EMC32);
- Michelson Interferometer for Measurement of Chromatic Dispersion of Single Mode Optical Fibres;
- Apparatus for Generation of Second Harmonics in Optical Frequency Range;
- Apparatus for Back-Scattering Measurement in Optical Fibers Using Photon Counting Method;
- Correlator and Signal Analyzer, frequency range to 50 kHz;
- Microwave Power Meter HP-432 B;
- Spectral Analyser 10 MHz - 4 GHz;
- Precision Wattmeter 104B, 4mW - 60 kW, up to 200 kHz;
- VSM Magnetometer, Hm up to 0.8 MA/m, temperature range 77 K - 800 K
- Precision Gaussmeter, 1 μ T - 10 T at DC, up to 1 kHz AC
- Lock-In-Amplifier DSP SR 850 2nV to 1V;
- High Coercivity Measuring Apparatus;
- PC Controlled AC/DC Hysteresisgraph;
- Automated System for Magnetic Susceptibility Temperature Dependence Measurement Universal Counter HP53132A up to 12.4 GHz;
- Vibrator DERRITRON SC-3000 – mechanical resistance testing equipment;
- RF Impedance/Material Analyzer HP4191 A 1 MHz-1 GHz, 1 mOhm - 100 kOhm, APC-7 coaxial (50 Ohm) input, GPIB standard; spot, linear and logarithmic frequency sweep;
- HP4192A LF Gain Phase - Impedance Analyser, 5 Hz - 13 MHz, 1 mOhm - 1 MOhm, GPIB;
- Optical Fibre Reflectometer JDSU - MTS 6000L;
- Optical Fibre Polarimeter – POD-101D - General Electronics;
- Vector Network Analyzer Agilent 8714ET, 300 kHz - 3 GHz, GPIB interface;
- Vector Network Analyzer Agilent E5071C, frequency range 9 kHz - 6.5 GHz, S-parameter test set, 2 ports 50 Ohm without bias tees;
- Optical Fibre Spectral Analyzer „Ocean Optics“ NIRQuest 512
- Supercantal Furnace 1016S CLASIC CZ
- Optical Spectrum Analyser, Anritsu MS 9740A (600 - 1750 nm)
- Digital Phosphor Oscilloscope Tektronix DPO 5204 (2 GHz)

III. TEACHING

III. 1 Undergraduate Study (Bc.)

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

- **Measurement** (4th sem., 2-3h)
P. Kukuča, M. Bittera
- **Diagnostics and Testing of Automobiles** (6th sem., 2-2h)
K. Kováč
- **Microprocessor Engineering** (6th sem., 2-2h)
R. Ravas
- **Technical Diagnostics** (6th sem., 3-2h)
K. Kováč
- **Measurement Technology** (3rd sem., 2-3h)
V. Smieško
- **Measurement Technology** (4th sem., 2-3h)
V. Smieško
- **Computer Architecture** (2nd sem., 3-2h)
R. Ravas
- **Measurement in Information Technology** (5th sem., 2-2h)
R. Hartánský
- **Methodology of Measurement** (5th sem., 1-2h)
R. Hartánský
- **Electric Circuits I** (2nd+3rd sem., 3-2h)
R. Dosoudil, V. Jančárik
- **Electrical Engineering I** (2nd+3rd sem., 3-3h)
L. Šumichrast
- **Electric Circuits II** (3rd+4th sem., 3-3h)
R. Dosoudil, M. Kollár
- **Electrical Engineering II** (2nd+3rd sem., 3-3h)
L. Šumichrast
- **Electromagnetic Field** (4th+5th sem., 3-3h)
J. Jasenek
- **Theory of Electrical Engineering I** (2nd+3rd sem., 3-3h)
P. Jahn, J. Bydžovský
- **Theory of Electrical Engineering II** (3rd+4th sem., 3-3h)
P. Jahn, J. Bydžovský
- **Theory of Electrical Engineering III** (4th+5th sem., 3-3h)
I. Bojna
- **Electrical Engineering** (4th+3rd sem., 3-3h)
I. Bojna, J. Sláma, M. Šoka
- **Electrical Engineering** (3rd sem., 2-2h)
E. Ušák
- **Computer Hardware** (5th sem., 2-2h)
V. Jančárik
- **Introduction to the Technique History** (2-1h)
J. Sláma
- **Basics of Electrical Engineering** (FIIT 3rd sem., 3-3h)
V. Jančárik
- **Electronics** (FIIT 4th sem., 3-3h)
E. Ušák
- **Measurement** (FIIT 5th sem., 2-2h)
P. Kukuča
- **Telemetry and Information Transmission** (FIIT 6th sem., 3-2h)
P. Kukuča
- **Introduction to Engineering** (1st sem., 2-2h)
R. Ravas, K. Kováč



III. 2 Graduate Study (Ing.)

- **Electromagnetic Compatibility** (2nd sem., 3-2h)
R. Hartánský
- **Electromagnetic Compatibility** (1st sem., 3-2h)
R. Hartánský
- **Visual Systems** (3rd sem., 2-3h)
R. Ravas
- **Telemetry and Information Transmission** (3rd sem., 3-2h)
P. Kukuča
- **Telemetry and Information Transmission** (4th sem., 3-2h)
P. Kukuča
- **Theory of Measuring Systems** (2nd sem., 3-2h)
R. Ravas, L. Syrová
- **Digital Signal Processing** (3rd sem., 3-2h)
K. Kováč
- **Distributed Measurement Systems** (1st sem., 2-3h)
V. Smieško
- **Distributed Measurement Systems** (3rd sem., 2-3h)
V. Smieško
- **Digital Image Processing** (1st sem., 2-3h)
R. Ravas
- **Diagnostic Systems** (1st sem., 3-2h)
K. Kováč
- **Design of Information Systems** (1st sem., 2-3h)
R. Ravas
- **Methods and Tools of Artificial Intelligence** (2nd sem., 2-3h)
R. Ravas, J. Grman
- **Methods and Tools of Artificial Intelligence** (4th sem., 2-3h)
R. Ravas, J. Grman
- **Metrology, Testing and Quality Control** (2nd sem., 3-2h)
R. Hartánský
- **Diagnostics and Electromagnetic Compatibility** (2nd sem., 3-2h)
K. Kováč
- **Telemetry and Distributed Measurement in Automobiles** (4th sem. 2-2h)
V. Smieško
- **Electromagnetism** (SvF 1st sem., 2-2h)
Ľ. Šumichrast, J. Franek
- **Modelling of Fields** (1st sem., 2-3h)
Ľ. Šumichrast
- **Numeric Methods in Electromagnetism** (SvF 1st sem., 2-2h)
Ľ. Šumichrast, J. Červeňová
- **Safety of Electric Equipment** (2nd sem., 2-1h)
I. Bojna
- **Optical Waveguides** (3rd sem., 2-1h)
J. Jasenek
- **Magnetism** (3rd sem., 2-2h)
E. Ušák

- **Electrical Engineering III** (2nd sem., 3-2h)
Ľ. Šumichrast, J. Červeňová
- **Magnetic Materials and Systems in Mechatronics** (2nd sem., 2-2h)
E. Ušák

III. 3 Distance Study (Bc.)

- **Measurement Technology** (6th sem.)
V. Smieško
- **Measuring Information Systems** (5th sem.)
L. Syrová
- **Methodology of Measurement** (7th sem.)
L. Syrová
- **Technical Diagnostics** (8th sem.)
K. Kováč
- **Computer Architecture** (2nd sem.)
R. Ravas
- **Electrical Engineering** (6th sem.)
E. Ušák
- **Theory of Electrical Engineering I** (4th sem.)
J. Bydžovský, M. Kollár
- **Theory of Electrical Engineering II** (5th sem.)
M. Kollár
- **Theory of Electrical Engineering III** (6th sem.)
J. Franek

III. 4 Distance Study (Ing.)

- **Methods and Tools of Artificial Intelligence** (2nd sem.)
R. Ravas
- **Visual Systems** (3rd sem.)
R. Ravas
- **Electromagnetic Compatibility** (2nd sem.)
K. Kováč
- **Distributed Measuring Systems** (3rd sem.)
V. Smieško
- **Diagnostic Systems** (1st sem.)
K. Kováč
- **Telemetry and Information Transmission** (4th sem.)
P. Kukuča

III. 5 Undergraduate Study for Foreign Students (in English Language)

- **Measurement Technology** (3rd sem.)
V. Smieško, L. Syrová
- **Electronic Measurement** (4th sem.)
P. Kukuča
- **Microprocessor Systems** (7th sem.)
K. Kováč
- **Methodology and Measurement** (5th sem.)
L. Syrová

III. 6 Graduate Study (Ing.) for Foreign Students (in English Language)

- **Electromagnetic Interference and Compatibility** (1st sem.)
K. Kováč



IV. RESEARCH PROJECTS

IV. 1 National Scientific Projects

- Electromagnetic Compatibility of Technological Equipment in Tyre Industry, APVV/0333/11 Duration: 2012 - 2015 (continued), (M. Bittera)
- Advanced Materials and Smart Structures for Electrical Engineering, Electronics and Biomedical Applications Based on Micro- and Nano-sized Ferrite Particles, APVV/0062/11 Duration: 2012 - 2015 (continued), (E. Ušák)
- Construction and Control of Micro-electro-mechanical Elements and Devices, VEGA, 2/0006/10 Duration: 2010 - 2012 (completed), (R. Harňanský)
- Research and Optimisation of Selected Parameters of Progressive Magnetic and Multicomponent Composite Materials and Nanomaterials with Required Properties for Applications in Electrical and Mechanical Engineering Industry VEGA 1/1163/12 Duration: 2012 - 2015 (continued), (R. Dosoudil)
- Methods of Selected Electromagnetic Compatibility (EMC) Tests Validation, VEGA 1/0963/12 Duration: 2012 - 2014 (continued), (V. Smieško)
- Advanced Methods for Identification of Magnetic Parameters of Ferromagnetic Materials Aimed at Construction Materials Inspection and Electrical Steels Diagnostics, VEGA 1/1325/12 Duration: 2012 - 2014 (continued), (E. Ušák)
- Computer Controlled Modular Laser Source for Special Optical Measurement Methods, Project for Young STU Research Workers Support. 2012 (B. Korenko)
- MEMS Structure Design and Realization for Forces Sensing, Project for Young STU Research Worker's Support. 2012 (L. Maršálka)

IV. 2 International Scientific Projects

- Applied Research and Development of Innovative Drilling Technology for Ultra-Deep Geothermal Wells, Directed by - Geothermal Anywhere, s.r.o. (ITMS: 26240220042) (Challenge: OPVaV-2009/4.2/03-SORO) Duration: 2010-2013 (continued), (J. Jasenek, E. Ušák)
- Increase of Power Safety of the Slovak Republic (ITMS: 26220220077), Operational Programme Research & Development, European Regional Development Fund Duration: 2011-2013 (continued), (K. Kováč)
- Center of Competency for New Materials, Advanced Technologies and Power Engineering (ITMS 26240220073) Duration: 2011-2014 (continued), (P. Kukuča)
- Universal Network for Magnetic Non-Destructive Evaluation (UNMNDE) Duration: from 2005 - (continued), (J. Bydžovský, E. Ušák, J. Paľa)
- ELLEIEC (Enhancing Lifelong Learning in Electrical and Information Engineering), 142814-LLP-1-2008-

FR-ERASMUS-ENW, Project Funded by the European Commission, SOCRATES Thematic Network Duration: from 2008-2012 (completed), (J. Jasenek)

- SALEIE - Strategic Alignment of Learning in Electrical and Information Engineering, EU Thematic Network Project Coordinated by EAEEIE (European Association for Education in Electrical and Information Engineering), 2013-2015, continued (J. Jasenek, V. Jančárik)

V. COOPERATION

V. 1 Cooperation in Slovakia

- Institute of Measurement Science, Slovak Academy of Sciences, Bratislava
- Slovak Institute of Metrology, Bratislava
- Nuclear Power Plants Research Institute, jsc., Trnava
- Slovak Institute of Technical Standardization, Bratislava
- Office for Standardization, Metrology and Testing of Slovak Republic, Bratislava
- National Security Authority, Bratislava
- Slovak Power Plants, jsc., Bratislava
- University of Žilina, Žilina
- Trenčín University, Trenčín
- Volkswagen Slovakia, jsc., Bratislava
- Slovak Electric Transmission System, jsc., Bratislava
- Western-Slovakia Power Systems, jsc., Bratislava
- Central-Slovakia Power Systems, jsc., Žilina
- Elektrovod Holding, jsc., Bratislava
- Institute of Informatics, Slovak Academy of Sciences, Detached branches Banská Bystrica
- Continental Matador, ltc., Púchov
- Armed Force Academy of General Milan Rastislav Štefánik L. Mikuláš
- Institute of Electrical Engineering of Slovak Academy of Sciences, Bratislava
- Institute of Physics of Slovak Academy of Sciences, Bratislava
- Integrity a Safe of Steel Constructions, jsc., Bratislava (IBOK)
- Research and Project Institute of Electrotechnology Nová Dubnica, jsc., (EVPU a.s.)
- Technical University in Košice
- Faculty of Chemical and Food Technology, Slovak University of Technology in Bratislava

V. 2 International Cooperation

- European Organization for Nuclear Research CERN, Geneva, Switzerland
- Institute of Logistics and Warehousing (ILIM), Poznań, Poland
- Austrian Research Centre, Seibersdorf, Austria
- Izhevsk State Technical University, Russian Federation
- School of Physics and Electronic Systems Engineering, University of South Australia, Pooraka



- TU Budapest, Hungary
 - Doshisa University, Japan
 - Nuclear Engineering Research Laboratory, University of Tokyo, Japan
 - Department of Physics Colorado State University Fort Collins, USA
 - Istituto Nazionale di Ricerca Metrologica
 - TU Ilmenau, Germany
 - Cardiff University, Wolfson Centre for Magnetic Technology, United Kingdom
 - VEV Elektrotechnisch Vakondernus Nijkjerk, The Netherlands
 - TU of Czenstochowa, Poland
 - Warsaw University of Technology
 - Moscow Energy Institute, Russia
 - Lublin Technical University, Poland
 - Institute of Physics, Academy of Sciences of Czech Republic, Prague, Czech Republic
 - Institute of Inorganic Chemistry, Academy of Sciences of Czech Republic, Prague, Czech Republic
 - Czech Technical University, Prague, Czech Republic
 - West Bohemian University, Pilsen, Czech Republic
 - Technical University, Brno, Czech Republic
 - CINVESTAV, Saltillo, Mexico
 - Research Institute for Technical Physics and Materials Science, Hungarian Academy of Sciences, Budapest, Hungary
 - Politehnika Zagreb, Croatia
 - Faculty of Engineering, Universidad Nacional Autonoma de Mexico (UNAM), Ciudad, Mexico
 - National Technical University of Athens, School of Mining & Metallurgical Engineering, Athens, Greece
- [6] Iglarčík, M.: Usage of OTDR Method for Sensor Purposes (J. Červeňová)
- [7] Janáček, M.: Single-Phase Power Measurement Using Measurement Card (E. Králiková)
- [8] Janíček, D.: Dispersion in Standard and Special Optical Fibres (J. Jasenek)
- [9] Josko, L.: Hybrid Absorbers for Electronic Circuits of Mobile Communication Systems (R. Dosoudil)
- [10] Košík, M.: Contactless Measurement of Small Distances (L. Maršálka)
- [11] Kováč, T.: Capacitive Sensor of Distance between the Oxygen-Acetylene Torch and the Cut Metal Plane (K. Kováč)
- [12] Kovačovič, L.: Artificial Life Simulation (J. Grman)
- [13] Krovina, A.: Intelligent Module for Relative Humidity Measurement (A. Krammer)
- [14] Macura, M.: Demonstration Workstation of Air Conditioning Units (M. Kamenský)
- [15] Mazáň, M.: Technical Support of System for Testing Resistance against Pulse Interference (J. Hallon)
- [16] Mikulka, J.: Distributed Measurement and Controlling System (M. Bittera)
- [17] Mikuš, P.: The Design and Implementation of Software for Calibration Process of Radar Level Measure (R. Hartánský)
- [18] Ochodnický, O.: Cable Analysis in Term of EMC (M. Bittera)
- [19] Sebeš, Š.: Class D Audio Amplifier Design (R. Hartánský)
- [20] Slížik, J.: High-frequency Shielding of Printed Circuit Boards (R. Hartánský)
- [21] Šmigura, D.: The Use of Multifunction Measurement Cards for Signal Analysis (E. Králiková)
- [22] Tokár, R.: Stabilized Power Supply for Automated Measurements (A. Krammer)
- [23] Vasil, E.: Design of Signal Sampling and Reconstruction Measurement System (M. Kamenský)

V.3 Contract-based Business Activities

- V. Smieško et al.: EMC Testing and Consultancy. Contracts for Small and Medium Enterprises

VI. THESES

VI. 1 Masters Theses

The names of supervisors are in brackets:

- [1] Baďura, V.: Magneto-Polymer Composites with Magnetically Soft Filler (M. Ušáková)
- [2] Blaško, J.: Power Supply and Reference Voltage Source for EMC Tests (J. Hallon)
- [3] Erdziak, J.: Measurement System for the Testing of the Immunity against Continuous High Frequency Disturbance in Operation (J. Hallon)
- [4] Gábor, D.: Analysis of Homogeneity of Electromagnetic Field in Shielded Chamber During EMC Tests (J. Hallon)
- [5] Gergel, I.: Design and Verification for Numerical Action to Increase Calibration Range of Radar Level Transmitter (R. Hartánský)

VI. 2 Doctoral Theses

The names of supervisors are in brackets:

- [1] Korenko, B.: Optical Fibre Sensor with Distributed Parameters and its Applications (J. Jasenek)

VI. 3 Habilitation Thesis

- [1] Bittera, M.: Analysis of Radio-frequency Measurements in Electromagnetic Compatibility



VII. OTHER ACTIVITIES

Conferences organised by the Institute

- Conference „Magnetic Measurement 2012“, Tatranské Matliare, 2.-4. 9. 2012, International Programme Committee (E. Ušák, J. Bydžovský, V. Jančárik, M. Kollár, J. Sláma), Local Organising Committee (R. Dosoudil, V. Olah, M. Šoka, J. Paľa, M. Kollár, J. Červeňová, B. Korenko)
- Workshop „Universal Network for Magnetic Non-Destructive Evaluation 2012“ Tatranské Matliare, 5.- 6. 9. 2012, Local Organising Committee (E. Ušák, J. Paľa)

Other events:

- Cooperation with Encyclopaedic Institute of Slovak Academy of Sciences – Encyclopaedia Beliana, (J. Franek, P. Jahn, J. Sláma)
- Courses for the Accredited Educational Activity “The Electrical Minimum” (M. Bittera, P. Jahn, M. Kollár, K. Kováč, V. Olah, L. Šumichrast)

VIII. MEMBERSHIP IN INSTITUTIONS/COMMITTEES

VIII. 1 Membership in National Institutions/Committees

- Members of the Scientific Committee of the Conference “Electrical Engineering and Information Technology” 2012, Trenčín (V. Smieško)
- Chairman of the Council of Universities of Slovak Republic (V. Smieško)
- Member of Slovak Republic Government Council for Science and Technology (V. Smieško)
- Member of Scientific Council of the Slovak Academy of Sciences (V. Smieško)
- Member of Scientific Council of Institute of Measurement Science in Slovak Academy of Sciences (V. Smieško)
- Member of Scientific Council of the FEI STU (V. Smieško)
- Member of Chairmanship of Slovak Research and Development Agency (V. Smieško)
- Member of Accreditation Board for Research Institution in SR (V. Smieško)
- Membership in the Scientific Council of the Slovak Institute of Metrology (V. Smieško)
- Membership in the Slovak National Technical Standardisation Committees (K. Kováč)
- Membership in the Technical Subcommittees of IMEKO (TC19 - K. Kováč)
- Membership in the Chamber for State Policy and Harmonization in Technological Standardization in Slovak Republic (ÚNMS), (I. Bojna)

- Membership in the Working Group of Accreditation Commission of the Government of Slovak Republic for the research field No. 15 “Electrical Engineering and Electrical Power Engineering” (J. Jasenek)
- Membership in the Working Group for the implementation of the National Qualification Framework established by the Ministry of Education of the SR (J. Jasenek)
- Membership in the Life-Long-Learning Managing Committee, established by MS VVS SR (J. Jasenek)
- Membership in Commission for the Award of the title of Associate Professor in the study field Theoretical of Electromagnetic Engineering (5.2.10) (J. Jasenek)
- Membership in Commission for the PhD. Degree Award in the study field Theoretical of Electromagnetic Engineering (5.2.10) (J. Jasenek, J. Bydžovský, J. Sláma, L. Šumichrast, R. Dosoudil, E. Ušák, V. Jančárik)
- Chairman of the Commission for the Degree Award in the study field Measurement Technology (5.2.54) (V. Smieško)
- Membership in Commission for the PhD. Degree Award in the study field Measurement Technology (5.2.54) (K. Kováč, P. Kukuča, R. Ravas, L. Syrová)
- Membership in Commission for the PhD. Degree Award in the study field Metrology (5.2.55) (V. Smieško, K. Kováč, P. Kukuča, R. Ravas)
- Membership in the Slovak Expertise Commission for Electronics (J. Jasenek)
- Expert No. 256 for Branch of Metrology at the Institute of Normalization, Measurement and Standards (ÚNMS) of Slovak Republic (J. Bydžovský)
- Membership in the Scientific Board of FEI STU (J. Jasenek, V. Jančárik)
- Membership in the Slovak Association for Physics (J. Sláma, M. Ušáková)
- Auditor of Slovak National Accreditation Service (K. Kováč, M. Bittera, J. Hallon)

Membership in the Editorial Boards of Journals:

- Journal of Electrical Engineering (V. Smieško, M. Kollár)
- AT&P Journal (V. Smieško)
- EE - Journal of Electrical and Power Engineering (V. Smieško, P. Kukuča)
- Measurement Science Review – on-line edition (V. Smieško)
- Radioengineering Journal – reviewer (R. Hartánský)
- Quality Innovation Prosperity – Editorial Advisory Board (R. Hartánský)

VIII. 2 Membership in International Institutions/Committees

- J. Bezek: Association for Microwave Power in Europe for Research and Education
- V. Bilík: Association for Microwave Power in Europe for Research and Education



- J. Bydžovský: Membership in the International Programme Committee of the International Conferences Magnetic Measurements
- R. Hartánský: IEEE - The Institute of Electrical and Electronics Engineers
- R. Hartánský: Membership in the Programme Committee ISEP 2012, Portugal
- V. Jančárik: Membership in the International Programme Committee of the International Conferences Magnetic Measurements
- V. Jančárik: European Association for Education in Electrical and Information Engineering (EAEIE)
- J. Jasenek: European Association for Education in Electrical and Information Engineering (EAEIE)
- J. Jasenek: European Association for Education in Electrical and Information Engineering
- J. Jasenek: IEEE - Institute of Electrical and Electronics Engineers
- J. Jasenek: OSA – Optical Society of America
- J. Jasenek: IOC of the International Travelling Summer School on Microwaves and Lightwaves
- J. Jasenek: International Organizing Committee of EAEIE Annual Conference 2012, Maribor, Slovenia
- P. Kukuča: IET - The Institution of Engineering and Technology
- P. Kukuča: Scientific Committee of International Conference Applied Electronics 2012, Pilsen
- M. Kollár: The Institution of Engineering and Technology -IET Slovak Centre
- M. Kollár: Membership in the International Programme Committee of the International Conferences Magnetic Measurements
- J. Sláma: The Institution of Engineering and Technology - IET Slovak Centre
- J. Sláma: SAES, European Physical Society
- J. Sláma: Membership in the International Programme Committee of the International Conferences Magnetic Measurements
- V. Smieško: The International Information Academy
- V. Smieško: The European Academy of Sciences and Arts
- V. Smieško: IEEE - The Institute of Electrical and Electronics Engineers
- V. Smieško: European Association for Education in Electrical and Information Engineering (EAEIE)
- V. Smieško: IET - The Institution of Engineering and Technology, Fellow
- V. Smieško: URSI – Scientific Commission for Electromagnetic Noise and Interference
- Ľ. Šumichrast: The Institute of Electrical and Electronics Engineers
- Ľ. Šumichrast: The Institution of Engineering and Technology - IET Slovak Centre
- Ľ. Šumichrast: European Physical Society
- Ľ. Šumichrast: Optical Society of America (OSA)

- Ľ. Šumichrast: President of the Slovak National Committee of the International Union of Radio Science (URSI)
- E. Ušák: Membership in the International Programme Committee of the International Conferences Magnetic Measurements

IX. PUBLICATIONS

IX. 1 Journals

- [1] BITTERA, M. - SMIEŠKO, V.: Directivity Error of Broadband Antennas at EMI Measurement. In: Przegląd elektrotechniczny. - ISSN 0033-2097. - Vol. 88, Iss. 6 (2012), p. 61-63. (in English)
- [2] BITTERA, M. - SMIEŠKO, V. - HARTÁNSKÝ, R.: Effect of Directional Properties of Loop Antenna on Metrological Characteristics in EMC Measurement. In: Journal of Electrical Engineering. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 144-147. (in English)
- [3] BITTERA, M. - SMIEŠKO, V. - KOVÁČ, K.: Modified Uncertainty Estimation of Antenna Factor Measurement by Standard Site Method. In: Measurement. - ISSN 0263-2241. - Vol. 45, Iss. 2 (2012), p. 190-198. (in English)
- [4] BOJNA, I.: Low Voltage Electrical Installation - Protection against Thermal Effects. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 18, No. 3 (2012), p. 9-10. (in Slovak)
- [5] BOJNA, I.: Power Supply of Electrical Installation from a Network with Several Sources. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 18, No. 3 (2012), p. 10. (in Slovak)
- [6] BOJNA, I.: Protection against Lighting - General Principles. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 18, No. 4 (2012), Suppl. Volt, p. 3. (in Slovak)
- [7] BOJNA, I.: Protection against Lightning - Physical Damage to Structures and Life Hazard. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 18, No. 4 (2012), Suppl. Volt, p. 4-5. (in Slovak)
- [8] BOJNA, I.: The Coil Disconnection from DC Source. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 18, No. 5 (2012), Suppl. Volt, p. 10-11. (in Slovak)
- [9] BOJNA, I.: Verification and Checking of Electrical Appliances and Handheld Motor-Operated Electric Tools during Use. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 18, No. 3 (2012), Suppl. Volt, p. 7-8. (in Slovak)
- [10] ČERVENOVÁ, J. - KORENKO, B. - JASENEK, J.: Magnetic Field Measurements Involved in Teaching of Electromagnetism. In: Journal of Electrical Engineering. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 86-89. (in English)





- [11] DOSOUDIL, R.: Determination of Permeability from Impedance Measurement Using Vector Network Analyzer. In: *Journal of Electrical Engineering*. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 97-101. (in English)
- [12] DOSOUDIL, R. - FRANEK, J. - SLÁMA, J. - UŠÁKOVÁ, M. - GRUSKOVÁ, A.: Electromagnetic Wave Absorption Performances of Metal Alloy/Spinel Ferrite/Polymer Composites. In: *IEEE Transactions on Magnetics*. - ISSN 0018-9464. - Vol. 48 (2012), p. 1524-1527. (in English)
- [13] GRUSKOVÁ, A. - SLÁMA, J. - GONZÁLEZ-ANGELES, A. - ŠOKA, M.: Measurement of Principal Microstructure and Magnetic Properties of Doped Ba Ferrite Particles. In: *Journal of Electrical Engineering*. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 156-159. (in English)
- [14] HAJRO, L. - ČERVENOVÁ, J.: Transient Phenomena in Linear Electric Circuits. (<http://www.posterus.sk/?p=12510>) In: *Posterus*. - ISSN 1338-0087. - Vol. 5, Iss. 1 (2012), on-line. (in Slovak)
- [15] HARTÁNSKÝ, R. - MARŠÁLKA, L.: Wire Structures Mutual Impedance Change in Electromagnetic Field. In: *Journal of Electrical Engineering*. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 152-155. (in English)
- [16] JASENEK, J. - KORENKO, B. - ČERVENOVÁ, J.: Fiber Optic Sensor for the Space Distribution of Magnetic Field. In: *Journal of Electrical Engineering*. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 23-26. (in English)
- [17] KAMENSKÝ, M. - KOVÁČ, K. - VÁLKY, G.: Improvement in Spectral Properties of Quantization Noise of Harmonic Signal Using Multiresolution Quantization. In: *IEEE Transactions on Instrumentation and Measurement*. - ISSN 0018-9456. - Vol. 61, No. 11 (2012), p. 2888-2895. (in English)
- [18] KAMENSKÝ, M. - KOVÁČ, K.: The Usage of Dither for Accuracy Improvement of Quantization Process. In: *ATP Journal*. - ISSN 1335-2237. - Vol. 19, No. 3 (2012), p. 54-55. (in Slovak)
- [19] KOČNER, E. - HARTÁNSKÝ, R.: Electromagnetic Compatibility of Off-Grid Systems. (<http://www.posterus.sk/?p=14122>) In: *Posterus*. - ISSN 1338-0087. - Vol. 5, Iss. 11 (2012), on-line. (in Slovak)
- [20] KORENKO, B. - JASENEK, J. - ČERVENOVÁ, J.: Pockels and Kerr Effect Investigation in Fibre Bragg Gratings (FBG). In: *Journal of Electrical Engineering*. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 148-151. (in English)
- [21] KORENKO, B. - ČERNÝ, M.: Standalone Digital Voltmeter Uses a Multichannel ADC. In: *EDN*. - ISSN 0012-7515. - Vol. 57, Iss. 17 (2012), p. 60-61. (in English)
- [22] KOVÁČ, K. - HALLON, J. - BENINUGÄ, O.: Measurement of Magnetic Wave Shape of Indirect Electrostatic Discharge. In: *Journal of Electrical Engineering*. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 126-129. (in English)
- [23] KRUŽELÁK, J. - HUDEC, I. - DOSOUDIL, R.: Effect of Strontium Ferrite on the Properties of Elastomeric Composites. In: *Kautschuk Gummi Kunststoffe*. - ISSN 0948-3276. - Vol. 65, Iss. 1-2 (2012), p. 18-22. (in English)
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- [26] KRUŽELÁK, J. - DOSOUDIL, R. - HUDEC, I. - SÝKORA, R.: Influence of Strontium Ferrite on the Properties of Composites Based on Polar and Non-Polar Rubber Matrices. In: *Journal of Electrical Engineering*. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 137-140. (in English)
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- [30] KUKUČA, P.: Smart Metering or a Correct Measurement? In: *Metrologické listy*. - ISSN 1335-2768. - Vol. 35, No. 1 : Konferencia o meraní a metrológii a 42. Fórum metrológov. Zvolen, 21.-22.5. 2012 (2012), p. 67-71. (in Slovak)
- [31] OLAH, V. - DOSOUDIL, R.: Modernization of a Furnace for Improving Technological Process for Magnetic Materials Synthesis. In: *Journal of Electrical Engineering*. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 94-96. (in English)
- [32] PALA, J. - BYDŽOVSKÝ, J.: Influence of Magnetizing Frequency and Measured Data Processing on Barkhausen Noise Parameters of Non-Oriented FeSi Steel. In: *Journal of Electrical Engineering*. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 106-109. (in English)
- [33] REKOŠOVÁ, J. - BAĎURA, V. - HUDEC, I. - DOSOUDIL, R. - UŠÁKOVÁ, M.: The Influence of Soft Magnetic



- Filler on Properties of Magnetopolymer Materials. In: Gumárenské listy. - ISSN 1212-9704. - Vol. 16, No. 4 (2012), p. 5-10. (in English)
- [34] SLÁMA, J. - GRUSKOVÁ, A. - UŠÁK, E. - ŠOKA, M. - DOSOUDIL, R. - JANČARIK, V.: Experimental Analysis of Substituted NiZnBe Ferrite. In: Journal of Electrical Engineering. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 54-57. (in English)
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- [38] ŠTOFKA, M.: Circuit Simultaneously Delivers Square and Square Root of Two Input Voltages. In: EDN. - ISSN 0012-7515. - Vol. 57, Iss. 5 (2012), p. 44, 46. (in English)
- [39] ŠTOFKA, M.: Generate a Pulse Width that is Inversely Proportional to the Square Root of an Analog Voltage. In: EDN. - ISSN 0012-7515. - Vol. 57, Iss. 10 (2012), p. 46-47. (in English)
- [40] ŠUMICHRAST, L.: Unified Approach to the Impulse Response and Green Function in the Circuit and Field Theory : Part 2: Multi-Dimensional Case. In: Journal of Electrical Engineering. - ISSN 1335-3632. - Vol. 63, No. 6 (2012), p. 341-348. (in English)
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- [43] UŠÁK, E. - JANČARIK, V. - UŠÁKOVÁ, M. - ŠOKA, M.: Magnetic Properties of Eu-Substituted NiZn Ferrites. In: Journal of Electrical Engineering. - ISSN 1335-3632. - Vol. 63, No. 7s (2012), p. 130-132. (in English)
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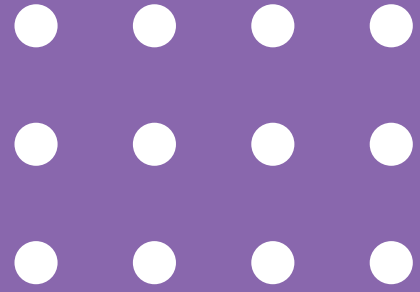
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Director:

Prof. Daniel Donoval

e-mail: daniel.donoval@stuba.sk

Tel: +421-2-654 23 486, Fax: +421-2-654 23 480, Mobile: +421-918640428

Deputy Director: Prof. František Uherek

e-mail: frantisek.uherek@stuba.sk,

Tel: +421-2-602 91 369, Fax: +421-2-654 23 480

Deputy Director: Assoc. Prof. Oldřich Ondráček

e-mail: oldrich.ondracek@stuba.sk

Tel: +421-2-602 91 492, Fax: +421-2-654 29 683, Mobile: +421-918563581

Deputy director: Prof. Viera Stopjaková

e-mail: viera.stopjakova@stuba.sk, Tel: +421-2-602 91 149, Fax: +421-2-654 23 480

Administrative staff: Ms Michaela Balážová

substituted by: Ms Mária Budejovská

e-mail: maria.budejovska@stuba.sk, Tel: +421-2-602 91 372, Fax: +421-2-654 23 480

Ms Alena Grmanová

e-mail: alena.grmanova@stuba.sk, Tel: +421-2-602 91 325, Fax: +421-2-654 23 480

Ms Ivana Prokopová

e-mail: ivana.prokopova@stuba.sk, Tel: +421-2-602 91 727, Fax: +421-2-654 29 683

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I. STAFF

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Ladislav Harmatha, Ján Hribík, Ján Janík, Ján Jakabovič, Peter Kordoš, Vladimír Kudják, Peter Kulla, Jozef Liday, Oldřich Ondráček, Peter Podhoranský, Rudolf Srnánek, Ľubica Stuchlíková, Martin Tomáška, Marian Veselý, Milan Žiška

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Zdenko Brezovič, Elena Cocherová, Martin Daříček, Miroslav Hagara, Zuzana Krajčušková, Peter Kubinec, Marek Kukučka, Branislav Lojko, Marián Minárik, Jozef Petrek, Anna Pribilová, Jozef Púčík, Vladimír Štofanič, Erik Vavrinský

Senior Researchers

Peter Benko, Dalibor Búč, Aleš Chvála, Soňa Flickyngerová, Martin Florovič, Peter Fuchs, Magdaléna Kadlečíková, Jaroslav Kováč jr., Alexander Kromka, Libor Majer, Juraj Marek, Marián Marton, Jozef Mihálov, Miroslav Mikolášek, Lukáš Nagy, Ivan Novotný, Juraj Racko, Vlastimil Řeháček, Jaroslava Škriniarová, Marian Vojs, Bedřich Weber, Martin Weis, Roman Záluský

Researchers

Daniel Arbet, Juraj Brenkuš, Alena Grmanová, Gábor Gyepes, Milan Kempný, Ivan Košč, Anton Kuzma, Peter Vogrinčič

Technical Staff

Michaela Balážová, Mária Budejovská, Jozef Ivan, Jozef Král, Ivana Prokopová

PhD Students

Jana Benkovská, Marian Bernát, Miroslav Boldiš, Tomáš Brath, Tomáš Gabovic, Pavol Gašpierik, František Horínek, Juraj Hotový, Peter Horňák, Pavol Hronec, Martin Jagelka, Juraj Jakuš, Ondrej Kádár, Mário Kotlár, Tomáš Kováčik, Mário Krajmer, Peter Kupec, Radovan Kurinec, Anton Kuzma, Filip Lazišťan, Tomáš Lukáč, Juraj Medveczký, Miroslav Michalka, Pavol Michniak, Martin Mišun, Marián Molnár, Gabriel Nagy, Michal Nemeč, Peter Olšovský, Anton Paus, Juraj Pecháček, Miroslav Petrák, Miroslav Petrus, Martin Predanoc, Patrik Příbytný, Juraj Priesol, Karol Rendek, Jakub Rybár, Ivan Rýger, Ján Šebok, Mamadou Abass Seck, Vladimír Sedlák, Ľubomír Sládek, Ľuboš Staňák, Ján Uhrík, Ľubomír Vančo, Marián Varga

General Information

The Institute of Electronics and Photonics is active in microelectronics, nanotechnology, wireless communication, IC and system design and test, signal processing, optoelectronics, photonics, sensors, power electronics, organic electronics, and multimedia techniques. EURORACTICE membership provides access to advanced modelling and simulation, as well as IC and system design tools (Synopsys, Cadence, Mentor Graphics etc.). Structure and

device characterization and failure analysis using electrical measurement (I-V, C-V, DLTS, and microwave measurement in a wide temperature range with optional magnetic field) or analytical techniques (SEM, EBIC, CL, AES, AFM, SIMS, micro-Raman spectroscopy) supported by process and device simulation and modelling is an important and strong field of the institute activities.

The research using the tools and techniques above and clean rooms (ISO 5) equipped with new technological equipment is focused mainly on GaN devices, thin film sensors, diamond layers and carbon nanotubes and rapidly growing investigation of organic LEDs and transistors.

Application of advanced electronic systems mainly for biomedical measurement, healthcare and environment is strongly supported area of interest of the institute. Using impedance sensors prepared and the ASIC designed at the institute wireless human stress meter has been developed and prototyped. Another team developed wireless sensors based on microsystems produced at the institute and standard microprocessors for biomedical measurement (EMG, ECG, EEG).

The well-equipped laboratories, expertise and enthusiasm of the institute staff as well as focussing on the most advanced technologies ensure the successful solution of scientific and applied research projects. The fact that the institute has been involved since 1990 in more than 30 EU funded projects supports the statement.

II. EQUIPMENT

II. 1 Educational and Research Laboratories

- Cleanrooms ISO5 for Advanced Thin Film Technology (photolithography, deposition, plasma etching)
- Laboratory of Scanning Electron Microscopy
- Laboratory of Diagnostics of Compound and Organic Semiconductor Structures
- Diamond Thin Film Laboratory
- Carbon Nanostructure Laboratory
- Laboratory of Raman Spectroscopy
- Laboratory of Integrated Circuits and System-on-chip Design and Test
- BioLab, laboratory of design and measurement of biosignals
- Laboratory of Medical Engineering
- LED Lab, laboratory of LED lighting control, construction, and measurement
- Laboratory of Audio and Video Technologies
- Laboratory of Electronic Measurement
- European Customer Training Centre – Texas Instruments (DSP TMS320C2xx, TMS370, TMS320C5x, TMS320C6xxx, MSP430)
- Laboratory of Signal Processors and Microcontrollers Applications
- Laboratory of Wireless Communication and Navigation
- Semiconductor and Thin Film Device Modelling and





- Simulation Lab
- SEMITEST – Semiconductor Structure Properties Investigation
- Technology of Compound and Organic Semiconductor Structures I
- Technology of Compound and Organic Semiconductor Structures II
- Laboratory of Electrochemical and Corrosion Measurements and Surface Analysis
- Lab of RF/microwave Measurements, Modelling and Design
- Laboratory of Sensors and Microsystem Technology
- Laboratory of Surface and Thin Film Analysis
- Laboratory of Thin Film Technology
- Echoic Acoustical Chamber
- ENVIRO Lab
- Digital Signal Processing Laboratory (education)
- Laboratory ESF – EDUCTV (education)
- Laboratory of Analog and Digital Television (education)
- Laboratory of Analog Circuits and Systems and Navigation (education)
- Laboratory of Antennas and Wave Propagation (education)
- Laboratory of Audio Engineering (education)
- Laboratory of Digital Circuits (education)
- Laboratory of Electroacoustics (education)
- Laboratory of Electronic Devices and Circuits (education)
- Laboratory of Electronic Measurement (education)
- Laboratory of Integrated Circuits and Semiconductor Structures Design (education)
- Laboratory of Medical Electronics Instrumentation (education)
- Laboratory of Microwave Applications (education)
- Laboratory of Microwave Fundamentals (education)
- Laboratory of Microwave Measurements (education)
- Laboratory of Optical Measurements (education)
- Laboratory of Power Radio Electronics (education)
- Laboratory of Radio Communication Technology (education)
- Laboratory of RF Circuits and Systems (education)
- Laboratory of Security Technique (education)
- Laboratory of Sensor Systems and Microsystem Technology (education)
- Laboratory of Signal Processing (education)
- Laboratory of Signal Processors and Microcontrollers (education)
- Laboratory of Solid State Physics and Quality Management (education)
- Measurement of Electronic Circuits (education)
- Measurement of Electronic Devices and Systems (education)
- Measurement of Electronic Structures and Device Animation (education)
- Optoelectronic Lab (education)

- Computer Controlled System for I-V and C-V Measurements and Analysis (from 20 to 800 K)
- Hall and four point probe setup, DSLab.Ltd.
- Photovoltaic Cell Testing Light Source Model 16S-002 300 W, Solar Light Company, Inc.
- Six-Port Reflectometers and Automatic Impedance Matching System for High-power Industrial Applications
- Precise Registration / Calibration Electricity Meter
- Precise Digital Network Analyser and Standard Meter PEM 6711
- DL8000 Digital Deep Level Transient Spectrometer, BIO-RAD system
- Microwave Network Analyser HP 8408 S + HP83421A Lightwave Source (20 GHz)
- Microwave Network Analyzer (40 GHz) Agilent E8363 B (temperature range: RT – 400K) - RFOV measurements
- Semiconductor Parameter Analyzer, Agilent 4155C
- Arbitrary Function Generator TEKTRONIX AFG3252 (240 MHz, 2 channel)
- Digital Oscilloscope TEKTRONIX TDS20225
- Digital Oscilloscope TEKTRONIX DPO4104B (1GHz, 4 channel)
- DSA8200 Digital Serial Analyser - Sampling Oscilloscope with TDR Module
- Digital Pulse Generator DTG5334
- SÜSS Manual Prober PM5, SÜSS MicroTec, Test Systems
- Experimental System for Low-frequency Noise Measurement
- Micromanipulators with Nanotips for Measurement and Testing of Electronic Devices, and Manipulation of Micro-/nano-objects
- Atomic Force Microscope, Park XE-100
- SEM Cold Cathode Microscope JEOL JSM 7500
- Raman Spectrometer (ISA-Jobin Yvon-Dilor-Horiba)
- X-ray Photoelectron Spectrometer (VG Microtech)
- Spectroscopic Ellipsometer Angstrom Advanced PHE 102
- Surface Profiler Dektak 150 (Veeco)
- Talystep S112 Profilometer
- Auger Electron Spectrometer (Varian) equipped with EX 05 VG ion gun
- Süss KSM MJB 3HP mask aligner – Mask aligner Süss MA/BA 6 for broad-band and i-line optical contact photolithography
- Compact Plasma System – PECVD, Plasmalab 80Plus, Oxford Instruments Plasma Technology
- Modular Cluster System – RIE, PlasmalabSystem 100, Oxford Instruments Plasma Technology
- RF RIE etching system Plasma PE 200
- Ozone/UV Cleaner SAMCO UV-2
- Sputter Etcher XNE-01 (Secon)
- Sputtering Unit Perkin-Elmer Ultek/Randex 2400/8L
- The Dicing Saw ADT 7100
- Adhesive Die Bonder Cammax DB 600
- Manual Ball Bonder K&S 4700

II. 2 Special Equipment, Instruments, and Tools





- Vacuum System B55.3 Hochvakuum Dresden with magnetron sputtering sources
- Arc Discharge Reactor for CNT Growth (home-made)
- CVD Reactor for CNT Growth (home-made)
- RTA - Rapid Thermal Annealing (home-made)
- Contact Angle Measurement System (home-made)
- Equipment for Emission Measurements (home-made)
- Leak Detector, SmartTest
- XILINX and ALTERA (xiClone) Systems -- boards and SW, Development Kits, Xilinx ISE6.3i
- VisualDSP++ SHARC Processor Development Tools, ADSP-21364 and ADSP-TS2015 Evaluation Kits, Analog Devices donation
- MC9S08LC60/36 Demonstration Board + complete CodeWarrior Development Studio for HC08 and HC12, FreeScale donation
- Sonnet – Planar Structures Electromagnetic Simulator (University licence)
- CST - 3D Structure Electromagnetic Simulator (University licence)
- Advanced Design System Agilent (University licence)
- IC-CAP, Agilent (University licence)

EDA Tools via EURO PRACTICE

- Synopsys TCAD Sentaurus A_2007.12
- Synopsys Analog Simulation and Modelling (HSpice)
- Cadence IC Package
- Mentor Graphics Full Suite
- Dolphin Integration Smash HDL & SLED

Design Kits:

- AMS 0.35 μm
- ONSEMI I3T50 - 0.35 μm
- TSMC 90 nm

Running on:

- IBMx3400 Quad Core E5335 server (Linux), Workstations SunBlade 1000, 2 pc Sun Ultra 10 (all Solaris), HP Proliant ML 370 - HP ML370G5 QC E5420 (Linux), and 21 PCs Core Duo/Quad (WinXP/Linux)

III. TEACHING

III. 1 Undergraduate Study (BSc.)

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

- **Logic Systems**
(two weeks introductory part) (1st sem., 4-1h)
D. Ďuračková
- **Materials for Electronics** (3rd sem., 3-2h)
D. Donoval
- **Electronic Devices and Circuits** (3rd sem., 3-2h)
R. Redhammer
- **Design and Reliability of IC and Systems** (3rd sem., 3-2h)
D. Ďuračková, V. Stopjaková

- **Electronic Systems** (3rd sem., 3-2h)
M. Žiška
- **Electronic Devices and Circuits** (3rd sem., 3-2h)
V. Kudják
- **Optoelectronics and Laser Technique** (4th sem., 2-2h)
F. Uherek
- **Electronic Devices and Circuits** (4th sem., 3-2h)
V. Kudják
- **Quality Management** (4th sem., 2-1h)
M. Žiška
- **Systems for Objects Security and Safety** (4th sem., 3-2h)
V. Tvarožek, I. Hotový
- **Signals and Systems** (4th sem., 3-2h)
O. Ondráček
- **Optoelectronics** (5th sem., 3-2h)
F. Uherek
- **Microelectronics** (5th sem., 2-2h)
D. Donoval, J. Breza
- **Sensor Systems for Automobiles** (5th sem., 2-2h)
V. Tvarožek
- **Electronic Circuits** (5th sem., 3-2h)
J. Hribík, M. Daříček
- **Electronic Devices and Circuits** (5th sem., 3-2h)
R. Redhammer
- **Quality Management** (5th sem., 2-1h)
M. Žiška
- **Analog Circuits** (5th sem., 3-2h)
M. Minárik
- **Microwave Engineering** (5th sem., 3-2h)
V. Štofanič
- **Radiocommunication Techniques** (5th sem., 2-2h)
P. Podhoranský
- **Electronic Circuits** (5th sem., 3-2h)
J. Hribík, M. Daříček
- **Bachelor Project 1** (5th sem., 0-4h)
F. Uherek, O. Ondráček
- **Principles of IC Design** (6th sem., 2-2h)
Prof. D. Ďuračková
- **Digital and Pulse Circuits** (6th sem., 3-2h)
J. Hribík, M. Daříček
- **Sensorics** (6th sem., 2-2h)
V. Tvarožek
- **Audio and Video Technology** (6th sem., 2-2h)
P. Kubinec, M. Hagara
- **Microwave Engineering and Radio Communications** (6th sem., 3-2h)
P. Podhoranský
- **Microprocessor Technique** (6th sem., 2-2h)
P. Kubinec
- **Bachelor Project 2** (6th sem., 0-8h)
F. Uherek, O. Ondráček



III. 2 Graduate Study (MSc.)

Study Program "Microelectronics"

- **Team Project** (1st sem., 0-6h)
F. Uherek, L. Stuchlíková
- **Computer Circuit Analysis** (1st sem., 2-2h)
M. Tomáška
- **CAD of Electronic Devices** (1st sem., 2-2h)
D. Donoval
- **Electronic Measurement of Devices and Systems** (1st sem., 2-2h)
A. Šatka
- **Programmable ICs** (1st sem., 2-2h)
J. Jakabovič
- **Scientific Communication** (1st or 2nd sem., 1-0h)
F. Uherek, D. Donoval, J. Breza
- **Vacuum Electronics and Technique** (1st sem., 2-1h)
M. Veselý
- **Analog IC Design** (1st sem., 2-1h)
L. Majer
- **Diploma Project 1** (2nd sem., 0-6h)
D. Donoval
- **Computer Aided IC Design** (2nd sem., 3-2h)
V. Stopjaková
- **Applied Optoelectronics and Lasers** (2nd sem., 3-2h)
J. Kováč, F. Uherek
- **Nanoelectronics** (2nd sem., 3-2h)
R. Redhammer
- **Industrial Electronics** (2nd sem., 3-2h)
A. Šatka
- **Structures of IC** (2nd sem., 2-2h)
M. Žiška
- **DSP Circuits and Methods** (2nd sem., 2-1h)
A. Šatka
- **Optical Communication Systems** (2nd sem., 2-1h)
F. Uherek
- **Diploma Project 2** (3rd sem., 0-6h)
D. Donoval
- **Sensor Microsystems** (3rd sem., 2-2h)
V. Tvarožek
- **Diagnostics of Integrated Circuits and Systems** (3rd sem., 2-2h)
V. Stopjaková
- **Spectroscopic Methods of Analysis and Inspection of Matter** (3rd sem., 3-1h)
J. Breza
- **RF Circuit Design** (3rd sem., 2-1h)
M. Tomáška
- **Physical Electronics of Solids** (3rd sem., 2-1h)
M. Veselý
- **Superconductor Electronics** (3rd sem., 2-1h)
J. Breza
- **Microsystems Technology** (3rd sem., 2-1h)
I. Hotový
- **Integrated Optoelectronics** (3rd sem., 2-1h)
J. Kováč

- **Diploma Project 3** (4th sem., 0-8h)
D. Donoval

Study Program "Radio and Electronic Engineering"

- **Digital Signal Processing** (1st sem., 3-2h)
O. Ondráček
- **Microcontrollers** (1st sem., 2-2h)
P. Fuchs
- **Communication Electronics** (1stsem., 3-2h)
V. Kudják
- **Design and Engineering of Electronic Systems** (1st sem., 3-2h)
Z. Brezovič
- **Biophysics** (1st sem., 3-2h)
E. Cocherová
- **Sensors, Circuits and Devices of Medical Electronics** (1st sem., 3-2h)
M. Kukučka
- **Recording Techniques** (2nd sem., 3-2h)
P. Podhoranský
- **Radiocommunication** (2nd sem., 3-2h)
J. Petrek
- **Signal Processors** (2ndsem., 3-2h)
P. Fuchs
- **Antennas and Radiocommunication Routes** (2nd sem., 3-2h)
V. Štofanič
- **Applied Electroacoustics** (2nd sem., 3-2h)
A. Přibilová
- **Diploma Project I** (2nd sem., 0-6h)
O. Ondráček
- **Electronic Measurement, Instruments and Systems** (2nd sem., 3-2h)
J. Hribik
- **Diploma Project II** (3rd sem., 0-6h)
O. Ondráček
- **Diagnostic Methods and Systems in Medicine** (3rd sem., 3-2h)
M. Kukučka, J. Púčik
- **Sound Technology** (3rd sem., 3-2h)
A. Přibilová
- **Power Radio Electronics** (3rd sem., 3-2h)
J. Hribik
- **Radiocommunication Technologies and Networks** (3rd sem., 3-2h)
J. Petrek
- **Digital Television** (3rd sem., 3-2h)
M. Hagara
- **Team Project** (3rd sem., 0-8h)
O. Ondráček
- **Diploma Project III** (4th sem., 0-8h)
O. Ondráček





Study Program "Applied Mechatronics"

- **Laser Systems for Mechatronics** (1st sem., 2-2h)
F. Uherek
- **Industrial Electronics** (2nd sem., 3-2h)
A. Šatka
- **Bioelectronics** (2nd sem., 2-2h)
E. Cocherová, J. Púčik, O. Ondráček
- **Nanoelectronics** (2nd sem., 2-2h)
R. Redhammer
- **Biomechatronic Systems** (3rd sem., 2-2h)
Z. Krajčušková, M. Kukučka, V. Kudják

III. 4 Distance Study

- **Electronics** (3rd sem., 3-2h)
L. Stuchlíková
- **Electronic Devices and Circuits** (3rd 5th sem., 1-0h)
Z. Krajčušková

IV. RESEARCH PROJECTS

IV.1 International Projects

Projects within the 7th EC Framework Program and ENIAC JU

- **SMAC** – "SMARt systems Co-design", FP7-ICT-2011-7, No. 288827 (2011-2014). Coordinator: Dr. Salvatore Rinaudo, ST Microelectronics, Italy, local coordinator: D. Donoval
- **E2SG** – "Energy to Smart Grid", ENIAC JU No. 296131-2 (2012-2015). Coordinator: INFINEON, Germany, local coordinator: V. Stopjaková
- **END** – "Models, Solutions, Methods and Tools for Energy-Aware Design", ENIAC JU No. 120214 (2010-2014). Coordinator: STMicroelectronics, Italy, local coordinator: D. Donoval
- **MAS** – "Nanoelectronics for Mobile Ambient Assisted Living (AAL) Systems", ENIAC JU No. 120228 (2010-2013). Coordinator: Dr. W. Dettmann, Infineon Technologies, Germany, local coordinator: V. Stopjaková
- **ERG** – "Energy for a Green Society: from Sustainable Harvesting to Smart Distribution, Equipment, Materials, Design Solutions and their Applications", ENIAC JU No. 270722-2 (2011-2014), Coordinator: Francesco Gennaro, STMicroelectronics Italy, local coordinator: J. Kováč
- **IDESA-2** – "Implementation of Widespread IC Design Skills in Advanced Deep Submicron Technologies at European Academia", FP7-ICT-CSA No. 246906, (2009-2012). Coordinator: Dr. Bart De Mey, IMEC, Leuven, Belgium, local coordinator: V. Stopjaková
- **EURO-DOTS** – "European Doctoral Training Support in Micro/Nano-electronics", FP7-ICT-2009-5 No. 257051, (2010-2012). Coordinator: H. E. Maes, IMEC, Leuven, Belgium, local coordinator: D. Donoval

- Project no 119 "Synthesis and Doping of Zinc-oxide Thin Films by RF Sputtering and Ion Implantation", EC Integrating Activity Support of Public and Industrial Research Using Ion Technology (SPIRIT) under EC contract no. 227012 (2011-2013). Local coordinator: V. Tvarožek
- LLL Program, Leonardo da Vinci Subprogram, project STELA "STU Graduates in EU Labour Market" for 18 STU graduates to spend half a year in EU companies to solve research projects. Managed by: M. Veselý

IV. 2 National Projects

National Competence Centre

- **INTELINSYS** – Competence Centre for Smart Technologies towards Electronization and Informatization of Systems and Services, ERDF, ITMS 26240220072 (2011-2014). Coordinator: R. Redhammer, local coordinator: D. Donoval

National Centres of Excellence

- **SMART 2** – Support of Centre of Excellence for Smart Technologies, Systems and Services II, ERDF, ITMS 26240120029 (2010-2012). Coordinator: R. Redhammer, local coordinator: D. Donoval
- **NanoNet 2** – Centre of Excellence for Design, Preparation and Diagnostics of Nanostructures for Electronics and Photonics 2, ERDF, ITMS: 26240120018 (2010-2012). Coordinator: F. Uherek

National R&D and Educational Projects within Ministry of Education (VEGA, KEGA) and Development and Research Agency (APVV) Actions

- Design Optimization of Low-power Digital and Mixed Integrated Systems. No. VEGA 1/1008/12 (2012-2015). Coordinator: E. Gramatová, FIIT STU, local coordinator: V. Stopjaková
- Monolithic Integration of Depletion- and Enhancement-mode InAlN/GaN HFET Transistors. No. APVV 0367-11(2012-2015). Coordinator: A. Šatka
- Innovative and Energetic Effective Organic LED Structures Integrable in Illuminating Applications and Low Resolution Displays. No. APVV 0865-11 (2012-2015). Coordinator: D. Donoval
- Novel Trends in Preparation of Ohmic Contacts to p-GaN. No. VEGA 1/1197/12 (2012-2015). Coordinator: J. Liday
- High Temperature Microwave Characterization of Advanced Semiconductor Devices. No. VEGA 1/0839/12 (2012-2015). Coordinator: M. Tomáška
- Modelling and Diagnostics of Quantum-coupled Structures. No. VEGA 1/0712/12 (2012-2015). Coordinator: J. Racko
- New Design Approaches for VLSI Implementations of Neurochips and their Use for Signal Processing in Bioapplications and Neuroimplants. No. VEGA 1/0987/12 (2012-2015). Coordinator: D. Ďuračková



- MEMS Sensors Based on Nanostructured Thin Films for Gas Detection and Determination of Heavy Metals. No. VEGA 1/1106/12 (2012-2015). Coordinator: I. Hotový
- Nanostructured Thin Films and Interfaces for Photovoltaic Cells and Microsensors. No. VEGA 1/0459/12 (2012-2015). Coordinator: V. Tvarožek
- Sensoric Structures Based on Carbon and ZnO Layers for Electrotechnical Applications - Investigation of their Properties. No. VEGA 1/1102/11 (2011-2014). Coordinator: AM. Veselý
- Patterning and Nanostructuring of Diamond and DLC Layers for Electronic Applications. No. VEGA 1/1103/11 (2011-2014). Coordinator: R. Redhammer
- Organic Semiconductor Devices Characterization and Technology Development. No. VEGA 1/0851/11 (2011-2014). Coordinator: J. Jakabovič
- Research and Optimization of Selected Properties of Advanced Electronic Structures and Devices Prepared on Wide Band Gap Materials. VEGA 1/0866/11 (2011-2014). Coordinator: D. Donoval
- Research of Superhard Nanocomposite Films for Stressed Joints under Increased Temperature in Biomedicine. No. VEGA 1/0264/11 (2011-2014). Coordinator: M. Vojs
- Combined Scanning Transient Microscope. No. VEGA 2/0063/11, (2011-2013). Coordinator: J. Hribik
- Growth of Nanowires for Photovoltaic Application. No. APVV 0301-10 (2011-2014). Coordinator: J. Kováč
- Advanced Materials, Process and Structures of Organic Electronics. No. APVV 0262-10 (2011-2014). Coordinator: D. Donoval
- Metal-oxide-metal Structures for Resistive Based Nanoscale Memory Cells. No. APVV 0509-10 (2011-2014). Coordinator: L. Harmatha
- Multifunctional Detector Arrays Based on Micromechanical structures. No. APVV 0190-10 (2011-2014). Coordinator: I. Hotový
- Nanostructures and Devices for Integrated Photonics. No. APVV 0424-10 (2011-2014). Coordinator: J. Jakabovič
- Towards Next Generation of III-N High-Electron Mobility Transistors. No. APVV 0104-10 (2011-2014). Coordinator: J. Kuzmík, IEE SAS, local coordinator: M. Tomáška
- Cooperation Center for the Transfer of Innovative Technologies From Research to Industry. No. APVV SUSPP-0008-09 (2009-2013). Coordinator: F. Uherek
- Applied Research of Plasmathermic Processes. Operational programme of EU, Geothermal Anywhere Ltd. aMnd STU in Bratislava, ITMS 26240220070, (2011-2013). Coordinator: P. Podhoranský
- Advanced Parametric Test Methods for the Reliability Enhancement of Mixed-signal Integrated Circuits and Systems. No. VEGA 1/0285/09 (2009-2012). Coordinator: V. Stopjaková
- Research and Development of Special Methods for Characterization and Diagnostic of Advanced Semiconductor Micro/nanostructures and Devices. No. VEGA 1/0716/09 (2009-2012). Coordinator: A. Šatka
- Electro-physical Properties and Technological Issues of Si, GaN and ZnO Semiconductor Materials and Structures for a New Generation Of Electronic Devices and Circuits. No. VEGA 1/0507/09 (2009-2012). Coordinator: L. Harmatha
- Development and Characterization of Advanced Nano-dimensional Structures Based on Compound and Organic Semiconductors for Applications in Microelectronics and Photonics. No. VEGA 1/0689/09 (2009-2012). Coordinator: J. Kováč
- Study of Diamond and Diamond-like Carbon Properties for Electrochemical and Bio-sensoric Applications. No. APVV LPP-0094-09 (2009-2012). Coordinator: V. Tvarožek
- Biocompatible Thin Films for Medical Application. No. APVV LPP-0149-09 (2009-2012). Coordinator: M. Veselý
- Characterization of Electrical Properties of HEMT and MOSHFET Transistors on AlGaN(InAlN)/GaN Heterostructures Supported by 2/3-D Modelling and Simulation. No. APVV LPP-0195-09 (2009-2012). Coordinator: D. Donoval
- Modern Methods of Digital Signal Processing in Radio Electronics, Biomedicine, Electronic Measurement, Multimedia and Vehicular Technology. No. AV 4/0012/07 (2007-2012). Coordinator: P. Fuchs
- Portable AC Current and Voltage Source for Electronic Electricity Meters Test No. AV 4/0012/07 (2007-2012). Coordinator: J. Hribik

V. COOPERATION

V. 1 Bilateral projects

- Metal Oxide Nanostructured Arrays for Gas Sens DAAD (2011-2012). Coordinator: I. Hotový
- Nanomat - Nanostructured Materials for Advanced Technological Applications. DAAD (2011-2012). Coordinator: M. Veselý

V. 2 International Cooperation

- Agilent Technologies, Inc., Santa Clara, CA, USA
- City University of Hong Kong, Hong Kong, China
- Czech Technical University, Prague, Czech Republic
- Eberhard Karls Universität, Institut für Angewandte Physik, Tübingen, Germany
- European Organization for Nuclear Research (CERN), Beams Department, RF Group, Feedback and Beam Control Section
- Faculty of Microsystem Electronics and Photonics, Wrocław University of Technology, Poland
- Hungarian Academy of Sciences Budapest, Hungary
- III - V lab, Alcatel -Thales, Paris, France
- Ilmenau University of Technology, Germany
- imec Leuven, Belgium



- Imperial College, Department of Materials, London, UK
- Infineon Technologies, Germany
- Institut für Schicht- und Ionen Technik Jülich, Germany
- Institute of Nuclear Sciences, Laboratory for Atomic Physics, Belgrade, Serbia
- Institute of Photonics and Electronics of the ASCR, Czech Republic
- Institute of Physics, Czech Academy of Sciences, Prague, Czech Republic
- Institute of Scientific Instruments, Czech Academy of Sciences, Brno, Czech Republic
- Institute of Solid State Physics, Technical University Graz, Graz, Austria
- Istituto per la Microelettronica ed i Microsistemi CNR, Lecce, Italy
- Johannes Kepler Universität Linz, Linz, Austria
- Lanzhou University, Lanzhou, China
- Microwave Laboratory, UCL, Louvain-la-Neuve, Belgium
- National Hellenic Research Foundation, Theoretical and Physical Chemistry Institute, Athens, Greece
- Photon Technologies GmbH, Bregenz, Austria
- Physikalisches Institut, Universität Würzburg, Germany
- Regensburg University, Germany
- STMicroelectronics, Italy
- Technical University Ilmenau, Germany
- Technical University Munich, Germany
- Technical University of Brno, Department of Microelectronics, Czech Republic
- Technical University Vienna, Austria
- Technische Universität, Bergakademie Freiberg, Institut für Theoretische Physik, Freiberg, Germany
- TEXAS INSTRUMENTS Deutschland GmbH, Feising, Germany
- Texas Instruments, Inc, USA
- TU Pardubice, Czech Republic
- Umweltsensortechnik GmbH, Geschwenda, Germany
- Universität Leipzig, Fakultät für Physik und Geowissenschaften, Fakultät für Chemie und Mineralogie, Leipzig, Germany
- University of Athens, Department of Physics, Greece
- ÚO FVT, Brno, Czech Republic
- VŠB Ostrava, Czech Republic
- West Bohemian University, New Technology Center, Pilsen, Czech Republic

V. 3 Collaboration with industry and other institutions

- Design and implementation of the original nerve stimulator in cooperation with Department of neurosurgery, Faculty of Medicine, Comenius University, Bratislava, (2011-2013), coordinator: P. Fuchs
- Development of combined scanning transient microscope in cooperation with Institute of Physics, Slovak Academy of Sciences, Bratislava, (2011-2013), coordinator: J. Hribik

- Development of digital calibration / registration electricity meter in cooperation with Křížik GBI Inc., Prešov, (2007-2012) coordinator: P. Fuchs
- Development of portable AC current and voltage source for electronic electricity meters testing in cooperation with Applied Meters Inc., Prešov, (2008-2012), coordinator: J. Hribik
- Software development for analyses of influence of cognitive dysfunction on postural instability in cooperation with University Hospital Bratislava under the grant MZ 2007/67-FNsPBA-05, (2007-2012), coordinator: J. Púčik

V. 4 Cooperation in Slovakia

- Analog Devices, Bratislava
- AOS, Liptovský Mikuláš
- Applied Meters Inc., Prešov
- Applied Precision, Bratislava
- ARETA PRO Ltd., Bratislava
- Bratislava Development Center (BDC), ON Semiconductor, Bratislava
- Danubia NanoTech, Bratislava
- Department of Psychology, Comenius University, Bratislava
- E.T.K.M. Ltd., Bratislava
- eLce Ltd., Bratislava
- Faculty of Medicine, Comenius University, Bratislava
- Faculty of Pharmacy, Comenius University, Bratislava
- Geothermal Anywhere JSC, Bratislava
- HIS SENZOR Ltd., Prešov
- Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava
- Institute of Informatics, Slovak Academy of Sciences, Bratislava
- Institute of Measurement Science, Slovak Academy of Sciences, Bratislava
- Institute of Metrology, Bratislava
- Institute of Molecular Physiology and Genetics, Slovak Academy of Sciences, Bratislava
- Institute of Physics, Slovak Academy of Sciences, Bratislava
- Intenzíva, Education and training centre, Bratislava
- International Laser Centre, Bratislava
- Křížik GBI JSC, Prešov
- Logomotion Ltd., Piešťany
- LOX Technologies, Piešťany
- MIRONIX Bratislava
- Nanodesign Ltd., Bratislava
- Office for Public Procurement (ÚVO), Bratislava
- OMS Ltd., Dojč
- PHILIPS, Bratislava
- POWERTEC Ltd., Bratislava
- R-DAS Ltd., Žilina
- Semikron, Vrbové
- Slovak Institute of Technical Normalization, Bratislava
- Special Software and Systems, Bratislava
- Sylex Ltd., Bratislava





- University Hospital, Bratislava - Prof. Dérer Hospital, Bratislava, Ružinov Hospital, Bratislava
- University of Technology, Košice
- University of Žilina, Žilina

VI. THESES

VI. 1 Masters Theses

Master theses supervised at the Institute of Electronics and Photonics. Name of supervisor is in brackets.

- [1] Bernát, M.: Time Domain Reflectometry (A. Šatka)
- [2] Búran, P.: Development System for Audio Signal Processing in Audiotechnique of Cars (B. Lojko)
- [3] Búry, J.: Control of Stepper Motors (Z. Brezovič)
- [4] Čelko, P.: Interference Suppression Using Adaptive Filters (J. Púčík)
- [5] Fekete, A.: Modelling the Absorption of Radiation of Radiocommunication Devices (E. Cocherová)
- [6] Gach, G.: A Sound Signal Analog Low-pass Filter for A/D Converter (P. Kubinec)
- [7] Gabovic, T.: RFID Access System (M. Daříček)
- [8] Gleser, A.: Technical Concept for an Auto-ID Introduction in a Small Batch Production (O. Ondráček)
- [9] Hlavoň, A.: Modelling of Biological Effects of Microwave Radiation (E. Cocherová)
- [10] Holička, M.: Modeling of Biological Effects of Electromagnetic Radiation from Mobile Phones (E. Cocherová)
- [11] Hrica, P.: Modelling of Absorption of Radiation from RF Devices in Biological Objects (E. Cocherová)
- [12] Jagelka, M.: Intelligent Lighting System (M. Daříček)
- [13] Kaplan, M.: Design of Electric Arc Scanning System for Decreasing Electrode's Erosion Rate (V. Kudják)
- [14] Keklák, R.: Characterization of Electrical and Optical Properties of LED PhC (J. Kováč)
- [15] Képeši, V.: Transport Stream - Analysis and Synthesis (M. Hagara)
- [16] Kovács, P.: Modeling of the Biological Effects of the Mobile Phones Radiation (E. Cocherová)
- [17] Kováčik, T.: Design and Construction of Remote-controlled Robot Electronically (D. Ďuračková)
- [18] Krigovský, M.: Usage of Mobile Communication in Telemedicine (M. Kukučka)
- [19] Kruk, K.: Analysis of Electronic Circuits Using Program Micro-Cap (Z. Brezovič)
- [20] Laco, R.: Telemedicine and Clinical Communication (Z. Krajčušková)
- [21] Lakomčík, P.: Ultrasonic Parking Assistant (M. Hagara)
- [22] Latka, R.: Analysis and Design of a PLC Communication System with the Following Evaluation of Transmission Parameters (P. Olšovský)
- [23] Liška, L.: Switched Mode Power Supply Design in High Voltage CMOS Technology (J. Brenkuš)
- [24] Lukáč, T.: Use of Simulink in Real-time Processing of Biosignals (J. Púčík)
- [25] Makara, M.: Measurement and Analysis of Organic Field-effect Transistor Properties (J. Kováč)
- [26] Matuška, P.: Theoretical and Practical Data Capacity of the Base Station of UMTS System (J. Petrek)
- [27] Mészáros, N.: Human Stabilometry Device (J. Púčík)
- [28] Micovčín, T.: Automation Of Measurement Of Low-frequency Noise (A. Šatka)
- [29] Michalica, Š.: Picture Archiving and Communication System - PACS (M. Kukučka)
- [30] Mitická, V.: Sensor Systems For Psychological Monitoring (E. Vavrinský)
- [31] Nagy, G.: Design of D/A Converter for Selected Application in CMOS Technology (D. Arbet)
- [32] Nagy, V.: Detection of Humans on the Basis of Interaction of Electromagnetic Field and Human (O. Ondráček)
- [33] Olbert, P.: Automatic Measuring System of Directional Characteristics of Antennas (B. Lojko)
- [34] Petrik, M.: Modern Radio Receivers (Z. Brezovič)
- [35] Florin Sandulescu, A.: Speech Recognition Using Signal Processing in MATLAB (D. Ďuračková)
- [36] Sedláček, M.: Modelling of Radio-frequency Dielectric Properties of Biological Objects (E. Cocherová)
- [37] Sedlák, T.: Broadband Powerline Communication (Z. Brezovič)
- [38] Serafín, M.: Modern Radio Receivers (Z. Brezovič)
- [39] Sládeček, L.: Analysis of Circuits of Biopotential Amplifiers (J. Púčík)
- [40] Stančiak, M.: Design of Bidirectional (half-bridge) DC/DC Converter with Synchronous Rectification (Ján Hribík)
- [41] Šíp, B.: Simulation of the Absorption Radiofrequency Irradiation (E. Cocherová)
- [42] Štorcel, J.: Basic Blocks Of a Parking Sensor (M. Tomáška)
- [43] Šulek, M.: Projection of Flexible Matrix Sensor To Measure Acupuncture Points on the Skin Surface (M. Kukučka)
- [44] Turčan, B.: Investigation and Comparison of Adaptive Filters for Speech Signals Enhancing (D. Ďuračková)
- [45] Uhrík, J.: Surface Modification Of the Organic Field-effect Transistor Gate Dielectric By HMDS (M. Weis)
- [46] Višvader, P.: Modelling of Biological Effects of RF Radiation (E. Cocherová)
- [47] Weisze, A.: Telecommunication Technologies in Healthcare (. Z. Krajčušková)
- [48] Zantis, F. P.: Development of a Low-power SignalA Device for Signals up to 25 Hz (J. Hribík)



VI. 2 Doctoral Theses

The name of supervisor is in brackets.

- [1] Hagara, M.: New Method For Edge Detection In 1-D Images With Sub-pixel Accuracy (P. Kulla)
- [2] Lekscha, T.: Analysis, Evaluation and Solution of Technical Sources of Errors at Automated Infusion Systems (D. Ďuračková)
- [3] Mikolášek, M.: Measurement and Simulation of Silicon Heterostructures for Advanced Solar Applications (L. Harmatha)
- [4] Nagy, L.: Completion Detection for Low-power Asynchronous Systems in Deep Sub-micron Technologies (V. Stopjaková)
- [5] Záluský, R.: The Digital Design of the Novel Feed-forward Neural Network Architecture (D. Ďuračková)

VII. OTHER ACTIVITIES

Conferences and events organised/co-organised by the Institute staff

- Complex Analysis of Advanced Micro-/Nano-electronic Structures, Five days course for European PhD students under the auspices of the EURO-DOTS project. FEI STU Bratislava, April 16–20 2012, Organizing committee chair: A. Šatka
- Executive Council Meeting (ECM 114) of International Union for Vacuum Science, Technique and Applications (IUVSTA). Hotel Tatra, Bratislava, Slovakia, September 27–30, 2012. Organized by Slovak Vacuum Society (SVS) with support of STU (IEP FEE&IT), M. Veselý
- IUVSTA Highlight Seminar. Hotel Tatra. October 1, 2012. Organized by SVS with support and participation of STU (IEP FEI), M. Veselý
- School of Vacuum Technology, Hotel Patria at Strbske Pleso, Slovakia, November 8–11, 2012. Organized by Slovak Vacuum Society (SVS) with support of the Institute. Organizer: M. Veselý together with ?
- Technical Training Course, organized by Slovak Vacuum Society (SVS) with support of the Institute and International Union for Vacuum Science, Technique and Applications (IUVSTA)

- Audio Engineering Society (AES), Member, Contact Person of the AES Slovak Section (A. Přibilová)
- CSSF, Czech and Slovak Photonic Society, Member of Executive Board (F. Uherek)
- Czech and Slovak Radioengineering Society, Member (E. Cocherová)
- Czech and Slovak Radioengineering Society, Member (Z. Krajčušková)
- ECS, The Electrochemical Society, Sensor Division, Member (V. Tvarožek)
- European University Program TEXAS INSTRUMENTS, Member, Lecturer (P. Fuchs)
- EUROPRACTICE membership of the University is managed by the Institute (responsible: M. Veselý)
- IEEE Communications Society, Member (V. Štofanič)
- IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society, Member (V. Štofanič)
- IEEE, The Institute of Electrical and Electronic Engineers, Member (V. Štofanič)
- IEEE, The Institute of Electrical and Electronic Engineers, Member (F. Uherek)
- IEEE, The Institute of Electrical and Electronic Engineers, Member (D. Donoval)
- IEEE, The Institute of Electrical and Electronic Engineers, Member (M. Veselý)
- IEEE, The Institute of Electrical and Electronic Engineers, Member (V. Stopjaková)
- IEEE, The Institute of Electrical and Electronics Engineers, Member (E. Cocherová)
- IFMBE, The International Federation for Medical and Biological Engineering (O. Ondráček, M. Kukučka, Z. Krajčušková, E. Cocherová)
- International Scientific Committee New Trends in Signal Processing, Member (P. Fuchs)
- Member of Education and Training Coordination Board and Scientific Community Council of ENIAC JU, (D. Donoval)
- Member of European Technology Platform PHOTONICS21, Education Working Group WG7 (F. Uherek)
- Member of ISEG (Independent Scientific Evaluation Group) NATO, Brussels (D. Ďuračková)
- Member of Steering Committee of European Workshop in Microelectronics Education EWME (D. Donoval)
- Member of the Steering Committee of IEEE Symposium on Design and Diagnostic of Electronics Circuits and Systems, DDECS (V. Stopjaková)
- Programme Committee of the conference Applied Electronics 2012, Pilsen, Czech Republic, Member (J. Hribík)
- Radioengineering, Proceedings of Czech and Slovak Technical Universities and URSI Committees, Member of Editorial Board (Z. Krajčušková)
- Technical Programme Committee of the conference Radioelektronika 2012, Brno, Czech Republic, Member (J. Hribík)
- URSI, Scientific Secretary, National Committee in Slovak Republic (Z. Krajčušková)

VIII. MEMBERSHIP IN INSTITUTIONS AND COMMITTEES

VIII.1 Membership in International Institutions/Committees

- Alternate Councillor of IUVSTA (M. Veselý)
- Audio Engineering Society (AES), Member, Contact Person of the AES Slovak Section (A. Přibilová)





- URSI, Union Radio-Scientifique Internationale, Member (V. Štofanič)

VIII. 2 Membership in National Institutions/Committees

- Association of Alumni and Friends, Faculty of Electrical Engineering and Information Technology in Bratislava, member of Bureau (Z. Krajčušková)
- Head of Office for European Union Programs at Faculty of EE&IT (M. Veselý)
- International Scientific Committee of the conference New trends in Signal Processing 2012, Liptovský Mikuláš, member (J. Hribík)
- Member of the Slovak Research and Development Agency (APVV) Boards, Working Group of Technical Sciences (M. Žiška)
- Member of the Slovak Research and Development Agency (APVV) Boards for FP7 and International R&D Cooperation (M. Veselý)
- National Expert for CEEPUS Program (M. Veselý)
- SBIMI SLS, Society for Biomedical Engineering and Medical Informatics, Scientific Secretary of SBIMI SLS, Member of Committee (M. Kukučka)
- SBIMI SLS, Society for Biomedical Engineering and Medical Informatics, Member of Committee (Z. Krajčušková)
- SBIMI SLS, Society for Biomedical Engineering and Medical Informatics, Section of Medical Informatics, Scientific Secretary (Z. Krajčušková)
- SBIMI, Slovak Society for Biomedical Engineering and Medical Informatics (O. Ondráček)
- SBIMI, Society for Biomedical Engineering and Medical Informatics, Member of Committee (E. Cocherová)
- Scientific Committee Communication and Information Technologies, Member (P. Fuchs)
- Scientific Committee for PhD Study in Electronics, Member (J. Hribík)
- Scientific Committee for PhD Study in Measurement Technology, Member (J. Hribík)
- Scientific Committee for PhD Study in Military Communication and Information Systems, Member (P. Fuchs)
- SKBS, Slovak Biophysical Society, Member (E. Cocherová)

IX. PUBLICATIONS

IX. 1 Journals

- [1] AL MUSTAFA, N. - GRANZNER, R. - POLYAKOV, V.M. - RACKO, J. - MIKOLÁŠEK, M. - BREZA, J. - SCHWIERZ, F.: The Coexistence of Two-Dimensional Electron and Hole Gases in GaN-Based Heterostructures. In: Journal of Applied Physics. - ISSN 0021-8979. - Vol. 111 (2012), Art. No. 044512. (in English)
- [2] ARBET, D. - STOPJAKOVÁ, V.: OBIST Strategy Versus Parametric Test Efficiency Evaluation. (<http://trilobit.fai.utb.cz/obist-strategy-versus-parametric-test-efficiency-evaluation>) In: Trilobit. - ISSN 1804-1795. - No. 2 (2012), online [6] p. (in English)
- [3] ARBET, D. - STOPJAKOVÁ, V. - BRENKUŠ, J. - GYEPES, G.: On-chip Parametric Test of R-2R Ladder Digital-to-Analog Converter and Its Efficiency. In: International Journal of Microelectronics and Computer Science. - ISSN 2080-8755. - Vol. 3, Iss. 2 (2012), p. 73-80. (in English)
- [4] BABCHENKO, O. - VERVENIOTIS, E. - HRUŠKA, K. - LEDINSKÝ, M. - KROMKA, A. - REZEK, B.: Direct Growth of Sub-Micron Diamond Structures. In: Vacuum. - ISSN 0042-207X. - Vol. 86 (2012), p. 693-695. (in English)
- [5] BENKO, P. - VINCZE, A. - HARMATHA, L. - NOVOTNÝ, I. - ŘEHÁČEK, V.: Electrical Properties of Nickel Electrodes for High-k MOS Structures. In: Vacuum. - ISSN 0042-207X. - Vol. 86 (2012), p. 714-717. (in English)
- [6] BENKOVSKÁ, J. - STUHLÍKOVÁ, Ľ. - BÚC, D. - ČAPLOVIČ, Ľ.: Electrical Characterization of 4H-SiC Schottky Diodes with RuWO_x Schottky Contacts before and after Irradiation by Fast Electrons. In: Physica Status Solidi (A)-Applications and Materials Science. - ISSN 1862-6300. - Vol. 209, Iss. 7 (2012), p. 1384-1389. (in English)
- [7] BREZA, J. - PASTORKOVÁ, K. - KADLEČÍKOVÁ, M. - JESENÁK, K. - ČAPLOVIČOVÁ, M. - KOLMAČKA, M. - LAZIŠŤAN, F.: Synthesis of Nanocomposites Based on Nanotubes and Silicates. In: Applied Surface Science. - ISSN 0169-4332. - Vol. 258 (2012), p. 2540-2543. (in English)
- [8] BUTVINOVÁ, B. - BUTVIN, P. - KUZMINSKI, M. - KADLEČÍKOVÁ, M. - SLAWSKA-WANIEWSKA, A.: Indication of Intrinsic Macroscopic Forces Affecting Magnetic Properties of Fe-Nb/Mo-Cu-B-Si Ribbons. In: IEEE Transactions on Magnetics. - ISSN 0018-9464. - Vol. 48 (2012), p. 1340-1343. (in English)
- [9] BUTVINOVÁ, B. - BUTVIN, P. - KADLEČÍKOVÁ, M. - MALINOVSKÝ, Ľ.: Raman Spectroscopy Used to Inspect Relationship between Surface and Magnetic Properties of Fe-Nb-Cu-B-Si(4.5) Nanocrystalline Ribbons. In: Kovové materiály. Metallic materials. - ISSN 0023-432X. - Vol. 50 (2012), p. 145-152. (in English)
- [10] CHEN, X. - TAGUCHI, D. - WEIS, M. - MANAKA, T. - IWAMOTO, M.: Analyzing Photo Induced Internal Electric Field in Pentacene/C60 Double-Layer Organic Solar Cells under Various External



- Voltages by Electric-Field-Induced Optical Second Harmonic Generation Measurement. In: Japanese Journal of Applied Physics. - ISSN 0021-4922. - Vol. 51 (2012), Art. No. 041605. (in English)
- [11] CHVÁLA, A. - DONOVAL, D. - BEŇO, P. - MAREK, J. - PRÍBYTNÝ, P. - MOLNÁR, M.: Analysis of Reliability and Optimization of ESD Protection Devices Support by Modeling and Simulation. In: Microelectronics Reliability. - ISSN 0026-2714. - Vol. 52 (2012), p. 1031-1038. (in English)
- [12] COCHEROVÁ, E. - MALÍČKÝ, G. - KUPEC, P. - ŠTOFANIK, V. - PŮČIK, J.: Evaluation of Resonance Properties of the Human Body Models Situated in the RF Field. In: Advances in Electrical and Electronic Engineering. - ISSN 1336-1376. - Vol. 10, No. 5 (2012), p. 345-349. (in English)
- [13] COCHEROVÁ, E. - PŮČIK, J. - NOVÁČEK, M.: Software Package for Electrophysiological Modeling of Neuronal and Cardiac Excitable Cells. In: Lékař a technika. - ISSN 0301-5491. - Vol. 42, No. 2 (2012), p. 57-60. (in English)
- [14] DARŇÍČEK, M. - JAGELKA, M. - SLÁDEK, L. - HORÍNEK, F. - MIKLOVIČ, P.: Wireless Probe for Human Body Biosignals. In: Lékař a technika. - ISSN 0301-5491. - Vol. 42, No. 2 (2012), p. 42-45. (in English)
- [15] DAVYDOVA, S. - STUHLÍK, M. - REZEK, B. - KROMKA, A.: Temperature Enhanced Gas Sensing Properties of Diamond Films. In: Vacuum. - ISSN 0042-207X. - Vol. 86 (2012), p. 599-602. (in English)
- [16] DONOVAL, D. - VESELÝ, M. - WEBER, B. - MIHÁLIK, M.: New Prospects of Carbon Utilization. In: Transfer. - ISSN 1337-9747. - Vol. 4, No. 2 (2012), p. 18-19. (in Slovak)
- [17] DUBECKÝ, F. - GOMBIA, E. - FERRARI, C. - ZAŤKO, B. - VANKO, G. - BALDINI, M. - KOVÁČ, J. - BAČEK, D. - KOVÁČ, P. - HRKÚT, P. - NEČAS, V.: Characterization of Epitaxial 4H-SiC for Photon Detectors. In: Journal of Instrumentation. - ISSN 1748-0221. - Vol. 7, Iss. 9 (2012), Art. No. P09005. (in English)
- [18] DUTKOVÁ, E. - BALÁŽ, P. - POURGHAHRAMANI, P. - BALEK, V. - NGUYEN, A.V. - ŠATKA, A. - KOVÁČ, J. - FICERIOVÁ, J.: Mechanochemically Synthesised ZnxCd1-xS Nanoparticles for Solar Energy Applications. In: Journal of Nano Research. - ISSN 1662-5250. - Vol. 18-19 (2012), p. 247-256. (in English)
- [19] FLICKYNGEROVÁ, S. - TVAROŽEK, V.: An Enhancement of Fingerprint Topology by Sputtered Nano-Columnar Thin Film. In: ChemZi. - ISSN 1336-7242. - Vol. 8, No. 2 (2012), p. 58-59. (in Slovak)
- [20] FLICKYNGEROVÁ, S. - NETRVALOVÁ, M. - NOVOTNÝ, I. - BRUNCKO, J. - GAŠPIERIK, P. - ŠUTTA, P. - TVAROŽEK, V.: Ion Sputter Etching of ZnO:Ga Thin Film Surfaces. In: Vacuum. - ISSN 0042-207X. - Vol. 86 (2012), p. 703-706. (in English)
- [21] GREGOR, M. - VANČO, L. - KADLEČKOVÁ, M.: Mineralogical Study of Beads from the 11th-12th Century Cemetery at Devín Castle. In: Slovenská archeológia. - ISSN 1335-0102. - Vol. 9, No. 1 (2012), p. 157-168. (in Slovak)
- [22] HOTOVÝ, I. - PREDANOCY, M. - BŮC, D. - BURIAN, E.: Detection of Low Gas and Organic Vapours Concentrations Using Microsensor Elements. In: Metrológia a skúšobníctvo. - ISSN 1335-2768. - Vol. 17, No. 1 (2012), p. 3-9. (in Slovak)
- [23] HUBBARD, G. - NASIR, M.E. - SHIELDS, PA. - BOWEN, Ch. R. - ŠATKA, A. - PARSONS, K.P. - HOLMES, N.H. - ALLSOPP, D.W.E.: Angle Dependent Optical Properties of Polymer Films with a Biomimetic Anti-Reflecting Surface Replicated from Cylindrical and Tapered Nanoporous Alumina. In: Nanotechnology. - ISSN 0957-4484. - Vol. 23 (2012), Art. No. 155302. (in English)
- [24] IZAK, T. - BABCHENKO, O. - VARGA, M. - POTOCKÝ, Š. - KROMKA, A.: Low Temperature Diamond Growth by Linear Antenna Plasma CVD over Large Area. In: Physica Status Solidi (B)-Basic research. - ISSN 0370-1972. - Vol. 249, No. 12 (2012), p. 2600-2603. (in English)
- [25] IŽÁK, T. - KROMKA, A. - BABCHENKO, O. - LEDINSKÝ, M. - HRUŠKA, K. - VERVENIOTIS, E.: Comparative Study on Dry Etching of Polycrystalline Diamond Thin Films. In: Vacuum. - ISSN 0042-207X. - Vol. 86 (2012), p. 799-802. (in English)
- [26] JAKABOVIČ, J. - KOVÁČ, J. - SRNÁNEK, R. - WEIS, M. - SOKOLSKÝ, M. - BROCH, K. - SCHREIBER, F. - DONOVAL, D. - CIRÁK, J.: Pentacene-Gate Dielectric Interface Modification with Silicon Nanoparticles for OTFTs. In: Physics Procedia. - ISSN 1875-3892. - Vol. 32 (2012), p. 285-288. (in English)
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- [29] JIANG, Q.H. - EDWARDS, M.J. - SHIELDS, PA. - ALLSOPP, D.W.E. - BOWEN, Ch. R. - WANG, W. N. - TÓTH, L. - PÉCZ, B. - SRNÁNEK, R. - ŠATKA, A. - KOVÁČ, J.: Growth of Crack-Free GaN Epitaxial Thin Films on Composite Si(111)/Polycrystalline Diamond Substrates by MOVPE. In: Physica Status Solidi (C). - ISSN 1610-1642. - Vol. 9, No. 3-4 (2012), p. 650-653. (in English)



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- [31] KORDOŠ, P. - ŠKRINIAROVÁ, J. - CHVÁLA, A. - FLOROVIČ, M. - KOVÁČ, J. - DONOVAL, D.: Electrical and Optical Characterization of Ni/Al_{0.3}Ga_{0.7}N/GaN Schottky Barrier Diodes. In: *Journal of Electronic Materials*. - ISSN 0361-5235. - Vol. 41, Iss. 11 (2012), p. 3017-3020. (in English)
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- [238] VANČO, L. - KADLEČÍKOVÁ, M. - ŠIPOŠ, E.: Observation of Enhanced Raman Spectra on Thin Layers of Nanocrystalline Diamond. In: APCOM 2012. Applied Physics of Condensed Matter : 18th International Conference. Štrbské Pleso, Slovak Republic, June 20-22, 2012. - Bratislava : STU, 2012. - ISBN 978-80-227-3720-3. - p. 219-222. (in English)
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IX. 3 Books

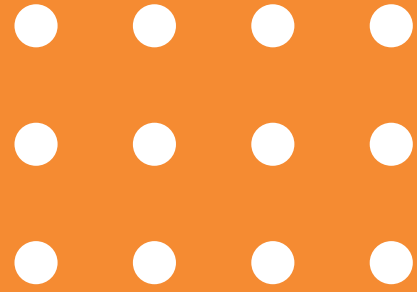
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IX. 4 Parts of Books

- [1] OU-YANG, W. - WEIS, M.: Electrostatic Effect on Phase Transition of Two-Dimensional Thin Films. In: Advanced Materials in Applied Physics: Synthesis, Properties and Applications. - Kerala : Transworld Research Networks, 2012. - ISBN 978-81-7895-551-3. - p. 105-124. (in English)
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- [3] PŘIBIL, J. - PŘIBILOVÁ, A.: Comparison of Complementary Spectral Features of Emotional Speech for German, Czech, and Slovak. In: Lecture Notes in Computer Science. - ISSN 0302-9743. - Vol. 7403 Cognitive Behavioural Systems. - Berlin : Springer-Verlag, 2012, p. 236-250. (in English)
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IX. 5 Textbooks

- [1] PŘIBILOVÁ, A.: Sound Technology. - Bratislava : Slovak University of Technology Press, 2012. - 181 p. - ISBN 978-80-227-3710-4. (in Slovak)



INSTITUTE OF NUCLEAR AND PHYSICAL ENGINEERING





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<http://www.ujfi.fe.i.stuba.sk/>



Director:

prof. Ing. Vladimír Slugeň, DrSc.

e-mail: vladimir.slugen@stuba.sk

Tel: +421-2-602 91 821, Tel: +421-2-654 27 207, Mobil: +421- 918 64 04 33

Deputy director: prof. Ing. Vladimír Nečas, PhD

Tel: +421-2-602 91 661, e-mail: vladimir.necas@stuba.sk

Deputy Director: prof. Ing. Július Cirák, PhD.

Tel: +421-2-602 91 138, e-mail: julius.cirak@stuba.sk

General Information

Institute of Nuclear and Physical Engineering was formed on May 1, 2011 by the merger of former Department of Physics with Department of Nuclear Physics and Technology. The Institute is a teaching and research unit of the Faculty of Electrical Engineering and Information Technology (FEI). The main mission of the Institute are educational activities and the integration and creative development of various scientific, research, as well as other technical activities. The institute acts as a special guarantor of the study subjects which are also provided by the institute in the frame of accredited study programmes offered by the Slovak University of Technology. Through its own teaching, scientific, research and development activities, the Institute is responsible in particular for development in the following areas: General Physics and Mathematical Physics, Physics of Condensed Matter and Acoustics, Nuclear and Subnuclear Physics, Material Science, Environmental Engineering, Electrotechnology and Materials, Nuclear Power Engineering and Technology, Biomedical Engineering, Physical Engineering.

Departments of the Institute

Department of Physics

Department of Nuclear Power

Engineering and Radioecology

**Department of Nuclear Technology
and Nuclear Methods**

Department of Biomedical Engineering

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Ing. Jarmila Degmová, PhD., Ing. Július Dekan, PhD., Ing. Gabriel Farkas, PhD., Ing. Tomáš Hatala, Ing. Ľubomír Keleši, Mgr. Martin Konôpka, PhD., doc. RNDr. Martin Moško, PhD., Ing. Milan Pavúk, PhD., Ing. Martin Petriska, Ing. Katarína Sedlačková, PhD., Ing. Stanislav Sojak, PhD., Ing. Michal Sokolský, Ing. Matúš Stacho, PhD., Ing. Stanislav Stanček, Ing. Tomáš Váry, PhD., Ing. Jana Veterníková

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PhD Students:

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II. EQUIPMENT

II. 1 Teaching and Research Laboratories

- Laboratories of Elementary and Advanced Physics
- Laboratory of Bioelectronics and Organic Electronics
- Laboratory of Applied Optics
- Laboratory of AFM/MFM Microscopy
- Laboratory of Thermophysical Properties
- Laboratory of Macrostructure of Composites
- Laboratory of Material Simulation
- Laboratory of Optical Spectroscopy
- Laboratory of Spectroscopy
- Center for Computational Materials Science

Nuclear Technologies Centre:

- Computer Laboratory
- Ion Beam Laboratory
- Laboratory of Low Level Radioactivity Measurements
- Laboratory of Mössbauer Spectroscopy
- Laboratory of Neutron Physics
- Laboratory of Positron Annihilation Spectroscopy
- Laboratory of Radioactive Isotopes
- Laboratory of Reactor Physics
- Laboratory of Semiconductor Detectors

II. 2 Special Measuring Instruments and Computers

- Mössbauer Spectrometers - 2 units (77 - 1200 K)
- 1 MV Cascade Accelerator. Ion beam analyses: 2 MeV He²⁺ RBS with UHV target chamber, sample heating 300 - 1200 K, 1 MeV H⁺ PIXE; Ion beam modification: 10 keV - 1 MeV ion implantation, high dose 1019 ions/cm²
- Life-Time and Angular Correlation Positron Annihilation Spectrometers
- Doppler Broadening Spectrometer
- Low-Background Chamber with HPGe detector and gamma ray spectrometer
- Department's LAN computer network
- 16 PC Cluster (124 CORE) + 7PC Cluster (24 CORE)
- Amptek Experiment's XRF Kit
- KETEK SDD and AXAS-D Systems
- Supercomputer (48 core)
- Refrigerator Cooled Cryostat NOK-10-3D
- Langmuir - Blodgett Deposition Device, Nima, U.K.
- Modular LB Technology for Deposition of Organic Layers
- Spectroscopic Ellipsometer Horiba MM-16
- Measuring Microscope CZJ
- Brewster Angle Microscope
- Modular spektrofluorimeter, Horiba, Fluorolog 3
- Atomic Force Microscope VEECO EDGE
- Schott UV Line 9100 Spectrophotometer
- Numerical Server with 16 Nodes (128 cores) with Infiniband
- 3 Numerical Servers (clusters) with 50 Nodes (120 cores) - Supporting Infrastructure (incl. Myrinet)
- Sun Storage Tek 6140 FC Maxperf
- 2 x Sun Fire Server

II. 3 Special Software

- Particle Beam Optics Laboratory PBO Lab 2.1
- Transport
- Trace-3D
- Electrostatic Palette
- WinAGILE
- MATLAB R2006A
- SRIM
- MCNP-4C2, MCNP 5, MCNP x 2.7.0
- VISED
- SCALE 4.4a, SCALE 6
- GENIE 2000, LABSOCS 4.2.1
- GoldSim
- CONFIT
- Field Precision - STATIC FIELD ANALYSIS TOOLKIT (TK 0300)
- Visiplan Suite 4.0 3D ALARA planning tool
- CASINO
- ERANOS 2.0



III. TEACHING

III. 1 Undergraduate Study (Bc.)

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

- **Nuclear Installations** (4th sem., 3-2h)
V. Nečas, J. Haščík, V. Slugeň
- **Sources of Radiation** (6th sem., 2-3h)
M. Miglierini
- **Environmentalistics** (6th sem., 3-2h)
J. Sitek
- **Introduction to Physics** (1st sem., 1-2h)
P. Bokes, J. Vajda, M. Vančo
- **Physics (for FIIT SUT)** (2nd sem., 3-2h)
J. Cirák
- **Physics 1** (2nd sem., 3-3h)
P. Ballo, P. Bokes,
- **Special Seminar - Physics 1** (2nd sem., 0-2h)
P. Ballo, P. Bokes
- **Physics** (2nd sem., 3-3h)
P. Valko
- **Special Seminar - Physics** (2nd sem., 0-2h)
P. Valko
- **Physics 2** (4th sem., 3-3h)
M. Vančo
- **Special Seminar - Physics 2** (4th sem., 0-2h)
M. Vančo
- **Physics** (3rd sem., 3-3h)
P. Valko
- **Special Seminar - Physics** (3rd sem., 0-2h)
P. Valko
- **Physics 1** (3rd sem., 3-3h)
M. Vančo
- **Special Seminar - Physics 1** (3rd sem., 0-2h)
M. Vančo
- **Physics 2** (3rd sem., 3-3h)
J. Cirák, P. Markoš
- **Special Seminar - Physics 2** (3rd sem., 0-2h)
J. Cirák, P. Markoš
- **Physics 3** (4th sem., 2-2h)
P. Valko
- **Modern Physics** (5th sem., 3-2h)
P. Markoš
- **Modern Methods of Material Diagnostics** (5th sem., 2-2h)
E. Dobročka
- **Modeling and Simulation** (5th sem., 2-3h)
P. Ballo
- **Thermodynamics of Materials and Statist. Physics** (6th sem., 3-2h)
M. Moško
- **Solid State Physics** (6th sem., 3-2h)
P. Bokes

III. 2 Graduate Study (Ing.)

- **Nuclear Physics and Technology** (1st sem., 2-2h)
J. Lipka, A. Šagátová
- **Team Project (EE)** (1st sem., 0-4h)
G. Farkas, S. Sojak, M. Stacho
- **Theory of Nuclear Reactors** (2nd sem., 2-2h)
J. Haščík
- **Material of Nuclear Power Plants** (2nd sem., 2-2h)
V. Nečas
- **Atomic and Molecular Spectroscopy** (2nd sem., 2-2h)
M. Miglierini
- **Experimental Reactor Techniques** (2nd sem., 2-2h)
J. Haščík
- **Dosimetry and Radiation Protection** (2nd sem., 2-2h)
R. Hince
- **Methods of Nuclear Physics** (3rd sem., 2-2h)
J. Sitek
- **Fundamentals of Particle Accelerators** (2nd sem., 2-2h)
M. Pavlovič
- **Biomedical Accelerators** (3rd sem., 2-2h)
M. Pavlovič
- **Operation of Nuclear Power Plants** (3rd sem., 2-2h)
V. Slugeň
- **Decommissioning of Nuclear Power Plants** (3rd sem., 2-2h)
V. Nečas
- **Safety and Reliability of Power Engineering Installations** (4th sem., 2-2h)
V. Slugeň
- **Nuclear Electronics** (1st sem., 2-1h)
J. Sitek, M. Petriska
- **Physics of Processes** (1st sem., 3-2h)
P. Bokes
- **Superconductivity and Low Temperature Physics** (1st sem., 2-2h)
P. Valko
- **Electronic Structure of Matter** (1st sem., 2-2h)
P. Bokes, M. Konôpka
- **Radiation Protection and Ecology** (1st sem., 2-2h)
V. Slugeň, R. Hince
- **Bioelectronics** (1st sem., 2-1h)
J. Cirák
- **Principles of Applied Optics** (1st sem., 2-2h)
J. Vajda
- **Non-equilibrium Systems and Chaos** (1st sem., 3-2h)
P. Ballo
- **Nanotechnology** (2nd sem., 2-2h)
J. Cirák
- **Applied Optics** (2nd sem., 2-2h)
J. Vajda
- **Computer Physics** (2nd sem., 2-2h)
P. Markoš
- **Biomaterials and Biosystems** (2nd sem., 2-2h)
J. Cirák
- **Physics of Materials I** (3rd sem., 3-2h)
P. Dieška, R. Durný



III. 4 Distance Study

- **Nuclear Installations** (6th sem., 12h)
J. Sitek
- **Safety and Reliability of Power Engineering Installations** (4th sem., 12h)
V. Slugeň
- **Physics 1** (3rd sem., 24h)
T. Šrámková
- **Physics 2** (4th sem., 24h)
T. Šrámková
- **Applied Optics** (2nd sem., 12h)
J. Vajda
- **Physics of Processes** (1st sem., 12h)
P. Bokes

IV. RESEARCH PROJECTS

IV. 1 National Scientific Projects (VEGA, APVV, KEGA)

- Materials of Alternative Nuclear Fuel Cycles and Decommissioned NPP, VEGA 1/0685/09, (V. Nečas)
- Semiconductor Detectors for Hot Plasma Diagnostics VEGA 2/0192/10, (V. Nečas)
- Increase of Energy Safety in SR, OP Research and Development ITMS: 26220220097, (V. Nečas)
- Conditional Release of Materials from Decommissioning (CONRELMAT), Incentives MŠ SR N° CD-2009-36909/39460-1:11, (V. Nečas)
- Design and Realization of Education in Interdisciplinary Branches on International Level, KEKA 019STU-4/2012, (M. Pavlovič)
- Radiation Hardness of Nanocrystalline Alloys Against Different Types of Radiations, VEGA 1/0286/12, (J. Sitek)
- Research of Slovak Meteorites, APVV-0516-10, (J. Sitek)
- New Semiconductor Detectors of Neutrons, APVV-0321-11, (A. Šagátová)
- Hyperfine Interactions in Fe-Based Amorphous and Nanocrystalline Alloys, VEGA 1/0033/10, (M. Miglierini)
- Study of Charge Transfer in Ordered Organic Molecular Systems, VEGA 1/0879/11, (J. Cirák)
- Advanced Materials – Processes and Structures of Organic Electronics, APVV-0262-10, (J. Cirák)
- National Centre for Research and Application of Renewable Energy Sources, OP Research: IMTS 26240120028, (J. Cirák, R. Durný, P. Markoš)
- Nanostructures for Development of Biosensors, APVV-0362-07, (J. Cirák, R. Durný)
- Organic Materials for Photovoltaics and Sensorics, VEGA 1/15722/10, (R. Durný)
- Inelastic Transport of Electrons through Nanojunctions with Phonons, VEGA 1/0632/10, (M. Konôpka)
- Electromagnetic and Electronic Properties of Small

Systems and Metamaterials, APVV-0108-11, (P. Markoš)
- Competence Centre for New Materials, Advanced Technologies and Energetics, ERDF, (P. Ballo, J. Cirák, Š. Čerba, J. Dekan, M. Miglierini, V. Nečas, M. Pavlovič, M. Pavúk, S. Sojak, A. Šagátová)

IV. 2 International Scientific Projects

- Depth Profiling Radiation Induced Defect Concentration in DEMO Structural Materials Using Pulsed Low Energy Positron System (PLEPS). 7th Framework Project of the European Atomic Energy Community No FU70-Euratom.CU (2007-2011), (V. Slugeň)
- Training Schemes on Nuclear Safety Culture for Managers (TRASNUSAFE) 7th Framework Project of the European Atomic Energy Community No249674 (2010-2014), (V. Slugeň)
- Benchmarking of Advanced Materials Pre-selected for Innovative Nuclear Reactors, IAEA Research Project T11006, (V. Slugeň)
- Irradiation Tests of Magnetic Alloy and Organic Insulator Materials. Bilateral Agreement STU-GSI Darmstadt, (M. Pavlovič)
- Structural Modification of Amorphous and Nanocrystalline Fe-Based Alloys. Bilateral Project SK-PL-0013-09, (M. Miglierini)
- European Union Japan Cooperation, EUJEP 2010-2013, (J. Haščík)
- ENEN Cooperation with Russia in Nuclear Education, Training and Knowledge Management. (J. Haščík)
- Proton Implantation for Research Purposes at the JRC-IE, Petten, EC-Project B108510, JRC-IE, Petten, (V. Slugeň)
- Positron Annihilation Study of Reactor Materials, Project GP01/1011014702 with AREVA NP, GmbH, (V. Slugeň)
- Nanoalloys as Advanced Materials: From Structure to Properties and Applications (Nanoalloy) Cost Action MP 0903, (M. Miglierini)

V. COOPERATION

V. 1 Cooperation in Slovakia

- DECOM a.s., Trnava
- DECONTA a.s., Trnava
- Comenius University, Bratislava, School of Medicine
- Comenius University, Bratislava, Faculty of Mathematics, Physics and Informatics
- Comenius University, Bratislava, Faculty of Pharmacy
- Comenius University, Bratislava
- Comenius University, Bratislava, Faculty of Natural Science
- Slovak Academy of Sciences, Bratislava, Geological Institute



- Slovak Academy of Sciences, Bratislava, Institute of Electrical Engineering
- Slovak Academy of Sciences, Bratislava, Institute of Measurement Science
- Slovak Academy of Sciences, Bratislava, Institute of Physics
- Slovak Academy of Sciences, Bratislava, Institute of Informatics
- Slovak Academy of Sciences, Bratislava, Institute of Materials and Machine Mechanics
- Slovak Academy of Sciences, Bratislava, Institute of Polymers
- Slovak Academy of Sciences, Košice, Institute of Experimental Physics
- Institute of Preventive and Clinical Medicine, Bratislava
- International Laser Centre, Bratislava
- University of P. J. Šafarik, Institute of Physical Sciences, Košice
- VUJE a.s., Trnava
- Nuclear Regulatory Authority of the Slovak Republic, Bratislava
- Relko Ltd., Bratislava
- Slovak Electric Ltd., (SE a.s.), Bratislava
- Nuclear Decommissioning Company, plc., (JAVYS), Bratislava
- Slovak Electric Ltd., Mochovce Nuclear Power Plant, SE a.s. Mochovce
- Slovak Electric Ltd., Bohunice Nuclear Power Plant, SE a.s. Jaslovské Bohunice
- Slovak Office for Normalization, Metrology and Testing, Bratislava
- Slovak Institute of Metrology, Bratislava
- BIONT Inc., Bratislava
- National Nuclear Fund of Slovak Republic, Bratislava
- Faculty of Chemical and Food Technology, STU, Bratislava
- Faculty of Informatics and Information Technologies, STU, Bratislava
- Faculty of Mechanical Engineering, STU, Bratislava
- University of Trnava, Trnava
- Technical University of Košice, Faculty of Electrical Engineering and Information Technology, Košice
- Slovak Legal Metrology Institute, Banská Bystrica
- University of Žilina, Faculty of Electrical Engineering, Žilina
- Flerov Laboratory of Nuclear Reactions, Joint Institute of Nuclear Research, Dubna, Russia
- Forschungszentrum Jülich, Institute of Bio- and Nanosystems, Germany
- AREVA-NP, Erlangen, Germany
- GSI, Accelerator Department, Darmstadt, Germany
- Leibniz Institut für Festkörper- und Werkstofforschung, Dresden, Germany
- Institute for Nuclear Research of the Russian Academy of Sciences, Neutron Research Department, Moscow, Russia
- Institute for Theoretical and Experimental Physics, High Energy Density in Matter Produced by Heavy Ion Beam Department, Moscow, Russia
- Institute for Energy, European Commission, JRC Petten
- Institute of Nuclear Techniques, Budapest University of Technology and Economics, Hungary
- Institute of Thin Films and Interfaces, Research Centre Jülich, Germany
- International Atomic Energy Agency, Vienna, Austria
- Laboratory of Nuclear Problems, Joint Institute of Nuclear Research, Dubna, Russia
- Leibniz Institute für Festkörperphysik, University Vienna, Austria
- Nuclear Research Institute, Řež, CzR
- Universität der Bundeswehr, München, Germany
- University of Gent, Belgium
- Palacky University, Olomouc, Czech Republic
- Institute of Experimental and Applied Physics, Czech Technical University in Prague, CzR
- Institute of Inorganic Chemistry, Academy of Sciences of Czech Republic, Řež, CzR
- University of Applied Sciences, Wiener Neustadt, A-2700, Austria
- Aalto University School of Science and Technology, Finland
- Wroclaw University of Technology, Wroclaw, Poland
- CENTRALSYNC (Inst. Of Physic, AVČR, Prague, CzR, Hungarian Academy of Sciences, Budapest, Hungary)
- Tomáš Baťa University, Zlín, CzR
- Institute of Macromolecular Chemistry, AVČR, Prague, CzR
- Natural Science Faculty, Charles University, Prague, CzR
- University of West Bohemia, Pilsen, CzR
- VŠB-TU, Ostrava, CzR
- FORTH Heraklion, Greece
- Tokyo Institute of Technology, Tokyo, Japan
- Fukuoka University, Fukuoka, Japan
- University of York, U.K.
- Universitat Politècnica de Catalunya, Barcelona, Spain
- Centro de Física Nuclear, Lisbon, Portugal
- PTB Braunschweig, Germany
- Delft University, Delft, The Netherlands
- Institute of Solid State Physics, Graz University of Technology, Graz, Austria
- Università di Modena e Reggio Emilia, Modena, Italy
- Ames Laboratory, Ames, Iowa, USA
- UF Gainesville, USA

V. 2 International Cooperation

- All-Russian Scientific Institute of Experimental Physics, Theoretical Physics Department, Sarov, Russia
- Atominstitut der Technischen Universität, Vienna, Austria
- Centro de Investigación y de Estudios Avanzados del IPN Unidad Saltillo, Mexico
- Department of Nuclear Reactors, Czech Technical University in Prague, CzR
- EFDA Close Support Unit, Garching, Germany





V. 3 Contract-based Business Activities

- J. Haščík: Periodical Training of Supervising Physicists of the NPP Bohunice, JAVYS and Mochovce on the Experimental Nuclear Reactors. Contract with NPP Bohunice, Mochovce
- J. Haščík, R. Hince, J. Lipka, V. Nečas, V. Slugeň: Post-gradual Requalification Training Course: Safety aspects of nuclear installations operation. Contract with SE, a. s.
- M. Pavlovič: Distant Teaching of Radiation and Nuclear Physics at the University of Applied Sciences Wiener Neustadt, Austria
- M. Pavlovič: Distant Teaching of Accelerator Technology at the University of Applied Sciences, Wiener Neustadt, Austria
- J. Haščík, G. Farkas, R. Hince, J. Lüley, M. Petriska, V. Slugeň, B. Vrban: Subcriticality Analyses of Spent Fuel Storage Pool Loading by Fresh and Irradiated Gd 4,87 type Assemblies in SE a.s. EMO
- J. Haščík, G. Farkas, R. Hince, J. Lüley, M. Petriska, V. Slugeň, B. Vrban: Verifying the Value of Thermal Reactivity Coefficients in the First Fuel Load into Reactor Core at MO 34 Units Using Calculation Code MCNP 5, SE a.s.
- J. Haščík, G. Farkas, R. Hince, V. Kutiš, J. Lüley, E. Mojto, J. Murín, P. Páleník, J. Paulech, M. Petriska, V. Slugeň, M. Stacho, P. Urban, B. Vrban: Verification of Neutron Power Density in the 2. unit NPP EMO at 12. campaign using MCNP code.

VI. THESES

VI. 1 Masters Theses

Masters theses supervised at the Institute of Nuclear and Physical Engineering. The names of supervisors are in brackets.

- [1] Bartošová, I.: Research Methods Applied on Materials for the new Generation of Nuclear Reactors (V. Slugeň, J. Veterníková)
- [2] Bebjak, S.: Heat Removal from the Fuel Assemblies of Nuclear Reactors in Terms of Design Basis Accidents with Loss of Coolant (V. Slugeň)
- [3] Bouhaddane, A.: Calculation of Induced Activity in the Reactor V-230 Dummy Elements (V. Slugeň)
- [4] Haršány, L.: Sources of Radiation of Slovak Inhabitants (R. Hince)
- [5] Hornáček, M.: Evaluation of Material and Waste Management Scenarios from the Process of Nuclear Installation Decommissioning (V. Nečas, M. Zachar)
- [6] Hrnčíř, M.: Calculation of the Power Distribution of a GFR MOX Fuel Assembly by MCNPX as a function of burn-up (V. Nečas, Š. Čerba)
- [7] Klein, T.: Evaluate the Response of SPND in VVER 440 Reactor Using Monte Carlo Method (J. Haščík, G. Farkas)

- [8] Krčmárik, M.: Neutron Dosimetry in the System of Radiation Protection for Workers in Nuclear Power Plants (R. Hince)
- [9] Mešťanová, J.: Assessment Material –Physical Properties of ferric oxide (J. Lipka)
- [10] Miglierini, B.: Optimization of Calculation of Nuclide Composition of the Gd II 4,87 Fuel by the SCALE 6.0 Code (J. Haščík, B. Vrban)
- [11] Salaj, A.: Comparison Calculations of Fuel Assemblies with Gadolinium Burnable Poison Calculated in SCALE and MCNP (V. Nečas, P. Čudrnák, G. Farkas)
- [12] Slimák, A.: Optimization of Selected Scenarios Related to Fiber-reinforced Concrete Containers Manipulation during their Storage Period in the Area of Nuclear Facility (V. Nečas, T. Hrnčíř)
- [13] Smolko, M.: The Use of Conditionally Released Materials Arising from Decommissioning of Nuclear Facilities for the Construction Flood Barriers (V. Nečas, M. Páník)
- [14] Šajtlava, J.: Monitoring of Nuclear Fuel in the Burnt Fuel Interim Storage in Jaslovské Bohunice (V. Slugeň)
- [15] Bokor, J.: Study of the Neutron and Gamma Radiation Affect on Semiconductor Detectors (V. Nečas)
- [16] Katrik, P.: Activation of Accelerator Construction Materials by High-energy Heavy-ions (M. Pavlovič)
- [17] Novák, P.: Determination of Depth Profile of the Phase Composition of Thin Films by X-ray Diffraction at Low Angle of Incidence (P. Ballo)
- [18] Skoršepová, T.: Utilization of Polarimeter as Sensor on Surface Plasmon Polaritons Basis (J. Chlupík)
- [19] Vitkovská, E.: Supercomputer Simulations of the Properties of Solids (P. Ballo)
- [20] Rudolf, M.: Propagation of Electromagnetic Waves in Photonic structures (P. Markoš)

VI. 2 PhD. Theses

- [1] Hrnčíř, T.: Conditional Release of Materials Arising from Decommissioning of NPPs with their Subsequent Reuse in Tunnel Constructions (V. Nečas)
- [2] Páník, M.: Methodology of Long-term Environmental Impact Assessment of Materials Conditionally Released from Nuclear Installation (V. Nečas)
- [3] Stacho, M.: Mapping of Neutron and Gamma Ray Field Around VVER-440 Reactor (V. Slugeň)
- [4] Váry, T.: Surface Electromagnetic Waves (P. Markoš)





VII. OTHER ACTIVITIES

- Organization of the Postgraduate Study "Nuclear Installation Operation Safety Aspects" for participants from different organizations. Organised for SE, a. s.
- Organization of students excursion to Atom Institute in Vienna
- Students Practical Exercises at the TRIGA Mark II Reactor in Atom Institute of the Austrian Universities, Vienna, Austria
- Students Practical Exercises at the Training Reactor of the Budapest University of Technology and Economics, Budapest, Hungary
- Students Practical Exercises at the Training Reactor of the Czech Technical University in Prague, Czech Republic
- Organization of French-Slovak Seminary "Nuclear Technique and Environment", Demänová, 6–9 February 2012
- Organization of French-Slovak Summer School "Decommissioning and Dismantling Techniques and Related Issues", Kočovce, 10-14 September 2012
- Contribution to the "9th International Conference Secure Energy Supply 2011", Bratislava, 27 September 2012
- Public Lesson: Fukushima Accident, University of Konstantin Filozof, Nitra, 21 June 2012 (V. Slugeň)
- Public Lessons for physics popularisation (J. Krem-paský, V. Slugeň, M. Pavlovič)
- Organisation of Technical Tour "Physics on the Wheels", 7–10 May 2012
- Contribution to organisation of technical exposition and measurement of radiation of human body at festival POHODA 2012 in Trenčín
- Organizing and Program Committee. The 18th international conference - Applied Physics of Condensed Matter, APCOM 2012, Štrbské Pleso, 18–20 June 2012 (J. Sitek, J. Vajda)
- Public Lecture: Ionizing Radiation – Threat or Assistant? (M. Miglierini)
- Organizing the 3rd International scientific conference: Renewable energy sources. Tatranské Matliare, 15–17 May 2012 (J. Cirák – conference chairman)
- Beamline coordinator in European theoretical spectroscopy facility (P. Bokes)
- Club of physicists (J. Cirák)
- Organizing the conference - Open Source Software in Education, Research and IT Solutions, 2–4 July 2012, University of Žilina. (T. Šrámková)
- MECO 2012, 37th Conference of the Middle European Cooperation I Statistical Physics, Tatranské Matliare, 18–22 March 2012 (P. Markoš)

VIII. MEMBERSHIP IN INSTITUTIONS/COMMITTEES

VIII.1 Membership in National Institutions/Committees

- Slovak National Nuclear Found (V. Slugeň, vice-chairman)
- Slovak Nuclear Society (V. Slugeň - chairman, J. Degmová, J. Haščík, R. Hinca, G. Farkas, K. Vitázek, J. Lipka, M. Miglierini, V. Nečas, M. Petriska, J. Sitek, A. Šagátová, M. Seberíni, M. Pavlovič, M. Stacho, S. Sojak, J. Veterníková, V. Sabelová)
- State Examination Committee for the Verification of Operating Staff of Nuclear Installations Specific Abilities (J. Haščík, V. Slugeň)
- Scientific Council of SUT (V. Slugeň)
- Scientific Council of FEI SUT (V. Slugeň, J. Cirák, P. Ballo)
- Scientific Council of FME SUT (R. Durný)
- Board of editors, Journal of Electrical Engineering (P. Ballo)
- Board of Nuclear Safety SE-EBO (J. Haščík)
- Board of Nuclear Safety SE-EMO (V. Slugeň)
- Board of Nuclear Safety JAVYS (V. Nečas)
- Council of Nuclear Regulatory Authority of the Slovak Republic (V. Nečas, V. Slugeň)
- Co-ordination Board for Cooperation with JINR Dubna (V. Nečas)
- Scientific Council of Slovak Institute of Metrology (R. Durný, J. Lipka, V. Nečas)
- Slovak Physical Society (P. Bokes, J. Cirák – vice-chairman, R. Durný, P. Markoš, M. Miglierini, V. Nečas, M. Pavlovič, J. Sitek, M. Zemanová Dieškova)
- Slovak Spectroscopic Society (M. Miglierini - president, J. Sitek - member)

VIII.2 Membership in International Institutions/Committees

- European Nuclear Society (V. Slugeň, Deputy President)
- EC Sustainable Nuclear Energy Technology Platform, board member (V. Slugeň)
- ENEN Association (M. Miglierini, J. Haščík, V. Slugeň)
- European Physical Education Network (V. Slugeň)
- German Nuclear Society (V. Slugeň)
- International Board on the Applications of the Mössbauer Effect „IBAME“ (M. Miglierini)
- International Journal of Nuclear Energy Science and Technology, Member of the Editorial Board (V. Nečas)
- International Journal of Nuclear Knowledge Management, Member of the Editorial Board (J. Lipka, V. Slugeň)
- OECD/NEA Bank's Computer Program Service (J. Lipka -Liaison Officer)
- Science and Technology Advisory Committee of EU - Area Nuclear Fusion (V. Slugeň)
- The Research Board of Advisors of the American Biographical Institute (M. Pavlovič)



- The Advisory Council of the International Biographical Centre Cambridge (M. Pavlovič)
- The Scientific Board of Nuclear Research Institute Řež, plc, CzR (V. Slugeň)
- The High Scientific Council at European Nuclear Society (V. Slugeň)
- International Jordan Journal of Physics, Member of the International Advisory Board (J. Lipka)
- Evaluator of EC 7th Framework Projects – Area Reactor Systems (V. Slugeň)
- European Nuclear Council (V. Slugeň)
- European Human Resources Observatory in Nuclear, member of senior advisory group (V. Slugeň)
- European Nuclear Energy Forum – member of WG Risks (V. Slugeň)
- International Committee of American Nuclear Society - board member (V. Slugeň)
- American Physical Society (J. Cirák)
- Europhysical Society (P. Ballo, P. Bokes, J. Cirák, R. Durný, J. Krempaský, P. Markoš, P. Valko)
- IEEE (J. Cirák)
- The New York Academy of Sciences (J. Krempaský)
- Academia Scientiarum et Artium Europaea (J. Krempaský)
- Optical Society of America (P. Markoš)

IX. PUBLICATIONS

IX. 1 Journals

- [1] CHUDÝ, M. - EISTERER, M. – WEBER, H.W. - VETERNÍKOVÁ, J. - SOJAK, S. - SLUGEŇ, V.: Point Defects in YBa₂Cu₃O_{7-x} Studied Using Positron Annihilation. In: Superconductor Science and Technology. - ISSN 0953-2048. - Vol. 25 (2012), Art. No. 075017. (in English)
- [2] DEKAN, J. - LIPKA, J. - SLUGEŇ, V.: Application of Mössbauer Spectroscopy on Corrosion Products of NPP. In: Hyperfine Interactions - on line. - ISSN 1572-9540. - 4 October (2012), DOI 10.1007/s10751-012-0651-2. (in English)
- [3] DEGMOVÁ, J. - DEKAN, J. - SLUGEŇ, V. - THEES, C. - SMIEŠKO, I. - ŠELIGA, P.: Analysis of Steam Generators Corrosion Products from Slovak NPP Bohunice. In: International Journal of Corrosion. - ISSN 1687-9325. - Vol. 2012 (2012), Art. No. 643727. (in English)
- [4] DUBECKÝ, F. - GOMBIA, E. - FERRARI, C. - ZAŤKO, B.- VANKO, G. - BALDINI, M. - KOVÁČ, J. - BAČEK, D. - KOVÁČ, P. - HRKÚT, P. - NEČAS, V.: Characterization of Epitaxial 4H-SiC for Photon Detectors. In: Journal of Instrumentation. - ISSN 1748-0221. - Vol. 7, Iss. 9 (2012), Art. No. P09005. (in English)
- [5] HASIAK, M. - MIGLIERINI, M. - LUKIEWSKI, M. - KALETA, J.: Microstructure, Magnetic Properties, and Applications of Co-Rich HITPERM-Type Amorphous Alloys. In: IEEE Transactions on Magnetics. - ISSN 0018-9464. - Vol. 48, Iss. 4 (2012), p. 1665-1668. (in English)
- [6] HINCA, R. - MARKUŠ, J. - STACHO, M. - SABELOVÁ, V. - JEŠKOVSKÝ, M. - KOVÁČIK, A.- MÜLLEROVÁ, M. - HAŠČÍK, J. - MÁTEL, Ľ.: SNUS Expedition - Chernobyl 2011. In: Bulletin SNUS. - Vol. 1, No. 2 (2012), p. 1-8. (in Slovak)
- [7] HORNÁČEK, M. - NEČAS, V. - ZACHAR, M.: Analysis of Packages with Materials and Radioactive Waste from Nuclear Installations Decommissioning Process in Terms of Dose Load. (<http://www.posterus.sk/?p=13984>) In: Posterus. - ISSN 1338-0087. - Vol. 5, Iss. 10 (2012), on-line. (in Slovak)
- [8] HORNÁČEK, M. - NEČAS, V. - ZACHAR, M.: Evaluation of Dose Load from Materials Released to the Environment from Nuclear Installations Decommissioning Process. In: EE časopis pre elektrotechniku a energetiku. - ISSN 1335-2547. - Vol. 18, No. 4 (2012), p. 12-13, 27. (in Slovak)
- [9] JAKABOVIČ, J. - KOVÁČ, J. - SRNÁNEK, R. - WEIS, M. - SOKOLSKÝ, M. - BROCH, K. - SCHREIBER, F. - DONOVAL, D. - CIRÁK, J.: Pentacene-Gate Dielectric Interface Modification with Silicon Nanoparticles for OTFTs. In: Physics Procedia. - ISSN 1875-3892. - Vol. 32 (2012), p. 285-288. (in English)
- [10] KREMPASKÝ, J. - POLAKOVIČ, Ľ.: Quantitative Theory of Companies Management as Unimodal Systems (1). In: ATP Journal. - ISSN 1335-2237. - Vol. 19, No. 10 (2012), p. 44-46. (in Slovak)
- [11] KUBIČÁR, Ľ. - ANIBARRO, C.C. - VRETENÁR, V. - DIEŠKA, P. - NOVÁK, I. - CHODÁK, I.: Monitoring of Epoxy Curing by a Thermal-Conductivity Sensor Based on the Hot-Ball Transient Method. In: International Journal of Thermophysics. - ISSN 0195-928X. - Vol. 33, Iss. 7 (2012), p. 1164-1176. (in English)
- [12] KUZMA, A. - WEIS, M. - FLICKYNGEROVÁ, S. - JAKABOVIČ, J. - ŠATKA, A. - DOBROČKA, E. - CHLPIK, J. - CIRÁK, J. - DONOVAL, M. - TELEK, P. - UHEREK, F. - DONOVAL, D.: Influence of Surface Oxidation on Plasmon Resonance in Monolayer of Gold and Silver Nanoparticles. In: Journal of Applied Physics. - ISSN 0021-8979. - Vol. 112, Iss. 10 (2012), p. 103531-103535. (in English)
- [13] LÜLEY, J. - VRBAN, B. - FARKAS, G. - HAŠČÍK, J. - PETRISKA, M.: Determination of Criticality Safety MCNP5 Calculation Bias by Using Different Libraries of Cross Section Data. In: Progress in Nuclear Energy. - ISSN 0149-1970. - Vol. 59 (2012), p. 96-99. (in English)
- [14] MALINARIČ, S. - DIEŠKA, P. - KRUPA, P.: Modified Dynamic Plane Source Method for Measuring Thermophysical Parameters of Solids. In: Inter-



- [15] national Journal of Thermophysics. - ISSN 0195-928X. - Vol. 33, Iss. 3 (2012), p. 528-539. (in English) MARKOŠ, P.: Comment on the paper „Finite Size Scaling from the Self Consistent Theory of Localization“ by I. M. Suslov. In: Journal of Experimental and Theoretical Physics. - ISSN 1063-7761. - Vol. 142, Iss. 6(12) (2012), p. 1226-1229. (in English)
- [16] MARKOŠ, P. - SCHWEITZER, L.: Disordered Two-Dimensional Electron Systems with Chiral Symmetry. In: Physica B-Condensed Matter. - ISSN 0921-4526. - Vol. 407, Iss. 20 (2012), p. 4016-4022. (in English)
- [17] MIGLIERINI, M. - PROCHÁZKA, V. - STANKOV, S. - ŠVEC, P. - ZAJAC, M. - KOHOUT, J. - LANČOK, A. - JANIČKOVIČ, D. - ŠVEC, P.: Crystallization Kinetics of Nanocrystalline Alloys Revealed by in situ Nuclear Forward Scattering of Synchrotron Radiation. In: Physical Review B. - ISSN 1098-0121. - Vol. 86, Iss. 2 (2012), Art. No. 020202. (in English)
- [18] MIGLIERINI, M. - KOHOUT, J. - LANČOK, A. - ŠAFÁŘOVÁ, K.: Magnetic Hyperfine Fields of Nanoperm Alloys. In: Acta Physica Polonica A. - ISSN 0587-4246. - Vol 121, No. 5-6 (2012), p. 1263-1265. (in English)
- [19] MIGLIERINI, M. - HATALA, T. - FRYDRYCH, J. - ŠAFÁŘOVÁ, K.: Surface Crystallization of Co-Containing NANOPERM-Type Alloys. In: Hyperfine Interactions. - ISSN 0304-3843. - Vol. 205 (2012), p. 125-128. (in English)
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- [21] OSACKÝ, M. - ŠUCHA, V. - MIGLIERINI, M. - MADEJOVÁ, J.: Reaction of Bentonites with Pyrite Concentrate after Wetting and Drying Cycles at 80°C: Relevance to Radioactive Waste (Radwaste) Storage. In: Clay Minerals. - ISSN 0009-8558. - Vol. 47, Iss. 4 (2012), p. 465-479. (in English)
- [22] PAVLOVIČ, M.: Educational Aspects of Promoting Accelerator Technologies in Slovakia. In: Metrologia a skúšobníctvo. - ISSN 1335-2768. - Vol. 17, No. 2 (2012), p. 28-32. (in Slovak)
- [23] PETRISKA, M. - SABELOVÁ, V. - SLUGEN, V. - SOJAK, S. - STACHO, M. - VETERNÍKOVÁ, J.: Digital Coincidence Doppler Broadening setup at FEL STU. In: Physics Procedia. - ISSN 1875-3892. - Vol. 35 (2012), p. 117-121. (in English)
- [24] PRÍTRSKÝ, J. - NEČAS, V.: Impact of Advanced Nuclear Fuel Cycle IMF on Geological Repository Performance. In: Progress in Nuclear Energy. - ISSN 0149-1970. - Vol. 54, Iss. 1 (2012), p. 36-40. (in English)
- [25] SCHWEITZER, L. - MARKOŠ, P.: Scaling at Chiral Quantum Critical Points in Two Dimensions. In: Physical Review B. - ISSN 1098-0121. - Vol. 85 (2012), Art. No. 195424. (in English)
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of Czech and Slovak Physicists : Žilina, Slovak Republic, 5.-8.9.2011. - Bratislava : Slovak Physical Society, 2012. - ISBN 978-80-970625-4-5. - p. 31-32. (in English)

IX. 3 Books

- [1] KREMPASKÝ, J.: Physics and Mathematics as the Language of Nature: Guide for Students Entering Technical Universities. - Bratislava : Slovak University of Technology Press, 2012. - 76 p. - ISBN 978-80-227-3734-0. (in Slovak)
- [2] SLUGENĚ, V.: Introduction to Nucleus. - Trnava : Slovak Nuclear Society, 2012. - 67 p. (in Slovak)

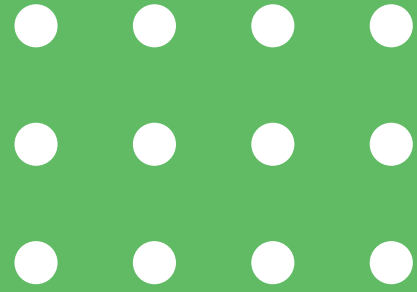
IX. 4 Parts of Books

- [1] SLUGENĚ, V. - LIPKA, J. - DEKAN, J. - DEGMOVÁ, J. - TÓTH, I.: Phase Composition Study of Corrosion Product at NPP. In: Nuclear Power Plants. - Rijeka : InTech, 2012. - ISBN 978-953-51-0408-7. - p. 317-340. (in English)

IX. 5 Textbooks

- [1] MARKOŠ, P.: Modern Physics. - Bratislava : Slovak University of Technology Press, 2012. - 234 p. - ISBN 978-80-227-3666-4. (in Slovak)





INSTITUTE OF POWER AND APPLIED ELECTRICAL ENGINEERING





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Director of the Institute:

prof. Ing. František Janíček, PhD.

e-mail: frantisek.janicek@stuba.sk

Tel: +421-2-602 91 298, Fax: +421-2-654 25 826

Deputy Director: prof. Ing. Justín Murín, DrSc.

Tel: +421-2-602 91 611, e-mail: justin.murin@stuba.sk

Institute Secretary: Mgr. Miriam Szabová

Tel: +421-2-602 91 831, e-mail: miriam.szabova@stuba.sk

Fax: +421-2-654 25 826

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.

Departments of the Institute

Department of Electrical Power Engineering

Department chair: doc. Ing. Anton Beláň, PhD.

Tel.: +421-2-602 91 306 (786), e-mail: anton.belan@stuba.sk

Fax: +421-2-654 25 826

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 Applied Mechanics and Mechatronics

Department chair: prof. Ing. Justín Murín, DrSc.

Tel: +421-2-602 91 611, e-mail: justin.murin@stuba.sk

Department of Heavy Current Engineering

Department chair: doc. Ing. Ľudovít Hüttner, PhD.

Tel.: +421-2-602 91 471, e-mail: ludovit.huttner@stuba.sk

Fax: +421-2-654 20 415

I. STAFF

Professors:

prof. Ing. Viktor Ferencey, CSc., prof. Ing. František Janíček, PhD., prof. Ing. Justín Murín, DrSc., prof. Ing. Alfonz Smola, PhD.

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doc. Ing. Anton Beláň, 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 Kutíš, PhD., doc. Ing. Jaroslav Leľák, PhD., doc. Ing. Vladimír Šály, PhD., doc. Ing. Ferdinand Valent, PhD.

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Research Workers:

Mgr. Roman Dubníčka, Ing. Vladimír Ďurman, PhD., Ing. Róbert Fric, PhD., Ing. Juraj Kubica, Ing. Linda Lieskovská, Ing. Martin Liška, Ing. Jana Raditschová, PhD., Ing. Michal Ružinský, PhD., Ing. Martin Smieško, Ing. Luboš Trunkvalter

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PhD Students:

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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 (Wayne Kerr 6500P Solarton Analytical ModulLab (10-3-106 Hz)
- 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

- **Introduction to Modelling and Simulation** (5th sem., 3-2h)
A. Beláň, V. Kutiš
- **Lighting Technology** (6th sem., 3-2h)
A. Smola
- **Materials for Electrical Engineering** (3rd sem., 2-3h)
V. Šály
- **Materials and Technology for Electrical Engineering** (3rd sem., 2-3h)
J. Lelák
- **Mechanics (for Electrotechnics)** (5th sem., 3-2h)
J. Murín
- **Mechanics (for Automotive Electronics)** (6th sem., 2-2h)
J. Murín
- **Modelling and Simulation Basis** (5th sem., 3-2h)
A. Beláň, V. Kutiš
- **Safety and Protection of Health at Work** (1st sem., 1-2h)
M. Kopča
- **Safety and Protection of Health at Work I** (1st sem., 1-2h)
J. Packa
- **Safety and Protection of Health at Work II** (4th sem., 1-2h)
M. Kopča, V. Šály
- **Safety of Electric Equipment** (6th sem., 2-1h)
M. Kopča
- **Structural Elements and Systems** (5th sem., 2-2h)
T. Sedlár
- **Technological Processes** (6th sem., 2-3h)
V. Šály
- **Transmission and Distribution of Electrical Energy** (4th sem., 3-2h)
Ž. Eleschová

III. TEACHING

III.1 Undergraduate Study (Bc.)

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

- **Automotive Electrotechnics** (5th sem., 2-2h)
L. Borba, L. Hüttner, J. Lelák, A. Smola,
- **Basis of Engineering and Technical Documentation** (1st sem., 2-2h)
J. Paulech, T. Sedlár
- **CAD in Technical Documentation** (opt. sem., 1-3h)
R. Fric
- **Computational Engineering** (6th sem., 2-2h)
V. Kutiš
- **Continuum Mechanics** (5th sem., 2-2h)
J. Murín
- **Design of Vehicles** (6th sem., 2-2h)
J. Matej
- **Electric Apparatus and Distribution Stations** (6th sem., 3-2h)
F. Janíček, F. Valent
- **Electric Machines** (5th sem., 3-2h)
L. Hüttner
- **Energy Sources and Conversion** (6th sem., 3-2h)
I. Daruľa, F. Janíček
- **High Voltage Technology** (5th sem., 2-3h)
A. Beláň, A. Kment
- **Chosen Technological Processes** (6th sem., 2-2h)
M. Kopča, J. Lelák

III.2 Graduate Study (Ing.)

- **Advanced Power Units of Automobiles** (4th sem., 2-2h)
V. Ferencey
- **Applied Electrical Power Engineering** (2nd sem., 2-2h)
A. Beláň
- **Applied Mechanics** (1st sem., 2-2h)
J. Murín
- **Artificial Lighting** (4th sem., 2-1h)
A. Smola
- **CAD of Electric Power Equipment** (3rd sem., 2-2h)
M. Uhrík, L. Hüttner
- **CAE of Mechatronic Systems** (1st sem., 3-2h)
V. Goga
- **Computational Solution of Field Theory Problem** (2nd sem., 3-2h)
J. Murín
- **Designing by Higher CAD Systems** (2nd sem., 1-3h)
R. Fric



- **Design of Complex Mechatronic Systems** (4th sem., 2-3h)
V. Ferencey, Š. Kozák, J. Murín
- **Designing of Luminaires** (2nd sem., 3-2h)
R. Fric
- **Diagnostics and Expert Systems** (2nd sem., 2-2h)
Ž. Eleschová, A. Kment
- **Electrical Energy Utilization** (3rd sem., 2-2h)
D. Gašparovský, Ľ. Hüttner
- **Electrical Lines** (3rd sem., 2-2h)
D. Gašparovský
- **Electrical Networks** (1st sem., 2-2h)
A. Beláň, M. Pípa
- **Electrical Part of Power Stations** (2nd sem., 2-2h)
I. Daruľa
- **Electric Drives and Power Electronics** (1st sem., 2-2h)
L. Borba
- **Electronic Energy Converters** (2nd sem., 2-2h)
L. Borba
- **Electric Heating Devices** (3rd sem., 2-2h)
Ľ. Hüttner
- **Electric Traction Systems** (3rd sem., 2-2h)
L. Borba
- **Environmental Ecology** (3rd sem., 2-2h)
I. Daruľa, J. Kubica
- **Finite Element Methods for Mechatronics** (1st sem., 2-3h)
J. Murín
- **Lighting Systems** (3rd sem., 2-2h)
D. Gašparovský
- **Light Sources and Ballasts** (1st sem., 2-2h)
A. Smola
- **Luminaires** (2nd sem., 2-2h)
D. Gašparovský
- **Materials Physics 2** (2nd sem., 2-3h)
V. Ďurman
- **Measurement of Light and Colours** (2nd sem., 2-2h)
D. Gašparovský, R. Dubnička
- **Metallic and Optical Cables** (3rd sem., 2-2h)
J. Lelák
- **Multi-physic processes in Mechatronics** (2st sem., 2-3h)
V. Kutiš
- **Nonconventional Energy Sources** (3rd sem., 2-2h)
I. Daruľa, M. Farkas Smitková
- **Nuclear Power Facilities** (1st sem., 2-2h)
V. Kutiš
- **Numerical Solution of Field Theory Problems** (2nd sem., 3-2h)
J. Murín
- **Photovoltaic Cells and Systems** (3rd sem., 2-2h)
V. Šály
- **Power Units of Automobiles** (2nd sem., 3-2h)
V. Ferencey
- **Quality Management** (4th sem., 2-1h)
P. Poljovka
- **Renewable Energy Sources** (1st sem., 2-1h)
M. Ružinský
- **Safety of Electric Equipment** (2nd sem., 2-1h)
M. Kopča
- **Selected Chapters from Electric Apparatus** (1st sem., 2-2h)
F. Valent
- **Smart Materials and Their Applications in Mechatronic Systems** (4th sem., 2-2h)
J. Lelák, M. Váry
- **Special Electric Machines** (2nd sem., 3-2h)
M. Uhrík
- **Steady State in Power System** (1st sem., 2-2h)
Ž. Eleschová
- **Technology of Electronic Devices** (1st sem., 2-2h)
M. Kopča
- **Technology of Ceramic Composites** (2nd sem., 2-2h)
A. Grusková
- **Theoretical Photometry and Colorimetry** (1st sem., 2-2h)
D. Gašparovský, R. Dubnička
- **Transient Phenomena in Power System** (2nd sem., 2-2h)
Ž. Eleschová
- **Power System Control** (3rd sem., 2-2h)
A. Beláň
- **Protections and Automatics** (3rd sem., 2-2h)
F. Janiček
- **Utilisation of Electrical Energy** (3rd sem., 2-2h)
Ľ. Hüttner, A. Smola
- **Vehicle Dynamics** (1st sem., 2-2h)
V. Ferencey
- **Virtual Prototyping of Mechatronic systems** (3th sem., 2-3h)
J. Matej

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

All subjects can be lectured in English.

III.4 Distance Study

- **Applied Electrical Power Engineering**
A. Beláň
- **Applied Mechanics**
J. Murín
- **Basis of Engineering and Technical Documentation**
T. Sedlár
- **CAE of Mechatronic Systems**
V. Goga
- **Diagnostics and Expert Systems**
Ž. Eleschová, A. Kment
- **Electrical Energy Utilization**
D. Gašparovský, Ľ. Hüttner
- **Electric Apparatus and Distribution Stations**
Ľ. Hüttner, F. Janiček





- **Electric Drives and Power Electronics**
L. Borba
- **Electrical Lines**
D. Gašparovský
- **Electric Machines**
Ľ. Hüttner
- **Electrical Networks**
A. Beláň, M. Pípa
- **Electrical Part of Power Stations**
I. Daruľa
- **Energy Sources and Conversion**
F. Janiček, I. Daruľa
- **Environmental Ecology**
I. Daruľa, J. Kubica
- **High Voltage Technology**
A. Beláň, A. Kment
- **Introduction to Modelling and Simulation**
A. Beláň, V. Kutiš
- **Lighting Systems**
D. Gašparovský
- **Lighting Technology**
A. Smola
- **Light Sources and Ballasts**
A. Smola
- **Luminaires**
D. Gašparovský
- **Materials for Electrical Engineering**
J. Leľák
- **Measurement of Light and Colours**
D. Gašparovský, R. Dubnička
- **Mechanics**
J. Murín
- **Modelling and Simulation Basis**
A. Beláň, V. Kutiš
- **Nonconventional Energy Sources**
I. Daruľa, M. Farkas Smitková
- **Numerical Solution of Field Theory Problems**
J. Murín
- **Power System Control**
A. Beláň
- **Protections and Automatics**
F. Janiček
- **Quality Management**
P. Poljovka
- **Safety and Protection of Health at Work I**
M. Kopča
- **Safety and Protection of Health at Work II**
M. Kopča
- **Steady State in Power System**
Ž. Eleschová
- **Theoretical Photometry and Colorimetry**
D. Gašparovský, R. Dubnička
- **Transient Phenomena in Power System**
Ž. Eleschová

- **Transmission and Distribution of Electrical Energy**
Ž. Eleschová
- **Utilisation of Electrical Energy**
Ľ. Hüttner, A. Smola

IV. RESEARCH PROJECTS

IV. 1 National Scientific Projects

- Computational Modelling of Mechanical and Mechatronic Parts Made of New Composites with Varying Properties. VEGA 1/0534/12. Duration 2012-2014 (started). (J. Murín)
- CAE Laboratory for New Study Program Applied Mechatronics. KEGA 015STU-4/2012. Duration 2012-2014 (started). (V. Kutiš)
- 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 (solved). (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 (solved). (principal investigator: L. Hluchý - SAV, co-workers: V. Ferencey, J. Murín - KMECH FEI STU)
- Process Optimization Silane Crosslinking of Cable Cores, APVV- 0097-11, Duration 2012-2015 (started). In cooperation with VUKI, a.s. (J. Leľák)
- Research of Impregnants without Reactive Monomer (Monomer Free) VEGA-0181-11, Duration 2012-2015 (started). In cooperation with VUKI, a.s.. (J. Leľák)
- Advanced Materials and Smart Structures for Electrical Engineering, Electronics and Biomedical Applications Based on Micro- and Nano-sized Ferrite Particles, APVV-0062-11, Duration 2012-2015 (started). (E. Ušák, A. Grusková)
- Research and Optimisation of Selected Parameters of Progressive Magnetic and Multicomponent Composite Materials nad Nanomaterials with Required Properties for Applications in Electrical and Mechanical Engineering Industry, VG-1/1163/12, Duration 2012-2015 (started). (R. Dosoudil, A. Grusková)
- Radiation Hardness of Nanocrystalline Alloys against Different Types of Radiations. VG-1/0286/12. Duration 2012-2014 (started). (J. Sitek, A. Grusková)
- Integrated Analysis of the Solar Power Plants. APVV-0280-10. Duration: 2011-2014 (solved). (F. Janiček)
- Integrated Analysis of the Renewable Energy Sources. VEGA 1045/11 Duration: 2011-2014. (solved). (M. Smitková)



- Support of Education in the Field of Power Engineering in Secondary and Primary Schools. KEGA 018STU-4/2012 Duration: 2012-2014. (started). (F. Janiček)
- Centre of Competence in New Materials, Advanced Technologies and Power Engineering. Duration: 2011-2014 (solved). ITMS 26240220073. (F. Janiček)
- Finalizing of the National Centre for Research and Applications of Renewable Energy Sources. Duration: 2010-2012 (completed). ITMS 26240120028. (F. Janiček)
- 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. Janiček)
- Light and Lightning Technology Research Centre (cooperation with OMS spol. s r. o.). Duration: 2011-2014 (solved). ITMS 26220220150. (A. Smola)
- Improvement of Power System Reliability (cooperation with VUJE a. s.). Duration: 2011-2013 (solved). ITMS 26220220077. (F. Janiček)
- Applied Research of Optimization and Control of Power Systems with Smart Grids (cooperation with Microstep-HDO). Duration: 2011-2014 (solved). ITMS 26240220069. (F. Janiček)
- Transformers for the Power Stations Based on Renewable Energy Sources (cooperation with BEZ Transformátory, a. s.). Duration: 2011-2014 (solved). ITMS 26240220066. (F. Janiček)
- Wind and Solar Power Accumulation System with Vanadium Batteries (cooperation with Hydrogen Slovakia). Duration: 2011-2014 (solved). ITMS 26220220133. (F. Janiček)
- Research and Technology Transfer Support of Decentralised Energy Sources at STU Using Available Biomass. Duration: 2009-2011 (solved). ITMS 26240220028. (F. Janiček)
- Research and Technology Transfer Support of Low-Potential Heat for Electric Power Generation at STU. Duration: 2009-2011 (solved). ITMS 26220220023. (F. Janiček)
- BEZ, a.s., Bratislava
- BSH Drives and Pumps, s.r.o., Michalovce
- Central Slovak Distribution Company (SSE a.s.) Žilina
- Defense and Strategy Studies Institute, a.s.
- Delta Energy Systems, s.r.o., Nová Dubnica
- Eastern Slovak Distribution Company (VSE a.s.), Košice
- ELBA, a.s., Kremnica
- Elektroservis, s.r.o., Bratislava
- Elektro Global Slovakia, s.r.o., Bratislava
- Elkond HHK, a.s., Trstená
- ENEL, a.s., Slovakia
- EZ-Elektromont, a.s.
- Faculty of Electrical Engineering and Information Technology TU Košice
- Faculty of Electrical Engineering ŽU Žilina
- Faculty of Mechanical Engineering ŽU Žilina
- Foxcon Slovakia, s.r.o., Nitra
- Hakl, s.r.o., Bratislava
- Hydro Power Plants (SE-VET) Trenčín, o.z.
- Chirana Medical, s.r.o., Stará Turá
- Institute of Construction and Architecture, Slovak Academy of Sciences, Bratislava
- Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava
- Institute of Materials Machine & Mechanics, Slovak Academy of Sciences, Bratislava
- Institute of Materials Research, Slovak Academy of Sciences, Košice
- Institute of Physics, Slovak Academy of Sciences, Bratislava
- International Laser Centre, Bratislava
- IPT, s.r.o., Pezinok
- Kiwa, s.r.o., Nitra
- Legrand Slovakia, s.r.o.
- Microstep-HDO, a.s., Bratislava
- Ministry of Interior of the Slovak Republic
- Moeller Slovakia, s.r.o.
- Murat, s.r.o., Pezinok
- MyEnergy, a.s., Bratislava
- Nafta, a.s., Bratislava
- Nuclear Power Plants Research Institute (VÚJE a.s.) Trnava
- Nuclear Power Plants (SE-EBO) Jaslovské Bohunice
- Nuclear Power Plants (SE-EMO) Mochovce
- Nuclear Decommissioning Company (JAVYS a.s.) Jaslovské Bohunice
- OEZ Slovakia, s.r.o.
- OMS, s.r.o., Senica
- Osram Slovakia, s.r.o., Nové Zámky
- Pavol Jozef Šafárik University, Košice
- PHOENIX CONTACT, s.r.o., Bratislava
- Philips Slovakia s.r.o., Bratislava
- PPC Čab, a.s., Nové Sady
- Regulatory Office for Network Industries (ÚRSO) Bratislava

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, J. Sláma)
- SERPENTE, part of INTERREG programme (www.serpente-project.eu), 2012. (F. Janiček)

V. COOPERATION

V. 1 Cooperation in Slovakia

- ABB, s.r.o., Bratislava
- Alexander Dubček University of Trenčín
- All Deco, s.r.o., Jaslovské Bohunice
- Applied Precision, s.r.o., Bratislava
- Armed Forces Academy of General Milan Rastislav Štefánik, Liptovský Mikuláš





- Relko, s.r.o., Bratislava
- SEZ Dolný Kubín, a.s.
- Siemens, s.r.o., Bratislava
- Schneider Electric Slovakia, s.r.o., Bratislava
- Schrack Technik, s.r.o., Martin
- Škoda Auto Slovakia, s.r.o., Bratislava
- Slovak Electricity Transmission System (SEPS a.s.) Bratislava
- Slovak Institute of Metrology, Bratislava
- Slovak Power Company (SE - Enel a.s.) Bratislava
- Slovak Telekom, a.s., Bratislava
- Slovnaft, a.s., Bratislava
- Sova, a.s., Bratislava
- Sylex, s.r.o., Bratislava
- TAU-CHEM, s.r.o., Bratislava
- VÚJE, a.s., Trnava
- VUKI, a.s., Bratislava
- VUSAPL, a.s., Nitra
- Volkswagen Slovakia, a.s., Bratislava
- Western Slovak Distribution Company (ZSE a.s.) Bratislava
- ŽOS Trnava, a.s., Trnava

V.2 International Cooperation

- ABB, s.r.o., Brno, Czech Republic
- ABB Corporate Research, Baden Daettwil, Switzerland
- Angel Kunchev University of Rousse, Bulgaria
- Aristotle University, Thessaloniki, Greece
- Brno University of Technology, Czech Republic
- Budapest University of Technology and Economics
- Czech Technical University in Prague, Czech Republic
- DEHN+SOHNE, Neumarkt, Germany
- Electrical Testing Facility, Prague, Czech Republic
- Energovýzkum, s.r.o., Brno, Czech Republic
- Foundation for Research and Technology, MRG-IESL, Heraklion, Crete, Greece
- Fraunhofer Institute for Solar Energy Systems ISE, Freiburg, Germany
- FSB University Zagreb, Croatia
- GE Lighting, Budapest, Hungary
- Helvar, Frankfurt, BRD
- HESS TRADING, Sudoměřice, Czech Republic
- Institute of Anorganic Chemistry, Academy of Sciences, Řež, Czech Republic
- MEI Moscow, Russia
- Motorpal, a.s., Světlá Hora, Czech Republic
- M. SCHNEIDER, Vienna, Austria
- NKT Cables, Velké Meziříčí, Czech Republic
- OEZ Letohrad, Czech Republic
- Osram, GmbH, München, Germany
- PHOENIX CONTACT, Brno, Czech Republic
- Piezoceram, s.r.o., Hradec Králové, Czech Republic
- Politechnika Opolska, Opole, Poland
- PROTECH Group, s.r.o., Klatovy, Czech Republic
- Saint Cyril and Methodius University, Faculty of Electrical Engineering and Information Technologies,

- Skopje, Macedonia
- Silesian University of Technology, Gliwice, Poland
- Silcotec Europe, Ltd., Ireland
- Solartec, s.r.o., Rožnov pod Radhoštěm, Czech Republic
- Tashkent Institute of Irrigation and Melioration, Faculty of Electrification and Automation, Tashkent, Uzbekistan
- Technical University of Brno, Czech Republic
- Technical University Ilmenau, Germany
- Thorn Lighting CS, Prague, Czech Republic
- Tianjin University, Tianjin, China
- Tokai University, Japan
- Tridonic, Dornbirn, Austria
- TU Niš, Serbia
- TU Novi Sad, Serbia
- Tungsram Schröder, Budapest, Hungary
- TU Rijeka, Croatia
- UA of BAJA CALIFORNIA, Mexicali, Mexico
- University College of Swansea, United Kingdom
- University of Defence, Brno, Czech Republic
- University of West Bohemia, Czech Republic
- Vienna University of Technology, Austria
- Visteon, Nový Jičín, CzR
- VŠB – Technical University of Ostrava, Czech Republic
- Warsaw University of Technology, Poland
- WREN - World Renewable Energy Network, Reading, United Kingdom
- WSC – World Solar Challenge, Adelaide, Australia

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.)
- Measurements of Magnetisation Losses of HV Clamps According to STN 61284 at Currents Up to 1000 A in Terms of Job Order Contractor ELBA, a.s., Kremnica (J. Lelák et al.)
- Comparative Measurements on Oil Voltage Tester Sivananda. Contract with SES Inspekt s.r.o. Tlmače (J. Lelák, M. Váry)
- Expertise and Causes of The Incident at SPP Medium Press Gas Pipeline. Contract with SPA s.r.o. / SPP a.s. Bratislava (J. Lelák et al.)
- Expert Judgment Assessment of Loading Power Cables and Determine the Cause of Failure in BPS Trakovce. Contract with Intech Slovakia, s.r.o. (J. Lelák, J. Packa)
- Expertise State of Various Types Supplied PVC Cables Type CYKY. Contract with Prysmian Cables, s.r.o. (J. Lelák, J. Packa)
- Impulse Breakdown Voltage Testing of 22 kV Cables in Accordance with IEC 60502-2 and Subsequent Voltage. Contract with NKT Cables Velké Meziříčí, s.r.o., Member of NKT Group (J. Lelák et al.)
- Development of New Setup for Testing of HV Bonded Insulators and Testing of Bonded Insulators. Contract with PPC Cab, Inc. (A Kment, J. Lelák et al.)



VI. THESES

VI. 1 Masters Theses

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

- [1] Asztalos, I.: Measuring of Automotive Headlights (F. Krasňan)
- [2] Balušík, J.: Control of Parallel Hybrid Vehicle Drivetrain (J. Matej)
- [3] Barčík, M.: Automotive Lighting (A. Smola)
- [4] Bebjak, J.: Modelling and Simulation of Electronic Differential System (M. Bugár)
- [5] Beták, M.: Modeling and Simulation of Stepper motor's Parameters (M. Uhrík)
- [6] Bránsky, A.: Energetic Certification and Intelligent Lightning (A. Smola)
- [7] Bulejko, A.: Electro-Thermo-Structural Analysis of MEMS Heater of Chemical Sensors (V. Kutíš)
- [8] Cerman, A.: Analysis of the Power Stations in the Electrical Distribution and Transmission System (F. Janíček)
- [9] Czibor, T.: Modeling and Control of the Steering's Active Gear for a Personal Vehicle (V. Goga)
- [10] Danko, F.: The Quality of Electricity in Terms of Current Drawn by Appliances up to 16 A (A. Beláň)
- [11] Daňo, J.: Direct Current Circuits of Photovoltaic Sources (Ľ. Jurčacko)
- [12] Dobrovodský, M.: Research Methods for Measurement and Evaluation of LED Lights (F. Krasňan)
- [13] Dubrovay, L.: Photovoltaic Power Plant for the National Centre of Research and Applications of Renewable Energy Sources (M. Pípa)
- [14] Gergely, M.: Design of Electric Drive Model for Bus (V. Ferencey)
- [15] Glasa, L.: Lightning of Store Windows (F. Krasňan)
- [16] Heretik, P.: Influence Parameters of Power and Current Transformer on Operation of Differential Protection (A. Beláň)
- [17] Horčín, K.: Illumination of Historical Buildings (A. Smola)
- [18] Ištvanec, M.: Regulation of Car Longitudinal Dynamics by Acceleration (V. Staňák)
- [19] Jakubec, J.: Thermohydraulic Analysis of Fuel Assembly of Reactor VVER440 (V. Kutíš)
- [20] Jančuška, M.: The Lighting Quality for Shops (A. Smola)
- [21] Karaffa, L.: Design of Mechatronic Ignition System for Electric Arc in Plasmatorch (J. Matej)
- [22] Katreniak, P.: Illumination of Historical Buildings (A. Smola)
- [23] Király, R.: Current Path of Switchgear (Ľ. Hüttner)
- [24] Klačko, J.: Fuel Management System with Alternative Fuels (J. Matej)
- [25] Klepáč, M.: LED Daytime Running Lamp for Automobile (A. Smola)
- [26] Kobida, A.: Mechatronic Model of Electronic Wedge Brake EWB (T. Sedlár)
- [27] Kollár, M.: Mechatronics Model of Anti-lock Brake System (V. Goga)
- [28] Kováč, M.: Switching Overvoltages and Resonances in Electrical Network (M. Farkas Smitková)
- [29] Kováč, O.: Modeling and Simulation of Fuel Cell Control (V. Ferencey)
- [30] Krommer, K.: Designing and Simulation of Electric System for Vehicle Drive Stability (M. Bugár)
- [31] Kubík, M.: Design of Powerflow Control Management of Fuel Cell and Batteries Powered Vehicle (V. Ferencey)
- [32] Kunco, R.: Applications of Fuel Cells in Energetics (I. Daruľa)
- [33] Lalík, E.: Electronic Control of Braking System for Vehicle with Unconventional Drive (V. Staňák)
- [34] Laluha, M.: Design of Laboratory Model of Photothermal Power Plant (M. Pípa)
- [35] Macala, J.: Electronic Throttle Valve Control in Gasoline Internal Combustion Engine (V. Goga)
- [36] Michálek, V.: Improving Power Quality Using FACTS Technologies (M. Farkas Smitková)
- [37] Nemčok, M.: Modeling and Simulation of Battery as Energy Storage System for Fuel Cell for Electric Vehicle Use (V. Ferencey)
- [38] Noge, F.: Proposal of the Vehicle Electronic Stability System (M. Bugár)
- [39] Paál, M.: Illumination of Banks and Financial Institutes (A. Smola)
- [40] Paulin, P.: Modeling and Simulation of MEMS Piezoelectric Pressure Sensor (V. Kutíš)
- [41] Petrek, P.: Electrical Substations and Their Role in Electrical Transmission Systems (F. Janíček)
- [42] Piater, M.: Illumination of Industrial Operations (F. Krasňan)
- [43] Polička, J.: Analysis of AC Drives Vehicles (M. Uhrík)
- [44] Revák, M.: Utilization of FACTS in Power System (Ž. Eleschová)
- [45] Ribar, E.: Management of Electrical Power Sources in Electrical Drivetrain (M. Bugár)
- [46] Slota, P.: Project of Heat Pump for Selected Application (M. Pípa)
- [47] Šimera, J.: Placement of Interphase Spacers on Very High Voltage and Particularly (A. Beláň)
- [48] Šterba, L.: Control of a Series Parallel Hybrid Drive (J. Matej)
- [49] Šulík, J.: Modeling and Calculation of Correlative Crossings of Overhead Transmission power Lines of Very High Voltage and Extra High Voltage (A. Beláň)



- [50] Uličný, D.: Management of Low-Voltage Distribution System (Ž. Eleschová)
- [51] Varga, Ľ.: Design Control of Goniophotometer (F. Krasňan)
- [52] Vatflak, J.: Project of Off-Grid Photovoltaic Generator (I. Daruľa)
- [53] Volčko, V.: Exact Mathematical Model of High-Power Transformer (Ž. Eleschová)

VI. 2 PhD Theses

- [1] Hlaváč, P.: Analysis of the Blackout Risk for the Electrical Distribution Grid of Slovak Republic given the Liberalization of the Electricity Market (A. Beláň)
- [2] Janiga, P.: Public Lighting Networks (D. Gašparovský)
- [3] Šedivý, J.: Measurements Organizer as an Entity of Liberalized Electricity Market in SR (F. Janíček)
- [4] Uhrík, M.: Analysis and Design of Electric Machines with Permanent Magnet Excitation (Ľ. Hüttner)

- 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 (Ľ. 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 (Ľ. Hüttner, F. Valent)
- Member of Common Departmental Committee of Scientific Department 5.2.11 Electromechanical Energy Conversion at University of Žilina (Ľ. Hüttner)
- Member of IEE (Ľ. 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 Technical Standardization Committee No. 84 (Electrical Installations and Protection against Electric Shock) at Slovak Institute for Standardization (P. Janiga)
- Member of Academic Board of FEI STU in Bratislava (V. Kutiš, J. Leľák)
- Member of Academic Board of STU in Bratislava (F. Janíček, J. Leľák)
- Member of Academic Board of Žilina University (F. Janíček)
- Member of Council for Smart-grid Systems Implementation in Power System of Ministry of Economy SR (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)
- Chairman of the working group for sustainable energy under the Ministry of Education and Science (F. Janíček)
- Member of Expert Group preparing new energy strategy of SR (F. Janíček)
- Member of Slovak Nuclear Forum (F. Janíček)

VII. OTHER ACTIVITIES

- Expert in Mechanical Engineering. (T. Sedlár)
- Participation with the Stuba Green Team on the Formula Student Electric Race Car Project (V. Staňák)
- Activities in Renewable Energy World/PennWell's International Directories, 2012-2013 Review Issue (M. Ružinský)
- Activities in International Steering Committee – PVSEC 2012 (V. Šály)
- 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 SASC 2012 – South African Solar Challenge, 18-28 September 2012, Pretoria (4 632 km) as Visiting Member of Tokai University Solar Team (M. Ružinský)
- Programme for the Popularization of Power Engineering and Technology in Basic and High Schools in Co-operation with e.ON / ZSE, 2012 (M. Smitková and col.)

VIII. MEMBERSHIP IN INSTITUTIONS/COMMITTEES

VIII. 1 Membership in National Institutions/Committees



- 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)
- 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 2012', Trenčín, October 2012 (A. Beláň, F. Janíček)
- 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)
- 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 - International Electrotechnical Commission, member of TC 64 Electrical installations and protection against electric shock (Janiga)
- CEN - European Committee for Standardization, member of TC 169 Light and lighting (Janiga)
- CIE – International Commission on Illumination, Vienna (D. Gašparovský, A. Smola)
- Honorary member 'Society friends of public lighting', CzR (A. Smola)
- Representative of Slovak Republic in the science and energy technology expert group of International Energy Agency (F. Janíček)
- 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 13th International Scientific Conference Electric Power Engineering 2012, Brno, Czech Republic, May 2012 (A. Beláň, Ž. Eleschová, F. Janíček)
- Members of International Programme Committee of the 11th International Conference 'Energy – Ecology – Economy 2012', Tatranské Matliare, May 2012 (Ž. Eleschová, F. Janíček)
- Member of International Programme Committee of the 10th International Conference 'Control of Power Systems 2012', Tatranské Matliare, May 2012 (A. Beláň)

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)

IX. PUBLICATIONS

IX. 1 Journals

- [1] AMINBAGHAI, M. - MURÍN, J. - KUTIŠ, V.: Modal Analysis of the FGM-Beams with Continuous Transversal Symmetric and Longitudinal Variation of Material Properties with Effect of Large Axial Force. In: Engineering Structures. - ISSN 0141-0296. - Vol. 34 (2012), p. 314-329. (in English)
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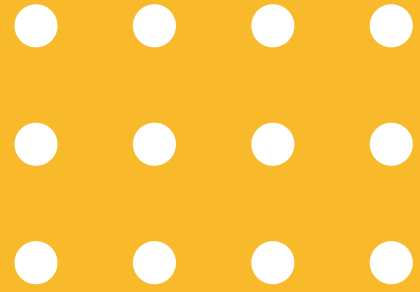
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Director:

prof. Ing. Ivan Baroňák, PhD.

e-mail: ivan.baronak@stuba.sk

Tel: +421-2-682 79 604, Fax: +421-2-682 79 601

Deputy Director: doc. Ing. Rastislav Róka, PhD.

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Switching Systems

Department chair: doc. Ing. Martin Medvecký, PhD.

Transmission Systems

Department chair: prof. Ing. Peter Farkaš, DrSc.

I. STAFF

Professors:

prof. Ing. Ivan Baroňák, PhD., prof. Ing. Peter Farkaš, DrSc.,
prof. Ing. Jaroslav Polec, PhD.

Associate Professors:

doc. Ing. Ján Čuchran, PhD., doc. Ing. Martin Medvecký,
PhD., doc. Ing. Miloš Orgoň, PhD., doc. Ing. Jarmila Pavlovi-
čová, PhD., doc. Ing. Rastislav Róka, PhD., doc. Ing. Gregor
Rozinaj, PhD., doc. Ing. Ján Zodl, PhD.

Assistant Professors:

Ing. Jozef Čepko, PhD., Mgr. Rastislav Guľaša, Ing. Michal
Halás, PhD., JUDr. Milan Hlušák, Ing. Ján Hodál, Ing. Erik
Chromý, PhD., Ing. Juraj Kačur, PhD., Ing. Matej Kavacký,
PhD., Ing. Kvetoslava Kotuliaková, PhD., Mgr. Lucia Maxo-
nová, Ing. Tomáš Páleník, PhD., Ing. Martin Rakús, PhD., Ing.
Renáta Rybárová, PhD., Ing. Eva Samuhelová, Ing. Matúš
Turcsány, PhD., Ing. Radoslav Vargic, PhD., Ing. Juraj Vojtko,
PhD.

Research Workers:

Ing. Matúš Kováčik, Ing. Bakyt Kyrbashov, PhD., Ing. Miro-
slav Talanda, Ing. Martin Turi Nagy, PhD., Ing. Stanislav Kl-
účik, PhD.

Technical Staff:

Alexandra Šafariková, Zlatica Mihinová (secretary), Mária
Barbíriková, Michaela Bujková, Mgr. Monika Csonková, Ing.
Maroš Michalík

PhD Students:

Ing. Daniel Adamko, Ing. Mahmoud Aldaour, Ing. Tomáš
Balogh, Ing. Jozef Ban, Ing. Marián Beniak, Ing. Ivan Bešťák,
Ing. Juraj Blichár, Ing. Filip Čertík, Ing. Monika Dávideko-
vá, Ing. Ivan Drozd, Ing. Jozef Kenyeres, Ing. Ladislav Koč-
kovič, Ing. Anna Kondelová, Ing. Adrián Kováč, Ing. Lenka
Krulikovská, Ing. Peter Kubizniak, Ing. Ján Kulík, Ing. Matej
Kultán, Ing. Marek Loderer, Ing. Juraj Londák, Ing. Denisa
Luknárová, Ing. Michal Mardiak, Ing. Michal Martinovič,
Ing. Ivan Minárik, Ing. Tibor Mišuth, Ing. Angela Mordelová,
Ing. Karol Nagy, Ing. Ing. Michal Pištek, Juraj Pavlovič, Ing.
Juraj Taraba, Ing. Adam Tisovský, Ing. Róbert Tomek, Ing.
Ján Tóth, Ing. Marek Vančo, Ing. Mário Varga, Ing. Matúš
Vasek, Ing. Ján Vrabec

II. EQUIPMENT

II. 1 Teaching and Research Laboratories

- E-learning Multimedia Laboratory
- Laboratory of Data Transmission
- Laboratory of Digital Signal Processing

- Laboratory of Next Generation Networks
- Laboratory of Multimedia Communication
- Laboratory of Telecommunications Management Network
- Laboratory of Telecommunications Technology (Optical SDH, RWS)
- NGN Lab
- Audio Acoustic Laboratory

II. 2 Special Measuring Instruments and Computers

- Optical Network (SDH – STM, 155 Mbit/s)
- Optical Network (ATM – 155 Mbit/s)
- Multiplexor NORTEL S/DMS 1X (16 x 2,048 Mbit/s)
- IMS platform ALCATEL – LUCENT (Center of Excellence)
- Laboratory NGN PABX OXO Communication Server
- Private Telecommunication System ALCATEL OXE
- Testing System for Delay in IP Networks: CISCO routers 1800 and SW iX Cheriot
- FWA system (26 GHz) - VoIP via GTS Slovakia
- FWA system (3,5 GHz) - VoIP and High Speed Internet via GTS Slovakia
- Broadband experimental data network (10GIG)
- NGN Platform for Testbeds and Interconnects (Fo-
kus IMS including HSS, Sitronics HSS, Mobicents AS,
PACTOLUS AS, ŽU Žilina, TU Košice)
- Telecommunications Videoconference Systems for
ISDN (3 x PictureTel, 2 x I VIEW)
- Measuring set Wandel and Goltermann IBT 10 (for
ISDN interface S0 and U)
- Siemens Node Integrator – Software for Simulation of
TMN
- COSSAP (Software for simulation of telecommunication
systems)
- Measuring set Siemens - Carrier Frequency Level Test
(Set W2008-K/D2008-K)
- Logic Analyzer Philips PM 3570
- Cluster composed of 6 PC, aggregate 10,6 GHz
- Telecommunications Instructional Teaching Modelling
System TIMS-301
- Spectral analyzer HP 3589A
- CAN analyzer CANLAB
- IQ Kiosk
- NVIDIA GTX480s

III. TEACHING

III. 1 Undergraduate Study (Bc.)

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

- **Telecommunication Technologies** (3rd sem., 3-2h)
M. Orgoň
- **Telecommunication Technologies** (4th sem., 3-2h)
M. Orgoň



- **Communication and Information Networks** (4th sem., 3-2h)
M. Halás
- **Communication Systems** (4th sem., 3-1h)
M. Rakús
- **Digital Communications** (4th sem., 3-2h)
P. Farkaš
- **Analog and Digital Signal Processing I** (5th sem., 3-2h)
R. Vargic
- **Communication Protocols** (5th sem., 3-2h)
K. Kotuliaková
- **Mobile and Satellite Communications I** (5th sem., 3-2h)
P. Farkaš, M. Turcsány
- **Telecommunications Transmission Lines** (5th sem., 3-2h)
J. Čuchran, R. Róka
- **Analog and Digital Signal Processing II** (6th sem., 3-2h)
J. Pavlovičová
- **Digital Transmission Systems and Networks** (6th sem., 3-2h)
J. Čuchran, R. Róka
- **Switching Systems I** (6th sem., 3-2h)
I. Baroňák

III. 2 Graduate Study (Ing.)

- **Digital Signal Processing** (1st sem., 3-2h)
G. Rozinaj
- **Mobile and Satellite Communications II** (1st sem., 3-2h)
P. Farkaš, M. Turcsány
- **Mobile and Satellite Communications III** (2nd sem., 3-2h)
P. Farkaš, M. Turcsány
- **Image Compression** (1st sem., 3-2h)
J. Polec
- **Switching Systems II** (1st sem., 3-2h)
I. Baroňák
- **Security of Communication Networks and Services** (1st sem., 3-2h)
M. Orgoň
- **Integration of Digital Networks and Services** (2nd sem., 3-2h)
E. Chromý
- **Probabilistic Models in Telecommunications** (2nd sem., 3-2h)
J. Polec
- **Broadband Switching Systems** (3rd sem., 3-2h)
M. Medvecký
- **Digital Image Processing** (3rd sem., 3-2h)
J. Pavlovičová
- **Digital Speech Processing** (3rd sem., 3-2h)
G. Rozinaj

- **Classification Methods for Signal Processing** (3rd sem., 3-2h)
J. Kačur
- **Optical Communication Systems and Networks** (3rd sem., 3-2h)
R. Róka
- **Private Telecommunication Networks and Services** (3rd sem., 2-3h)
I. Baroňák
- **Telecommunication Legislative** (3rd sem., 2-3h)
I. Baroňák
- **Telecommunication Systems Management** (3rd sem., 3-2h)
M. Medvecký
- **Wavelets and Filter Banks** (3rd sem., 3-2h)
R. Vargic

III.2 Doctoral study (PhD.)

- **Theory of Switching and Methodology of its Application in Telecommunications**
I. Baroňák
- **Optical Communications - Theory and Methodology of its Application in Telecommunications**
J. Čuchran
- **Digital Communications Theory and its Applications in Telecommunications**
P. Farkaš
- **Distributed and Photonic Switching - Theory and Methodology of Application in Telecommunications**
M. Medvecký
- **Network Security- Theory and Methodology of its Use in Telecommunications**
M. Orgoň
- **Digital Image Processing - Theory and Methodology of Applications in Telecommunications**
J. Pavlovičová
- **Theory of Communication Networks and Methodology its Application in Telecommunications**
P. Podhradský
- **Queueing Theory and Methodology of Applications in Telecommunications**
J. Polec
- **Optical Transmission Media - Theory and Methodology of its Application in Telecommunications**
R. Róka
- **Digital Signal Processing - Theory and Methodology of Applications in Telecommunications**
G. Rozinaj

IV. RESEARCH PROJECTS

IV. 1 National Scientific Projects

- Operating Program Research and Development. Center of excellence – SMART technologies, ne-



networks and Services II. (IMS Platform for NGN). OPVaV - 2008/4.1/01-SORO. Duration: 2010-2013 (solved). (I. Baroňák)

- Advancement of Coding Technologies. VEGA 1/0376/09. Duration: 2009-2012 (completed). (P. Farkaš)
- Analyses of the Influence of Traffic Parameters on Voice Quality in IMS Networks. STU grant, 7057. Duration: 2012-2013 (solved). (M. Halás)
- Traffic Modeling in NGN Networks. STU grant. Duration: 2012-2013 (solved). (E. Chromý)
- PAMKVIS, Prediction, Modeling and Quality Assurance of VoIP Voice Services. STU grant. Duration: 2012-2013 (solved). (A. Kováč)
- Video Cut Detection. STU grant. Duration: 2011-2012 (completed). (L. Krulikovská)
- Analysis of Speech Prosody in Multimodal Speech Synthesizer. STU grant. Duration: 2011-2012 (completed). (A. Kondelová)
- Advanced Image Processing Algorithms for Effective Human Face Retrieval and Coding. VEGA 1/0961/11. Duration: 2011-2013 (solved). (J. Pavlovičová)
- The Optimization of Video Coding Efficiency for Transmission and Record. VEGA 1/0602/11. Duration: 2011-2013 (solved). (J. Polec)
- Analysis and Proposal for Advanced Optical Access Networks in the NGN Converged Infrastructure Utilizing Fixed Transmission Media for Supporting Multimedia Services. VEGA 1/0106/11. Duration: 2011-2013 (solved). (R. Róka)

IV. 2 International Scientific Project

- FP7 HBB-Next - Next-Generation Hybrid Broadcast Broadband, Small or Medium-scale Focused Research Project (STREP) Proposal ICT Call 7, FP7-ICT-2011-7-287848. Duration: 2011-2014. (solved). (G. Rozinaj - FEI STU coordinator)
- IMProVET – Innovative Methodology for Promising VET Areas, Lifelong Learning Programme Leonardo da Vinci Multilateral Projects - Transfer of Innovation 2011, Grant Agreement n° CZ/11/LLP-LdV/TOI/134011. Duration: 2011-2014. (solved). (G. Rozinaj - local coordinator)

V. COOPERATION

V.1 Cooperation in Slovakia

- Alcasys
- Alcatel Lucent Slovakia
- ALISON Slovakia
- API
- Comenius University in Bratislava
- Council for Broadcasting and Retransmission
- Ericsson Slovakia, Bratislava
- GTS Slovakia

- ITM
- Methodical Pedagogical Centers
- Ministry of Agriculture of Slovak Republic
- Ministry of Economy of Slovak Republic
- Ministry of Interior of Slovak Republic
- Ministry of Transport, Construction and Regional Development of Slovak Republic
- NextiraOne
- Nokia Siemens Networks
- NVIDIA, USA
- Orange Slovakia
- PROFiber Networking, Trnava
- PTT Research Institute, Banská Bystrica
- Siemens PSE Slovakia
- Slovak Agricultural University in Nitra
- Slovak Association of Electrotechnical Companies
- Slovak Statistical Office of Slovak Republic
- Slovak Telekom
- Society of Lifelong Learning in Bratislava
- Technical University in Košice
- Telecommunication Office of Slovak Republic
- Telecommunication Users Group Slovakia
- Tesla, Liptovský Hrádok
- University of Trnava
- University of Žilina
- Constantine the Philosopher University, Nitra

V. 2 International Cooperation

- Aalborg University Center for Person Kommunikation, Denmark
- Alcatel Stuttgart, Germany
- ARC Seibersdorf research GmbH, Austria
- Budapest Polytechnic, Hungary
- Blekinge Institute of Technology, Sweden
- CELN Prague, CzR
- Croatian Academy of Engineering, Zagreb, HR
- ČVUT in Prague, CzR
- Deutsche Telecom Laboratory in Berlin
- Deutsche Telecom University in Leipzig
- Ericsson, Sweden
- École Nationale des Télécommunications de Bretagne (ENST)
- EMMERCE EEIG, Linköping, Sweden
- Fachhochschule Heilbronn, Germany
- Fachhochschule Oldenburg, Ostfriesland, Wilhelmshaven, University of Applied Sciences, Germany
- Economic Chamber, CzR
- Institut National des Télécommunications (INT), Evry, France
- ISEP Paris, France
- Kingston University, Faculty of Technology, the UK
- Lancaster University, the UK
- The Charta 77 Foundation, CzR
- Nortel, Vienna, Austria
- Polish Academy of Sciences Gliwice, Poland





- Politechnica Poznań, Poland
- Politecnico di Milano
- Portugal Telecom Inovacao (PT Inovacao)
- Rechenzentrum der RWTH Aachen, Germany
- T-Mobile, Czir
- Telenor, Norway
- The National and Kapodistrian University of Athens, Greece
- TU Budapest, Hungary
- TU Graz, Austria
- TU Ljubljana, Slovenia
- TU Maribor, Slovenia
- TU Wien, Austria
- TU Zagreb, Croatia
- TU Tampere
- University of Central Lancashire, the UK
- University of Strathclyde, Glasgow, the UK
- University of Versailles, France
- University of West Bohemia in Pilsen, Czir
- University of Hradec Kralove, Czir
- UPC Barcelona, Spain
- VŠB TU in Ostrava, Czir
- VUT in Brno, Czir

- [12] Čopjan, P.: Decoding LDPC Codes Using the Min-sum Algorithm (T. Páleník)
- [13] Daniš, T.: VoIP Technology and their Applications in an Environment of Non-public Networks (M. Talanda)
- [14] Dano, M.: IP/MPLS Technology in the Environment of IP Multimedia Subsystems (IMS) (I. Baroňák)
- [15] Diežka, J.: Markov Models and their Usage in Contact Center Environment (E. Chromý)
- [16] Diky, R.: Multistage Adaptive HARQ Method (K. Kotuliaková)
- [17] Dodek, D.: Migration to IPV6 (K. Kotuliaková)
- [18] Drozd, I.: Speech Synthesis in Java (G. Rozinaj)
- [19] Drozd, M.: NGN Environment Creation for QoS Parameter Emulations Testing in VoIP Service (B. Kyrbashov)
- [20] Ďurajka, J.: Analysis of Practical Utilization of Complementary Codes (P. Farkaš)
- [21] Dvorský, P.: Video Service in AN NGN (J. Londák)
- [22] Galko, M.: Application OFDM in Digital Audio Broadcasting Systems (T. Páleník)
- [23] Gasper, L.: DWDM Technology in Metropolitan Networks (R. Róka)
- [24] Gonšorová, M.: Precoding Techniques for MIMO OFDMA Systems (J. Kulík)
- [25] Grenčík, R.: Integration of Module Backend in to the IRKR in SIP Environment (G. Rozinaj)
- [26] Hajdu, L.: The Study of Options to Integration of Selected Sensors in Sensor Networks (P. Farkaš)
- [27] Havrila, L.: Analysis of the Use xDSL Technologies with regard to the Inclusion to Converged NGN Network in Slovakia (J. Čuchran)
- [28] Hluzin, M.: Using the Principles of Compression of Audio Signals for Speech Synthesis (M. Turi Nagy)
- [29] Holečka, R.: VoIP Security - Model IDS/IPS in the VoIP Environment (J. Londák)
- [30] Hollý, P.: Communication of Backend Module in SIP Environment (G. Rozinaj)
- [31] Horváth, J.: Personalisation Access to Services for TV and Systems for Recommendation Content (J. Londák)
- [32] Horváth, T.: Communication Interface for Modular Synthesis of Speech (G. Rozinaj)
- [33] Javorček, L.: Security of IP Telephony and its Impact on QoS (M. Halás)
- [34] Javorský, M.: The Concept of Effective Communication in Wireless Sensor Network (R. Róka)
- [35] Kočkovič, L.: Providing of IPTV Services Using IP Multimedia Subsystems (IMS) (I. Baroňák)
- [36] Košík, J.: Comparison of Subjective Methods for Video Signals' Quality Evaluation in Video Conferences (T. Mišuth)
- [37] Kovačovič, R.: Securing LAN Networks (M. Orgoň)
- [38] Kožička, R.: Automatic Speech Recognition (J. Kačur)

VI. THESES

VI. 1 Masters Theses

Masters theses written as part of the 5-year-study plan supervised at the Department of Telecommunications. The names of supervisors are in brackets:

- [1] Astaloš, J.: Providing Next Generation Services in NGN Environment (M. Medvecký)
- [2] Bahník, P.: Segmentation of Video Signals - Extraction of Key Frames (J. Pavlovičová)
- [3] Bašista, R.: Traffic Protection in Data Transmission over Optical Medium (R. Róka)
- [4] Blichár, J.: M-learning (m-learning, mobile learning) as a Multimedia Service in NGN (Next Generation Networks) Environment (G. Rozinaj)
- [5] Bohák, A.: The WLAN Network Security Analysis (J. Kulík)
- [6] Bosternák, Z.: Dynamic Bandwidth Allocation in Passive Optical Network PON (R. Róka)
- [7] Crkoň, V.: Extension of IPTV to STB, PC, Mobile (J. Londák)
- [8] Čambal, T.: Transfer Capacity of MIMO Systems (K. Kotuliaková)
- [9] Černý, J.: Quality Assurance of Voice Services in IP Networks (A. Kováč)
- [10] Čertík, F.: Modulation Techniques in Optical Transmission Medium (R. Róka)
- [11] Číž, P.: VoIP Security - IMS Platform Security by IDS and IPS (J. Londák)



- [39] Kučera, D.: Personalized Multimedia TV Services Provided on Mobile Devices (J. Londák)
- [40] Kulíková, A.: Optimizing the Performance of Wireless Cellular System Using Cooperative MIMO Transmission (M. Rakús)
- [41] Kultan, M.: Measurement of the Performance Parameters of IP / MPLS Routers (I. Baroňák)
- [42] Kurimai, M.: Admission Control Methods in NGN Networks (E. Chromý)
- [43] Kvasniak, J.: Communication Networks over Power Distribution Lines (R. Róka)
- [44] Lapin, I.: Analysis of Practical Utilization of Complementary Sequences in Radar Technologies (P. Farkaš)
- [45] Lavor, T.: MIMO Principle and its Application in LTE (T. Páleník)
- [46] Letaši, J.: Management of IPTV Services from the Network Operator Perspective Focusing Aimed at Ensuring Flawless Operation (G. Rozinaj)
- [47] Lietavec, M.: Quality Evaluation of Audio and Video Signals in Videoconferences (J. Kačur)
- [48] Lipták-Kováč, P.: Broadband Connection FTTx Architecture for WDM-PON (R. Róka)
- [49] Luknár, M.: Application of Signaling Protocols SIP and H.323 in Videoconferencing for Future Use in e-learning Services (D. Adamko)
- [50] Mahút, A.: Effectivity of Packets Prioritization in Systems with QoS Support (M. Medvecký)
- [51] Majzlan, M.: Technology for Providing Multimedia Services on Coaxial Lines DOCSIS (J. Čuchran)
- [52] Malík, M.: Design Monitoring System of Services on Platform Nagios in Prostration NGNLab (J. Londák)
- [53] Martinovič, M.: Information System to Digitalization and Document Management of Company (K. Kotuliaková)
- [54] Melich, J.: Wavelet Techniques in OFDM (R. Vargic)
- [55] Meluch, M.: Ensuring the Protection of the Corporate Infrastructure (M. Orgoň)
- [56] Mészáros, A.: Use of ITSM/ITIL in the Management of Communication Technologies (M. Medvecký)
- [57] Mičian, Ľ.: Effectiveness of Ensuring QoS in MPLS Networks (M. Medvecký)
- [58] Mitošinka, J.: The Impact of WiFi Security on QoS Parameters of VoIP Communication (M. Halás)
- [59] Motaj, M.: The Utilization of Biometrics To Improve Security in Business Networks (M. Orgoň)
- [60] Mračna, M.: Radio Part Draft of Telecommunication Network (K. Kotuliaková)
- [61] Mrava, M.: Ensuring QoS in VoIP Networks (M. Halás)
- [62] Nevidzan, P.: OFDM Study (P. Farkaš)
- [63] Oravec, A.: Markov Models in Area of NGN Networks (E. Chromý)
- [64] Orolín, J.: Technical Concept of IMS and Cooperation with PSTN (I. Baroňák)
- [65] P. Panák, P.: Management and Configuration of VoIP Exchange Asterisk (M. Halás)
- [66] Peteja, M.: Speaker Identification (J. Kačur)
- [67] Péter, J.: Analysis of Using Hybrid PON in Access Networks (R. Róka)
- [68] Piovár, M.: Transition from IPv4 to IPv6 (K. Kotuliaková)
- [69] Pištek, M.: Utilization of Admission Control Methods in IMS Networks (M. Kavacký)
- [70] Polinová, L.: Genesys Contact Center (I. Baroňák)
- [71] Poročák, T.: Measurement of Transmission Parameters of Optical Elements (R. Róka)
- [72] Posoldová, A.: Admission Control Provisioning in Wireless Networks (I. Baroňák)
- [73] Seman, J.: Admission Control for IPTV Service (M. Kavacký)
- [74] Sember, M.: Prosody Modification according to the Pronunciation Model (G. Rozinaj)
- [75] Schreiberová, E.: Content Centric Network (I. Baroňák)
- [76] Slučiak, J.: IP Multimedia Subsystem Technology (M. Kavacký)
- [77] Spišák, M.: Security of Communication in Wireless Network WiMAX (M. Orgoň)
- [78] Stopka, V.: Analysis of Theoretical and Practical Transmission Rates of VDSL and PLC Technology (R. Róka)
- [79] Szalonnás, A.: Web Applications for IPTV (J. Londák)
- [80] Šepák, M.: Services to Transfer Text Messages in an Intranet and the Internet (R. Vargic)
- [81] Šlavka, P.: Portal for Internal Applications of Telecommunications Operator (M. Medvecký)
- [82] Šoka, M.: Speech Synthesis according to a Prescribed Pattern (G. Rozinaj)
- [83] Šuran, M.: Technologies and Development of NGN IMS Services Using a SCE (J. Londák)
- [84] Tonka, M.: Design for IPTV Service (E. Chromý)
- [85] Trnovský, T.: Automatic Speech Recognition (J. Kačur)
- [86] Valent, Ľ.: Videoconference in NGN Environment (Next Generation Networks) (J. Londák)
- [87] Valentovič, T.: Protection of Services and Applications and Prevention against their Inadvertent Misuse (D. Adamko)
- [88] Zeliezková, M.: Decoding QC-LDPC with Sum-product Algorithm (T. Páleník)
- [89] Zvada, M.: Network Science in Communication Technologies (I. Baroňák)

VI.2 PhD Theses

- [1] Klúčik, S.: Source and QoS Traffic Parameters Modeling in NGN Networks (I. Baroňák)
- [2] Krulíkovská, L.: Prediction of Video Data Flows (J. Polec)
- [3] Mardiak, M.: Qualitative Characteristics of Video (J. Polec)



- [4] Mišuth, T.: Application of Queuing Systems in IP Networks (I. Baroňák)
- [5] Taraba, J.: Security Optimization by Using UMA Technology (M. Orgoň)
- [6] Tisovský, A.: Modelling the Throughput of IPsec Process (I. Baroňák)
- [7] Vrabec, J.: Measuring Performance Impact of Speech Processing Algorithm on System Resources (G. Rozinaj)

- I. Baroňák: VEGA, projects reviewer
- I. Baroňák: APVV (Slovak Research and Development Agency), projects reviewer
- I. Baroňák: Member of the Commission for the assessment of the project MOKYS. Ministry of Defence, Slovak Republic
- P. Farkaš: Accreditations Committee of Slovak Government - working group for information sciences, information and communication technologies with responsibility also for the area of automation and telecommunications
- P. Farkaš: VEGA, project reviewer
- K. Kotuliaková: Conference RTT2012, member of Program and Reviewers Committees
- M. Medvecký: VEGA, project reviewer
- J. Pavlovičová: Scientific Board of the Faculty, Slovak University of Technology in Bratislava, Faculty of Electrical Engineering and Information Technology
- J. Pavlovičová: Head of review committee for ESKAS Scholarship (Switzerland), SAIA 2012
- J. Pavlovičová: KEGA, projects reviewer
- J. Polec: VEGA, projects reviewer
- J. Polec: KEGA, projects reviewer
- J. Polec: Foundation of SPP, projects reviewer
- R. Róka: APVV (Slovak Research and Development Agency), projects reviewer
- R. Róka: KEGA, projects reviewer
- R. Róka: PPMV STU, projects reviewer

VII. OTHER ACTIVITIES

VII.1 Conferences and Seminars Organized by the Department

- ELOSYS 2012, October 2012 Trenčín, Slovak Republic, (cooperation with FEI STU Bratislava)
- 14th Conference of Doctoral Students - ELITECH 2012, May 2012, Bratislava, Slovak Republic, (cooperation with FEI STU Bratislava)
- 6th International Workshop on Speech and Signal Processing Redžúr 2012, May 2012 Vienna, Austria, (cooperation with FEI STU Bratislava and TU Vienna)
- Conference: World Telecommunication and Information Society Day 2012 (WTISD), May 2012, Bratislava, Slovak Republic, (cooperation with SES)
- International Conference - RTT 2012 – Research Telecommunication Technology 2012, September 2012, Vrátna, Slovak Republic, (cooperation with EF ŽU Žilina)

VIII.2 Membership in International Institution/Committees

- I. Baroňák: ETSI
- I. Baroňák: CTF in Slovak Republic, Executive committee member - CTF in Slovak Republic
- I. Baroňák: Conference with International Participation: ELOSYS 2012, October 2012, Trenčín, Slovak Republic, member of Program committee
- I. Baroňák: International Conference - NoTeS 2012 – New Technology and Services in Telecommunications, Banská Bystrica, May 2012, member of Program Committee
- I. Baroňák: International Conference – KTTO Knowledge in Telecommunication Technologies and Optics, November 2012, Scientific and Program Committee
- I. Baroňák: 5th International Conference – New Information and Multimedia Technologies NIMT – 2012, Brno University of Technology, Czech Republic, September, 2012, Scientific and Program Committee
- I. Baroňák: Journal: AEEE (Advances in Electrical and Electronic Engineering), member of Editorial Board and reviewer
- I. Baroňák: Journal: Radioengineering, member of Editorial Board and reviewer
- I. Baroňák: Journal: Elektrotechnika, member of Editorial Board and reviewer

VIII. MEMBERSHIP IN INSTITUTION/COMMITTEES

VIII.1 Membership in National Institution/Committees

- I. Baroňák: ETS norms, member of National Committee TNK No. 41 for Telecommunications, Transformation of ETS Norms in National Environment
- I. Baroňák: Award of J. Murgaš 2011: member of Committee MDPT SR a SES, Selection Candidate of Award of J. Murgaš for Year 2011
- I. Baroňák: Member of Grant Committee of Ministry of Transport, Construction and Regional Development of Slovak Republic, Bratislava
- I. Baroňák: Scientific Board of the Faculty, Slovak University of Technology in Bratislava, Faculty of Electrical Engineering and Information Technology
- I. Baroňák: Scientific Board of the Faculty, University of Žilina, Faculty of Electrical Engineering
- I. Baroňák: International Conference - RTT 2012 – Research Telecommunication Technology 2012, Vrátna, Slovak Republic, September 2012, member of Program Committee



- I. Baroňák: GAČR (Grant Agency of Czech Republic), projects reviewer
- I. Baroňák: Journal of Electrical Engineering, reviewer
- I. Baroňák: Journal: Acta electrotechnica et informatica, reviewer
- I. Baroňák: Journal: Integrated Computer-Aided Engineering, reviewer
- I. Baroňák: Conference: World Telecommunication and Information Society Day 2012 (WTISD), May 2012, Bratislava, Slovak Republic, (cooperation with SES), chairman of Program committee
- M. Beniák: Workshop Redžúr 2012, reviewer
- P.Farkaš: IEEE Czechoslovakia Section Chair
- P. Farkaš: Member of grading committee for defence of a doctor's thesis, doctoral candidate M I Iqbal, at Blekinge Institute of Technology, Sweden
- P. Farkaš: GAČR (Grant Agency of Czech Republic), project reviewer
- P. Farkaš: Journal - Analog Integrated Circuits and Signal Processing, reviewer
- P. Farkaš: Journal - Radioengineering, reviewer
- P. Farkaš: Journal - Slaboproudy obzor , member of Editorial Board of the journal
- P. Farkaš: Program committee member in following conferences: a European Wireless (EW 2012) in Poznan, Poland, NexComm 2012, Chamonix France, Wireless Telecommunication Symposium(WTS 2012) in London, UK, AE 2012, Plzen, Czech Republic, International Conference on Signal Processing and Communications Systems, ICSPCS 2012, Gold Coast, Australia, SDR 2012, Washington D. C. , USA
- P. Farkaš: Reviewer in following conferences: SDR 2012, ICSPCS 2012, WTS 2012, EW 2012, AE 2012
- P. Farkaš: URSI – Official Member in Scientific Commission C - Signals and Systems
- P. Farkaš: European Polytechnical University, Pernik, Bulgaria, Scientific Board member
- E. Chromý: Journal Advances in Electrical and Electronic Engineering, member of International Scientific Editorial Board and reviewer
- E. Chromý: Journal of Difference Equations and Applications, reviewer
- E. Chromý: WSEAS Transactions on Communications, reviewer
- E. Chromý: Electrotechnics magazine - Elektrevue, reviewer
- E. Chromý: Conference KTTO 2012, Malenovice, Czech Republic, member of Scientific and Program Committee and reviewer
- E. Chromý: Conference TSP 2012, Prague, Czech Republic, reviewer
- E. Chromý: Conference Computing in Networks 2012, Prague, Czech Republic, reviewer
- E. Chromý: Conference: World Telecommunication and Information Society Day 2012 (WTISD), May 2012, Bratislava, Slovak Republic, (cooperation with SES), member of Program Committee
- J. Kačur: EURASIP Journal on Advances in Signal Processing, reviewer
- J. Kačur: IWSSIP12, reviewer
- J. Kačur: Computer and electrical engineering, Elsevier, reviewer
- J. Kačur: Workshop Redžúr 2012, member of Program and Reviewers Committees
- M. Kavacký: Journal Advances in Electrical and Electronic Engineering, member of Scientific editorial board, reviewer
- A. Kondelová: Workshop Redžúr 2012, member of Organizing and Reviewers Committees
- K. Kotuliaková: Journal of Electrical Engineering, reviewer
- J. Londák: Workshop Redžúr 2012, member of Organizing and Reviewers Committees
- M. Medvecký: Conference TSP 2012, Scientific Program Committee member and reviewer
- M. Medvecký: Journal - AEEE, reviewer
- M. Medvecký: Journal - IJATES, reviewer
- M. Medvecký: Conference IWSSIP 2012, reviewer
- M. Medvecký: Conference KTTO 2012, reviewer
- M. Orgoň: Conference ELOSYS 2012, member of Program and Reviewers Committees
- M. Orgoň: Radioengineering, reviewer
- M. Orgoň: Journal Advances in Electrical and Electronic Engineering, member of International Scientific Editorial Board and reviewer
- M. Orgoň: Electrotechnics magazine - Elektrevue, reviewer
- M. Orgoň: Conference KTTO 2012, Malenovice, Czech Republic, member of Scientific and Program Committee and reviewer
- M. Orgoň: Conference TSP 2012, Prague, Czech Republic, reviewer- T. Páleník: IEEE
- J. Pavlovičová: Journal of Electrical Engineering, reviewer
- J. Pavlovičová: ELITECH'12, member of Program and Review Committee
- J. Pavlovičová: Workshop Redžúr 2012, member of Program and Review Committee
- J. Pavlovičová: Workshop Redžúr 2012, Session Chair
- J. Polec: Radioengineering, member of Editorial Board and reviewer
- J. Polec: IEEE Transaction on Image Processing, reviewer
- J. Polec: GAČR (Grant Agency of Czech Republic), projects reviewer
- J. Polec: Workshop Redžúr 2012, reviewer
- M. Rakús: IEEE, IEEE Czechoslovakia Chapter- Executive Committee member
- R. Róka: IEEE
- R. Róka: International Journal of Communication Networks and Information Security, Area Editor



- R. Róka: International Journal of Communication Networks and Information Security, member of the Editorial Board and reviewer [2]
- R. Róka: International Journal of Research and Reviews in Computer Science, member of the Editorial Board and reviewer
- R. Róka: Radioengineering Journal, reviewer [3]
- R. Róka: CTF in Slovak Republic
- R. Róka: Conference ELITECH 2012, member of the Program and Review Committee, chairman of the session and reviewer [4]
- R. Róka: Conference ELOSYS 2012, chairman of the section
- R. Róka: Conference ICCS 2012, reviewer
- R. Róka: Conference OK 2012, member of the Scientific and Program Committee
- R. Róka: Conference TSP 2012, member of the Scientific Program Committee and reviewer [5]
- G. Rozinaj: IET
- G. Rozinaj: Workshop Redžúr 2012, General Chair
- G. Rozinaj: Workshop Redžúr 2012, member of Program and Reviewers Committees [6]
- G. Rozinaj: International Journal of Signal and Imaging Systems Engineering (IJSISE) member of Editorial board
- G. Rozinaj: Conference IWSSIP 2012, member of Program and Reviewers Committees [7]
- G. Rozinaj: Journal of Electrical Engineering, reviewer
- G. Rozinaj: Acta Electrotechnica et Informatica, member of Editorial Board
- G. Rozinaj: EURASIP Journal on Advances in Signal Processing, member of Editorial Board [8]
- G. Rozinaj: Conference ELMAR 2012, member of Program and Reviewers Committees, invited lecturer, chairman of the session [9]
- R. Rybárová: Workshop Redžúr 2012, reviewer
- J. Tóth: Workshop Redžúr 2012, member of Organizing and Reviewers Committees
- M. Turi Nagy: Workshop Redžúr 2012, member of Organizing, Program and Reviewers Committees
- R. Vargic: Workshop Redžúr 2012, reviewer [10]
- R. Vargic: Radioengineering, reviewer
- R. Vargic: Elektrov revue, reviewer
- R. Vargic: EURASIP Journal on Advances in Signal Processing, reviewer
- J. Vojtko: Workshop Redžúr 2012, reviewer [11]

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IX. PUBLICATIONS

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IX. 2 Conference Proceedings

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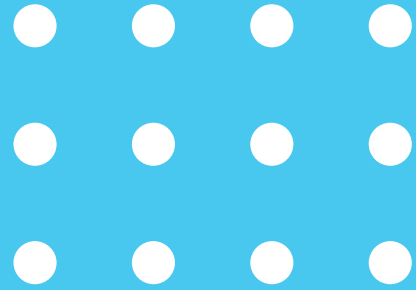




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e-mail: marian.vesely@stuba.sk

Tel: +421-2-60291 107, Fax: +421-2-65411452

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- Active collaboration and cooperation within national and international projects with other Slovak Universities
- Further development of contacts with non-governmental organizations mainly in the area of education and research, deepening of contacts with state and

private organizations in the area of education, research and collaboration with industry

- Advisory and consulting service in the area of preparation, submission and management of EU projects, including organization of seminars and training
- Help in search for domestic and foreign partners for projects within EU programmes
- Coordination of international research, education and other project preparation
- Communication with National Agencies and National Contact Points for individual EU programmes
- Advisory and consulting activity within preparation and carrying out of events with foreign participation (workshops, seminars, conferences, etc.)
- Preparation of events initiated by foreign partners

OEUP itself has coordinated and was carrying out educational, research, supporting and other projects.

Leonardo da Vinci program mobility projects, granted to OEUP, represent for STU graduates a significant milestone in their professional life. This is happening also thanks to professional preparation of these specialized stays by OEUP.

OEUP is acting also in Leonardo da Vinci LLL program focused on vocational training (students, teachers of vocational/high schools oriented to ICT, as well as on vocational training of staff of ICT companies and further institutions).



I. STAFF

Professors:

Prof. Dr. Pavol Podhradský

Associate Professors:

Assoc. Prof. Dr. Marian Veselý

Research Workers:

Dr. Eugen Mikóczy, Dr. Andrea Staňová, Darina Matušíková, MSc.

Technical Staff:

II. EQUIPMENT

II. 1 Teaching and Research Laboratories

II. 2 Special Measuring Instruments and Computers

- devices and components for HBB-NEXT multimodal interface subsystem (PCs, SMART TV and supported components)
- devices and components for user identification subsystem (notebooks, video-camera for iris recognition, KINECTS, XBOX)

III. TEACHING

III. 1 Undergraduate Study (Bc.)

none

III. 2 Graduate Study (Ing.)

none

IV. RESEARCH PROJECTS

IV. 1 National Scientific Projects

- UVP STU project within Structural Funds, OP Research and Development, support of Research and Development in Bratislava Region, Transfer of Knowledge and Technologies as a result of Research and Development into Praxis in Bratislava Region, contribution to project proposal submitted at the end of 2012 (M. Veselý, A. Staňová)

IV. 2 International Scientific Project

- HBB-Next (Hybrid Broadcast Broadband Next Generation), FP7 No. 287848. Duration: 2011-2014 (solved). (P. Podhradský)

- IMProVET (Innovative Methodology for Promising VET Areas), LdV No. CZ/11/LLP-LdV/TOI/134011. Duration: 2011-2013 (solved). (P. Podhradský)
- Project „NGN laboratory at King Abdulaziz University in Jeddah“, Saudi Arabia, proposal and implementation, 2012, (completed), (P. Podhradský, E. Mikóczy)
- COSTEL (STU Graduates in EU Labor Market), LdV No. 11322 1199. Duration: 2011 - 2012 (completed). (M. Veselý)
- STELA (STU Graduates in European EU Market), LdV No. 12322 0399, duration 2012 – 2013 (in action). (M. Veselý)
- Participation in the preparation of the FP7 project proposal „NEWTON - Networked Labs for Training in Sciences and Technologies of Information and Communication“, submitted under the call FP7-ICT-2011-8, Project ref. No.: FP7 - 315908 (submitted by San Pablo University Madrid), for the period (2012-2016), (P. Podhradský, E. Mikóczy)
- Participation in the preparation of the FP7 project proposal “CANOE - Content Adaptation in NetwOrk Environments“ submitted under ICT Call 10 FP7-ICT-2013-10, Project ref. No.: Project ID: FP7-610141, (submitted by TNO), for the period (2013-2016), (E. Mikóczy, P. Podhradský)
- Participation in the preparation of the LdV project proposal „TechPedia“, focused on multilingual explanatory terminology dictionary, for the period (2012-2014), (P. Podhradský)
- Participation in the preparation of the LdV project proposal „WIntEleCT“, focused on preparation of training courses for vocational training, trainees - teachers of vocational/high schools and ICT staff of companies and institutions, for the period (2013-2015), (P. Podhradský)

V. COOPERATION

V. 1 Cooperation in Slovakia

- Alcatel Lucent Slovakia
- Orange Slovakia
- Siemens PSE Slovakia
- Slovak Agricultural University in Nitra
- Slovak Association of Electrotechnical Companies
- Slovak Telekom
- Society of Lifelong Learning in Bratislava
- Technical University in Košice
- Telecommunication Users Group Slovakia
- University of Trnava
- University of Žilina
- Secondary school of electrical engineering K.Adlera, Bratislava
- Vocational and technical secondary school, Banská Bystrica
- Secondary school of electrical engineering J. Murgaša, Banská Bystrica





V.2 International Cooperation

- Croatian Academy of Engineering, Zagreb, HR
- ČVUT in Prague, CZ
- Kybertec, s.r.o., Prague, CZ
- Vyšší odborná škola a střední škola slaboproudé elektrotechniky, Prague, CZ
- Fredrika Bremer gymnaserna, Haninge, SE
- Deutsche Telecom Laboratories in Berlin, DE
- Deutsche Telecom University in Leipzig, DE
- ISEP Paris, FR
- King Abdulaziz University, Jeddah, Kingdom of Saudi Arabia
- Rundfunk Berlin-Brandenburg, Berlin, DE
- Institut fuer Rundfunktechnik, GMBH, Munich, DE
- NEC Europe, LTD., London, UK
- TNO - Research Institute, Delft, NL
- Katholische University in Leuven, BE
- Technische Hochschule Mittelhessen, Giessen, DE
- TARA Systems, Munich, DE
- San Pablo CEU University, Madrid, ES
- XPERTIA Soluciones Integrales, S.L., ES
- Consultoría de Innovación y Financiación, S.L., ES
- Dublin City University, UK
- National College of Ireland
- Brunel University, UK
- Vrije Universiteit Brussel, BE
- Hochschule Offenburg, DE
- Laboratori Guglielmo Marconi, S.P.A, IT
- Nexsoft, S.P.A, IT
- Università della Calabria, IT
- Polytechnic University of Timisoara, RO
- Brno University of Technology, CzR
- Technical University of Lodz, PL
- Norwegian Institute of Information Technology, Norway
- FRAUNHOFER Institute, DE
- White Loop, Ltd., UK
- Metodologie, Investimenti, Applicazioni, S.R.L, IT
- Linköping University, SW
- Jönköping International Business School, SW
- Politechnica Poznań, Poland
- Politecnico di Milano
- TU Maribor, Slovenia
- TU Wien, Austria
- TU Zagreb, Croatia
- UPC Barcelona, Spain
- University of Carlos III (UC3M) Madrid, ES
- Q-Star test, BE
- Poteon Technologies, AT
- Bogdan & van Broeck architects, BE
- Urban Platform, BE
- MISS3 s.r.o., CZ
- Haindl + Kollegen, DE
- 3XN A/S, DK
- BUILD+D Architects, UK
- Architekturbüro Reinberg ZT GmbH, AT

- Daneshgar Architects, AT
- Berger + Parkkinen Architekten, AT
- bad architects, AT
- BUS architektur, AT
- ARRIOLA&FIOL, ES
- Federico Delrosso Architects, IT
- Fachhochschule Vorarlberg GmbH, AT
- OFIS arhitekti d.o.o., SI
- Placementmaker Limited, UK

VI. THESES

None

VI. 1 Masters Theses

None

VI. 2 PhD Theses

None

VII. OTHER ACTIVITIES

VII. 1 Conferences, Seminars and Workshops Organized by the Department

- Seminar of COSTEL participants to exchange experience with perspective STELA participants
- Executive Council Meeting (ECM 114) of International Union for Vacuum Science, Technique and Applications (IUVSTA) held at the hotel Tatra, Bratislava, Slovakia in the time period September 27–30, 2012, organized by Slovak Vacuum Society (SVS) with support of STU (OEUP FEE&IT)
- IUVSTA Highlight Seminar held at the hotel Tatra, October 1, 2012, organized by SVS with support and participation of STU (OEUP FEE&IT)
- School of Vacuum Technology SVT 2012 and parallel a Technical Training Course (TTC), organized by SVS with support of OEUP FEE&IT, hotel Patria, Štrbské Pleso, International Conference. TTC was supported by IUVSTA grant.
- 3rd Plenary meeting of FP7 project „HBB-NEXT“, September 17-19, 2012, organised by FEI STU Bratislava
- 4th International NGN workshop of ngnlab.eu, September 20, 2012, organised by FIIT and FEI STU Bratislava

VIII. MEMBERSHIP IN INSTITUTION/COMMITTEES

VIII.1 Membership in National Institution/Committees

- P. Podhradský: VEGA, projects reviewer
- P. Podhradský: APVV (Slovak Research and Development Agency), projects reviewer



VIII. 2 Membership in International Institution/Committees

- P. Podhradský: Croatian Academy of Engineering, correspondent member
- P. Podhradský: International Journal of Signal and Systems Engineering, member of Editorial Board
- P. Podhradský: International Conference IWSSIP 2012, member of International Program and Reviewers Committees
- P. Podhradský: International Symposium ELMAR 2012, member of International Program and Reviewers Committees
- P. Podhradský: 4th ngnlab.eu International NGN Workshop, Bratislava, Slovakia, 20 September, 2012, member of International Program Committee
- E. Mikóczy: IEEE - Institute of Electrical and Electronics Engineers, IEEE Communications Society
- E. Mikóczy: ACM – Association for Computing Machinery, ACM Special Interest Group SIGCOM & SIGMM
- E. Mikóczy: ISCT - Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering
- E. Mikóczy: ETSI - European Telecommunications Standards Institute – TISPAN (Telecommunications and Internet converged Services and Protocols for Advanced Networking) – Technical Member, Active Rapporteur, ETSI MCD (Media Content Distribution) - Technical Member, ETSI NTECH (Future Networking) – Technical member
- E. Mikóczy: ITU-T - International Telecommunication Union – Telecommunication, Study Group 13 NGN, technical member
- E. Mikóczy: Reuters – Member of expert community
- E. Mikóczy: 1st International IEEE Workshop on Multimedia Communications over Emerging Networks (MCEN) 2012, in conjunction with the 9th Annual IEEE Consumer Communications and Networking Conference 2012 in Las Vegas, USA, from 14–17 January 2012, Member of International Technical Program Committee
- E. Mikóczy: TRIDENCOM 2012 - 8th International ICST Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities, Thessaloniki, Greece, 11-13 June 2012, member of International Technical Program Committee
- E. Mikóczy: NGMAST 2012 - The 6th International Conference on Next Generation Mobile Applications, Services and Technologies (NGMAST2012), Telecom ParisTech, France, 12-14 September 2012, Member of International Technical Program Committee
- E. Mikóczy: 4th ngnlab.eu International NGN Workshop, Bratislava, Slovakia, 20 September, 2012 Member of International Program Committee
- E. Mikóczy: The 2012 IEEE Symposium on Industrial Electronics & Applications (ISIEA 2012) and The 2012 IEEE Symposium on Wireless Technology & Applications (ISWTA 2012), Bandung, Indonesia, 23–26 September 2012. Reviewer committee

- E. Mikóczy: 4th IFIP/IEEE Workshop on Open NGN and IMS Testbeds (ONIT) 2013, at the IEEE GLOBECOM 2012, in Anaheim, USA, 3-7 December 2012, Member of International Technical Program Committee.
- E. Mikóczy: Guest Editor in Special Issue: IPTV and Multimedia Services, in Journal Informatica - An International Journal of Computing and Informatics, ISSN 0350-5596, Volume 36 Number 1 March 2012, Guest Editor.

IX. PUBLICATIONS

IX. 1 Journals

- [1] PODHRADSKÝ, P., KADLÍČEK, R., LÁBAJ, O., LONDÁK, J., TRÚCHLY, P.: Subsystem for M/E-learning and Virtual Training based on IMS NGN Architecture. In. Bogazici University Journal of Education – ISSN 1300-9567. - Vol. 28, No. 1 (2012), p. 47-62. (in English)
- [2] MIKÓCZY, E., VIDAL, I., KANELLOPOULOS, D.: Editorial for Special Issue on "IPTV and Multimedia Services". In Journal Informatica - An International Journal of Computing and Informatics, Special Issue: IPTV and Multimedia Services. - ISSN 0350-5596.- Vol. 36, No.1 (2012). (in English)
- [3] MIKÓCZY, E., VIDAL, I., KANELLOPOULOS, D.: „IPTV Evolution towards NGN and Hybrid Scenarios“. In Journal Informatica - An International Journal of Computing and Informatics, Special Issue: IPTV and Multimedia Services. - ISSN 0350-5596. - Vol. 36, No. 1 (2012). (in English)

IX. 2 Conference Proceedings

- [1] BLICHÁR, J., PODHRADSKÝ, P.: Liferay as an Application Framework for M-learning. In. Proceedings Redžúr 2012 : 6th International Workshop on Multimedia and Signal Processing. Vienna, Austria, April 11, 2012. - Bratislava : STU, 2012. - ISBN 978-80-227-3686-2.- p. 73-76. (in English)
- [2] ČÍŽ P., LÁBAJ, O., PODHRADSKÝ, P., LONDÁK, J.: VoIP Intrusion Detection System with Snort. In Proceedings ELMAR-2012 : 54th Symposium ELMAR-2012. Zadar, Croatia, 12-14 September 2012. - Zadar : Croatian Society Electronics in Marine, 2012. - ISBN 978-953-7044-13-8. - p. 137-140. (in English)
- [3] PODHRADSKÝ, P., LONDÁK, J., LÁBAJ, O., MATEJKA, J.: Security Challenges in Next Generation HBB TV. In Proceedings of 2012 5th Joint IFIP Wireless and Mobile Networking Conference : Bratislava, Slovakia, September 19-20, 2012. - Piscataway : IEEE, 2012. - ISBN 978-1-4673-2994-1. - p. 130-132. (in English)
- [4] BLICHÁR, J., PODHRADSKÝ, P.: Liferay as a Collaboration and Communication Platform





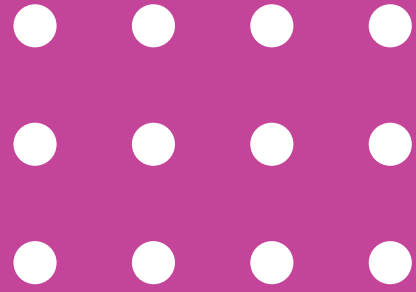
- for M-learning Subsystem. In Proceedings ELMAR-2012 : 54th Symposium ELMAR-2012. Zadar, Croatia, 12-14 September 2012. - Zadar: Croatian Society Electronics in Marine, 2012. - ISBN 978-953-7044-13-8. - p. 175-178. (in English)
- [5] DVORSKÝ, P., LONDÁK, J., LÁBAJ, O., PODHRADSKÝ, P.: Comparison of Codecs for Videoconferencing Service in NGN. In Proceedings ELMAR-2012: 54th Symposium ELMAR-2012. Zadar, Croatia, 12-14 September 2012. - Zadar: Croatian Society Electronics in Marine, 2012. - ISBN 978-953-7044-13-8. - p. 141-144. (in English)

- TISPAN02(12)000005r2_WI2086_functional_architecture.docx
- Agreed contributions from CDN Rapporteur's meeting of 14 May 2012
- TISPAN(12)000036r1_WI2086_Procedures_for_Content_Distribution.docx
- TISPAN(12)000039r1_WI2086_CDNI_procedures-overview.docx
- TISPAN(12)000042r1_WI2086_CDNI_update_procedures.docx

IX. 3 Others

- [1] PODHRADSKÝ, P., KADLIC, R., LONDÁK, J., LÁBAJ, O., BLICHÁR, J., ZEMAN, T., SIMSEK, H.: MLARG m-learning Platform HANDBOOK, published under LdV Multilateral-Transfer of innovation project MLARG, January 2012, Istanbul
- [2] MIKÓCZY, E., van DEVENTER, O.: Standardization (active participation in ETSI TISPAN working group): Technical contributions related to:
- Contribution on relation IPTV-HBB (Presentation of HBB-NEXT foreground).
 - Liaison statement to HbbTV on hybrid IPTV/HBB and media synchronisation
- [3] MIKÓCZY, E., van DEVENTER, O.: Standardization (active participation in ETSI MCD (Media Content Distribution) working group): Technical contributions related to:
- HBB-Next Use cases related the WI Second Screen, ETSI MCD #13, Paris, France, 2012
 - MCD(12)14_005_WI00018-requirements_re-structuring, ETSI MCD#14 + E2NA#1, Sophia Antipolis, France, 2012
 - MCD(12)14_006_WI00018_CMS_service_requirements, ETSI MCD#14 + E2NA#1, Sophia Antipolis, France, 2012
 - MCD(12)14_007_WI00018_CMS_system_requirements, ETSI MCD#14 + E2NA#1, Sophia Antipolis, France, 2012
 - BOARDE2NA(12)01_019_Proposal_to_bundle_CDN_IPTV_and_related_activities_in_E2NA, Sophia Antipolis, France, 2012
- [4] MIKÓCZY, E., BINDER, A., KOTULIAK, I., KADLIC, R., van DEVENTER, O.: Standardization (active participation in ETSI TISPAN working group). Technical contributions related to: ETSI TS 182 032 CDN – Interconnection architecture (Work Item 2086):
- Agreed contributions from TISPAN#30 – March 2012 (incorporated to output draft 0.0.3)
 - TISPAN02(12)000003r2_WI2086_CDNI_introduction.docx
 - TISPAN02(12)000004r2_WI2086_CDNI_capabilities.docx





INSTITUTE OF COMMUNICATION AND APPLIED LINGUISTICS





INSTITUTE OF COMMUNICATION AND APPLIED LINGUISTICS

<http://www.elf.stuba.sk/Institute/IKAL/index.htm>



Director of the Institute:

PhDr. Ľubica Rovánová, PhD.

e-mail: lubica.rovanova@stuba.sk

Tel: +421-2-602 91 794, Fax: +421-2-654 20 415

Deputy Director: PhDr. Jarmila Belasová

Institute Secretary: Mária Čederlová

Departments of the Institute

Department of English and Communication

Department chair: PhDr. Ivan Posdpera

Department of Germanic, Slavic, Romance Languages and Communication

Department chair: PhDr. Jarmila Belasová

General Information

The history of teaching foreign languages at FEI started on 1 April 1990 when the Department of Languages was established. This decision was made to link language education more closely with Faculty students' specific needs, while before this date foreign language teaching was provided by the all-university Department of Languages. On 1 December 2012 the Department was renamed to the Institute of Communication and Applied Linguistics.

The Institute has specified the aims of foreign language teaching on the basis of extensive needs analysis carried out amongst Faculty graduates. The aims include:

- oral communication in the form of monologue or dialogue in typical situations (discussion, presentation, telephoning).
- listening for general or specific information.
- reading specialist literature.
- written communication on the corresponding level in typical genres (report, instructions, c.v., official correspondence).
- development of communicative competence not only on bilingual, but also on monolingual level.

Institute teachers have long experience in different areas of education:

- teaching in courses of further education of university teachers of foreign languages for specific purposes in Slovakia and abroad in cooperation with the British Council, education of teacher trainers of English for specific purposes in the EU in cooperation with the British Council and the Ministry of Defence of the Slovak Republic.
- e-learning education (methodology of e-learning courses design and their teaching).
- design of interactive learning materials in Moodle for the needs of bachelor and PhD Students.
- authorship of learning materials for bachelor and PhD students, as well as for general public (e.g. English for Students of Electrical Engineering, Angličtina nielen pre samoukov, Angličtina pre kurzy a jazykové školy 1,2,3, English in Need).



- expertise in the area of languages for specific purposes.
- working in the committee of UNlcert LUCE (Language Accreditation Unit for Universities of Central and Eastern Europe), accreditation of language programmes of Slovak and European universities in the accreditation system UNlcert LUCE, membership in examination boards at individual universities.

No professional can make a successful career without having mastered at least one foreign language. Its knowledge is now considered a matter-of-course in most industrial and commercial companies. Due to regional and economic specifics of Slovakia, specialists must be able to communicate in at least one foreign language, preferably more. Their professional life requires competent written and oral communication for general and specific purposes. It does not suffice to know only the grammar and vocabulary of the given language, but it is also necessary to understand the meaning of lingual and extralingual means of other cultures and subcultures. For this reason, it is important (in accordance with EU policy) to improve the education of students also in the area of intercultural communication.

I. STAFF

Senior Lecturers:

PaedDr. Andrea Ambrózová, PhDr. Jarmila Belasová, PhDr. Gabriela Fojtlová, PhDr. Mária Hujvanová, Mgr. Jana Matiašovská, Mgr. Daniela Ondroušková, Mgr. Jana Pätoprstá, PhD., PhDr. Ivan Podpera, PhDr. Ľubica Rovánová, PhD., Mgr. Ľudmila Solenská, PhD.

Technical Staff:

Mária Čederlová (secretary)

II. EQUIPMENT

none

III. TEACHING

III. 1 Undergraduate Study (Bc.)

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

- **English** (1st, 2nd, 3rd, 4th sem., 0-2h)
G. Fojtlová, M. Hujvanová, J. Matiašovská, D. Ondroušková, J. Pätoprstá, I. Podpera, Ľ. Rovánová
- **Optional courses for beginners in English** (1st sem., 0-2h)
G. Fojtlová, M. Hujvanová, J. Matiašovská, D. Ondroušková

- **Other optional courses:** (2nd - 10th sem., 0-2h):
- **German (beginners, intermediate and advanced)**
J. Belasová, Ľ. Solenská
- **Russian (beginners, intermediate and advanced)**
J. Belasová
- **Management of Communication** (2nd sem., 1-2h)
Ľ. Rovánová, J. Belasová

III. 2 Graduate Study (Ing.)

Specific optional courses:

- **German (beginners, intermediate)** (7th - 11th sem., 0-2h)
J. Belasová
- **German (advanced)** (7th - 11th sem., 0-2 or 4h)
Ľ. Solenská
- **Russian (all levels)** (7th - 11th sem., 0-2h)
J. Belasová

III. 3 Undergraduate and Graduate Study (Ing.) for Foreign Students in English

None

III. 4 Distance Study

- **English** (0-2h)
G. Fojtlová, J. Matiašovská, D. Ondroušková, J. Pätoprstá

III. 5 Doctoral Study (PhD.)

- **English** (0-2h)
M. Hujvanová, I. Podpera, Ľ. Rovánová
- **German** (0-2h)
J. Belasová, Ľ. Solenská

IV. RESEARCH PROJECTS

None

V. COOPERATION

V. 1 Cooperation in Slovakia

- Goethe Institut, Bratislava
- Österreichisches Kulturinstitut Bratislava
- Verband der Deutschlehrer und Germanisten der Slowakei
- CercleS (European Confederation of Language Centres in Higher Education), Bratislava
- Canadian Bilingual Institute in Bratislava

V. 2 International Cooperation

- Goethe Institut, Krakow, Poland
- Goethe Institut, Nancy, France
- Miklós Zrínyi National Defense University Budapest, Hungary



V. 3 Membership in International Organizations and Societies

- Salzburg Seminar Alumna (USA) (Ľ.Rovanová)
- CASAJC, (The Czech and Slovak Association of Language Centres in Higher Education), member of CERCLES
- UNlcert LUCE (Language Accreditation Unit for Universities in Central Europe)

VI. THESES

None

VII. OTHER ACTIVITIES

- Teacher-trainer and trainer-trainer for EGP (English for General Purposes) and ESP (English for Specific Purposes) methodology (A. Ambrózová)
- Participation in specific seminars of didactics and methodology as part of lifelong education, Pedagogical Faculty of UK (J. Pätoprstá)
- Working on the new study material 'English for Students of Electrical Engineering' (I. Podpera)
- 'English for Students of Electrical Engineering' - an intermediate level electronic course in Moodle (I. Podpera)
- 'English for Students of D level' - an upper-intermediate level electronic course in Moodle (I. Podpera)
- Videoconference presentation: 'English for Students of Electrical Engineering - an Electronic Workbook', International conference 'New Technologies in Education', Brno, 15. 11. 2012 (I. Podpera)
- Expert for lifelong learning programs assessment (Ľ. Rovanová)
- Member of UNlcert LUCE committee: Working-out of expert opinions for the accreditation of German Language Courses at Slovak and Czech universities (Ľ. Solenská)
- The expert supervision of final examinations of UNlcert at accredited Slovak and Czech universities (Ľ. Solenská)
- Working-out of materials for the first UNlcert examinations at the department, testing, marking, diploma design and evaluation (Ľ. Solenská)
- Evaluation of Language programs of accredited universities (Ľ. Solenská)
- Testing and confirming of students' language competence for the purpose of exchange study stays and traineeships according to European language standards (Ľ. Solenská)

VIII. PUBLICATIONS

VIII. 1 Journals

- [1] PÄTOPRSTÁ, J.: Informatization Development in all Specializations of University Study. In: Fórum cudzích jazykov. - ISSN 1337-9321. - Vol. 4, No. 2 (2012), p. 41-58. (in Slovak)
- [2] SOLENSKÁ, Ľ.: Characteristic of Current Situation in Specialist Language Teaching at Secondary Schools and Universities. In: Fórum cudzích jazykov. - ISSN 1337-9321. - Vol. 4, No. 2 (2012), p. 59-67. (in Slovak)

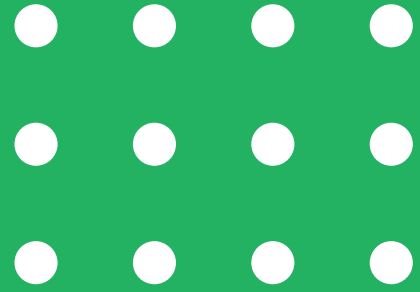
VIII. 2 Parts of Books

- [1] PÄTOPRSTÁ, J.: Informatization Development of Foreign Language in University Environment. In: Foreign Language Teaching at Universities. - Nitra : Slovak University of Agriculture in Nitra, 2012. - ISBN 978-80-552-0916-6. - p. 289-299. (in Slovak)
- [2] SOLENSKÁ, Ľ.: Results of Holistic Approach in Work with German Specific Text. In: Foreign Language Teaching at Universities. - Nitra : Slovak University of Agriculture in Nitra, 2012. - ISBN 978-80-552-0916-6. - p. 322-326. (in Slovak)

VIII. 3 Textbooks

- [1] PODPERA, I.: English for Student of Electrical Engineering. - Bratislava : Slovak University of Technology Press, 2012. - CD-Rom [61] p. - ISBN 978-80-227-3841-5. (in English)
- [2] ROVANOVÁ, Ľ.: Presentation Skills. - Bratislava: Slovak University of Technology Press, 2012. - CD-Rom [80] p. - ISBN 978-80-227-3842-2. (in English)





SPORTS TECHNOLOGY INSTITUTE





SPORTS TECHNOLOGY INSTITUTE

<http://www.elfsport.sk/>



Head of STI:

Mgr. Peter Miklovič, PhD.

e-mail: peter.miklovic@stuba.sk

Tel: +421-2-602 91 850, Fax: +421-2-654 20 415

Deputy Head of STI: PaedDr. Aleš Dunajčík

Secretary of STI: Mgr. Pavel Lackovič

Administrative staff: Mária Dobrotová (secretary)

General Information

In 1993 KTV FEI STU was already situated in new premises that make it the best equipped departments in SR. The department has a small and a big gymnasium, a well equipped fitness centre, a swimming pool and a bouldering wall. Nowadays, KTV FEI STU is divided into two sections: The Section of Physical Education and the Section of Physical Education Facilities Administration. The priorities of the Department of Physical Education are:

- Instruction of physical education in daily bachelor and graduate studies, instruction of physical culture according to the faculty study programme as part of university studies
- Representation of the school at university events
- Cooperation in the development of sport movement at the faculty with the faculty management, academic bodies, faculty organisations and faculty sport clubs
- Organisation of single sport events and competitions according to the schedule of sport events
- Research activity (study of results of sport sciences, publishing, preparation of education materials and innovative elements in the field of physical education and sport, participation on research projects)

The section of physical education facilities administration is in charge of physical education facilities (regulation, maintenance and control) and of economic services (business activities, marketing).

The main activity of KTV FEI STU is the subject called Physical Culture. Its aim is to obtain the optimal motion performance of the student, to make him/her understand the importance of the lifetime physical activity as one of the key factors of health, education and work performance. During the first two terms, the subject Physical Culture focuses on physical and ball games (basketball, volleyball - basic game activities of an individual, rules), and swimming (improving the individual swimming styles, training for non-swimmers). In the remaining four terms, the students can choose from collective games (basketball, floorball, football, volleyball - improving basic game activities of an individual, simple offensive and defensive combinations, simple game systems, realisation of offensive combinations, defensive combinations and game systems in a game), individual sports (badminton, swimming, table tennis, shooting, hiking, watermanship), or other activities (yoga, fitness, aerobic, self-defence). For students that are chronically ill, KTV FEI STU offers health physical education (special exercise for traumatogenic and surgical states of lower extremities, back pain; balance exercises; yoga exercises for disabled persons, diseases of spine and joints, some allergies, hypo-immunity; individual swimming and exercises in water according to the instructions of a doctor). By selection physical education, the department prepares the representation of the faculty in sport games and individual sports. In close cooperation with the subject Physical



Culture, tens of events are organised under the patronage of the Slovak Association of university sport, sport unions and associations in the Slovak Republic.

Physical education and sport are social and political necessities. It is a phenomenon that can move the whole world. The Department of Physical Education tries to mediate this phenomenon to students and employees of FEI STU and to enrich their private and professional life.

Based on the decision of the Dean of FEI STU with effect from 1st December, 2012 the name of KTV FEI STU has been transformed to Technological Institute of Sport (TIS FEI STU).

I. STAFF

Assistant Professors:

Mgr. Zlatica Dariusová, PaedDr. Ľubomír Ďuračka, PhD., PaedDr. Aleš Dunajčík, Mgr. Libor Jurkovič, PhD, Mgr. Barbora Kociánová, PhD., Mgr. Pavel Lackovič, PaedDr. Jana Lamošová, PhD., Mgr. Martin Májek, Mgr. Peter Miklovič, PhD., PaedDr. Vladimír Pajkoš, Mgr. Alena Suttnerová

II. EQUIPMENT

- Fitness Centre
- Gymnasium
- Small Gymnasium
- Swimming pool
- Regeneration Centre
- Laboratory of Sport Sciences
- Climbing wall
- Martial-Arts Gym

III. TEACHING

III. 1 Undergraduate Study (Bc.)

Subject, semester, hours per each semester, name of the lecturer:

- **Aerobics** (1st-8th sem., 18 hours each sem.)
A. Suttnerová
- **Badminton** (1st-8th sem., 18hours each sem.)
V. Pajkoš
- **Basketball** (1st-8th sem., 18 hours each sem.)
Ľ. Ďuračka
- **Basketball** (1st-8th sem., 18 hours each sem.)
J. Lamošová
- **Bouldering** (1st-8th sem., 18hours each sem.)
P. Miklovič
- **Bouldering** (1st-8th sem., 18hours each sem.)
B. Kociánová
- **Outdoor activities** (1st-8th sem., 18hours each sem.)
P. Lackovič

- **Fitness** (1st-8th sem., 18 hours each sem.)
P. Lackovič
- **Fitness** (1st-8th sem., 18 hours each sem.)
A. Suttnerová
- **Floorball** (1st-8th sem., 18 hours each sem.)
B. Kociánová
- **Football** (1st-8th sem., 18hours each sem.)
A. Dunajčík
- **Joga** (1st-8th sem., 18 hours each sem.)
A. Suttnerová
- **Self-defence** (1st -8th sem., 18 hours each sem.)
P. Miklovič
- **Skiing** (1st -8th sem., 18 hours each sem.)
P. Lackovič
- **Skiing** (1st -8th sem., 18 hours each sem.)
V. Pajkoš
- **Sports Shooting** (1st-8thsem., 18 hours each sem.)
L. Jurkovič
- **Swimming** (1st-8th sem., 18 hours each sem.)
L. Jurkovič
- **Swimming** (1st-8th sem., 18 hours each sem.)
Z. Dariusová
- **Swimming** (1st-8th sem., 18 hours each sem.)
J. Lamošová
- **Table Tennis** (1st-8th sem., 18 hours each sem.)
M. Májek
- **Table Tennis** (1st-8th sem., 18 hours each sem.)
P. Miklovič
- **Tennis** (1st-8th sem., 18 hours each sem.)
A. Dunajčík
- **Volleyball** (1st-8th sem., 18 hours each sem.)
M. Májek
- **Volleyball** (1st-8th sem., 18 hours each sem.)
Z. Dariusová

III. 2 Graduate Study (Ing.)

Optional Physical Education for the students in Graduate Study the same as in Undergraduate Study.

IV. RESEARCH PROJECTS

IV. 1 National Scientific Projects

- External on FTVŠ UK in Bratislava. Task-oriented Balance Tests in Functional Ssessment of Athletes and Individuals with Motor Control Disorders. No VEGA1/0070/11(2011-13) (P. Miklovič)
- Assessment of Reaction Time and Movement Velocity (agility) Parameters by Processing Electromyographic Signals, No. VEGA 1/1177/12 (2012-2014), coordinator: P. Miklovič



V. COOPERATION

V. 1 Cooperation in Slovakia

- Slovak Union of Physical Culture, Bratislava
- Faculty of Physical Education, Comenius University, Bratislava
- School of Physical Education and Training, Bratislava
- Slovak Association of Academic Sports, Bratislava
- Slovak Volleyball Federation, Bratislava
- Slovak Basketball Association, Bratislava
- Slovak Olympic Committee, Bratislava
- Slovak Handball Union, Bratislava
- Slovak Gojuryu Karatedo Gojukai Association, Bratislava
- Slovak Floorball Association, Bratislava

V. 2 International Cooperation

- Technical University Delft, The Netherlands
- Technical University Zagreb, Croatia
- Technical University of Budapest, Hungary
- Bournemouth University, UK
- Associazione Sportiva Dilettantistica EuroSportEvents, Milano, Italy

VI. THESES

VI. 1 Masters Theses

Masters theses supervised at the Department of Physical Education. The names of supervisors are in brackets.

none

VI. 2 PhD Theses

none

VII. OTHER ACTIVITIES

- Basketball College league
- Volleyball College league
- Floorball College league
- Swimming College league
- Futsal College league
- Winter camp in France, Auris en Oisans, Alp de Huez 6.1.-14.1.12
- FEI STU Table Tennis Championship - 19.3.12
- FEI STU Climbing Championship - 21.3.12
- Sports Games FEI STU - 23.-24..3.2012
- FEI STU Floorball Championship - 28.3.12
- FEI STU Streetball Championship - 3.4.12
- Joga - the way to the health of body and mind (lecture) - 5.4.12
- FEI STU Badminton Championship - 10.4.12
- STU Basketball Championship (students) - 17.4.12

- STU Swimming Championship (students) - 18. 4. 12
- STU Table Tennis Championship (students) - 18. 4. 12
- Bouldering Tournament - 30.4 - 3.5.12
- Badminton Tournament of employees FEI STU - 21..5.12
- Best student FEI STU in Badminton - May 12
- Children's Day at FEI STU - 1.6.12
- Self-defence prevention (lecture) - 3.- 5.12
- Rafting on the river Vltava - 12.6.12
- Sports Games FEI STU (summer) - 26.-28. 9.12
- October Fest 2012 - 3.10.12
- Badminton Tournament (students vs. employees) - Students' Day - 16.11.12
- Volleyball Tournament (students vs. employees)- Students' Day - 22.11.12
- Floorball Tournament (students vs. employees)- Students' Day - 23.11.12
- Basketball Tournament (students vs. employees) - Students' Day - 27.11.12
- STU Power Lifting Championship - 27.11.12
- FEI STU Indoor Rowing Championship - 27.11.12
- St. Nicolaus Basketball Tournament - 6.12.12
- Bouldering Tournament - 10.12..12
- Christmas carp - 10.12.12
- Christmas Tennis Tournament of employees FEI STU - 18.12.12
- Christmas Badminton Tournament of employees FEI STU - 19.12.12

VIII. MEMBERSHIP IN INSTITUTIONS/COMMITTEES

VIII.1, Membership in National Institutions/Committees

- Member of Slovak Rowing national team (P. Lackovič)
- Coach of Slovak Rowing Federation (P. Lackovič)
- Personal coach of best Slovak golf junior player (P. Lackovič)
- Coach in Benickyhockey center (P. Lackovič)
- Member of Slovak Ice Hockey national team (A. Dunajčík)
- General secretary of committee Slovak Gojuryu Karatedo Gojukai Association (P. Miklovič)
- Member of Slovak Floorball Representation, (B. Kociánová)
- Member of floorball club FTVŠ Bratislava (B. Kociánová)
- Member of the Yoga Society (A. Suttnerová)
- Member of Slovak Equestrian Federation (J. Lamošová)
- Member of Equestrian Club Over Žilina (J. Lamošová)
- Members of Coaches Association Slovak Basket Association (L. Ďuračka, J. Lamošová)
- Coach of the volleyball club VKP (M. Májek)
- Members of University Sport Club VŠK FEI STU, (P. Miklovič, P. Lackovič, B. Kociánová, A. Dunajčík, A. Suttnerová, L. Jurkovič, J. Lamošová, M. Dobrotová (secretary))



VIII. 2 Membership in International Institutions/Committees

- Member of Japan Karatedo Federation (P. Miklovič)

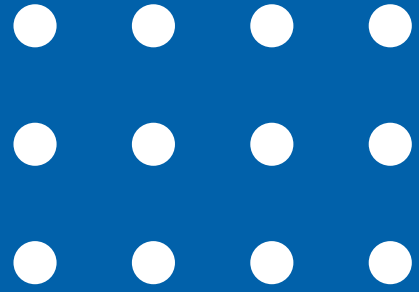
IX. PUBLICATIONS

IX. 1 Journals

- [1] DAŘÍČEK, M. - JAGELKA, M. - SLÁDEK, L. - HORÍNEK, F. - MIKLOVIČ, P.: Wireless Probe for Human Body Biosignals. In: Lékař a technika. - ISSN 0301-5491. - Vol. 42, No. 2 (2012), p. 42-45. (in English)

IX. 2 Conference Proceedings

- [1] LACKOVIČ, P.: Comparison of Physical Parameters in the Preparation of Rowers on the Water. In: From Research to Practice : 17th International Conference. Bratislava, Slovak Republic, 29.-30.11. 2012. - Bratislava : Slovak University of Technology Press, 2012. - ISBN 978-80-227-3828-6. - p. 133-139. (in Slovak)
- [2] LAMOŠOVÁ, J.: Development of the Social Climate in Classes with Deferrent Study Program. In: From Research to Practice : 17th International Conference. Bratislava, Slovak Republic, 29.-30.11. 2012. - Bratislava : Slovak University of Technology Press, 2012. - ISBN 978-80-227-3828-6. - p. 140-152. (in Slovak)
- [3] MIKLOVIČ, P. - ZEMKOVÁ, E.: The Effect of Special Training Bouts on Parameters of Agility in Karate Athletes. In: From Research to Practice : 17th International Conference. Bratislava, Slovak Republic, 29.-30.11. 2012. - Bratislava : Slovak University of Technology Press, 2012. - ISBN 978-80-227-3828-6. - p. 188-194. (in Slovak)



SPECIALIZED CENTRES





SPECIALIZED CENTRES

National Center of Telemedical Services

Head: Ing. Fedor Lehocki, PhD.

National Center of Telemedical Services is focused on research and development in the area of innovative telemedical services, supporting the vision of a modern health service in the Slovak Republic. The center cooperates with national and international medical and technological partners from academic, state and commercial areas. It transfers the achievements in research and development in telemedical services into medical treatment, health service management, collecting and analysis of medical data and their application in clinical practice. Research achievements are tested in pilot solutions and successful projects are applied in practice. The possibilities of the use of telemedical services include a variety of solutions reaching from medical video consultations, electronic doctor-patient communication to monitoring patients' vital functions at their homes. The strategic partner of the center is IBM Slovakia

Center of New Educational Technologies

Head: prof. Ing. Mikuláš Huba, PhD.

In March 2011 the Center completed the project Leonardo Revive focused on the improvement of a distance course of secondary school mathematics. The Center also completed a KEGA project – "Building of Virtual and Distant Experiments for Online Laboratories Network" in December 2011. The Center cooperated with the European Association of Distance Teaching Universities and the European Association of Institutions in Higher Education on completing an LLL Promoters project application aimed at enhancing lifelong education at universities. The Center cooperated on the admission of the IN-STU-d-ING project as part of the operating program to build up the study program Applied Mechatronics in English language. The Center cooperated on formulation of the research project within the 7th framework program MetaLab focused on supporting distant laboratories. (not approved). Publication of textbooks for distance study belongs to regular activities of the Center.

Center of Nuclear Technologies (CNT)

Head: prof. Ing. Vladimír Nečas, PhD.

The CNT offers own capacity and equipment for material physics, analyses of various materials used in practice: a) analysis of standard and special materials using nuclear physics methods (Mössbauer Spectroscopy, Positron Annihilation Spectroscopy, Gamma Spectroscopy) from the point of view of knowledge, not only properties (structural, magnetic, radiation, etc.) but also the processes running inside; b) the ion beam modification of materials using particles accelerator for microelectronics, optoelectronics, nanotechnology and nuclear energy; c) the X ray digital imaging of different subjects by means of innovative semiconductor detectors in various areas of medicine, industry and safety. CNT offers participation also in the projects of the safe use of nuclear energy, in research and development of novel nuclear technologies (reactors of 4th generation, thermonuclear reactor), computer modeling and simulation of neutron-physical characteristics of VVER-440 reactors, nuclear fuel cycles, optimization of blocs operations and their nuclear safety. We offer analyses of radiation environmental influences, including problems connected with decommissioning of nuclear power plants.

Institute of Electrical Engineering and Informatics Expertise of FEI STU in Bratislava

Director: prof. Ing. Alfonz Smola, PhD.

The objectives of the Institute are:

- to provide expertise in given technical specializations in accordance with Law No 382/2004 Coll on experts and interpreters and with Decree No 492/2004 Z. of. for state authorities, as well as for other legal and individual entities,
- to prepare specialists from professional practice for expertise in technical and economic specializations in



the form of specialized training in accordance with Law No 382/2004 Coll,

- to do research into expert report methodology, including related economic, technical and legal areas,
- to organize symposia, seminars and conferences focused on expertise,
- to publish textbooks, proceedings of events organized by the Institute and non-periodical publications from the area of forensic expertise,
- to organize counseling for legal and individual entities,
- to organize specialized assistance for central state authorities in harmonization of our legislation with EU regulations.

The Institute has been authorized by the Ministry of Justice of the Slovak Republic to test experts on electrical engineering, informatics and power engineering in the form of a special examination.

Mutual Workplace for Special Measurements and Electromagnetic Compatibility

(in cooperation with the Institute of Electrical Engineering and Projects, Nová Dubnica)

Head: doc. Ing. Karol Kováč, PhD.

The HiTech Center for Electromagnetic Compatibility has been established as part of the state science and research program "Complex Solution of Support and Effective Use of Research and Development Infrastructure" called "Support of Research and Development from the Viewpoint of Electromagnetic Compatibility" that was completed by final opponency in October 2011. The Center is located at FEI STU. Its workplaces are the EMC laboratory of the Institute of Electrical Engineering and the Mutual Workplace for Special Measurements and Electromagnetic Compatibility in the Institute of Electrical Engineering and Projects in Nová Dubnica. The faculty counseling workplace of the Center is aimed at supporting research and development in the EMC area. The scope of its activities reaches from specialist counseling, computer modeling of EMC phenomena, subsystems and systems to verification of EMC features of prototypes of electronic systems. For all of these activities it is equipped with technical and programming facilities on top European level. Every year, the Center provides support to 45 projects of scientific and research organizations in Slovakia.

FEI STU Test Laboratory

Head: doc. Ing. Karol Kováč, PhD.

FEI STU Test Laboratory is a certified test workplace (SNAS Certificate No. S-066) that is authorized to test electrical, protective and work equipment for electrical engineering, electrical products, light sources, lamps and optical materials as well as measurements of physical values in environment in general and in working environment – lighting measurements.

It is authorized to test high voltage technology, electromagnetic compatibility and lighting technology. More than 150 certified tests based on clients' requirements were carried out in 2011.

National Center of Knowledge Data Structures - Archetypes

Head: Ing. Martin Foltin, PhD.

The main task of the Center is to bring, naturalize and further develop standards of health informatics in the field of structured records of providing health care in cooperation with the National Health Information Center. Since it was established, the Center has provided a set of applications and tools for development, location and management of open data standards – archetypes as well as interconnection of the Center with international structures run by a worldwide foundation OpenEHR. More than 70 countries and thousands of specialists – doctors and information science specialists cooperate with the OpenEHR foundation on the creation of archetypes and their implementation in information systems of health care institutions.

The Center has established a board of experts on health service standards. It will gradually engage professional medical workplaces in its activities and will launch activities aimed at the preparation of first archetypes, localized for the needs of the National Health Information System in accordance with eHealth projects in Slovakia. At the same time, the Center expects intensive cooperation with manufacturers of information systems in the solution of tasks linked with the implementation of electronics and IT support of health service. Standards and archetypes developed by the Center will be submitted to the Center for Medical Terminology and Standards of the National Health Information Center. After being approved of, they will be subsequently submitted to the Board of the Minister of Health for Medical Terminology and Standards and used for eHealth SR.





FACULTY OF ELECTRICAL ENGINEERING AND INFORMATION TECHNOLOGY, SLOVAK UNIVERSITY OF TECHNOLOGY,

BRATISLAVA 2012

**Authorized contributions from Institutes
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Edited by: M. Žiška, Z. Tajbošová, Jana Braunová

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