

DEPARTMENT OF PHYSICS

1, General Information

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, training them in applying the principles of physics to various engineering problems as well as giving the students a review of modern physics.

The department is divided into three sections according to their research and educational specialisation and an additional one, which has special tasks to support the research activities of the Department. The staff consists of 1 professor, 7 associate professors, 14 senior lecturers, 5 external and 1 internal Ph.D. students, 7 research fellows, 3 technicians and 1 secretary.

Traditionally, the research carried out at the department is mostly concerned with the utilization of ultrasonic methods for the investigation of condensed matter. Currently a wide range of ultrasonic techniques is used to investigate semiconductors, metals and ferroelectric materials as well as new ultrasonic techniques are developed. Other research areas include study of wave processes and x-ray diffraction analysis of thin layers. Optical group studies physical properties of the conventional telecommunications optic fibres, twin core optic fibres, photonic crystal fibres, biological photonic structures and semiconductor laser diodes based on quantum wells. Self-diffraction of light in magnetic fluids and photorefractive phenomenon in selected condensed matter materials are also studied within the group. In last years the research programme was extended to theoretical high-energy physics. One research group works in the area of strong electroweak symmetry breaking.

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.

In accordance with their qualifications the members of the staff participate in various educational, scientific and management activities beyond the framework of the department and the University, especially on various scientific boards of both domestic and international institutions. There are also many activities directed to advancing the education of physics teachers working in secondary schools and to the organisation of Physics Olympiads in order to prepare young people for national and international competitions.

2, Staff of the Department

Head of the Department	:	Igor Jamnický
Vice-head of the Department	:	Peter Bury
Secretary for Education	:	Gabriela Tarjányiová
Administrative Support	:	Anna Chasníková
Technical Support	:	Nad'a Remencová Juraj Remenec

2.1. Sections of the Department

2.1.1 Section of General Physics

Head of the Section	:	Ivan Melo
Associate Professor	:	Juraj Braciník

Department of Physics

Research Fellows	:	Mikuláš Gintner Ivan Melo Jozef Kúdelčík
Senior Lecturers (with PhD)	:	Mária Richterová Beáta Trpišová
Senior Lecturers (without PhD)	:	Anna Bracíníková Gabriela Tarjániová Pavol Virdzek
Lectors	:	Ivan Bellan
	:	Igor Varga

2.1.2. Section of Applied Physics

Head of the Section	:	Július Štelina
Professor	:	Peter Bury
Associate Professors	:	Igor Jamnický Jozef Kejst Sofia Šlabeyciusová Július Štelina Ivan Turek (2/3) Drahoslav Vajda
Research Fellows	:	Ctibor Musil Ivan Martinček Dušan Pudiš
Senior Lecturers (with PhD)	:	Daniel Káčik Norbert Tarjányi
Senior Lecturers (without PhD)	:	Jaroslav Kovár Peter Sidor Ladislav Vikisály Vladimír Žucha
Technical Support	:	František Černobila

2.1.3 Postgraduate Students

Internal (full-time)	:	Miroslav Dúbravka
External (part-time)	:	Ivan Kubovský, Peter Sidor, Gabriela Tarjániová, Pavel Virdzek, Vladimír Žucha

3, Teaching

3.1 Courses in Bachelor and Master Degree Programmes

		Lessons-Seminars-Lab.exercises		
Code	Tittle	Semester	hours/week	Teachers

Courses for the Faculty of Electrical Engineering

31070	Physics I	2	3 - 2 - 1	Bury, Jamnický
31074	Physics II	3	4 - 1 - 1	Bury, Jamnický
31059	Semiconductor Physics	4	4 - 0 - 0	Braciník
3B107	Introduction to Physics	1	1 - 2 - 0	Káčik
31023	Computer Modelling of the Real Processes	3	1 - 0 - 2	Jamnický
31081	Seminar on Semiconductors	4	0 - 2 - 0	Pudiš
32236	Optoelectronics	5	2 - 0 - 2	Štelina
31007	Analysis of Quantities and Processes	2	0 - 2 - 0	Kejst, Kovár
31099	Wave processes	4	2 - 2 - 0	Kejst
	Physics I (DŠ)	2	14 - 6 - 4	Kejst
31074	Physics II (DŠ)	3	14 - 4 - 4	Kejst
31080	Seminar on Physics II	3	0 - 2 - 0	Tarjányi

Courses of the Faculty of Mechanical Engineering

21950	Introduction to Physics	1	0 - 2 - 0	Trpišová
21008	Physics I	2	3 - 2 - 0	Vajda, Slabeyciusová
21013	Physics II	3	2 - 0 - 2	Vajda, Slabeyciusová
22002	Technical Physics – Pov. Bystrica	2	2 - 2 - 0	Trpišová
22002	Technical Physics - Bch- external	2	2 - 2 - 0	Trpišová
26007	Physics I	2	20 - 6 - 0	Martinček
26011	Physics II	3	24 - 6 - 0	Martinček
21685	Technical Optics	10	2 - 1 - 1	Martinček

Courses of the Faculty of Civil Engineering

4B118	Seminar on Physics	1	0 - 2 - 0	Virdzek
4B113	Physics	1	2 - 1 - 1	Štelina
42010	Physics	2	2 - 1 - 1	Štelina
42063	Physics - optics	2	2 - 1 - 0	Štelina
42016	Chapters of Physics	2	0 - 2 - 0	Kovár
46009	Physics – DŠ	2	12 - 8 - 0	Musil

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

11P01	Physics	1	2 - 1 - 1	Martinček, Pudiš, Kejst
11P01	Physics (DŠ)	1	16 - 0 - 0	Bury

Courses of the Faculty of Management Science and Informatics

5BF05	Fundamentals of Physics	1	3 - 1 - 1	Braciník
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Courses of the Faculty of Special Engineering

		hours/sem	
91434 Optoelectronics	7	2 - 1 - 0	Štelina

Courses of the Faculty of Natural Sciences

81027 Theoretical mechanics	4	2 - 1 - 0	Bracíník
8MF01 General Physics II	3	4 - 3 - 0	Melo
8MF02 Physics laboratory II	3	0 - 0 - 2	Kúdelčík
8MF05 Computer Physics I	5	1 - 2 - 0	Kúdelčík
8MF06 General Physics IV	5	3 - 2 - 0	Gintner
8MF10 Statistical physics and thermodynamics	7	2 - 1 - 0	Bracíník
8MF11 Teaching physics (Didaktika fyziky) II	7	0 - 3 - 0	Richterová
8MF12 Special laboratory of school experiments	7	0 - 3 - 0	Tarjániová
8MF21 Selected chapters of physics	7	2 - 0 - 0	Bracíník
8MT42 Condensed matter physics I	7	2 - 2 - 0	Vajda
8MF18 Condensed matter physics	9	2 - 1 - 0	Vajda
8MF19 Physics problems solving I	9	0 - 3 - 0	Hockicko
8MT39 Experimental methods in physics II	8	2 - 2 - 0	Kúdelčík

4, Education, Research and Scientific Projects

4.1. Internal Research Projects

Title: Study of Physical Properties of Perspective Materials Using Acoustic Methods (partly VEGA grant 1/2016/05)

Coordinator: Peter Bury

Co-operators: Jamnický Igor, Slabeyciusová Sofia, Hockicko Peter, Kovár Jaroslav, Bellan Ivan, Vajda Drahoslav, Sidor Peter, Vikisály Ladislav

Title: Investigation of photonic crystal fibres by means of the scanning of the near optical field and the study of nonlinear optical phenomena in condensed matter

Coordinator: Martinček Ivan

Co-operators: Káčik Daniel, Pudiš Dušan, Tarjáni Norbert, Turek Ivan, Štelina Július, Musil Ctibor, Bracíník Juraj, Kejst Jozef, Virdzek Pavol

Title: Sensitivity of future colliders to VVtt vertex and the role of the top quark in the mechanism of electroweak symmetry breaking

Coordinator: Gintner Mikuláš

Co-operators: Melo Ivan, Trpišová Beáta

4.2 National Projects

4.2.1 Research Projects funded by the Science & Education Grant Agency of the Slovak Republic

Title: The scanning of optical fields by means of tapered optic fibres and the application of the method to the investigation of the optical fields of the optoelectronic and optic elements (Grant VEGA 1/2048/05).

Coordinator : Pudiš Dušan
Vice-coordinator : Martinček Ivan
Co-operators : Turek Ivan, Káčik Daniel
Tarjányi Norbert, Slabeyciusová Sofia,
Kováč Jaroslav, ILC Bratislava, Chovan Jozef,
ILC Bratislava

Title: Study of kinetics of nanoparticles in magnetic fluids using the light diffraction (Grant VEGA 02 12 601/2003)

Project is a part of the programme: Study of Physical Parameters of Complex Systems with Fine Magnetic Particles (coordinator: doc.RNDr. Kopčanský, CSc., Košice)

Coordinator (in Žilina): Štelina Július
Co-operators: Musil Ctibor, Braciník Juraj

Title: Study of physical properties of new construction materials using acoustic methods (Grant VEGA 1/2016/05)

Coordinator : Slabeyciusová Sofia
Vice-coordinator : Bury Peter
Co-operators : Jamnický Igor, Hockicko Peter,
Žucha Vladimír, Sidor Peter

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

Title: Use of multimedia technologies and e-learning as a support for teaching physics in Bachelor degree programme

Coordinator (in Žilina): Igor Jamnický
Vice-co-ordinator : Peter Hockicko

Title: Creation of multimedia e-book for the Electrotechnics and Physics courses in the experimental form of teaching (KEGA č. 3/3076/05)

Coordinator : Miroslav Gutten
Vice-coordinator : Jozef Kúdelčík
Anna Zahoranová

Title: Use of Information-communication technologies as means to increase interest in physics in classes and in extracurricular activities at elementary and high schools (Grant KEGA 3/2386/04)

Coordinator : Alexander Dirner (ÚFV, PF UPJŠ)

Co-operator : Gabriela Tarjániová

4.2.3 Research Projects Funded by the Science & Development Assistance Agency (APVV)

Title: Study of photorefractive records and their connection with photonic crystals

APVT 20 – 013504

Coordinator : Norbert Tarjányi
Vice-coordinator : Daniel Káčik
Co-operators : Gabriela Tarjániová

4.2.6 Other National Projects (Central Development Project of Ministry of Education)

Title: Implementation of intelligent digital technologies

Coordinator : Pavol Murín, CSc.
(UPJŠ Košice)
Coordinator (in Žilina) : Ivan Melo
Co-operators : Mikuláš Gintner

4.3 International Projects

4.3.10 Other International Projects

Program Phare of Cross-border Cooperation between SR and PL

Title: Tourist Information System of the Euroregion
(SR 01.03-0011)

Coordinator: Ing. Karol Matiaško (FRI University of Zilina)
Co-operator: Igor Varga

5, Co-operation

5.1 Co-operation Partners in Slovakia

- Department of Physics, Faculty of Electrical Engineering and Information Technology , Slovak University of Technology in Bratislava
- Departments of Faculty of Mathematics, Physics and Informatics, Comenius University in Bratislava
- Department of Physical Engineering, Faculty of Industrial Technology, Trenčín University, Púchov
- Department of Physics, Military Academy, Liptovský Mikuláš
- ATLAS group, Institute of Experimental Physics, Slovak Academy of Science, Košice,
- Virtual Collaboration, University of P.J. Šafarik, Košice
- Dept. of Magnetism, Institute of Experimental Physics , Slovak Academy of Science, Košice,
- Volkswagen Slovakia, Bratislava
- Welding Research Institute, Bratislava
- Department of Ceramics, Glass and Cement, Faculty Chemical and Food Technology, Slovak University of Technology in Bratislava
- Dept. of Microelectronics, FEI STU Bratislava
- International Laser Center, Bratislava

5.2 International co-operation Partners

- Institute of Biochemical Physics, RAS, Moscow
- Škoda – Research, Prague
- Department of Physics, Nottingham University
- ÚRE Prague
- Institute of Experimental Physics Science, Czech Academy, Prague
- ATLAS collaboration, CERN, Switzerland
- Centaurus Technologies (University of Sydney)

5.3 Visitors to the Department

Name	Institution	Length of stay
Daniel Káčik	Visit of URE ČAV, Czech Republic	4 days
Daniel Káčik	Conference SPIE – COO 05 Warsaw, Poland	5 days
Daniel Káčik	Meeting with Nobel prize laureats, Lindau Germany	6 days
Sofia Slabeyciusova	15th conference University of East Ukraine in Lungsk Alušta, Ukraine	7 days
Ivan Melo	Invited seminar at Physical Institute of Czech Academy of Sciences, Prague, CR	2 days
Ivan Melo	ILC Workshop 2005 Vienna, Austria	3 days
Peter Bury	Themba Labs, Cap Town, South Africa	5 days
Dušan Pudiš		
Juraj Remenec	Labview tutorial, VŠB TU Ostrava	2 days

6. Other Activities

6.1 Conferences, Workshops, Symposiums Organized by the Department

- APCOM 2005 Conference 15.-17.6. 2005 Mala Lučivna, Slovakia (Igor Jamnický, Peter Bury, Dušan Pudiš)

6.2.1 Specialised Lectures, Courses Organized by the Department

Seminars at the Department

- Carbon nanotubes preparation, characterization and possible application“ (Doc.Ing. Miroslav Haluška, PhD., Max Planck Institut für Festkörperforschung Stuttgart, 14. 2. 2005)
- Influence of Electric Field on the drops of the vesicle type (Mária Richterová, 19.4. 2005)
- Possibilities to study materials in scanning microscope (Sofia Slabeyciusová, 3. 5. 2005)
- Standard model of elementary particles (Mikuláš Gintner, 24. 5. 2005)
- Accelerators and detectors of elementary particles (Ivan Melo, 31. 5. 2005)
- Einstein and Slovakia (Doc. RNDr. Juraj Šebesta, CSc., FMFI UK Bratislava 1. 6. 2005)
- European Physics Masterclasses (Gabriela Tarjániová, 14. 6. 2005)
- M – theory: history and current status (RNDr. Tomár Blažek, PhD., FMFI UK Bratislava, 21. 6. 2005)

- New chemical processes for Si devices: nitric acid oxidation and defect passivation using cyanide solutions (Prof. Hikaru Kobayashi, Osaka University, Japan, 16. 9. 2005)
- Labview programming – virtual instruments for automated workplace (Dušan Pudiš, PhD., 27. 9. 2005)
- On science real and science popular (Doc. RNDr. Martin Mojžiš, PhD., FMFI UK Bratislava, 2. 10. 2005)
- ITAIPU – the largest water dam in the world (Doc. Ing. Ján Michalík, PhD., 25. 10. 2005)

Activities of Virtual Collaboration

- Academic Information Days (8.-14. 3. 2005)
- Metal bridges (prof. Bujňák, rector of ŽU, 8.-14. 3. 2005)
- Creation of services for IP telephony (Ing. Segeč, FRI ŽU, 8.-14. 3. 2005)
- Application of technologies Rapid Prototyping for production of industrial products (Ing. Kováčik, SJF ŽU, 8.-14. 3. 2005)
- ICT infrastructure and e-learning (doc. Drozdová, FRI ŽU, 8.-14. 3. 2005)
- Presentation of FŠI ŽU (Zdeňek Dvorák, FŠI, 8.-14. 3. 2005)
- European Physics Masterclasses for high school students (10. 3. 2005)
- Fundamentals of Seismology and Earthquakes (prof. Moczo, FMFI UK Bratislava, 11. 5. 2005)
- Einstein and Slovakia (doc. Šebesta, FMFI UK Bratislava, 1. 6. 2005)
- The role of students in the process of improving the quality of university education (student Conference, 2. 6. 2005)
- M-theory: history and current status (RNDr. Tomáš Blažek, PhD., FMFI UK Bratislava, 21. 6. 2005)
- New chemical processes for Si devices: nitric acid oxidation and defect passivation using cyanide solutions (Prof. Hikaru Kobayashi z Osaka University, 16. 9. 2005)
- On science real and science popular (Doc. RNDr. Martin Mojžiš, PhD, FMFI UK Bratislava, 12. 10 2005)
- ITAUPU – the biggest water dam in the world (Doc. Ing. Ján Michalík, PhD., 25. 10. 2005)
- Beyond Einstein: live webcast on theory of relativity and beyond (1. 12. 2005)
- Open door day – Faculty of Electrical Engineering (January 2005).
- Childrens university of the Faculty of Electrical Engineering (11. 7. - 15. 7. 2005). Peter Hockicko, Ivan Turek, Gabriela Tarjániová, Bury Peter, Mária Richterová, Jozef Kúdelčík,

6.3 Solicited Lectures

Title of Lecture: Strong Electroweak Symmetry Breaking

Lecture: Ivan Melo

Where/When: Czech Academy of Sciences, Prague, Czech Republic, 3. 11. 2005

6.4 Membership in International Institution/Committees

Juraj Bracinik

- member of joint commission 11-22-9 Solid State Physics

Peter Bury

- chairman of the National IUPAP Committee

- member of Acta Physica Slovaca editorial board
- member of joint commission 11-22-9 Solid State Physics
- member of the Slovak Physical Society Council
- member of Slovak Acoustic Society Council
- member of Communications editorial board
- chief editor: Advances in Electrical and Electronics Engineering
- member of editorial board EDIS ŽILINA
- member of Scientific Council EF ŽU
- member of Scientific Council FPV ŽU
- member of Scientific Advisory board of many international conferences

Igor Jamnický

- member of Scientific Council of EF ŽU
- member of Scientific Council of U of ŽILINA
- member of Academic Senate of EF ŽU
- chairman of Academic Senate of ŽU

Dušan Pudiš

- member of the Executive Council of the KAP club (alumni and friends of U of ŽILINA)
- executive editor of AEEE
- member of Organizing Committee of Elektro 2005
- member of Organizing APCOM 2005

Ivan Turek

- member of the Committee which awards DrSc. Degree in CZ

7, Publications

Journals (Sk)

- [1] D. Káčik, I. Turek, I. Martinček, D. Pudiš: *Notes on the description of optic fibres from photonic crystals*, Advances in Electrical and Electronic Engineering, Vol. 4, No. 1 (2005), 23
- [2] J. Kúdelčík, M. Gutten: *Analysis of properties of SF₆ in high-voltage devices and its optimal use in combination with N₂*, Advances in Electrical and Electronic Engineering, Vol. 4, No. 1 (2005), 27
- [3] V. Žucha, Q. Jackuliak: *X-ray diffractometry of thin layers – possibilities and problems*, Advances in Electrical and Electronic Engineering, Vol. 4, No. 2 (2005), 55
- [4] I. Turek, N. Tarjányi: *Complex imaging of photorefractive records*, Advances in Electrical and Electronic Engineering, Vol. 4, No. 2 (2005), 87
- [5] D. Pudiš, I. Martinček, J. Kováč jr., J. Kováč, V. Gottschalch: *Spectral investigation of laser structures using NSOM experiment*, Advances in Electrical and Electronic Engineering, Vol. 4, No. 2 (2005), 97
- [6] J. Kúdelčík, M. Gutten: *Analysis of properties of SF₆ in encased devices and its optimal use in combination with CO₂*, Acta Electrotechnica et Informatica No. 2, Vol. 5 (2005) 50-54
- [7] Martinček, D. Pudiš: *Photonic structures – inspiration for technologies*, Quark, August 2005

Foreign Journals

- [8] P. Kopčanský, M. Timko, I. Potočová, M. Koneracká, A. Juríková, N. Tomašovičová, J. Štelina, C. Musil, J. Braciník: *The determination of the hydrodynamic diameter of magnetic particles using FRS experiment*, Journal of Magnetism and Magnetic Materials 289 (2005) 97-100
- [9] P. Kopčanský, M. Hnatič, M. Repašan, I. Potočová, M. Timko, I. Turek, J. Štelina, C. Musil, J. Braciník, E. Ayrjan, L. Vekas, D. Bica: *The light-induced structuralization in magnetic fluids with negative Soret constant*, Journal of Magnetism and Magnetic Materials 289 (2005) 292-294
- [10] P. Hana, L. Burianova, S.J. Zhang, T.R. Shrout, E. Furman, V. Ryzhenko, P. Bury: *Elastic Stiffness Constants of PZN-4,5%PT Single Crystal Influenced by DC Bias Electric Field Applied at Various Directions to Prototypic Crystal Symetry*, Ferroelectrics, Vol. 319/2005, 145
- [11] M. Richterová and V. Lisý: *Deformability of Multilamellar Vesicles*, Gen. Physiol. Biophys. (2005) **24**, 89-97
- [12] D. Pudiš, I. Martinček, I. Turek, J. Kováč, jr., J. Kováč, V. Gottschalch, B. Rheinländer, M. Dado: *Spectra of lateral modes in the laser diode emission studied by near-field scanning optical microscopy*, Laser Physics, Vol.15, No.12. 2005, pp.1623-1628
- [13] J. Slabeycius, S. Rusnakova, S. Berezina: *Application of Digital Interferometry in Diagnostics of Composite Materials*, Vistnik Schidnoukrajinskogo nacional'nago universitetu imeni Volodimira Dalja, No 8 (90) 2005

Foreign Conference Proceedings

- [14] J. Štelina, C. Musil, J. Braciník, P. Kopčanský, M. Timko, M. Hnatič, M. Repašan, I. Potočová, E. Ayrjan: *Light induced structuralization in magnetic fluids with negative soret constant*, Proceedings of Fundamental and Applied MHD, Riga 2005, Latvia, 349-352
- [15] M. Gintner, I. Melo, B. Trpišová: *Phenomenology of New Vector Resonance at Future e^+e^- Colliders*, BW 2005 WORKSHOP, II Southeastern European Workshop Challenges Beyond the Standard Model, Vrnjacka Banja 2005, Serbia, 43-44 – abstract
- [16] I. Turek, N. Tarjányi: *Interference imaging of photorefractive record in thin sample of $LiNbO_3$ crystal*, Proceedings of SPIE, 14th Slovak-Czech-Polish Conference on Wave and Quantum Aspects of Contemporary Optics, Nitra 2004, 594450J (2005)
- [17] P. Peterka, J. Kanka, P. Dymak, P. Honzatko, D. Kacik, J. Canning, W. Padden and K. Lyytikainen, *Measurement of Chromatic Dispersion in Speciality Fibres using Simple Setup of Interferometric Method*, 7th Optical Fibre Measurement Conference, Teddington 2005,

- [18] D. Káčik, I. Turek, I. Martinček, J. Canning, K. Lytikainen, *The role of diffraction in influencing the short wavelength loss edge of photonic crystal fibres*, 30th Australian Conference on Optical Fibre Technology, ACOFT, 2005 Sydney, Austrália

Conference Proceedings (Sk)

- [19] V. Žucha, P. Šutta, Q. Jackuliak: *Determination the optimal parameters of data collection for measurement of instrumental profiles on an automatic X-ray powder diffractometer AXS Bruker D 8*, Proceeding of APCOM 05, Applied Physics of Condensed Matter, Malá Lučivná 2005, 37
- [20] Bracíníková, J. Bracíník, J. Kejst: *Double cell photoacoustic method for the low thermal conductivity samples*, Proceeding of APCOM 05, Applied Physics of Condensed Matter, Malá Lučivná 2005, 217
- [21] J. Štelina, C. Musil, J. Bracíník, P. Kopčanský, M. Timko, M. Koneracká: *Influence of the sign of soret constant on the formation and decay of the nanoparticle structures in dispersion fluids*, Proceeding of APCOM 05, Applied Physics of Condensed Matter, Malá Lučivná 2005, 230
- [22] P. Hockicko, P. Bury, S. Jurečka, M. Jamnický, I. Jamnický: *Analysis of conductivity spectra in ionic phosphate glasses*, Proceeding of APCOM 05, Applied Physics of Condensed Matter, Malá Lučivná 2005, 239
- [23] M. Gintner, I. Melo, B. Trpišová: *A new vector resonance production at LHC*, Proceeding of Abstracts 15. Conference of Slovak and Czech Physicists, Košice 2005
- [24] M. Gintner, I. Melo, B. Trpišová: *Phenomenology of new vector resonances at future e^+e^- colliders*, Proceeding of Abstracts 15. Conference of Slovak and Czech Physicists, Košice 2005
- [25] P. Bury, P. Hockicko, M. Jamnický, I. Jamnický, S. Jurečka: *Acoustic and electrical behaviour of some ionic phosphate glasses*, Proceeding of Abstracts 15. Conference of Slovak and Czech Physicists, Košice 2005
- [26] J. Štelina, C. Musil, J. Bracíník, P. Kopčanský, M. Timko, M. Koneracká: *Arise of nanoparticle structuralization in the disperse liquid*, Proceeding of Abstracts 15. Conference of Slovak and Czech Physicists, Košice 2005
- [27] J. Štelina, C. Musil, J. Bracíník, M. Koneracká, P. Kopčanský, M. Timko, M. Repašan, I. Potočová: *Light induced structuralization in magnetic fluids with negative soret constant*, Proceeding of Abstracts 15. Conference of Slovak and Czech Physicists, Košice 2005
- [28] P. Virdzek: *The radiation field of the tectonic dislocation in the shape of the finite length line*, Proceeding of Abstracts 15. Conference of Slovak and Czech Physicists, Košice 2005
- [29] Dirner, P. Farkaš, I. Lokšová, P. Murín, I. Melo, G. Tarjániová, M. Gintner, J. Kúdelčík, J. Remenec et al.: *Virtual communication*, Proceedings of scient. seminar Culture of Communication in Information Society, Nitra 2005, 62-88

- [30] D. Pudiš, I. Martinček, J. Kováč jr., J. Kováč, I. Turek, V. Gottschalch, B. Rheinländer, *Lateral Mode Identification from Spectral Investigation of MQW Laser Devices using NSOM*, Abstract in Proceedings of HETECH 2005, Smolenice, 2-5 October, 2005
- [31] M. Gutten, J. Kúdelčík, *Creation of multimedia e-book for the two closely related technical subjects*, Importance of e-learning in university education and further education, Banská Bystrica 2005
- [32] J. Kúdelčík, M. Gutten, M. Kúdelčíková, *Program videomatic and its application in e-learning*, Importance of e-learning in university education and further education, Banská Bystrica 2005

Other Publications

- [33] I. Martinček, D. Pudiš, I. Turek, D. Káčik, *Optical field investigation on cross-section of photonic crystal fibres.*, Proceedings of the „Seminár Nekonvenčné technológie 2005“, p.40
- [34] I. Martinček, D. Pudiš, I. Turek, D. Káčik, *Optical field investigation on cross-section of photonic crystal fibres.*, Proceedings of the „Seminár Nekonvenčné technológie 2005“, Žilina, 213-220

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