

## DEPARTMENT OF PHYSICS

### 1 General Information

Advances in technical fields have always relied to a large degree on know-how and methods originating in Physics. Many phenomena and principles studied in Physics today become the basis of applications tomorrow, e.g. in quantum information science. It is therefore very important to provide the students of the technical fields with good basics of Mathematics and Physics.

The Department of Physics teaches General Physics to students of all faculties of the University and Advanced Physics for some special courses. The Department provides the students with the basic understanding of physics, trains them in applying the principles of physics to various engineering problems as well as gives the students a review of modern physics.

The Department is divided into two sections according to their research and educational specialisation. The staff consists of 1 Professor, 2 Associate Professors at the position of a Professor, 5 Associate Professors, 12 senior lecturers, 5 internal Ph.D. students, 4 research fellows and 3 technical/administrative workers who support the research and teaching activities of the Department.

The research carried out at the Department is mostly concerned with the utilization of acoustic and optical wave processes for the investigation of condensed matter. Acoustic Group exploits a wide range of acoustic methods and techniques as well as acoustoelectric and acoustooptic phenomena to investigate semiconductors, metals, ferroelectric materials and magnetic liquids. New acoustic techniques are also developed.

Optical group studies physical properties of the conventional telecommunications optic fibres and special fibres such as capillary fibres and photonic fibres. The group has extended its activities to include technologies of preparation and analysis of photonic structures for integrated optics and optoelectronics. The newest results are from the area of optofluidic waveguides where sensors and optic elements are being developed. Self-diffraction of light in magnetic fluids and photorefractive phenomenon in selected condensed matter materials are also studied within the group.

The theoretical high-energy physics group works in the area of strong electroweak symmetry breaking and quark-gluon plasma.

The research groups of the Department are also well known abroad. The scientific activities of the Department are regularly presented at the international conferences and are published in significant physical journals. The members of the staff also participate in various educational and scientific activities outside the Department and the University, especially as members of various scientific boards at both domestic and international institutions. There are also many activities focused on further education of high school and elementary school Physics teachers and their pupils and students, which is an important outreach work.

### 2 Staff of the Department

Head of the Department	: Peter Bury
Vice-head of the Department	: Dušan Pudiš
Secretary for Education	: Gabriela Tarjániová
Administrative Support	: Anna Chasníková
Technical Support	: Nadežda Remencová, František Černobila, Juraj Remenec (1/3)

## 2.1 Sections of the Department

### 2.1.1 Section of General Physics

Head of the Section	: Ivan Melo
Research Fellows	: Mikuláš Gintner, Ivan Melo
Senior Lecturers (with PhD)	: Peter Sidor, Beáta Trpišová, Gabriela Tarjányiová
Senior Lecturers (without PhD)	: Ivan Bellan, Ladislav Vikisály (until Jun 30, 2012)

### 2.1.2 Section of Applied Physics

Head of the Section	: Dušan Pudiš
Professor	: Peter Bury
Associate Professors	: Peter Hockicko, Daniel Káčik, Ivan Martinček, Dušan Pudiš, Sofia Slabeyciusová
Research Fellows	: Jozef Kúdelčík, Igor Jamnický (1/2)
Senior Lecturers (with PhD)	: Jana Ďurišová, Ivana Kubicová (since Sep 1, 2012), Norbert Tarjányi, Marián Janek, Ľuboš Šušlik, Michal Žitňan (Feb 1 – Aug 7, 2012)

### 2.1.3 Postgraduate Students

Internal	: Jozef Drga, Ivana Kubicová (until Aug 31, 2012), Peter Gašo (since Sep 1, 2012), Štefan Hardoň (since Sep 1, 2012), Daniel Jandura (since Sep 1, 2012), Peter Tatár (since Sep 1, 2012)
External	: Pavel Virdzek (suspended since Sep 1, 2012)

## 3 Education

### 3.1 Courses in Bachelor and Master Degree Programmes

#### 3.1.1 Bachelor Degree Programmes

Code	Title	Lessons-Seminars-Lab. exercises		
		Semester	Hours/week	Teachers
<i>Courses at the Faculty of Electrical Engineering</i>				
31110	Introduction to Physics	1	1 - 2 - 0	Tarjányiová
31201	Physics I	2	3 - 2 - 1	Bury, Pudiš, Káčik
31303	Physics II	3	3 - 2 - 1	Bury, Pudiš
31307	Computer Simulation of Real Processes	4	1 - 0 - 2	Jamnický
31450	Basics of Optoelectronics	4	2 - 1 - 0	Tarjányi
32109	Physics III	1	2 - 1 - 0	Pudiš
32321	Measurement in Telecommunications 4	3	0 - 0 - 2	Káčik
31315	Chapters of Physics	2	2 - 1 - 0	Pudiš

#### *Courses at the Faculty of Mechanical Engineering*

2B010	Seminar on Physics	1	0 - 2 - 0	Trpišová
2B018	Physics I	2	3 - 2 - 0	Martinček, Slabeyciusová
2B033	Physics II	3	2 - 0 - 2	Martinček, Slabeyciusová

2B018 Physics I (External studies)	2	20 - 6 - 0	Slabeyciusová
2B033 Physics II (External studies)	3	20 - 6 - 0	Slabeyciusová

*Courses at the Faculty of Civil Engineering*

4B113 Physics	1	2 - 1 - 1	Kúdelčík
4B117 Seminar on Physics	1	0 - 2 - 0	Kúdelčík
4B218 Physics - optics	2	2 - 1 - 0	Štelina
4B202 Physics I	2	2 - 1 - 1	Hockicko, Kúdelčík
4B211 Chapters of Physics	2	0 - 2 - 0	Hockicko
4E203 Physics – (External studies)	2	12 - 8 - 0	Tarjányi
4E208 Chapters of Physics - (External studies)	2	10 - 0 - 0	Tarjányi

*Courses at the Faculty of Operation and Economics of Transport and Communication*

11P101 Physics	1	2 - 1 - 1	Jamnický, Hockicko
11P102 Physics	1	2 - 1 - 1	Hockicko
12P101 Physics (External studies)	1	8 - 4 - 4	Hockicko
12P102 Physics (External studies)	1	12 - 0 - 4	Káčik
12P103 Physics (External studies)	1	16 - 0 - 0	Hockicko

*Courses at the Faculty of Management Science and Informatics*

5BF005 Fundamentals of Physics	1	3 - 1 - 1	Martinček
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*Courses at the Faculty of Special Engineering*

92026 Physics	2	2 - 1 - 1	Jamnický
97026 Physics	2	18 - 0 - 0	Trpišová

*Courses at the Faculty of Humanities*

8BT133 Planning and Evaluation of Experiment	4	2 - 1 - 1	Jamnický
8BT148 Computer Physics I	5	0 - 2 - 2	Kúdelčík
8BT151 Computer Physics II	6	1 - 0 - 2	Kúdelčík
8BT113 Physics I	2	3 - 2 - 1	Bury
8BT208 Condensed matter Physics	1	3 - 2 - 0	Pudiš
8BT235 Application of wave processes	3	2 - 0 - 2	Bury

**3.2 Courses in doctoral studies***Faculty of Civil Engineering*

4D102 Applied Physics	1d	2 - 0 - 0	Bury
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**3.3 Courses in the framework of Erasmus**

31110 Introduction to Physics	1	1 - 2 - 0	Káčik
31303 Physics II	3	3 - 2 - 1	Bury

## 4 Science, research and development

The research carried out at the Department is mostly concerned with the utilization of acoustic and optical wave processes for the investigation of condensed matter. Acoustic Group exploits a wide range of acoustic methods and techniques as well as acoustoelectric and acoustooptic phenomena to investigate semiconductors, metals, ferroelectric materials and magnetic liquids. New acoustic techniques are also developed.

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The theoretical high-energy physics group works in the area of strong electroweak symmetry breaking and quark-gluon plasma.

## 5 Scientific, Research and Educational Projects

### 5.1 National Projects

5.1.1 Research Projects Funded by the Scientific Grant Agency of the Slovak Republic (VEGA)

#### ***VEGA 1/0528/12 Research and development of optofluidic fibers for sensor and photonic applications***

Summary:

The aim of the project is to acquire theoretical knowledge about optofluidic fibers based on optical glasses in combination with appropriate fluids and their implementation into practical application for design, preparation and characterization of this kind of fibers. The subject of the project is the design of optofluidic fiber structures composed of optical glass and fluid in order to the application in sensorial, photonic and optoelectronic application, as well as preparation and characterization of these optofluidic fibers with designed structures. Static and dynamic optical properties of optofluidic fibers will be examined in visible and near infrared region of electromagnetic spectrum.

Gained knowledge will be employed for design of photonic devices based on optofluidic fiber properties, as tunable optical sensor attenuators, optical power limiters, optical fiber switches and sensors.

Realization:

01/2012- 12/2014

Coordinator:

Ivan Martinček

Cooperators:

Dušan Pudiš, Daniel Káčik, Norbert Tarjányi, Ľuboš Šušlik, Ivana Kubicová, Dalibor Blažek, Jakub Porubčan, Jana Ďurišová

#### ***VEGA 2/0077/09 Impact of various nanoparticles on structural transitions in ferromagnetics and on dielectric properties of magnetic fluids.***

Summary:

Project is oriented to the study of some systems containing nanoparticles, specifically magnetic fluids and magneto-optic films with significant Farady effect. The first part of project deals with the study of structure

and dielectric properties, thermal conductivity, partial discharges and both d.c. And a.c. Hopping in magnetic fluids based on transformer oils. The purpose is to prepare transformer oils with better dielectric and thermal properties as in the case of clean transformer oil, so they could be used as more effective cooling medium in consequence the magneto-convection phenomena. The purpose is to utilize them in various areas of high-power electronic. The second part of project is oriented to the preparation of magneto-optical films in the form of polymeric, in magnetic field structuralized nanoparticles of various shape and to the study of their magneto-optic properties.

Realization: 2009-2012  
 Coordinator: Kopčanský, ÚEF SAV Košice  
 Sub-Coordinator: Peter Bury  
 Cooperators: Jozef Kúdelčík, Marián Janek

***VEGA 1/1058/11 NSOM lithography and interference lithography as an advanced method for the preparation of the photonic structures and optoelectronic devices with photonic structures.***

Summary: Project is focused on the preparation of the photonic structures for the optoelectronic devices by employment of the lithographic methods as the NSOM and the interference lithography. These lithographic techniques and their combination allow prepare the photonic structures for optoelectronic devices with the period of order of few hundreds nanometers. In combination with the optimisation of the optical properties in the program FDTD the unique laboratory of the photonic structures will be established with possibilities of the complex photonic device design, optimisation and diagnostics in the area of photonic structures.

Realization: 01/201 – 12/2013  
 Coordinator: Dušan Pudiš  
 Co-operators: Daniel Káčik, Norbert Tarjányi, Ivan Martinček, Slabeyciusová, Ľuboš Šušlik, Ivana Kubicová, Peter Tvarožek

***VEGA 1/0457/12 Strongly interacting matter in nuclear collisions and compact stars***

Summary: Project deals with selected topics from physics of nuclear collisions and compact stars.

Realization: 01/2012 – 12/ 2014  
 Coordinator: Boris Tomášik, UMB Banská Bystrica  
 Co-operators: Ivan Melo

5.1.2 Projects Funded by the Cultural & Education Grant Agency (KEGA)

***KEGA 035ŽU-4/2012: Forming of physical concepts using videoanalysis and videomeasurements with the aim to popularize physics and make it more attractive***

Summary: The project is focused on the preparation of supplementary study materials for the subject physics that are intended for the grammar and high school students and could be also used for both one-term and

two-term basic physics courses. By preparing videoexperiments and through the realization of videomeasurements we want to build in students the correct conception about processes and phenomena around us. The prepared set of videoexperiments will be placed at the World Wide Web so that it will be accessible to all teachers and students at all levels of the educational process as an aid serving whether for a visual demonstration, explanation or a mathematical or a physical analysis of the given process.

Realization: 01/2012 – 12/2014  
 Coordinator: Peter Hockicko  
 Co-operators: Jozef Kúdelčík, Beáta Trpišová, Marián Janek, Gabriela Tarjányiová

**KEGA 002KU-4/2011: Development of Scientific Literacy in University Preparation of Students of Pre-school and Elementary School Pedagogy**

Realization: 01/2011 – 12/2013  
 Coordinator: Ivana Rochovská, KU Ružomberok  
 Co-operators: Peter Hockicko

5.1.3 Research Projects Funded by the Slovak Research and Development Agency (APVV)

**APVV–0050–11 Strongly interacting matter in extreme conditions (SIMEX)**

Summary: Project deals with open problems of behaviour of strongly interacting matter in extreme conditions i.e. at high temperatures and/or high densities of nuclear matter.

Realization: 07/2012 – 12/2015  
 Coordinator: Štefan Olejník, Institute of Physics, SAS  
 Co-operators: Ivan Melo

**APVV LPP-0059-09 Masterclasses Slovakia project**

Anotácia: High school students spend one day with physicists of elementary particles during which they learn to evaluate real experimental data from LHC accelerator.

Realization: 09/2009 – 12/2012  
 Coordinator: Alexander Dirner, UPJŠ Košice  
 Sub-Coordinator: Ivan Melo  
 Co-operators: Mikuláš Gintner, Gabriela Tarjányiová, Beáta Trpišová, Jozef Kúdelčík, Ivana Kubicová, Marián Janek

5.1.4 Projects of European Structural Funds

**6110230060 „Development of culture of quality at university of Žilina on basis of european standards of university education“**

Summary: To create a strategy for permanent improvement of quality at university which includes a system of information management directed inside and outside university.

Realization: 02/2012 – 1/2013  
 Co-operator Activity 1.3: Peter Hockicko

**26220120046 Center of excellence for power electronics and their material components II**

Summary: The goal is to equip laboratories for research and development of materials for components of power electronics systems with modern apparatus which will meet requirements for the current top research.

Coordinator Activities 2.1: Peter Bury

Co-operators: Ivan Bellan, Peter Hockicko, Igor Jamnický, CSc., Daniel Káčik, Jozef Kúdelčík, Ivan Martinček, Dušan Pudiš, Norbert Tarjányi, František Černobila

**26220220078 Investigation of very economic components of electric driving systems of railway vehicles and vehicles used for public transport**

Co-operators: Igor Jamnický

**26220220118 Development of optimal technology for analysis of limiting states of construction elements in contact**

Co-operators: Sofia Slabeyciusová

**26110230052 Improvement of competitiveness of technical study programmes reflecting current business needs, Activity 2.1 Improvement of quality of doctoral studies programmes via mobilities of invited experts**

Realization: 3/2012-012/2013

Co-operators: Peter Bury  
Peter Hockicko  
Daniel Káčik

**5.2 International Projects****5.2.1 COST Projects****Action TD1001: Novel and Reliable Optical Fibre Sensor Systems for Future Security and Safety Applications (OFSeSa)**

Realization: 11/2010 - 11/2014

National coordinator: Daniel Káčik

Co-operators: Ivan Martinček, Dušan Pudiš, Norbert Tarjányi, Peter Tvarožek, Ľuboš Šušlik, Ivana Kubicová

**5.2.2 Other International Projects****PROJECT of EUROPEAN PHYSICAL SOCIETY INTERNATIONAL PHYSICS MASTERCLASSES 2012 (<http://wyp.teilchenphysik.org/mc.htm>)**

Summary: High school students spend one day with physicists of elementary particles during which they learn to evaluate real experimental data from LHC accelerator.

Realization: annually

National coordinator: Ivan Melo

Sub-Coordinator: Gabriela Tarjányiová

Co-operators : Mikuláš Gintner, Beáta Trpišová, Jozef Kúdelčík, Gabriela Tarjányiová, Remenec, Ivana Kubicová, Marián Janek

## 6 Co-operation

### 6.1 Co-operation Partners in Slovakia

- International Laser Center, Bratislava
- Institute of Electrical Engineering, Slovak Academy of Sciences
- Institute of Physics, Slovak Academy of Sciences, Bratislava
- Dept. of Microelectronics, FEI STU Bratislava
- Institute of Experimental Physics, Slovak Academy of Sciences, Kosice
- Matej Bel University, Banská Bystrica
- KEF FMFI UK Bratislava
- University of P.J. Šafarik, Kosice

### 6.2 International co-operation Partners

- Institute of Physics, Faculty of Philosophy and Natural Sciences, Silesian University in Opava, CZ
- *Institute* of biochemical physics, Moscow, Russia
- Institute of metallurgy A.A.Bajkova of Russian Academy of Sciences, Moscow, Russia
- Lublin University of Technology, Lublin, PL
- Université de Mons - Faculty Polytechnique
- Helsinki University of Technology, Finland
- ISIR, Osaka University, Japan
- ATLAS collaboration, CERN, Switzerland
- University of Frankfurt, Germany
- Aalto University, Finland
- IPHT Jena, Germany
- UFE ČAV, Prague, CZ
- OFTC University of Sydney, Australia
- VŠB-Technical University of Ostrava, CZ
- Joint Institute of Nuclear Research, Dubna, Russia
- TU Ilmenau, Germany
- Instituto do Ceramica y Vidrio (CSIC), Madrid, Spain
- Institute of Technical and Experimental Physics, ÚTEF ČVUT Prague, CZ

### 6.3 Visitors to the Department

<i>Name</i>	<i>Institution</i>	<i>Length of stay</i>
Kay Schuster	IPHT Jena, Germany	3 days
Josef Juráň	ÚTEF ČVUT Prague, CZ	14 days

### 6.4 Visits to Foreign Institutions

<i>Name</i>	<i>Institution</i>	<i>Length of stay</i>
Peter Hockicko	Aristotele University of Thessaloniki, GR	4 days
	Brno University of Technology, CZ	3 days
	Universidade do Porto, Portugal	3 days
Mikuláš Gintner	ÚTEF ČVUT Prague, CZ	30 days
	Silisian University in Opava, CZ	10 days
	CERN, Geneva, Switzerland	20 days
Jozef Kúdelčík	FETI UT Gdansk, PL	5 days
Ivan Melo	Cern, Geneva, Switzerland	10 days
	Jan Kochanowski Univerzita, Kielce, PL	5 days
	Hungarian Academy of Sciences, HU	2 days
	CNRS/IN2P3, Paris, FR	2 days
	Innsbruck University, Austria	2 days

## 7 Other Activities

### 7.1 Conferences, Workshops, Symposiums Organized by the Department

- National Masterclasses workshop “Z boson exercise in software Hypatia” Feb 3, 2012, University of Žilina, Organizer: Ivan Melo
- 8th International Particle Physics Masterclasses 2012, University of Žilina, Mar 1, 2012. Ivan Melo – national coordinator, Gabriela Tarjányiová – main coordinator, Mikuláš Gintner, Beáta Trpišová, Jozef Kúdelčík, Ivana Kubicová, Marián Janek, Juraj Remenec.
- National High School Competition Cascade, <http://fyzika.uniza.sk/cascade/>, Mar – Jun 2012. Organizers: Ivan Melo, Mikuláš Gintner, Gabriela Tarjányiová
- Lecture and demonstrations in the Country of waves, organizers SAIA Žilina and the Country of waves (KF EF ŽU in Žilina), project „Waves in us and around us“. Project was supported by: Tatra Bank Foundation, City of Žilina. Date: Feb 22, 2012 – May 23, 2012. Organizers: Daniel Káčik, Norbert Tarjányi, Marián Janek, External collaborator: Ivan Turek.

### 7.2 Specialised Lectures and Courses Organized by the Department

*Title of Lecture/Course: Study of optical properties using ultrafast spectroscopy: from conductive polymers to solar cells*

Customer: EF ŽU  
Lecturer: Michal Žitňan  
Date: 28<sup>th</sup> Feb 2012

*Title of Lecture/Course: Planck mass, Planck length, Planck time*

Customer: EF ŽU  
Lecturer: Július Štelina  
Date: 17<sup>th</sup> Apr 2012

*Title of Lecture/Course: Study of cosmic rays from the living room (MC seminar)*

Customer: High school students  
Lecturer: Marek Bombara (UPJŠ Košice)  
Date: 17<sup>th</sup> May 2012

*Title of Lecture/Course: Computer networks and internet*

Customer: EF ŽU  
Lecturer: Jozef Drga  
Date: 23<sup>rd</sup> May 2012

*Title of Lecture/Course: Simulation of relaxation processes in condensed matter*

Customer: EF ŽU  
Lecturer: Peter Hockicko  
Date: 5<sup>th</sup> Jun 2012

*Title of Lecture/Course: Preparation of photonic structures for optoelectronics using NSOM lithography*

Customer: EF ŽU  
Lecturer: Ivana Kubicová  
Date: 29<sup>th</sup> Jun 2012

*Title of Lecture/Course: Measurements with IPCoach*

Customer: EF ŽU  
Lecturer: Jozef Kúdelčík  
Date: 25.th Sep 2012

*Title of Lecture/Course:* GEANT4 simulations of  $d + p$   $p + p + n$   
 Customer: EF ŽU  
 Lecturer: Beáta Trpišová  
 Date: 9<sup>th</sup> Oct 2012

*Title of Lecture/Course:* Is it Higgs?  
 Customer: EF ŽU  
 Lecturer: Mikuláš Gintner  
 Date: 16<sup>th</sup> Oct 2012

*Title of Lecture/Course:* Measurement of physical quantities  
 Customer: EF ŽU  
 Lecturer: Marián Janek  
 Date: 23<sup>rd</sup> Oct 2012

*Title of Lecture/Course:* Research activities at IPHT Jena  
 Customer: EF ŽU  
 Lecturer: Kay Schuster (IPHT Jena)  
 Date: 13<sup>th</sup> Nov 2012

*Title of Lecture/Course:* Chemically peculiar Ap binary stars  
 Customer: EF ŽU  
 Lecturer: Jozef Drga  
 Date: 20<sup>th</sup> Nov 2012

### 7.3 Invited Lectures/Papers

*Acoustic Spectroscopy of Nanostructures*  
 Lecturer: Peter Bury  
 Where/Date: Physics of Materials, Košice, 17th Oct 2012

*LHC and strongly-interacting extensions of the Standard Model*  
 Lecturer: Mikuláš Gintner  
 Where/Date: 19th conference of Slovak Physicists, Prešov, Slovakia, Sep 3 – 6, 2012

Is it Higgs?  
 Lecturer: Mikuláš Gintner  
 Where/Date: Seminar at the Institute of Physics, Slezska univerzita in Opava, Opava, Czech Republic, Oct 4, 2012

*Top-BESS model and its phenomenology*  
 Lecturer: Mikuláš Gintner, Josef Juráň, Ivan Melo  
 Where/Date: Talk at the conference Planck 2012 „From the planck scale to the electroweak scale“, Warsaw, Poland, May 28 – Jun 1, 2012

*Mysterious talk of neutrinos*  
 Lecturer: Mikuláš Gintner, M. Mojžiš  
 Where/Date: Public discussion organized by POLIS Žilina foundation, Slovakia, 14th Feb 2012

*Science in sleeping bag*  
 Lecturer: Jozef Drga  
 Where/Date: A day of Astronomy and Physics for public, University of A. Dubček in Trenčín, 28th Jan 2012

*The world of elementary particles and LHC*

Lecturer: Beáta Trpišová

Where/Date: A day of Astronomy and Physics for public, University of A. Dubček in Trenčín, 28th Jan 2012

*How to win the Nobel prize with a Scotch tape*

Lecturer: Michal Žitňan

Where/Date: A day of Astronomy and Physics for public, University of A. Dubček in Trenčín, 28th Jan 2012

**7.4 Membership in International Institutions /Committees**

- Ivan Melo
- Slovak delegate in IPPOG (International Particle Physics Outreach Group)
  - Slovak delegate in EPPCN (European Particle Physics Communication Network)
- Peter Bury
- Slovak delegate in European Strategy Group
  - chairman of the National IUPAP Committee (International Union for Pure and Applied Physics)
- Peter Hockicko
- Member of SEFI (European Society for Engineering Education), PWG (Working Group on Physics), Slovak delegate
  - Member of EUCU.NET (European Children's Universities Network)
- Daniel Káčik
- National coordinator COST TD 1001

**7.5 Membership in National Institutions/Committees**

- Igor Jamnický
- Member of the Working Group of AK (Slovak Accreditation Committee) for the research area 15 Electronics and Electric Power Engineering
  - Member of the Organizing Committee of 18<sup>th</sup> APCOM conference 2012
- Peter Bury
- Member of the Slovak Physical Society Council
  - Member of the Scientific Committee of 18th Conference APCOM 2012
  - Member of the Field Commission Solid State Physics and Acoustics at FEI STU Bratislava
  - Member of the Scientific Committee of the international conference "New trends in physics", Brno 2012
  - Member of the Scientific Committee of the international conference ELEKTRO 2012, Žilina
- Ladislav Vikisály
- Member of the Trade Union Council of the Educational System Employees Slovakia
  - Member of the Association of the Trade Unions of Universities and PRO Slovakia
- Dušan Pudiš
- Chair of the Organizing Committee of 18th Conf. APCOM 2012
  - Member of COST TD 1001
- Ivan Melo
- National coordinator of the 8th International Masterclasses in Particle Physics for high school students
- Peter Hockicko
- Member of the Scientific Committee of the 7th International Conference Material Acoustics Place 2012, Zvolen
- Norbert Tarjányi
- Member of the Organizing Committee of the 9th International Conference ELEKTRO 2012
  - Member of the Slovak Physical Society

## 7.6 Membership in University Boards

Ivan Martinček	- Member of the Commission for the field 5.2.12 Electrotechnologies and materials
Dušan Pudiš	- member of the Commission for the field 5.2.12 Electrotechnologies and materials - Member of Scientific Council of EF ŽU - Secretary of the Academic Senate of EF ŽU - Member of the Executive Council of the KAP club (alumni and friends of University of Žilina)
Igor Jamnický	- Member of the Commission for the field 5.2.12 Electrotechnologies and materials - Member of Scientific Council of EF ŽU - Member of Scientific Council of University of Žilina - Member of Academic Senate of ŽU
Peter Bury	- Chair of the Commission for the field 5.2.12 Electrotechnologies and materials, EF ŽU - Member of Academic Senate of EF ŽU - Member of the Communications journal editorial board - Member of Scientific Council EF ŽU
Ladislav Vikisály	- Chair of the Trade Unions, OZ PŠaV ŽU - Member of the Disciplinary committee, ŽU - Member of tender committees at the rectorate of ŽU
Daniel Káčik	- Member of Academic Senate of EF ŽU
Jozef Kúdelčík	- member of the Commission for the field 5.2.12 Electrotechnologies and materials
Ivan Martinček	- member of the Commission for the field 5.2.12 Electrotechnologies and materials

## 7.7 Awards

- Best paper award SEFI 40 annual conference 2012, Thessaloniki, Greece: First place, Peter Hockicko

## 8 Publications

### Lecture Notes

- [1] GUTTEN, Milan – ŠIMKO, Milan – KÚDELČÍK, Jozef – KORENČIAK, Daniel: *Measurement and measuring systems I: devices and systems*, 1<sup>st</sup> edition. Žilina: Žilinská univerzita 258 p., [20,88 AH; 21, 48 VH]
- [2] BOMBARA, M., GINTNER, M., MELO, I.: *Invitation to Elementary Particles*, 1<sup>st</sup> edition – Žilina, Žilinská univerzita, (2012), CD-ROM 2012. 185 p., ISBN 978-80-554-0620-6. [20,88 AH;]

### Current Content Journals

- [3] MARTINČEK, Ivan – PUDIŠ, Dušan.: *Fiber-Optical Power Limiter and Cut-Off Switch Based Thermo-Optical Effect*, IEE Photonics technology Letters, Vol. 24, No. 4, February 15 (2012), ISSN 1041-135
- [4] ŠTELINA, Július. – MUSIL, Ctibor.: *nanoparticle kinetic effects experimentally observed in a magnetic fluid under a quasi-homogeneous magnetic field*, Journal of magnetism and Magnetic Materials vol. 324, iss. 9 ISSN 0304-8853 (2012) 1706-1710
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