

ANNUAL REPORT 2006



Faculty of Chemical and Food Technology
Slovak University of Technology

Radlinského 9, 812 37 Bratislava

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FOREWORD

The Faculty of Chemical and Food Technology (FCHPT) is one of seven faculties of the Slovak University of Technology. The history of the Faculty dates back to 1939, when Law No. 188 of 25 July 1939 allowed the establishment of a Chemical Engineering branch at the Slovak University of Technology. The specialisation profile of the Faculty has developed steadily in accordance with the needs of the community.

The Slovak higher education has its rich history. Our Faculty follows in the footsteps of its famous predecessor in the education of technical chemistry, i.e., the famous Mining Academy in Banská Štiavnica constituted by empress Maria Theresa in 1762. The establishment of the Dr. M. R. Štefánik College of Technology in 1937 and subsequently, that of the Slovak College of Technology in 1939 succeeded in keeping the high standard of technical education in Slovakia.

Within the time of its existence, the Faculty has educated more than 17 000 graduates (more than 3 700 graduates in food engineering). The Faculty has trained nearly 1 300 graduates in postgraduate doctorate courses granting the title PhD in chemical and technical sciences. Thus, the Faculty has helped considerably to increase scientific knowledge in industry, education system, scientific and research institutes, and administrative services.

The Faculty occupies a very specific position within the Slovak Republic and relates to the whole spectrum of chemical, food, pharmaceutical and consumer industries, and ecology. At present, some 1300 students study at the Faculty and they are trained by qualified pedagogical and research staff.

The Faculty currently offers study in BSc courses, MSc courses, and PhD. The undergraduate form of study is organized at two levels: Bachelor-of-Science and Master-of-Science programmes. The first level BSc course for all students lasts three years, and is run in two branches: Chemical Technology and Food Technology. This first level of the study ends by a state examination and a project granting the student the title Bachelor of Science (BSc). The nominal span of the study in the BSc course is 3 years. The second level MSc course is run in 9 majors with several possible specializations over two years. The MSc course ends by a state examination and by defending a diploma thesis. The graduate obtains the title Master of Science (MSc). In addition to the natural-science basis, students of all branches study basic engineering subjects, e.g. Chemical Engineering, Processes Control, Basics of Chemical and Food Processing Technology, as well as subjects on Economy, Law and Ecology.

The highest form of university education is currently the doctorate study, which in the past was run as a form of preparation for scientific work. In 1997 the Ministry of Education of the Slovak Republic approved the right of the Faculty to train and to administer examinations in PhD Courses. The Faculty has conferred the title PhD in 16 branches of the doctoral study. (Chemical Physics, Inorganic Chemistry, Organic Chemistry, Analytical Chemistry, Physical Chemistry, Macromolecular Chemistry, Biochemistry, Microbiology, Inorganic Technology and Materials, Organic Technology and Technology of Fuels, Technology of Macromolecular Materials, Chemical Engineering and Control of Processes, Chemistry and Technology of Environment, Chemistry and Food Technology, Biotechnology, Applied Informatics).

The Faculty has a widely oriented programme, leading to the development of basic scientific fields in chemistry, chemical technology and food processing. This wide scientific orientation of Departments at the Faculty allows goal-oriented training of undergraduates and thereby their quicker transition to industry. There are several scientific schools at the Faculty which are successful at winning grants from domestic and international sources and at organising scientific meetings. The Faculty generally maintains an important international position. In addition to basic research, the Faculty participates in widely applied research for practice. The cooperation with many factories and companies allows for a swift application of research results in practice. At the same time the Faculty obtains considerable financial support.

The Faculty participates in issuing the specialized scientific journals: Chemical Papers, Fibres and Textile, Plastics and Rubber, Journal of Radioanalytical and Nuclear Chemistry, Biology, Folia Microbiologica, Wineyard and Wine, Nutrition and Health.

The scope and quality of the scientific activity keep the Faculty at a level, which is comparable with other top research and university centres in the world. This can be proved by the above mentioned number of grants, staff invitations to participate in conferences abroad, wide cooperation with foreign universities and institutions, and memberships in international organizations.

March 2006

Prof. Dušan Bakoš, PhD, DSc
Dean

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DEPARTMENT OF ANALYTICAL CHEMISTRY

I. STAFF

Full Professors:

Dušan Bustín, PhD, DSc; Ján Krupčík, PhD, DSc; Ján Labuda, PhD, DSc; Jozef Lehotay, PhD, DSc;
Eva Matisová, PhD, DSc; Ján Mocák, PhD, DSc;

Associate Professors:

Ernest Beinrohr, PhD; Eva Benická, PhD; Katarína Hroboňová, PhD; Miroslav Rievaj, PhD; Jana Sádecká, PhD;
Peter Tomčík, PhD (since 10.7.2006); Viktor Vrábel, PhD;

Assistant Professors :

Tatiana Buzinkaiová, PhD; Andrea Hercegová, PhD; Pavol Májek, PhD; Alena Manová, PhD; Pavol Tarapčík,
PhD;

Research Fellows:

Adriana Ferancová, PhD; Milena Dömötöröová (till 30.9.2006); Svetlana Hrouzková, PhD; Janka Mydlová (since
1.10.2006); Tatiana Rojkovičová, PhD; Ivan Skačáni, PhD; Ivan Špánik, PhD;

PhD Students:

František Čacho (since 1.10.2006); Andrea Fedurcová (till 31.5.2006); Júlia Galandová; Stanislava Hlúbiková;
Renáta Húšková (since 1.10.2006); Antónia Janáčová (since 1.10.2006); Michal Kirchner; Dáša Kružlicová;
Miroslava Lachová; Damián Meričko; Janka Mydlová (till 30.9.2006); Renáta Ovádeková; Milan Štřelec (till
30.6.2006); Darina Šimková (since 1.10.2006); Ľubomír Švorc (since 1.10.2006);

Technical staff:

Marta Benešová; Anna Chalupková; Ľubica Zajacová

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of capillary gas chromatography and MS
Laboratory of high performance liquid chromatography
Laboratory of capillary isotachopheresis
Laboratory of electroanalytical methods
Laboratory of molecular spectrometry
Clean laboratory for trace analysis with atomic spectrometry (AAS, OES-ICP)
Laboratory of electrochemical pre-concentration for atomic spectroscopy
Laboratory of bioanalytical chemistry

B. Research laboratories:

Laboratory of organic synthesis
Laboratory of capillary gas chromatography
Laboratory of high performance liquid chromatography
Laboratory of capillary isotachopheresis
Laboratory of electroanalytical methods
Laboratory of molecular spectrometry
Laboratory of atomic spectroscopy
Laboratory of bioanalytical chemistry

III. TEACHING

A. Undergraduate Study:

3. semester (Bc)	Analytical Chemistry I (1100, 1200)	2/0/0/0	Benická
	Analytical Chemistry I (1600, 1720)	1/0/0/0	Labuda
	Analytical Chemistry I (1710)	2/1/0/0	Benická
	Laboratory Practice AC I (1100, 1200, 1710)	0/0/0/4	Benická
	Laboratory Practice AC I (1600, 1720)	0/0/0/2	Labuda
4. semester (Bc)	Analytical Chemistry I	2/2/0/0	Beinrohr, Vrabel
	Laboratory Practice AC I	0/0/0/4	Hercegová
5. semester (Bc)	Analytical Chemistry II	2/2/0/0	Bustin, Rievaj
	Laboratory Practice AC II	0/0/0/4	Manová
	Testing and Quality Control	1/1/0/0	Špánik
6. semester (Bc)	Semester Project	0/0/0/4	Sádecká
1. semester (MSc)	Analytical Chemistry of Complex Inorganic Mixtures	2/0/0/0	Hercegová
	Anal. Chemistry of Complex Organic and Biol. Mixtures	2/0/0/0	Sádecká
	Analytical Spectrometry	2/0/0/0	Beinrohr
	Laboratory Practice I	0/0/0/10	Sádecká
	Computer Evaluation of Analytical Measurement	2/0/0/0	Májek, Mocák
	Biosensors	2/0/1/0	Labuda
2. semester (MSc)	Techniques of Mixtures Separation	2/0/2/0	Matisová, Valigura
	Laboratory Practice II	0/0/0/6	Sádecká
	Electrochemistry and Electroanalytical Chemistry	2/0/1/0	Bustin
	Analytical Separation of Compounds	2/0/1/0	Krupčík
	Trace Analysis and Microanalysis	2/0/0/0	Beinrohr
	Automatisation of Analytical Chemistry	2/0/0/0	Rievaj
3. semester (MSc)	Bioanalytical Chemistry	2/0/1/0	Labuda, Mocák
	Identification of Chemical Substances	2/0/1/0	Lehotay, Liptaj
	Laboratory Practice of Specialisation	0/0/0/10	Sádecká
	Automatisation of Analytical Chemistry	2/0/0/0	Rievaj
	Analytical Chemistry of Environment	2/0/0/0	Benická
	Nuclear Analytical Chemistry	2/0/0/0	Tarapčík
	Trace Analysis and Microanalysis	2/0/0/0	Beinrohr
4. semester (MSc)	Laboratory of Diploma Work	0/0/0/27	Sádecká

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/2460/05 Thermodynamic study of enantiomer separations by HPLC, correlation studies using artificial neural networks, development of novel analytical methods for determination of biological relevant compounds (Jozef Lehotay).

The set of chromatographic data – enantioselectivities, retention factors of many organic compounds was used as a training set and the final artificial neural networks was used for prediction and optimization of enantioselective separations. Kinetic and thermodynamic aspects of molecular chiral recognition, enthalpic and entropic evaluation of chiral separation were studied.

Project duration: from 01.01.2005 to 31.12.2007

B. VEGA Project No 1/2464/05 Development, metrological and chemometric evaluation of electrochemical and spectrometric techniques of trace analysis with special emphasis to clinical, food and environmental problems (Dušan Bustin).

Research study of new instrumental techniques and sensors for electroanalytical chemistry and spectrometry is concerned in the solution of practical problems of trace analysis including speciation of the analytical sample components, which exhibit e.g. a different toxicity, biological activity or oxidation-reduction properties. Chemometric characterisation, classification and assesment of clinical, biological, food and environmental samples is performed by using modern techniques of multivariate data analysis, artificial neural networks and similar algorithms. Attention is paid to elaboration and optimisation of electrochemical enrichment procedures for selected group of metals for atomic spectrometry, chemical speciation study for arsenic and selenium, investigation of coulometric titrations in thin layer systems for simple and rapid determinaton of electroactive species such as metals, some organic and inorganic substances.

Project duration: from 01.01.2005 to 31.12.2007

C. VEGA Project No 1/2461/05 Development of new methods for fast chromatographic analysis of isomers and enantiomers of volatile organic compounds in multicolumn and multidimensional coupled systems hyphenated to mass spectrometry (Ján Krupčík).

The project aims to the (i) development of the concise, systematic and optimized methods of evaluation of data of complex samples containing volatile compounds of similar properties, including chiral compounds, achieved by fast chromatographic techniques with universal or selective detection, including MS, via single- and more-dimensional separations; (ii) development of advanced prediction methods for determination of hyphenated systems properties and determination of chromatographic properties of enantiomers.

Project duration: from 01.01.2005 to 31.12.2007

D. VEGA Project No 1/2463/05 Fast GC for (Ultra)Trace Analysis of Organic Compounds in Complex Samples (Eva Matisová).

Project searches possibilities and limitations of fast capillary gas chromatography and its combination with mass spectrometry for (ultra)trace analysis of volatile and semivolatle organic compounds in multicomponent model and predominantly real environmental samples with the aim of fast separation, increase of resolution and sensitivity. A part of the project is devoted to the evaluation of factors influencing discrimination/degradation of analytes, broadening of chromatographic zone, focusation, peaks shape, quality of analytical signal, and their optimisation under the conditions of ultratrace analysis. A part of the project is directed to increasing sensitivity of fast GC, GC-MS in combination with effective isolation and preconcentration techniques and investigation of the influence of matrix effects on robustness and quality of analytical results.

Project duration: from 01.01.2005 to 31.12.2007

E. VEGA Project 1/2462/05: Chemical toxicity sensors – investigation of selected environmental chemical risk factors using biosensors based on DNA and lipids (Ján Labuda).

Detection of chemical association interactions and damage to deoxyribonucleic acid (DNA) and lipids serve for rapid and inexpensive screening of the chemicals toxicity. Within the project, chemical interactions of environmental carcinogens such as arsenic and tin compounds as well as selected aromatic and heterocyclic compounds, in particular their nitro-derivatives, with DNA and lipids immobilized on the surface of electrochemical

signal transducers are investigated. Application of the electrochemical biosensors allows also in vitro generation and testing of potential metabolites and an investigation of mechanisms of risk species effects. This leads to the methodical development of new screening tools based on biosensors and bioelectronic chips. Possibilities of the biopolymers protection against a structural damage by environmental carcinogens using natural and synthetic antioxidants are studied too.

Project duration: from 01.01.2005 to 31.12.2007

F. APVV Project 20-015904: New biomaterials and biosensors for clinical use (Ján Labuda).

Preparation of new biomaterials based on biopolymers and bioinorganic materials for clinical application as well as biosensors based on deoxyribonucleic acid (DNA) and lipoproteins (LDL) for direct use in clinical medicine.

Project duration: from 01.01.2005 to 31.12.2007

G. APVT Project 27-010304: Modification and optimalization of more sensitive measuring system of electrochemical DNA/SPE biosensor based on nanocarbon for the evaluation of effect of lipid compounds on DNA (Adriana Ferancová).

The project aims at the study and evaluation of the activity of selected oxidation products of lipids on the DNA using new detection system based on carbon nanotubes modified DNA biosensor. Specific primary (hydroperoxides) and secondary lipid oxidation products can play an important role in the damage to DNA resulting in faster ageing process, neurodegeneraitve, carcinogenic or cardiovascular diseases.

Project duration: from 01.07.2006 to 15.12.2006

H. APVT Project 20-002904: Identification of suitable authentication markers and development of optimal analytical methods for their determination in selected food commodities (Ivan Španík).

The major objective of project is identification of potential authentication markers and development of suitable analytical methods and sample treatment procedures for their determination. The first part of project covers determination of qualitative and quantitative data about selected authentication markers (including enantiomeric composition of optically active compounds) in selected food commodities, mainly for those that are most frequently distributed in Slovakian market (juices, ketchup and honey). Obtained data will be summarized in authentication markers database, which will be tested on unknown samples of food commodities commonly distributed on Slovakian market. The second part of project is aimed on detailed mapping of chemical composition of food commodities that are included in Slovak Republic claim on Protected Denomination of Origin, Protected Geographical Indication or Traditional Speciality Guaranteed (mainly beverages) by available single-, multidimensional and hyphenated chromatographic systems.

Project duration: from 01.01.2005 to 31.12.2007

CH. NATO Project No SFP 977983 Minimisation of Pesticide Residues in Processed Products and the Environment (Eva Matisová).

The project refers to pesticide science and more specifically to pesticide chemistry, and analytical methodology of residues. Pesticide residues undergo significant changes in chemical structure and concentration during food processing. The research work in the project is planned to contribute to better understanding of the effects of food processing on pesticide residues. Perfection of the analytical methodologies for detection and determination of pesticide residues at extremely low concentrations allowed in baby foods will be one of the scientific contributions of the project. Existing methods will be modified or new methods will be developed, distinguished by sufficient precision and reliability of determination of residues at or below the concentration level of 0.01 mg/kg, required by the EU directives on baby food. The identification and assessment of the critical points in the food technology processes will be a contribution to food technology.

Project duration: from 01.02.2003 to 30.09.2006

I. APVV Project -20-035205: Development of new HPLC and GC methods with specific selectivity on isomer analysis of some biologically active compounds (Jozef Lehotay).

The main topics of the project are: the development of new chromatographic methods with specific selectivity for the separation of isomers and enantiomers of biologically active compounds with use of ionic liquids (in HRGC, and LC) and enantioselective stationary phases of new types (HPLC and HRGC); study of structure-chromatographic behavior relationships of biologically important compounds in this new types of chromatographic systems (and phases); theoretical studies of prediction methods for selected compounds behavior utilizing advanced methods of modeling; study of separation mechanism and determination of important interactions for new types of phases, kinetic studies; the development of coupled separation techniques containing the parts with new type selectivity, and techniques of selective liquid-phase predseparation of samples with complex biological matrix.

Project duration: from 01.05.2006 to 30.04.2009

J. EUREKA Project E!3109: Advanced Portable System for Explosive Agents Sampling, Detection and Analysis (Eva Matisová).

Project relates to the science and technology. The contribution to the science and technology should be the miniaturisation of analytical instrumentation – the development of the portable analyser of the low mass for the detection of explosives in the air and other sources based on the modern technologies in sampling, separation and detection.

Project duration: from 01.04.2004 to 31.12.2006

K. APVV Project-20-000705: Fast Gas Chromatography – Mass Spectrometry for environmental and food analysis of selected groups of organic pollutants (Eva Matisová).

Project is devoted to development of fast and sensitive analytical methods for toxic compounds monitoring, particularly on ultra-trace concentration level. This follows the recent scientific requirements for the better understanding of pollutants effects, the increase of reliability of analytical results, what stimulates the establishment of legal directives to better control of pollution to protect the health of inhabitants. The aim is not to use the highly sophisticated and costly instrumentation but relatively robust techniques. The promising solution to reach the low LOQs, particularly in complicated matrices is the combination of converting a sample into a suitable form for measurement (utilising the fast and effective preparation methods) and subsequent analysis under the optimized fast GC-MS conditions. The parameters and robustness of the developed methods will be evaluated using chemometric approaches.

Project duration: from 01.05.2006 to 30.04.2009

L. Applied Research Project, Ministry of Education of SR: Use of biosensors, biomaterials and biosignals in medicine (Ján Labuda).

Integrated project of the Centre of biomedical engineering of the STU in Bratislava. Construction and standardization of electrochemical biosensor based on DNA. Preparation of hydrogel systems with programmable diffusion properties for biomedical applications including drug delivery. Evaluation of biosignals of patients by using ICT.

Project duration: from 01/2006 to 12/2009

V. CURRENT EDUCATION PROJECTS

A. European Social Fund Project, Ministry of Education of SR No 13120200086: MediTech - innovation program of modern biomedical technologies (Ján Labuda).

Aim of the project is a development of human sources within biomedical engineering in the region of Bratislava. The project covers activities of the Centre of biomedical engineering of the STU in Bratislava and it is devoted to students, young research workers and research workers.

Project duration: from 07/2006 to 02/2008

B. Grant KEGA No 3/3071/05: Analytical chemistry - Electronic collection of the exercises

(Pavol Tarapčík).

The project is directed to creation of supporting means for teaching and learning calculation in analytical chemistry. The products will allow produce individual set of exercises with desired content and with individual data in each problem.

Project duration: from 01.01.2005 to 31.12.2006

C. CEEPUS Project No PL-0130-05/06: Education in Separation Methods for Organic Environmental Analysis in XXI. Century (Ján Krupčík).

The main objective of this project is to improve the quality of MSc and PhD education in Analytical Chemistry at the cooperating universities, with the emphasis on modern analytical separation methods. This will be accomplished by exchange both of graduated and PhD students as well as teachers between the University of Technology Graz, University of Pardubice, Nicolaus Copernicus University in Toruń, University of Łódź, University of Veszprém, Medical Academy in Gdańsk and the Slovak University of Technology in Bratislava. Special attention will be paid on the application of hyphenated techniques and on the fitting of the educational process to the needs and settings of the European Community.

Project duration: from 01.01.2005 to 30.09.2006

D. Grant KEGA No 3/3072/05: A hypertext textbook of analytical chemistry (Pavel Májek).

This form of textbook is intended as very flexible textbook of analytical chemistry useful for individualized study. It will be realized as product with controlled depth of information, which can be modified according different study plan.

Project duration: from 01.01.2005 to 31.12.2006

E. Grant KEGA No 3/2238/04: The preparation of modern book on analytical separation methods (Jozef Lehotay).

The aim of project is the preparation a new book "Encyclopedia of separation methods for students. The book involved new separation techniques specially in liquid and gas chromatography and electrophoreses.

Project duration: from 01.10.2004 to 30.09.2006

F. Development project 2005: Innovation of the laboratory of biomaterials and laboratory of biomedical informatics of the Centre of Biomedical Engineering of STU (Ján Labuda).

Innovation and building of unique laboratories at the Faculty of Chemical and Food Technology and Faculty of Electrical Engineering and Information Technology.

Project duration: from 01.06.2005 to 31.05.2006

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Faculty of Informatics and Information Technologies, Bratislava	Interdigitated array of microelectrodes	Řeháček V., research fellows, Ilkovičova 3, 841 04 Bratislava	01.01.1994-
TU, Trenčín	Development of new measuring methods	Liška M., prof. Ing. DrSc., TU Trenčín	01.07.2006-31.12.2007
Ministry of Agriculture, Bratislava	End user of the project	Hajaš M., Plant commodities department/plant protection products, Dobrovičova 12, 812 66 Bratislava	01.01.2004-30.09.2006

Novofruct, SK, s.r.o., Nové Zámky	Cooperation in the monitoring of pesticide residues in raw materials for baby food production and the fate of pesticides in the process of technology	Henteková M., Ing., technologist Novofruct, SK, s.r.o., Komárňanská cesta 13, 940 43 Nové Zámky	01.01.2004-
Pharmaceutical Faculty, Comenius University, Bratislava	Chiral Separation of some anaesthetics using HPLC method	Čižmárik Jozef, professor, Odbojárov 10, 832 32 Bratislava	01.01.1988-
Novácke chemické závody, a.s., Nováky	Determination of some chlorocarbohydrates in samples	Borišek Igor, Ing., technical director, M. R. Štefánika 1, 972 71 Nováky	10.1.2006- 18.1.2006
Termotechna, a.s., Bratislava	Determination of chloride in some insulator	Takáč Karol, Ing., director, Staviteľská 3, P.O.Box 64, 830 00 Bratislava	15.3.2006- 7.4.2006
VUCHT, a.s., Bratislava	Analysis of technical mancozeb samples and mancozeb Pestanal standard by HPLC	Kukučka Ľubomír, Ing., director, Nobelova 34, 836 03 Bratislava	3.4.2006- 11.4.2006
Novácke chemické závody, a.s., Nováky	Organisation of one day seminar: Chosen analytical methods (capillary gas chromatography, spectral methods in analytical chemistry, trends in analytical chemistry)	Karkuš Marián, Judr. Ing., director, M. R. Štefánika 1, 972 71 Nováky	22.6.2006
ELEKTROKARBON, a.s., Topoľčany	Determination of Elements Si, Fe, Mg and Al	Tarina Vladimír, Ing., director of quality, Továrnická 420, 855 22 Topoľčany	6.6.2006- 1.7.2006
ISTRAN, s.r.o., Bratislava	Preparation and chemical analysis of Solutions	Beinrohová Mária, Ing., Vígľašská 12, 851 06 Bratislava	5.12.2006- 31.12.2006

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
UFZ Environmental Research Centre Leipzig, FRG	joint research	Wennrich Reiner, Dr., Head of the Section UFZ Leipzig- Halle, Permoserstr. 15, D-04318 Leipzig, Germany	01.01.2003-
Depart. Anal. Chemistry, Faculty of Natural Sciences, Charles University, Prague, Czech Republic	study stay of students	Barek Jiří, professor, Head of the Laboratory UNESCO Laboratory of Environmental Electrochemistry, Charles University, 128 43 Prague	01.01.2002-
University Osijek, Croatia	joint research	Šeruga M., professor, University Osijek, Croatia	01.10.2006-
Faculty of Science, Masaryk University, Brno, Czech Republic	Methods for sensor validation	Trnková Libuše, Assoc. Prof. RNDr. CSc., Department of Theoretical and Physical Chemistry, Kotlářská 2, 611 37 Brno, Czech Republic	01.01.2006-
Plant Protection Institute, Bulgaria	Cooperation in pesticide residues analysis	Balinova Anna, professor, Head of Toxicology, Department, PPI Kostinbrod 2230, Bulgaria	01.01.2004- 31.12.2006
Department of Chemistry and Biochemistry, University of Texas, Arlington TX, USA	Chiral separation of optical active compounds by HPLC and HRGC	Armstrong Daniel Wain, professor, Department of Chemistry and Biochemistry, University of Texas, Arlington TX, 76019 USA	01.01.1997-

Department of Organic Chemistry, University of Gent, Gent, Belgium	Chiral separations by HRGC	Sandra Pat, professor, Gent University, Department of Organic Chemistry 9000 Gent, Belgium	01.01.1996-
Nicholas Copernicus University, Toruń, Poland	Trace analysis in GC and HPLC development of new chemical bounded phases	Buszewski Boguslaw, professor, NCU, Faculty of Chemistry, Gagarin Street 7, 87-100 Toruń, Poland	01.01.1995-
Department of Building Materials, University of Mining and Metallurgy, Cracow, Poland	Electroanalytical chemistry and chemometrics	Bobrowski Andrzej, professor, Al. Mickiewicza, PL-30-059 Cracow, Poland	01.09.2001 -
Institute of Analytical Chemistry and Radiochemistry, Technical University, Graz, Austria	Food analysis Chemometrical Classification of Food and Biologically Important Samples	Lankmayr Ernst, professor, vice-head of Institute, Techniker str. 4, A-8010 Graz, Austria	01.03.2002 -
Department of Chemistry, Faculty of Chemistry and Chemical Engineering, University of Maribor, Maribor, Slovenia	Cooperation in food analysis and environmental chemistry	Brodnjak-Vončina Darinka, professor, Smetanova 17, 2000 Maribor, Slovenia	01.01.2004-
Department of Analytical Chemistry, University of Pardubice, Pardubice, Czech Republic	joint project	Jandera Pavel, professor, Čsl. légií 565, 532 10 Pardubice, Czech Republic	01.01.2004-

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Bustin Dušan	Scientific Council of FCHPT	member	01.02.1990-
Labuda Ján	Academy Senate of FCHPT	member	01.03.2002-
Labuda Ján	Analytical Chemistry Group of SCHS	chairmann	01.01.2005-
Labuda Ján	Editorial Board of the journal Chemical Papers	member	01.02.2006-
Lehotay Jozef	Union of Slovak Scientific Societies, Analytical Chemistry Groupe	chairmann	04.03.2001-
Lehotay Jozef	The Ministry of Education SR, Scientific Agency (VEGA)	chairmann	30.04.2002-
Lehotay Jozef	Commission for Air/Pollution (TNK 28)	member	01.01.1999-
Lehotay Jozef	Commission for Waste Managment (TNK 31)	member	01.01.1999-
Lehotay Jozef	Scientific Council of FCHPT	member	01.02.2003-
Lehotay Jozef	Agency for Support of Science and Technique Ministry of Education	member of advisory board	10.09.2003-
Matisová Eva	EU Centre of Excellence in Environmental Health Research Institute of Preventive and Clinical Medicine, Bratislava	member of advisory board	01.01.2003-
Mocák Ján	Slovak Medical Society, Bratislava, Slovakia	honorary member	01.10.1998 -
Mocák Ján	Scientific journal "Laboratorna diagnostika" (Laboratory Diagnostics), Bratislava, Slovakia	editor	01.09.1996-

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Beinrohr Ernest	Gessellschaft Deutcher Chemiker, Frankfurt, Germany	member	01.06.1990-
Bustin Dušan	IUPAC Fellowship, Switzerland	member	07.03.2002-
Labuda Ján	Division of Analytical Chemistry of the European Association for Chemical and Molecular Sciences, EuCheMS (Delegate of SCHS)	other	06.09.1999-

Labuda Ján	Analytical Chemistry Division of International Union of Pure and Applied Chemistry, IUPAC	titular member	01.01.2006-
Lehotay Jozef	European Commission Science, Research and Developments, expert for the evaluation of proposals, Brussel, Belgium	other	23.02.1999-
Lehotay Jozef	Chemical Analysis, Editorial Board of the journal, Warszawa, Poland	member	07.11.2001-

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Kriváň, V.	University of Ulm, Ulm	Germany	January 2006 (1 day)
Buszewski, B.	University of Torun, Torun	Poland	March 2006 (3 days)
Carl, N.	University od Ljubjana, Ljubjana	Slovenia	March-May 2006 (3 months)
Diopan, V.	Mendel University of Agriculture and Forestry, Brno	Czech Republic	October 2006 (4 days)
Bláhová, P.	Mendel University of Agriculture and Forestry, Brno	Czech Republic	October 2006 (4 days)
Waisser, K.	Faculty of Natural Sciences, Charles University, Hradec Králové	Czech Republic	November 2006 (4 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Beinrohr, E.	Conference ICP and AAS Spectrometrie, Electroanalytical Methods, Žermanice, Ostrava	Czech Republic	June 2006 (1 day)
Beinrohr, E.	Universita of Osijek, Osijek	Croatia	August-September 2006 (4 days)
Beinrohr, E.	International Conference Electroanalytical Chemie ELACH 7, Meinsberg	Germany	September 2006 (4 days)
Benická, E.	12th International Symposium of Separation Sciences, Lipica	Slovenia	September 2006 (5 days)
Ferancová, A.	Conference XXVI. Modern Electroanalytical Methods, Jetřichovice	Czech Republic	May 2006 (4 days)
Ferancová, A.	3rd Central European Conference Chemistry Towards Biology, Krakow	Poland	September 2006 (5 days)
Galandová, J.	Conference XXVI. Modern Electroanalytical Methods, Jetřichovice	Czech Republic	May 2006 (4 days)
Galandová, J.	3rd Central European Conference Chemistry Towards Biology, Krakow	Poland	September 2006 (5 days)
Galandová, J.	Masaryque University, Brno	Czech Republic	October-December 2006 (3 months)
Hercegová, A.	Symposium European Pesticide Residue Workshop 2006, Corfu	Greece	May 2006 (8 days)
Hercegová, A.	26th International Symposium on Chromatography, Copenhagen	Denmark	August 2006 (5 days)
Hroboňová, K.	35th Synthesis and Analysis of Drugs, Veľké Karlovice	Czech Republic	September 2006 (4 days)
Hroboňová, K.	12th International Symposium of Separation Sciences, Lipica	Slovenia	September 2006 (5 days)
Janáčková, A.	Institute for Marine Resources and Ecosystem Studies, Ijmuiden	Netherlands	November-December 2006 (49 days)

Kirchner, M.	29th International Symposium of Capillary Chromatography, Riva del Garda	Italy	May-June 2006 (6 days)
Kirchner, M.	US Department of Agriculture Eastern Regional Research Center Wyndmoor, Philadelphia-Wyndmoor	USA	June-December 2006 (190 days)
Krupčík, J.	29th International Symposium of Capillary Chromatography, Riva del Garda	Italy	May-June 2006 (6 days)
Krupčík, J.	University of Gent, Gent	Belgium	November 2006 (4 days)
Kružlicová, D.	13th Young Investigators Seminar on Analytical Chemistry YISAC 2006, University of Zagreb, Zagreb	Croatia	July 2006 (5 days)
Labuda, J.	Annual Meeting ACD/IUPAC, Rome	Italy	March 2006 (4 days)
Labuda, J.	Budapest University of Technology and Economy, Budapest	Hungary	February 2006 (1 day)
Labuda, J.	Faculty of Natural Sciences, Charles University, Praha	Czech Republic	April 2006 (3 days)
Labuda, J.	International Congress on Analytical Sciences ICAS 2006, Moskva	Russian Federation	June-July 2006 (8 days)
Labuda, J.	Mendel University of Agriculture and Forestry, Brno	Czech Republic	May 2006 (1 day)
Labuda, J.	58. Meeting of Czech and Slovak Chemical Association, Ústí nad Labem	Czech Republic	September 2006 (4 days)
Labuda, J.	5th Conference Aegean Analytical Chemistry Days, Thessaloniki	Greece	October 2006 (5 days)
Labuda, J.	Faculty of Natural Sciences, Charles University, Praha	Czech Republic	September 2006 (2 days)
Labuda, J.	Faculty of Natural Sciences, Charles University, Praha	Czech Republic	September 2006 (2 days)
Labuda, J.	Faculty of Natural Sciences, Charles University, Praha	Czech Republic	October-November 2006 (2 days)
Lehotay, J.	Institute of Chemical Drugs, Pharmaceutical Faculty, Brno	Czech Republic	February 2006 (1 day)
Lehotay, J.	19th Scientific Congress of the Austrian Pharmaceutical Society, Innsbruck	Austria	April 2006 (3 days)
Lehotay, J.	29th International Symposium of Capillary Chromatography, Riva del Garda	Italy	May-June 2006 (6 days)
Lehotay, J.	Pharmaceutical Faculty of Charles University, Hradec Králové	Czech Republic	June 2006 (5 days)
Lehotay, J.	Medical University of Gdansk, Bialystok	Poland	September 2006 (9 days)
Lehotay, J.	12th International Symposium of Separation Sciences, Lipica	Slovenia	September 2006 (5 days)
Lehotay, J.	Pharmaceutical Faculty of Charles University, Hradec Králové	Czech Republic	October 2006 (5 days)
Lehotay, J.	University of Gent, Gent	Belgium	November 2006 (4 days)
Lachová, M.	Agricultural University of Wroclaw, Wroclaw	Poland	January-March 2006 (3 months)
Lachová, M.	Medical University of Gdansk, Bialystok	Poland	September 2006 (9 days)
Lachová, M.	12th International Symposium of Separation Sciences, Lipica	Slovenia	September 2006 (5 days)
Májek, P.	29th International Symposium of Capillary Chromatography, Riva del Garda	Italy	May-June 2006 (6 days)
Manová, A.	5th Conference Aegean Analytical Chemistry Days, Thessaloniki	Greece	October 2006 (5 days)
Matisová, E.	Seminar Comprehensive GC x GC, Amsterdam	Netherlands	March 2006 (3 days)
Matisová, E.	Symposium European Pesticide Residue Workshop 2006, 29th International Symposium of Capillary Chromatography, Corfu, Riva del Garda	Greece, Italy	May-June 2006 (14 days)

Matisová, E.	4th European Conference on Pesticides and Related Organic Micropollutants in the Environment and 10th Symposium on Chemistry an Fate of Modern Pesticides, Almería	Spain	November-December 2006 (8 days)
Meričko, D.	29th International Symposium of Capillary Chromatography, Riva del Garda	Italy	May-June 2006 (6 days)
Meričko, D.	Medical University of Gdansk, Bialystok	Poland	September 2006 (9 days)
Mocák, J.	13th Young Investigators Seminar on Analytical Chemistry YISAC 2006, University of Zagreb, Zagreb	Croatia	July 2006 (5 days)
Mydlová, J.	9th International Symposium on Hyphenated Techniques in Chromatography and Hyphenated Chromatographic Analyzers (HTC-9), York	United Kingdom	February 2006 (4 days)
Mydlová, J.	29th International Symposium of Capillary Chromatography, Riva del Garda	Italy	May-June 2006 (6 days)
Ovádeková, R.	Conference XXVI. Modern Electroanalytical Methods, Jetřichovice	Czech Republic	May 2006 (4 days)
Ovádeková, R.	58. Meeting of Czech and Slovak Chemical Association, Ústí nad Labem	Czech Republic	September 2006 (5 days)
Ovádeková, R.	Univerzita Degli Studi di Firenze, Firenze	Italy	September 2006 (16 days)
Rojkovičová, T.	Indiana University, Bloomington	USA	January-October 2006 (10 months)
Špánik, I.	University of Palacky, Olomouc	Czech Republic	January 2006 (3 days)
Špánik, I.	International Congress on Analytical Sciences ICAS 2006, Moskva	Russian Federation	June 2006 (7 days)
Špánik, I.	Workshop Soil and Water monitoring within the pollution reduction of Danube River, Beograd	Serbia	October 2006 (5 days)
Špánik, I.	LECO INSTRUMENTE, Praha	Czech Republic	October 2006 (1 day)
Střelec, M.	X. International Conference Hydrogeochemia '06, Sosnowiec	Poland	June 2006 (2 days)

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Andraščíková, M.	Utilization of Fast Gas Chromatography in Analysis of Food Samples.	Hercegová, A.
Beníková, K.	The Role of Nanotechnology in the Development of DNA Biosensors.	Ferancová, A.
Cifrová, S.	Thin Layer Coulometric Titration for Speciation Analysis of Trace Metal in Environmental Samples.	Beinrohr, E.
Horváth, M.	Matrix Effects and their Elimination in Pesticide Residues Analysis in Food.	Matisová, E.
Hudec, R.	Determination of Trace Concentrations of Toxic Species by Flow Trough Coulometry and Chronopotentiometry.	Beinrohr, E.
Janičkovičová, J.	Possibilities of Application of Microelectrodes in Electrochemical Analysis.	Rievaj, M.
Klbíková, V.	Criteria of Using Approximative Relations in Calculations of Simple Protolytic Equilibria of Weak Bases and Hydrolysed Salts in Water.	Tomčík, P.
Nosálová, L.	The Volatile Compounds in Dairy Products and their Utilisation for Authentication Purposes.	Špánik, I.
Ondreková, S.	Utilization of Modern Approaches of Computer Data Elaboration in GC-MS Analysis of Pesticide Residues.	Matisová, E.
Pokorná, L.	Fast Gas Chromatographic Enantioselective Separation of Organic Compounds.	Benická, E.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Benisková, Z.	Optimisation and Application of Fast Gas Chromatography.	Benická, E.

Čacho, F.	On-line Preconcentration and GF AAS Determination of Toxic Elements in Waters.	Manová, A.
Gardlíková, P.	Application of Fluorescence Spectrometry for the Characterization of Complex Mixtures.	Sádecká, J.
Gyöngyiová, A.	Determination of Volatile Compounds in Slovakian Brandies and Wine Distillates.	Špánik, I.
Hanková, Z.	Thin Layer Coulometric Titrations for Determination of Some Toxic Species in Waters.	Beinrohr, E.
Húšková, R.	Utilisation of Fast GC for Pesticide Residues Analysis.	Matisová, E.
Kujovský, M.	Electrochemical Preconcentration of Metals for Atomic Spectrometry.	Beinrohr, E.
Šimková, D.	Analysis of Organic Acids by High Performance Liquid Chromatographic Method.	Hroboňová, K.
Švorc, L.	The Crystal Structure and Biological Activity of 1,4 - Dihydropyridine Derivates.	Vrábel, V.
Vančová, M.	Study of Interconversion of Stereochemically Unstable Chiral Drugs by HPLC.	Lehotay, J.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Dömötörövá, M.	Fast GC in (ultra)trace analysis of semivolatile compounds. Utilisation in analysis of pesticides.	Matisová, E.
Karasová, G.	New possibilities of preparation of samples for HPLC analysis of biologically active compounds in plant samples.	Lehotay, J.
Nétriová, J.	HPLC determination of morphine and its metabolites in clinic samples.	Lehotay, J.
Oswald, P.	The use of separation methods for determination of interconversion energy barrier of enantiomers.	Krupčík, J.

E. Habilitation Theses

Name	Title of Thesis	Supervisor
Tomčík, P.	Analytical utilisation of dynamic electrochemistry on microelectronic and carbon structures.	Bustin, D.

VIII. PUBLICATIONS

Chapter or pages in book

- [1] Labuda, Ján, Fojta, Miroslav, Jelen, František, Paleček, Emil: Encyclopedia of Sensors, Volume 3 E-F, Editor(s): Grimes C.A., Dickey E.C., Pishko M.V., Chapter: Electrochemical Sensors with DNA Recognition Layer. American Scientific Publishers, USA, 2006.

Article in journal

- [1] Beinrohr, Ernest, Manova, Alena, Strelec, Milan, Dzurov, Jan: Jednoduché a rýchle stanovenie siricitanov vo vinách. Chemagazin, no. 4, vol. 16, pp. 6-7, 2006.
- [2] Beinrohr, Ernest, Strelec, Milan, Čacho, Frantisek, Manova, Alena, Mocak, Jan: Rychle stanovenie rozpustených sulfidov v odpadových vodách. Chemagazin, no. 5, vol. 16, pp. 6-8, 2006.
- [3] Bilá, A., Májek, P., Šurina, I.: Application of Methodology of Terpenes and Terpenoids Analysis in Norway Spruce Assimilation Organs (*Picea abies* (L.) Karst.) within Monitoring Health Conditions of Forest Tree Species. Ecology (Bratislava), 25(2), 208-222, 2006.
- [4] Blahová, E., Lehotay, J.: Sample preparation and HPLC determination of catechins in green tea. Chem. Anal. (Warsaw), 51, 795-807, 2006.
- [5] Breza, Martin, Manová, Alena: On the Bridging Mode in Tetralead(II) Hydroxocomplexes. Theochem 765, 121-126, 2006.
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- [10] Dvorak, Jozef, Dostalek, Pavol, Sterba, Karel, Cejka, Pavel, Kellner, Vladimír, Culik, Jiri, Beinrohr, Ernest: Determination of total sulphur dioxide in beer samples by flow-through chronopotentiometry. *J. Inst. Brew.*, no. 112, vol. 4, pp. 308-313, 2006.
- [11] Dömötöróvá, Milena, Hercegová, Andrea, Matisová, Eva: Monitoring of pesticide residues in apples from Slovakia for baby food production. *Czech J. Food Sci.*, no. 24, vol. 2, pp. 84-92, 2006.
- [12] Dömötöróvá, Milena, Kirchner, Michal, Matisová, Eva, de Zeeuw, Jaap: Possibilities and limitations of fast GC with narrow-bore columns. *J.Sep.Sci.*, no. 29, pp. 1051-1063, 2006.
- [13] Čacho, František, Střelec, Milan, Beinrohr, Ernest, Manová, Alena: Determination of Arsenic by On-line Electrochemical Preconcentration/GFAAS. *Transaction of the Universities of Košice 2-3*, 13-18, 2006.
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DEPARTMENT OF NMR SPECTROSCOPY AND MASS SPECTROMETRY

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II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

B. Research laboratories:

Laboratory of NMR Spectroscopy (NMR)

Laboratory of Mass Spectrometry (MS)

III. TEACHING

IV. CURRENT RESEARCH PROJECTS

VEGA project No. 1/2334/05 Comparative study of gamma-aminobutyric acid metabolism as an approach for the understanding of its function in eucaryotic cells. (Tibor Liptaj)

The main goals of the project are: a/ comparative study of the gamma-aminobutyric acid (GABA) metabolism in selected yeasts and filamentous fungi, b/ elucidation the function of GABA in fungi in the context of current hypotheses, c/ investigation of the role of GABA as a bridge of carbon and nitrogen metabolism and the role in differentiation of filamentous fungi and selected animal cells.

Project duration: from 2005 to 2007

VEGA projet No.2/5010/5 Study of neuroprotective effects of new pyrrolidine derivatives. (Tibor Liptaj)

The main goals of the project are: a/ optimalization of the synthesis of new pyrrolidene derivatives, b/ development of the protocol for short-term ischemia of experimental animals, c/ implementation of monitoring of the ischemia induced morphological changes in the brain of experimental animals using NMR methods, d/ mapping of the metabolite in brain tissue of experimental animals using NMT methods

Project duration: from 2005 to 2007

State program of research and science development, Project 2003SP200280203: Establishment of the "top-class" laboratory for Nuclear Magnetic Resonance (Tibor Liptaj)

Establishment of national NMR laboratory consisting of the group of 5 specialized NMR labs with the aim to initiate the exploitation and development of NMR methods in the broad area of natural science research and education.

Project duration: from 2003 to 2010

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Jessenius Faculty of Medicine Martin	MVTS-39	Prof. MUDr. Dušan Dobrota, DrSc.	2004-2007
Medical Faculty Comenius University, Bratislava	VEGA-2/5010/25	Doc. Mudr. P. Babal, PhD.	2005-2007
Institute of Experimental Pharmacology, Slovak Academy Sciences	VEGA-2/5010/25	Doc. MUDr. S. Štolc, DrSc	2005-2007
Institute of Experimental Pharmacology, Slovak Academy Sciences	APVV-51-0179-05	Doc. MUDr. S. Štolc, DrSc	2006-2009
Institute of Experimental Pharmacology, Slovak Academy Sciences	VEGA-2/5052/25	Doc. RNDr. E. Ujházy, PhD	2005-2007
Slovak Medical University, Bratislava	APVV-2/-022004	Doc. MUDr. J. Horecký, PhD.	2005-2007
Pharmacobiochem. Lab., Medical Faculty, Comenius University Bratislava	publications	MUDr. A. Gvozdjaková, PhD; RNDr. Z. Sumbalová, PhD;	continuous
Slovak Academy Sciences, Chemical Institute Bratislava	state program 339/2003	Ing. Miloš Hricovíni, PhD	2006-2010
Comenius University, Faculty of Natural Sciences, Bratislava	state program 339/2003	Mgr. Branislav Horváth	2006-2010
Derer Hospital, Bratislava	state program 339/2003	Doc. MUDr. V. Belan, PhD	2006-2010
Faculty of Natural Sciences UPJŠ, Košice	state program 339/2003	Doc. RNDr. J. Imrich, PhD	2006-2010

Comenius University, Faculty of Pharmacy, Bratislava	publications, ZoD	Ing.J.Světlík, PhD., Prof. RNDr.E.Havránek,PhD., Doc.Ing. Mucai	continuous
Research Institute of Animal Production, Nitra	ZoD, publications	Ing. R.Lahučký, PhD.	continuous
Slovnaft Bratislava	ZoD	Ing.A.Malíková	continuous
Duslo Šaľa	ZoD	Ing. J.Uhlár, PhD Ing. J.Balko, PhD	continuous
Institute of Polymers, Slovak Academy Sciences	publications	Ing.Š.Chmela, PhD.; Ing.I.Lukáč, PhD.; Ing. T.Nedelčev; Ing. Lustoň, PhD.;	continuous
Research Institute Soil Sciences and Conservation, Prešov	ZoD, publications	RNDr. G.Barančíková, PhD	continuous
Biotika Slovenská Ľupča	ZoD	PharmDr. J.Tomasch	2006
Ananchem, Bratislava		Ing. Mičúch, PhD.	2006-2007
BELNOVAMANN, Bratislava	ZoD	Ing. M.Veverka, PhD.	2006-2007
Institute of Virology, Slovak Academy Sciences, Bratislava		RNDr.I.Dovinová, PhD.	2006-2007
VIPOTEST, s.r.o., Púchov	ZoD	Ing. M.Chromek	2006-2007

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
University of Edinburg, Chemistry Dep., UK	grant	Prof. D. Uhrín, PhD.	2006
Center for Inborn Errors of Metabolism and Pediatric Genetics, University Children's Hospital, Medical University of Vienna, Austria	Grant	Prof. M.D. Bodamer O.A.	2006-2007
University of Veterinary and Pharmaceutical Sciences, Brno	publications	Ing. E.Švajdlenka	2006

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
T.Liptaj	Slovak Spectroscopic Society	member	2006
T.Liptaj	Slovak Chemical Society	member	2006

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
S.Kašparová	European Society for Magnetic Resonance in Medicine and Biology	member	2004,2005,2006

VIII. PUBLICATIONS

Article in journal

- [1] Balentová, E., Imrich, J., Bernat, J., Suchá, L., Vilková, M., Prónayová, N., Kristián, P., Pihlaja, K., Klika, K.D.: Stereochemistry, tautomerism, and reaction of acridinyl thiosemicarbazides in the synthesis of 1,3-thiazolidines. *Journal Heterocyclic Chemistry*, no. 3, vol. 43, pp. 645-656, 2006.
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- [5] Rudolf, W. D., Loos, D., Wybraniec, J., Prónayová, N., Gawinecki, R., Šusteková, Z.: Isopropyl N-arylmalonamates. Synthesis, structure, conformation and reactions with carbon disulfide. Collection of Czechoslovak Chemical Communications, no. 1, vol. 71, pp. 59-76, 2006.

Article in conference proceedings

- [1] Bačiak, L., Kašparová, S., Liptaj, T., Ujházy, E., Juránek, I.: Neonatal rat brain hypoxia determined by in vivo 31P MR spectroscopy. In 23th ESMRMB Meeting, September 21-23, 2006, Warsaw, Poland, 2006.
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- [5] Juránek, I., Bačiak, L., Ujházy, E., Kašparová, S.: Maturation of ATP yielding in neonatal rat brain in relation to its sensitivity to Hypoxia - An. In vivo 31P MRS study. In XX. Biochemický zjazd, 12-16 september 2006, Piešťany, 2006.
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Associate Professors:

Adela Kotočová, PhD; Anna Mašlejová, PhD; Iveta Ondrejovičová, PhD; Blažena Papánková, PhD., Peter Segľa, PhD; Dušan Valigura, PhD;

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PhD Students:

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II. TEACHING AND RESEARCH LABORATORIES

A. Teaching Laboratories:

Laboratories of Practical Exercises

B. Research Laboratories:

Laboratory of Electrochemistry
Laboratory of Photochemistry
Laboratory of Magnetochemistry
Laboratory of Thermal Processing
Laboratory of Spectroscopy
Laboratory of X-ray Analysis
Laboratory of Powder Diffraction
Laboratory of Elemental Analysis

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Inorganic Chemistry I	3/2/0	Boča, Mašlejová, Koman, Šima, Kotočová, Ondrejковиčová
	Inorganic Chemistry I (Laboratory)	0/0/3	
2. semester (Bc)	Inorganic Chemistry II	2/2/0	Segľa
	Inorganic Chemistry II (Laboratory)	0/0/4	
1. semester (MSc)	Chemical Bond and Chemical Structure	2/0/0	Boča, Šima
	Chemistry of Coordination and Organometallic Compounds	2/0/0	Ondrejovič
	Inorganic Syntheses	2/0/0	Valigura, Kotočová
	Inorganic Photochemistry	2/0/0	Šima, Izakovič
1. semester (MSc)	Laboratory Practice in the Major I	0/0/10	Boča, Kotočová, Ondrejковиčová, Ondrejovič, Růžička
	Laboratory Practice in the Major I	0/0/10	Segľa, Valigura
2. semester (MSc)	Indirect Methods of Research of Inorganic Compounds	2/2/0	Mašlejová, Boča
	Crystallochemistry	2/0/0	Mikloš, Jorík
	Laboratory Practice in the Major II	0/0/6	Jorík, Mašlejová, Mikloš
	Spectral Methods of Control Technological Processes	2/2/0	Segľa
2. semester (MSc)	Reaction mechanisms of Inorganic Compounds	2/0/0	Šima, Ondrejковиčová
3. semester (MSc)	Inorganic Materials	2/1/0	Koman
	Bioinorganic Chemistry	2/1/0	Melník, Valigura
	Laboratory of Speciality	0/0/10	Koman, Papánková, Růžička,
3. semester (MSc)	Inorganic Biopharmacs	2/0/0	Ondrejковиčová
	Catalysis	2/0/0	Ondrejковиčová
	Engineering of Inorganic Substances	2/0/0	Ondrejovič, Mikloš
4. semester (MSc)	Diploma Thesis	0/0/27	supervisors

IV. CURRENT RESEARCH PROJECTS

VEGA Project No 1/2453/05 Tuning the Magnetoactivity of Coordination Compounds (Roman Boča).

New theoretical strategy in calculating and predicting the magnetic parameters has been outlined. This is beyond the spin Hamiltonian formalism and it includes all the relevant interactions in mononuclear complexes. The corresponding program handles the complete space spanning by the crystal-field multiplets and Zeeman levels. An extensive modeling of magnetic functions has been done for all d^n electron configurations of transition metals. See monograph: R. Boča: Struct. Bonding 117 (2006) 1-264.
Magnetic Parameters and Magnetic Functions in Mononuclear Complexes Beyond the Spin-Hamiltonian Formalism.

Project duration: from 01. 01. 2005 to 31. 12. 2007

MVTS Project No NEM/Slov/DAAD/Darm05 Magneto-structural relationships for novel substances and materials (Roman Boča).

New type of the magnetostructural correlation in mononuclear complexes has been outlined; magnetic anisotropy parameter D (that is the axial zero-field splitting) correlates with the structural distortion given by the departure of the chromophore from the octahedral symmetry. This knowledge could be of a key importance for a rational design of single-molecule magnets and a fine tuning of their properties.

See: R. Ivaníková, R. Boča, L. Dlháň, H. Fuess, A. Mašlejová, V. Mrázová, I. Svoboda, J. Titiš:

Polyhedron 25 (2006) 3261-3268.

Heteroleptic nickel(II) complexes formed of N-donor bases, carboxylic acids, and water: Magnetostructural correlations

Project duration: from 01. 01. 2005 to 31. 12. 2007

MVTS Project No NEM/Slov/DFG/CH Molecular Electronic Multistability (Roman Boča).

Spin crossover phenomenon was studied by several experimental techniques: SQUID magnetometry and Moessbauer spectroscopy on novel polynuclear substances. The prepared iron(II) and Fe(III) complexes show a temperature-induced spin crossover. In the case of dinuclear and polynuclear complexes a stepwise process is relevant (multistep spin crossover).

Project duration: from 01. 01. 2002 to 31. 12. 2007

APVT Project No 20-005204 Magnetostructural Correlations in Unconventional Magnetic Materials (Roman Boča).

Polynuclear complexes have been synthesized and their magnetoactivity investigated in detail. By a simultaneous analysis of the temperature dependence of the magnetic susceptibility and a field dependence of the magnetization the key magnetic parameters have been withdrawn: the exchange coupling constant, the axial zero-field splitting parameter D and the magnetogyric ratio g for individual centers.

See: a) C. G. Efthymiou, C. P. Raptopoulou, A. Terzis, R. Boča, M. Korabic, J. Mrozinski, S. P. Perlepes, E. G. Bakalbassis: Eur. J. Inorg. Chem. (2006) 2236–2252.

A Systematic Exploration of Nickel(II)/Acetate/Di-2-pyridyl Ketone Chemistry: Neutral and Cationic Tetranuclear Clusters, and a Novel Mononuclear Complex

b) O. Atakol, R. Boča, I. Ercan, F. Ercan, H. Fuess, W. Haase, R. Herchel: Chem. Phys. Lett. 423 (2006) 192–196
Magnetic properties of trinuclear Ni-M-Ni complexes, M = Mn, Co and Ni

Project duration: from 01. 08. 2005 to 31. 12. 2007

ECONET Project (France-Slovakia) Etude par méthode FORC du comportement hystérétique de solides moléculaires commutables (Roman Boča).

Modeling of the hysteresis behaviour for spin crossover materials has been done. This leads to understandings of the solid-state cooperativeness that rules the switching from the low-spin to high-spin state and back.

Project duration: from 01. 08. 2005 to 31. 12. 2006

DAAD Project (Germany-Slovakia) Magneto-structural correlations in molecular magnetism (Roman Boča).

The project is focusing to the magneto-structural correlations in the inorganic materials based on the transition metal complexes.

See: A. Mašlejová, R. Ivaníková, I. Svoboda, B. Papánková, L. Dlháň, D. Mikloš, H. Fuess, R. Boča: Polyhedron 25 (2006) 1823–1830.

Structural characterization and magnetic properties of hexakis(imidazole)nickel(II) bis(formate), bis(chloracetate), bis(2-chloropropionate) and hexakis(1-methyl-imidazole)nickel(II) chloride dihydrate

Project duration: from 01. 01. 2006 to 31. 12. 2007

STEFANIK Project (France-Slovakia) Modeling of the photoswitchable molecular magnetic materials (Roman Boča).

Spin crossover systems exhibiting thermal hysteresis along with a thermochromic effect can be exploited as new systems for data-recording and displaying units. Photoswitchable magnetic molecular materials are applicable in a superfast data recording/reading process for a new generation of computers and other devices.

Project duration: from 01. 01. 2006 to 31. 12. 2007

VEGA Project 1/2452/05 Novel Complexes of Bioligands: Synthesis, Structure, Properties and Applicatiois (Milan Melník).

Investigation of new metal complexes exhibiting controlled antiphlogistic and antitubercutotic effects is an important task of contemporary bioinorganic chemistry. The project is focused on a complete research of the formation, structure, properties and practical applications of copper, iron, zinc and other metal complexes with non-steroid antiphlogistics (derivatives of salicylic and propionic acids, fenamates) and antitubercutotics (derivatives of quinolons, nicotinic acid, nocotinamide, pyridylcarbinol and imidazole). The synthesized complexes will be studied as solids and in the solutions by x-ray diffraction of crystals and powders, spectral, magnetic, thermal, electrochemical and photochemical methods. Obtained characterization of the compounds will be compared and confronted with literature data in order to extract trends related to important biological aspects. A basic biological screening of the prepared complexes will be focused on cytotoxicity and its mechanisms. Conclusions about relation between the chemical structure and the cytotoxic activity will be formulated and applied to preparation of new substances.

Project duration: from 01. 01. 2005 to 31. 12. 2007

APVT Project APVT-20-005504 Synthesis and investigation nonsteroidal antiflogistics based on copper(II) complexes (Milan Melník).

The submitted project is aimed at studying conditions of preparation, electronic, vibrational and EPR spectra, molecular and crystal structures of solid Cu(II) complexes with ligands of therapeutical importance, such as derivatives of salicylic, propionic, fenamatic acids, andwith neutral ligands. In addition, an attention will be paid to solution properties of the complexes, particularly to their speciation. Biological screening will be performed. Redox behaviour of the complexes using electrochemical and photochemical methods will be investigated and compared to that of analogous iron complexes with structural and functional model compounds. Most of experimental work will be carried out at Department of Inorganic Chemistry. The results obtained will be published in CC journals and presented at conferences, or patented.

Project duration: from 01. 01. 2005 to 31. 12. 2007

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Pharmaceutical Faculty, Comenius University, Bratislava	Synthesis and spectral properties of Schiff base with Cu(II) complexes	Valent Aladár, Assoc. professor, Kalinčiakova 8, 832 32 Bratislava	2002 -
Medical Faculty, Comenius University, Bratislava	Cu(II) Schiff-base complexes as perspective antidotes	Čársky Jozef, professor, Sasinkova 10, 813 72 Bratislava	2000 -

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Materials Science, University of Technology, Darmstadt, Germany	New Crystal, Molecular, Electronic and Magnetic Structures with Functional Properties	Fuess Hartmut, professor, Petersenstrasse 23, 64287 Darmstadt, Germany	1994 -
Institute of Inorganic Chemistry, Johannes-Guttenberg-University, Mainz, Germany	Molecular Electronic Multistability	Renz Franz, Dr., Staudinger Weg 9, D-55099 Mainz, Germany	2002 -

Institute of Applied Synthetic Chemistry, Vienna University of Technology, Vienna, Austria	Coordination Compounds with Interesting Magnetic Properties	Linert Wolfgang, professor, A-1060 Vienna, Austria	1998 -
Institute of Inorganic and Physical Chemistry, University of Technology, Darmstadt, Germany	New Crystal, Molecular, Electronic and Magnetic Structures with Functional Properties	Haase Wolfgang, professor, Petersenstrasse 23, 64287 Darmstadt, Germany	1994 -
Department of Chemistry, University of Puerto Rico, San Juan, USA	Magnetism of Multinuclear Coordination Compounds and Clusters	Raptis Raphael, professor, San Juan, PR 00931-3346, USA	1994 -
Institute of Solid State Chemistry, Faculty of Chemical Technology, Prague, Czech Republic	RTG analysis of monocrystals and powders	Kratochvíl Bohumil, professor, Technická 5, 16628 Prague 6, Czech Republic	1992 -
York University, Toronto, Canada	X-ray analysis of transition and non-transition metal atoms	Holloway Clive Eduard, director, 4700 Keele Street, North York M3J 1P3, Toronto, Ontario, Canada	1976 -
University of Helsinki, Helsinki, Finland	X-ray analysis of solid compounds	Sundberg Markku, professor, A. I. Virtasen aukio 1, P.O. Box 55, Helsinki, Finland	1968 -
Department of Chemistry, University of Jyväskylä, Yyveskilää, Finland	X-ray analysis of solid compounds	Sillanpää Reijo, professor, FIN-40351 Jyväskylä, Finland	2003 -
Wroclaw University, Wroclaw, Poland	Magnetic properties of solid compounds	Mrozinski Jerzy, professor, 14, F. Joliot-Curie str, 50-383 Wroclaw, Poland	1972 -
Okayama University, Okayama, Japan	Synthesis and magnetic properties of solid compounds	Kojima Masaaki, professor, Tsushima, Okayama, 700-8530 Japan	2003 -
Aoyama Gakuin University, Tokyo Japan	Schiff bases and chemistry of copper complexes	Hasegawa Miki, professor, 6-16-1 Chitosedai Setagaya-ku, Tokyo, 157-8572 Japan	2003 -
Kwansei Gakuin University, Osaka, Japan	Magnetic and spectral properties solid compounds	Mikuriya Masahiro, professor, 2-1 Gakuen, Sanda 669-1337, Japan	2003 -
Ochanomizu University, Tokyo, Japan	PhD students exchange	Fukuda Yutaka, professor, Ochanomizu University, 2-1-1 Otsuka, Bunkyo-ku 112-8610, Tokyo, Japan	2003 -

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Koman Marian	Slovak Expert Group of Solid State Chemistry and Physics	chairmann	01. 06. 1985 -
Koman Marian	Regional Committee of Czech and Slovak Crystallographers	president	01. 01. 1992 -
Koman Marian	Czech and Slovak Association for Crystal Growth	member	01. 02. 1994 -
Koman Marian	Slovak Society for Industrial Chemistry	member	01. 01. 1985 -
Moncoľ Ján	Czech & Slovak Crystallographic Association	member	01. 07. 2001 -
Ružička Milan	The Czechoslovak Association for Crystal Growth	vice-president	1991 -
Ružička Milan	Slovak Expert Group of Solid Chemistry and Physics	other	1975 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Koman Marian	Slovak Expert Group of Solid State Chemistry and Physics	chairmann	01. 06. 1985 -
Koman Marian	Regional Committee of Czech and Slovak Crystallographers	president	01. 01. 1992 -
Koman Marian	Czech and Slovak Association for Crystal Growth	member	01. 02. 1994 -
Moncoľ Ján	Czech & Slovak Crystallographic Association	member	01. 07. 2001 -
Ružička Milan	The Czechoslovak Association for Crystal Growth	vice-president	1991 -
Ružička Milan	Slovak Expert Group of Solid Chemistry and Physics	other	1975 -
Melník Milan	American Chemical Society	member	1998 -
Melník Milan	Finnish Chemical Society	member	1974 -

Melník Milan	Editorial board of MGMC	member	1998 -
Izakovič Mário	European Photochemistry Association	member	01. 01. 1997
Tatarko Miroslav	European Photochemistry Association	member	01. 01. 1996

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Gyurcsik, B.	University of Szeged	Hungary	March 2006 (3 days)
Szabó-Plánka, T.	University of Szeged	Hungary	March 2006 (3 days)
Holeček, J.	University of Pardubice	Czech Republic	June 2006 (2 days)
Růžička, A.	University of Pardubice	Czech Republic	June 2006 (2 days)
Lošťák, P.	University of Pardubice	Czech Republic	June 2006 (2 days)
Hušák, M.	Institute of Chemical Technology, Prague	Czech Republic	June 2006 (2 days)
Svoboda, I.	Technical University Darmstadt	Germany	October 2006 (7 days)
Svoboda, I.	Technical University Darmstadt	Germany	October 2006 (7 days)
Gyurcsik, B.	University of Szeged	Hungary	November 2006 (2 days)
Szabó-Plánka, T.	University of Szeged	Hungary	November 2006 (2 days)
Jakab, N.	University of Szeged	Hungary	November 2006 (2 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Moncoř, J.	University of Wrocław	Poland	January 2006 (81 days)
Dlháň, L.	Technical University, Darmstadt	Germany	February 2006 (15 days)
Koman, M.	Institute of Chemical Technology, Prague	Czech Republic	March 2006 (2 days)
Růžička, M.	Institute of Physics, Czech Academy of Sciences, Prague	Czech Republic	March 2006 (2 days)
Melník, M.	University of Helsinki	Finland	April 2006 (10 days)
Melník, M.	University of Szeged	Hungary	May 2006 (3 days)
Šima, J.	Institute of Chemical Technology, Prague	Czech Republic	May 2006 (2 days)
Ivaníková, R.	Technical University, Darmstadt	Germany	May 2006 (15 days)
Boča, R.	University of Mainz	Germany	May 2006 (15 days)
Šípoš, R.	University of Szeged	Hungary	May 2006 (25 days)
Ondrejčková, I.	Institute of Chemical Technology, Prague	Czech Republic	May 2006 (2 days)
Šima, J.	Technical University, Vienna	Austria	June 2006 (1 day)
Šípoš, R.	Technical University, Vienna	Austria	June 2006 (1 day)
Jorík, V.	Crystallographical Society, Prague	Czech Republic	June 2006 (6 days)
Boča, R.	University of Versailles, Paris	France	June 2006 (13 days)
Koman, M.	BorsodChem MCHZ, Ostrava	Czech Republic	July 2006 (1 day)
Koman, M.	Institute of Chemical Technology, Prague	Czech Republic	July 2006 (1 day)
Papánková, B.	Technical University, Darmstadt	Germany	July 2006 (15 days)
Mašlejová, A.	Technical University, Darmstadt	Germany	July 2006 (15 days)
Boča, R.	Technical University, Darmstadt	Germany	July 2006 (22 days)
Pelikán, J.	Technical University, Darmstadt	Germany	August 2006 (15 days)
Titiš, J.	Technical University, Darmstadt	Germany	August 2006 (16 days)
Boča, R.	Technical University, Darmstadt	Germany	August 2006 (15 days)
Šípoš, R.	University of Szeged	Hungary	September 2006 (32 days)
Boča, R.	Technical University, Vienna	Austria	September 2006 (1 day)
Pavlík, J.	University of Versailles, Paris	France	September 2006 (10 days)
Melník, M.	University of Roma	Italy	September 2006 (16 days)
Malo, J.	Meeting of Chemical Societies, Ústí nad abem	Czech Republic	September 2006 (5 days)
Šípoš, R.	Meeting of Chemical Societies, Ústí nad abem	Czech Republic	September 2006 (5 days)
Gálková, S.	Meeting of Chemical Societies, Ústí nad abem	Czech Republic	September 2006 (5 days)
Boča, R.	University of Lisboa	Portugal	October 2006 (6 days)
Dlháň, L.	University of Lisboa	Portugal	October 2006 (6 days)
Boča, R.	COST Office ESF, Bruxelles	Belgium	October 2006 (1 day)

Koman, M.	Institute of Chemical Technology, Prague	Czech Republic	December 2006 (1 day)
Boča, R.	University of Wroclaw	Poland	December 2006 (7 days)
Šalित्रoš, I.	University of Wroclaw	Poland	December 2006 (7 days)
Melník, M.	University of Wroclaw	Poland	December 2006 (7 days)

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Kovačín, P.	Mono and polynuclear complexes and their magnetic properties.	Boča, R.
Pavlík, J.	Magnetism of mono and polynuclear complexes.	Boča, R.
Vacho, M.	Iron complexes exhibiting spin crossover.	Boča, R.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Halas, M.	Preparation, spectral and electrochemical properties of tetranuclear Cu(II) complexes with pyridine derivatives.	Kotočová, A.
Raab, M.	Molecular modeling of H5N1 avian influenza neuraminidase.	Tvaroška, I.
Šolc, R.	Theoretical study of triphenylamine based dendrimers in different charge states	Lukeš, V.

VIII. PUBLICATIONS

Chapter or pages in book

- [1] Ondrejkočová, I.: Chémia a biológia v domácnosti, Editor(s): I. Ondrejkočová, M. Izakovič, Chapter: Chemické látky v domácnosti a riziká pri práci s nimi. Slovenská technická univerzita v Bratislave, pp. 47-52, 2006.
- [2] Ondrejkočová, I.: Spoločná budúcnosť chémie a biológie, Editor(s): I. Ondrejkočová, M. Izakovič, Chapter: Málorozpustné látky v prírode. Slovenská technická univerzita v Bratislave, pp. 31-38, 2006.
- [3] Ondrejkočová, I., Izakovič, M.: Chémia a biológia v domácnosti, Editor(s): I. Ondrejkočová, M. Izakovič, Chapter: Chemické látky v domácnosti a ich reakcie. Slovenská technická univerzita v Bratislave, pp. 7-16, 2006.

Article in journal

- [1] Atakol, O., Boča, R., Ercan, I., Ercan, F., Fuess, H., Haase, W., Herchel, R.: Magnetic properties of trinuclear Ni–M–Ni complexes, M = Mn, Co and Ni. Chemical Physics Letters, vol. 423, pp. 192-196, 2006.
- [2] Babjak, M., Remeň, L., Szolcsányi, P., Zálupský, P., Mikloš, D., Gracza, T.: Novel bicyclisation of unsaturated polyols in PdCl₂-CuCl₂-AcOH catalytic system. Journal of Organometallic Chemistry, vol. 691, pp. 928-940, 2006.
- [3] Boča, R.: Magnetic parameters and magnetic functions in mononuclear complexes beyond the spin-Hamiltonian formalism. Structure and Bonding, vol. 117, pp. 1-264, 2006.
- [4] Efthymiou, C.G., Raptopoulou, C.P., Terzis, A., Boča, R., Korabik, M., Mrozinski, J., Perlepes, S.P., Bakalbassis, E.G.: A systematic exploration of nickel(II)/acetate/di-2-pyridyl ketone chemistry: Neutral and cationic tetranuclear clusters, and a novel mononuclear complex. European Journal of Inorganic Chemistry, pp. 2236-2252, 2006.
- [5] Holloway, C.E., Melník, M.: Structural aspect of platinum coordination compounds: Part VI. Heteroborane platinum derivatives. Main Group Metal Chemistry, vol. 29, pp. 73-106, 2006.
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- [8] Ivaniková, R., Svoboda, I., Mašlejová, A., Papánková, B., Fuess, H.: Bis(2,2'-bipyridine-2N,N')(nitrate-2O,O')cobalt(II) iodide tetrahydrate. Acta Crystallographica, vol. E62, pp. m3024-m3025, 2006.
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- Acta Crystallographica, vol. E62, 2006.
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- [20] Melník, M., Sundberg, M.R., Garaj, J.: Structural and computational characterization of Fe-M bonds (M = Ru or Os): From heterobinuclear compounds to oligonuclear iron clusters. Inorganica Chimica Acta, vol. 359, pp. 727-735, 2006.
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type ligands. International Journal of Photoenergy, pp. 1-5, 2006.

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Article in conference proceedings

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DEPARTMENT OF INORGANIC TECHNOLOGY

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I. STAFF

Full Professors:
Prof. Pavel Fellner, PhD, DSc.

Associate Professors:
Jana Gabčová, PhD, Ján Híveš, PhD, Marta Chovancová, PhD, Vladimír Danielik, PhD

Assistant Professors :
Anna Žúžiová, PhD.

Research Fellows:
Marta Ambrová, PhD., Zuzana Gáliková, Jana Jurišová, Vladimír Khandl, Matilda Zemanová, PhD

PhD Students:
Michaela Benová, Peter Čopan, Peter Mrkva, Alexandra Sýkorová, Dalibor Uher

Technical staff:
Daniela Dančová, Viliam Cauner

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Molten Salt Chemistry Laboratories
Laboratories of Chemical Inorganic Syntheses and Industrial Inorganic Chemistry

B. Research laboratories:

Molten Salt Chemistry and Electrochemistry Laboratories
Technical Electrochemistry Laboratories
Electroplating, Special Coatings and Corrosion Laboratories

III. TEACHING

A. Undergraduate Study:

3. semester (Bc)	Fundamental Principles of Inorganic Technology	2/2/0	Gabčová, Híveš
5. semester (Bc)	Corrosion and Material Surface Treatment	2/0/2	Chovancová
1. semester (MSc)	Phase Equilibria	1/2/0	Gabčová
	Corrosion and Material Protection	2/1/0	Chovancová, Zemanová
	Applied Thermodynamics	2/2/0	Fellner, Danielik
	Laboratories I.	0/0/8	Gabčová, Híveš, Chovancová, Žúžiová
	Inorganic Technology II.	2/0/0	Gabčová, Híveš, Šíma
2. semester (MSc)	Chemical Reaction Engineering	2/2/0	Híveš, Danielik
	Applied Electrochemistry	2/2/0	Híveš
	Laboratories II.	0/0/8	Gabčová, Híveš, Chovancová, Žúžiová
3. semester (MSc)	Fertilizers	2/0/0	Žúžiová, Gabčová
	Electrochemical Engineering	1/1/0	Híveš, Fellner
	Elements of System Engineering	1/1/0	Danielik
	Laboratories III.	0/0/10	Danielik, Fellner, Gabčová, Híveš, Chovancová,
4. semester (MSc)	Diploma work	0/0/27	Ambrová, Danielik, Fellner, Híveš, Zemanová

IV. CURRENT RESEARCH PROJECTS

VEGA Project No 1/2109/05 The Use of the Pulse Technique on the Preparation of the Composite and Alloy Layers on the Metal Substrates (Marta Chovancová)

Ni – W alloy coatings were deposited from aqueous electrolytes by direct current and pulse current under various current densities and different pulse ratios and pulse cycles. In the case of direct current the content of the tungsten in Ni – W alloy increased with current density and for the pulse deposition the tungsten is deposited in the major part at the higher current densities as well. The deposits obtained by direct and pulse current are homogenous and their surface is fine-grained without segmentation. The corrosion resistance of Ni – W alloys has been investigated before and after thermal treatments. Corrosion resistance of annealed alloy deposits is higher in comparison to the only electroplated ones.

The composite coatings with the nickel matrix and polytetrafluoroethylene dispersed particles TF 5033 were prepared with high reproducibility. The adhesion and microhardness of the composite coatings depends on the used substrates (carbon steel and stainless steel). The scanning electron microscopy photographs of Ni-PTFE composites showed the PTFE layer covering the deposited metal grains.

The influence of the used electrolyte type for electrolytic colouring of anodised aluminium was investigated. Anodic oxidation of aluminium was realised in sulphuric acid electrolyte and electrolytic colouring on the nickel (Ni) basis. The stress was put on colouring electrolyte with and without complexing agent. Ni was deposited by alternative current (AC) at precisely defined conditions at constant 50 Hz frequencies. In particular, the waveform of current was given as a sine wave with variable amplitude superimposed on variable DC component. Also, half-wave and full-wave rectified current waveforms have been tested. The aim is to reveal the influence of current waveform shape on the quality of the anodised surface. After dipping of the obtained finishes in the chromium – phosphoric solution, alumina layer was stripped off and amount of Ni was determined by EDX. Complexing agent influences the amount of Ni in the finishes and thorough intensity of colouring of the anodised finishes.

Project duration: from January 2005 to December 2007

VEGA Project No 1/2108/05 The Chemical and Electrochemical Reactions of Sulphur Species at Aluminium Electrolysis (Pavel Fellner)

Sulphur is introduced to the aluminium cell from the graphite anode and from raw materials, fluoride salts and secondary alumina (alumina from dry scrubbers). Aim of the project is to investigate the chemical and electrochemical reactions of sulphur species at aluminium electrolysis.

I. In the first period of the project, the adsorption of SO₂ on alumina will be investigated. Equilibrium adsorption data will be obtained for different pressures of SO₂ and temperatures. From the analysis of this data the nature of the interaction between alumina and SO₂ will be established.

Sulphur is introduced to the cell in the form of sulphates. The chemical and electrochemical reduction of sulphates in the conditions met in the aluminium cell will be investigated. Carbon and aluminium dissolved in cryolite melt will be used as reducing agents.

The electrochemical reactions of sulphates will be investigated as well. Cyclic voltametry and chronopotentiometry will be used. Mechanism and kinetics of these reaction will be determined.

II. Behavior of sulphates at an inert (platinum) and graphite electrode will be studied. When an inert electrode is used the anodic product is oxygen and sulphur oxides. Mechanism and kinetics of this reaction will be studied. When graphite anode containing sulphur (thiophene) is used, COS originates as one of the anode products. Mechanism and kinetics of this process will be studied.

Project duration: from January 2005 to December 2007

State Project E 02.02.01 Concept of Twosteps Transmutation (Pavel Fellner)

Investigation and critical analysis of phase equilibria and electrochemical properties of the lanthanide and actinide fluorides, electrodeposition of lanthanum.

Project duration: from October 2003 to December 2006

VEGA Project No 1/2476/05 Ferrates– Thermodynamics and Kinetics of Chemical and Electrochemical Reactions in Molten Electrolyte and on the Phase Boundary Electrode - Electrolyte (Ján Hiveš)

Many problems are associated with previously known synthesis of Fe(VI) salts. The common problems encountered are low yield rate, Fe(VI) chemical instability, and the toxicity of the by-products produced during synthesis. A novel approach is needed to produce Fe(VI) product in a large quantity for use in full-scale water

supply security. Systematic studies of electrochemical molten salt synthesis are proposed for an effective method for synthesis of Fe(VI).

The ways to reach the project goals can be summarised as follows :

- to make a thermodynamic topology search of the molten systems suitable for preparation of alkali ferrates
- decreasing of the working electrolyte temperature to the lowest possible value
- to measure an electrochemical characteristic of chosen molten system with a different type of electrodes material
- electrochemical synthesis of alkali ferrates in the molten system
- investigation of electrode reaction mechanism
- impedance characteristic of the measured systems
- optimisation of the working parameters as current density, electrode material, melt composition, polarisation mode (AC/DC)
- study of the properties of boundary layer on working electrode
- SEM investigation of the electrode surface layer

Project duration: from January 2005 to December 2007

APVT Project No APVT-20-000204 Electrochemical Deposition of Lanthanum from Fluoride Melts (Marta Ambrová)

The spent nuclear fuel treatment is one of the alternatives to the present storage of spent fuel in deep geological storages. The present used ways are based on the neutron source. The possibility of using of chemical separation processes is under study, too. No one commercial cycle exists which could be fully satisfactory. The separation processes in the melts were studying in 50th years. But they were not implemented because of high requirements on materials. These processes are realized at the temperature higher than 500 °C and used chemical agents are very aggressive. It means that there are serious problems at choosing of appropriate construction materials.

The separation process of lanthanides and actinides is partially handled in chloride melts. However, this process does not suit the concept of the new types of reactors, where the fluoride melts are considered as carrier melts. It is important to handle the separation process from fluoride melts. In Czech Republic in Nuclear Research Centre in Řež, the technology based on the distillation of volatile fluorides was proposed. Uranium species can be distilled as UF₆ from the spent fuel. Solid fluoridated products and non-fluoridated species remain in the distillation residue (plutonium, actinides, ...). Electroseparation could be used to separate these species.

New knowledge on the properties of the possible melt systems is needed for electroseparation. At present, the thermodynamic properties of the pure compounds, a few relevant phase diagrams and some "standard" (but inconsistent) electrochemical potentials of lanthanides and actinides compounds are available.

Electrodeposition of lanthanum was chosen as a model system. Different methods of the electrodeposition can be tested in the model system. The main objective is split into the following steps:

- solubility of lanthanum compounds in fluoride melts,
- construction of the high-temperature electrolytic cell with exactly defined conditions,
- electrode materials for electrodeposition with lanthanum depolarisation,
- electrolytic deposition of lanthanum from the appropriate electrolyte,
- influence of the pulse electrolysis.

Project duration: from January 2005 to December 2007

V. CURRENT EDUCATION PROJECTS

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
VUJE, Trnava	Transmutation of spent nuclear fuel	Ing. Petr Dařílek	January – December 2006
VUCHT, Bratislava	Kinetics of limestone dissolution in nitric acid. Treatment of calcium nitride solution		March – December 2006
SHMÚ	Balance of green house emissions	Ing. Janka Szemesova	May – November 2006

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
SINTEF, Norway	Sulphur project	Prof. Jomar Thonstad	January - December 2006

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
M. Chovancová	Slovak Society for Surface Treatment and Technology	other	since 1995
M. Chovancová	Slovak Chemical Society	member	since 1987
M. Chovancová	Slovak Cleaner Production Centre	member	since 1993
M. Chovancová	Union of Slovak Scientific and Technological Societies	member	since 1972
J. Híveš	Slovak Society for Surface Treatment and Technology	member	since 1987
J. Híveš	Slovak Chemical Society	member	since 2000
J. Híveš	Union of Slovak Scientific and Technological Societies	member	since 1987
A. Žúžiová	Slovak Chemical Society	member	since 1993
A. Žúžiová	Union of Slovak Scientific and Technological Societies	member	since 1972
J. Gabčová	Slovak Chemical Society	member	since 1972
J. Gabčová	Union of Slovak Scientific and Technological Societies	member	since 1972
J. Valtýni	Union of Slovak Scientific and Technological Societies	member	since 1972
V. Khandl	Union of Slovak Scientific and Technological Societies	member	since 1972
V. Danielik	Slovak Chemical Society	member	since 1992
M. Zemanová	Slovak Chemical Society	member	since 1992
M. Zemanová	Slovak Society for Surface Treatment and Technology	member	since 1995
P. Fellner	Slovak Chemical Society	member	since 1972
P. Fellner	Union of Slovak Scientific and Technological Societies	member	since 1972
P. Fellner	Slovak Society for Surface Treatment and Technology	member	since 1995
P. Fellner	Scientific Board of UACH SAV	member	since 2003
P. Fellner	Scientific Board of Faculty of Technology of University of Trenčín	member	since 2003
M. Ambrová	Slovak Chemical Society	member	since 2004
J. Jurišová	Slovak Chemical Society	member	since 2004

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
P. Fellner	EFCE, group Electrochemical Engineering	member	since 1999
J. Híveš	International Society of Electrochemistry	member	since 2000

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Prof. J. Thonstad	SINTEF, Trondheim	Norway	September 2006 (1 week)
Dr. K. Bouzek	VŠCHT, Praha	Czech Republic	May 2006 (3 days)
Prof. V. Sharma	FIT Melbourne	Florida, USA	May 2006 (3 days)
Prof. M. Johnson	FIT Melbourne	Florida, USA	May 2006 (3 days)
Prof. V. Malyshev	KPI Kiev	Ukraine	October 2006 (1 week)
Dr. A. Gab	KPI Kiev	Ukraine	October 2006 (1 week)
P. Vodehnal	LECOM, Ledec nad Sázavou	Czech Republic	June 2006 (2 days)
M. Palko	IDEAL-Trade Servis, Brno	Czech Republic	June 2006 (2 days)
P. Szelag	PRAGOCHEMA, Praha	Czech Republic	June 2006 (2 days)
J. Kudláček	Fakulta strojní, ČVUT, Praha	Czech Republic	June 2006 (2 days)
Dr. V. Kreibich	Fakulta strojní, ČVUT, Praha	Czech Republic	June 2006 (2 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
M. Ambrová	EUCHEM 2006, Hammamet	Tunisia	September 2006 (1 week)
M. Ambrová	UJEP, Ústí nad Labem	Czech Republic	September 2006 (3 days)
M. Ambrová	VUT Brno	Czech Republic	December 2006 (4 days)
M. Ambrová	KPI Kiev	Ukraine	December 2006 (1 week)
V. Danielik	EUCHEM 2006, Hammamet	Tunisia	September 2006 (1 week)
V. Danielik	UJEP, Ústí nad Labem	Czech Republic	September 2006 (3 days)
V. Danielik	KPI Kiev	Ukraine	December 2006 (1 week)
P. Fellner	European Party on Electroch., Edinburgh	UK	August 2006 (1 week)
P. Fellner	NTNU Trondheim	Norway	December 2006 (4 days)
J. Gabčová	UJEP, Ústí nad Labem	Czech Republic	September 2006 (3 days)
Z. Gálíková	Happy Plating, GmbH	Austria	March 2006 (1 day)
J. Híveš	VŠCHT Praha	Czech Republic	June 2006 (2 days)
J. Híveš	National Meeting of American Chemical Society, San Francisco	USA	September 2006 (1 week)
J. Híveš	VŠCHT Praha	Czech Republic	October 2006 (2 days)
M. Chovancová	VUT Brno	Czech Republic	May 2006 (1 day)
M. Zemanová	Czech Society on Surface Treatment	Czech Republic	February 2006 (4 days)
M. Zemanová	Happy Plating, GmbH	Austria	March 2006 (1 day)
M. Zemanová	ZVO Oberflächentage Bonn	Germany	September 2006 (3 days)
M. Zemanová	VŠCHT Praha	Czech Republic	October 2006 (1 week)

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Krivdová, P.	Anodic Protection of Steel in Liquid Fertilizers	Ambrová, M.
Káčhová, B.	Mechanical Properties of the Composite Coatings with the PTFE Particles	Chovancová, M.
Seregi, E.	Phase Equilibria in Environmental Friendly Fertilizers	Danielik, V.
Lužáková, G.	Reactivity of CaCO ₃ at SO ₂ Retaining	Fellner, P.
Ivanová, Z.	Influence of Impurities on the Decomposition of Ammonium Nitrate	Gabčová, J.
Jonatová, I.	Electrical Conductivity of Molten Salts	Híveš, J.
Dúcová, M.	Determination of Sulphur Compounds in the Electrolyte for Aluminium Electrowinning	Jurišová, J.
Morávková, S.	Alloy Coatings	Zemanová, M.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Blaho, P.	Characterization of the Pigmented Anodic Coatings on Aluminium	Zemanová, M.
Čopan, P.	Influence of Graphite Additives on Mechanical and Wear Properties of Silicon Nitride	Šajgalík, P. (SAS)
Kipsová, L.	Volume Properties of the Niobium-based Fluoride Melts	Cibulková, J.
Királyová, K.	Electrochemical Deposition of Lanthanum	Ambrová, M.
Krajčír, M.	Volume Properties of the Niobium-based Fluoride Melts	Híveš, J.
Leitner, V.	Electromagnetic Properties of Substituted Iron Oxides	Grusková, A.
Morávková, Z.	Interfacial Tension in the System Molten Aluminium/Cryolite-based Melt	Korenko, M. (SAS)
Svoboda, D.	Sulphur as Impurity at Electrowinning of Aluminium	Danielik, V.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
M. Ambrová	Reactions of Sulphur Species at Aluminium Electrowinning	Fellner, P.

VIII. PUBLICATIONS

Article in journal

- [1] Ambrová, Marta, Danielik, Vladimír, Fellner, Pavel, Thonstad, Jomar: The Cathode Process in Sodium Chloride Melts Containing Sulphate. *Electrochimica Acta*, vol. 51, pp. 5825-5828, 2006.
- [2] Ambrová, Marta, Jurišová, Jana: Solubilities of lanthanum oxide in fluoride melts. Part I. Solubility in M3AlF6 (M = Li, Na, K). *Thermochimica Acta*, vol. 443, pp. 105-108, 2006.
- [3] Ambrová, Marta, Jurišová, Jana, Danielik, Vladimír: Elektrochemické vlastnosti fluoridových sústav obsahujúcich La2O3. *Chemické listy*, no. 8, vol. 100, pp. 620, 2006.
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- [5] Fellner, Pavel, Jurišová, Jana, Khandl, Vladimír, Sýkorová, Alexandra, Thonstad, Jomar: Adsorption of SO2 on Alumina. *Chemical Papers*, no. 4, vol. 60, pp. 311-314, 2006.
- [6] Gabčová, Jana, Danielik, Vladimír, Fellner, Pavel, Khandl, Vladimír: Ekologické hnojivá s obsahom síry. *Chemické listy*, no. 8, vol. 100, pp. 626-627, 2006.
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- [10] Zemanová, Matilda, Chovancová, Marta: Combination of Sealing Methods on Anodised Aluminium. *Galvanotechnik*, vol. 5, pp. 1101-1103, 2006.
- [11] Zemanová, Matilda, Chovancová, Marta: New Approaches for Sealing Anodic Coatings. *Metal Finishing*, no. 10, vol. 103, pp. 33-34, 2006.
- [12] Zemanová, Matilda, Chovancová, Marta: Vlastnosti povlakov pripravených metódou sól - gél na ocelovom podklade. *Acta Mechanica Slovaca*, no. A, vol. 4, pp. 241-248, 2006.
- [13] Zemanová, Matilda, Link, G., Takayama, S., Nuesch, R.: Modification of layer charge in smectites by microwaves. *Applied Clay Science*, vol. 32, pp. 271-282, 2006.

Article in conference proceedings

- [1] Ambrová, Marta, Danielik, Vladimír, Fellner, Pavel, Thonstad, Jomar: The Cathode Process in Sodium Chloride Melts Containing Sulphate. In *EUICHEM Conference On Molten Salts and Ionic Liquides*, Hammamet, Tunisia, pp. 119-120, 2006.
- [2] Ambrová, Marta, Danielik, Vladimír, Jurišová, Jana: Electrodeposition of Lanthanum from Fluoride Melts. In *16. Symposium of AER on VVER Physics and Reactor Safety*, Bratislava, pp. 1, 2006.
- [3] Ambrová, Marta, Danielik, Vladimír, Jurišová, Jana: Electrodeposition of Lanthanum from Fluoride Melts. In *EUICHEM Conference On Molten Salts and Ionic Liquides*, Hammamet, Tunisia, pp. 137-138, 2006.
- [4] Ambrová, Marta, Danielik, Vladimír, Jurišová, Jana: Phase Diagrams of the System MF - La2O3 and M3AlF6 - La2O3 where M = Li, Na, K. In *16. Symposium of AER on VVER Physics and Reactor Safety*, Bratislava, pp. 1, 2006.
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DEPARTMENT OF CERAMICS, GLASS AND CEMENT

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I. STAFF

Full Professors:

Ján Lokaj, PhD,

Associate Professors:

Miroslav Jamnický, PhD; Martin T.Palou, PhD;

Assistant Professors :

Vladimír Kovár, PhD; Eva Smrčková, PhD;

Research Fellows:

Vladimír Dobiš; Jozef Kákoš, PhD; Jana Kozánková; Štefan Svetík;

PhD Students:

Martin Dovál; Jana Hrubá (till 31.3.2006); Ľubomír Ježo; Eva Kuzielová; Maha Salih Mohamed Noaman (since 1.10.2006); Radovan Tóth (till 31.3.2006); Kristína Vicenová (since 1.10.2006); Martin Vitkovič (since 1.10.2006);

Technical staff:

Pavol Krutý; Mária Pelíšková (till 31.10.2006); Iveta Zezulová;

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Teaching laboratory I
Teaching laboratory II

B. Research laboratories:

Laboratory of ceramics
Laboratory of glass
Laboratory of inorganic binders
Laboratory of sol/gel
Laboratory of inorganic powders synthesis
Laboratory of thermal analysis
Laboratory of calorimetry
Scanning electron microscopy laboratory
X-ray diffractometer laboratory
Laboratory of X-Ray Microanalysis

III. TEACHING

A. Undergraduate Study:

2. semester (Bc)	Inorganic materials	2/2/0	Jamnický, Smrčková
6. semester (Bc)	Materials technology	2/0/0	Palou
	Bachelor's thesis	0/0/4	Palou, Smrčková
1. semester (MSc)	Inorganic chemistry III	2/2/0	Jamnický
	Solid state physics	2/0/0	Lokaj, Smrčková
	Raw materials and technical mineralogy	2/1/0	Svetík, Kozánková, Lokaj
	Specialised laboratory practices I	0/0/10	Kákoš, Kovár, Kozánková, Palou, Smrčková, Svetík
2. semester (MSc)	High temperature processes	2/1/0	Kovár
	Applied heat technique	2/1/0	Kovár
	Specialised laboratory practices II	0/0/8	Smrčková, Kovár, Jamnický, Kákoš
	Factory praxis	three weeks	Jamnický, Smrčková
3. semester (MSc)	Technology of spec. inorg. materials	2/0/0	Kákoš
	Inorganic binders technology	2/0/0	Palou
	Technology of ceramics	2/0/0	Smrčková
	Technology of glass	2/0/0	Jamnický
3. semester (MSc)	Specialised laboratory practices III	0/0/10	Dovář, Jamnický, Kákoš, Kozánková, Palou, Smrčková
4. semester (MSc)	Master's thesis laboratory	0/0/27	Kovár, Palou, Smrčková

IV. CURRENT RESEARCH PROJECTS

VEGA Project No 1/1380/04 Preparation of Al₂O₃ ceramics from nanosize particles (Vladimír Kovár)

Transparent α -Al₂O₃ ceramics was prepared by colloidal technique from suspension of α -Al₂O₃ powders TM-DAR (160 nm) in boehmite sol with concentration from 0,1 mass % to 2,7 mass %. Boehmite stabilizes the suspension, acts as lubricant at pressing, increases the strength of green compacts and accelerates the sintering. Samples were prepared by pressing (50 MPa) – vacuum filtration, followed by conventional (free) sintering on air at 1 275 °C and by final hot isostatic pressing (1 275 °C, 160 MPa) in argon. The density of unpolished samples is 99,72 % of theoretical value. Microstructure of the material is homogeneous, composed of grains sized to 560 nm. Mechanical properties (toughness: 4,5 MPa.m^{1/2} to 5,3 MPa.m^{1/2}, hardness: 19 GPa to 22 GPa) are on the maximal level of published data for this kind of ceramics and were obtained in fracture across the grains in material. Both hardness and the toughness of material markedly decrease in the range of investigated average grain size of 1,6 μ m – 4,0 μ m, in the submicron range (0,5 μ m – 1 μ m) the influence of grain size is not apparent.

Project duration: from 01.01.2004 to 31.12.2006

APVV Project 20-015904: New biomaterials and biosensors for clinical use (Ján Labuda).

Preparation of new biomaterials based on biopolymers and bioinorganic materials for clinical application as well as biosensors based on deoxyribonucleic acid (DNA) and lipoproteins (LDL) for direct use in clinical medicine. The project, as it is solved at Department of Ceramics, Glass and Cement, deals with the synthesis of composite biomaterials based on inorganic - organic and inorganic-inorganic biomaterials. The main purpose of the work is the precipitation in-situ of hydroxyapatite in the matrix of biopolymers (PVA) in order to optimize the mechanical strength and bioactivity of novel biomaterials. Also, the project is aimed at the synthesis of composite biomaterials fluor-hydroxyapatite and study of mechanical strength, microstructure, thermal stability, biocompatibility and bioactivity. Other important field of project is the development of bioglass and bioglass ceramics in lithium disilicate – fluorapatite system. Kinetics and mechanism of thermo-nucleation and crystallization, mechanical properties, bioactivity of glass and glass-ceramics with different content of "apparent fluorapatite" are the main investigation points of the project.

Project duration: from 01.01.2005 to 31.12.2007

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person
Slovak University of Technology, Faculty of Electrical Engineering and Information Technology, Bratislava	Effect of organic additives on crystallization of boehmite gels	Kadlečíková Magdaléna, researcher, Ilkovičova 3, 812 19 Bratislava
Slovak University of Technology, Faculty of Mechanical Engineering, Trnava	Isostatic pressing of ceramic powders	Turňa Milan, professor, Paulínska 16, 917 24 Trnava
University of Žilina, Faculty of Mechanical Engineering, Department of Physics, Žilina	Study of mixed cation effect in ion conductivity glasses using electrical conductivity spectra, study of transport mechanisms in fast i	Bury Peter, professor, 010 26 Žilina
Slovak Academy of Sciences, Institute of Inorganic Chemistry, Bratislava	α -alumina ceramics prepared by colloidal processing	Šajgalík Pavol, director, Dúbravská cesta 9, 843 69 Bratislava
Slovak Academy of Sciences, Institute of Construction and Architecture, Bratislava	The performances of blended cements based on sulfoaluminate belite and Portland cement	Janotka Ivan, researcher, Dúbravská cesta 9, 842 20 Bratislava
Slovak Academy of Sciences, Institute of Informatics, Bratislava	Synthetic opals made by the Langmuir-Blodgett method	Bárdošová Mária, researcher, Dúbravská cesta 9, 842 37 Bratislava
Ipeľské tehelne, a.s., Lučenec (Brick plant)	Mineralogical and thermoanalytical investigation of local raw materials for brick production	Dováľ Martin, director, M. Rázusa 29, 984 01 Lučenec
Novoker, a.s., Lučenec (Wall Tiles Producer)	Causes of defect formation and their identification in wall tiles	Sarvaš Ladislav, 984 01 Lučenec-Vidiná
PPC Insulators – Ceram Čab, a.s.	Properties of electroporcelain	Košalko Ivan, director, 951 24 Nové Sady
Tondach, s. s r.o. Stupava	Properties of roof silicate tiles	Horváth Vincent, Železničná 53, 900 31 Stupava
Johns Manville Skloplast, a.s., Trnava (Glass fibre producer)	Optimization of drainage ovens of glass melting aggregate	Kalinay Andrej, Strojárska 1, 917 99 Trnava
Technické sklo, a.s., Bratislava (Technical Glass Work)	Preparation of glass-ceramic materials by controlled processes of nucleation and crystallization	Chochoľoušek Jozef, head of testing laboratory, Agátová, 844 03 Bratislava
Východoslovenské stavebné hmoty, a.s., Turňa nad Bodvou (construction materials producer)	Milling ability of cement clinker and various additives	Jaklovský Štefan, director, 044 02 Turňa nad Bodvou
Holcim, a.s., Rohožník (Cement Producer)	Effect of various gypsums on setting and hardening of cement	Hanzo Peter, director, 906 38 Rohožník
Považská cementáreň, a.s., Ladce (Cement Producer)	Determination of P ₂ O ₅ content in Portland clinker fired with addition of meat-bone flour, determination of water soluble chromium in ce	Martauz Pavol, director, ul. J. Kráľa, 018 63 Ladce
Beton Racio, s. s r.o., Trnava	Evaluation of water quality for concrete production	Halaša Igor, Skladová 2, 917 01 Trnava
OLO, a.s. Bratislava,	Condition optimization for CaO hydration	Švábik Vladimír, Vičie hrdlo 72, 821 07 Bratislava
DATASYSTEM Laboratory, Bratislava	Thermal analysis evaluating optical transmittance, prospects and limitations	Kremničan Vladimír, director, Budovateľská 13, 821 08 Bratislava
VUCHT, a.s. Bratislava (Research Institute of Chemical Technology)	Characterization of powder samples by SEM	Štrefancová Radka, Nobelova 34, 836 03 Bratislava
Stachema, s. s r.o. Bratislava (building chemistry)	Physical and chemical properties of cements	Zajíček Milan, Nemčíkova 7, Bratislava

B. International Cooperation

Institution	Type of cooperation	Responsible person
Mount Allison University, Department of Chemistry, Sackville, Canada	Growth, morphology and thermoanalytical properties of fluoroapatite bio-glass-ceramics in lithium disilicate glasses	Mojumdar Subhash C., Sackville, NB, E4L 1G8, Canada
University of Boumerdes, Faculty of Engineer Science, Department of Engineering Materials, Boumerdes	Silica fume treatment for improving durability of alkali resistant glass fibres in cement matrixes	Ayadi. Azzedine, professor, 350000 Boumerdes, Algeria
University of San Francisco, Department of Physics, San Francisco, USA	Crystal structure analysis of selected organic compounds, cooperation on deacidifying of cellulosic materials	Brandon G. Brown, professor, 2130 Fulton Street, San Francisco, CA 94117

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Department	Slovak Silicate Society, Bratislava	member	
Jamnický Miroslav	Slovak Glass Society, Lednické Rovne	member of advisory board	01.01.1997 - 01.12.2006
Department	Union of Glass Industry, Bratislava	member	
Palou Martin	Slovak Institute for Standardization (technical comission No 40 Inorganic binders)	member	01.01.2000 -
Smrčková Eva	Slovak Institute for Standardization (technical comission No 56 Construction materials and testing)	member	01.01.2000 -
Smrčková Eva	Association of Slovak Societies for Science and Technics	member of the board	01.06.2005 -
Lokaj Ján	Slovak Chemical Society	Member	01.01.2006 -
Jamnický Miroslav	Association of Slovak Societies for Science and Technics	member of the board	01.05.2006 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Lokaj Ján	Czechoslovak Crystallographic Society	member	01.01.1985 -
Kovár Vladimír	American Ceramic Society, USA	member	01.12.2005 -

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Havlica, J.	Technical university, Brno	Czech Republic	October 2006 (1 day)
Weinbach A.	Veeco Instruments GmbH, Mannheim	Germany	November 2006 (2 days)
Srbková Z.	Jeol (Europe) S.A.S., Praha	Czech Republic	November 2006 (2 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Dovář, M., Kuzielová, E.	Inorganic nonmetal materials (seminary), Praha	Czech Republic	February 2006 (3 days)

Lokaj, J.	Jeol, seminary, Praha	Czech Republic	March 2006 (2 days)
Tóth, R.	UNIDO International Centre for Science and High Technology, Trieste	Italy	January – March 2006 (three months)
Smrčková, E.	Ecology and new building materials and products, Telč	Czech Republik	May 2006 (3 days)
Kovár, V.	Student competition at Brno University of Technology	Czech Republic	October 2006 (1 day)
Dovář, M., Smrčková, E.	MALTOVINY – BINDING MATERIALS 2006 (conference), Brno	Czech Republic	December 2006 (1 day)

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Ifka, T	Application of the new method for the determination of the watersoluble Cr (VI) in cements	Palou, M.
Kohút, M.	Effect of plastification admixtures on the properties of cement paste	Smrčková, E.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Gajdoš, D.	Preparation of glass-ceramics for application in human medicine	Smrčková, E.
Nemeček, V.	Effect of boehmite on corundum powder sintering	Kovár, V
Rafayová, J.	Influence of drying process on the qualitative parameters of glass fibre	Kovár, V..
Vitkovič, M.	Study of reactivity of cement raw meal when using alternative fuels	Palou, M.

VIII. PUBLICATIONS

Chapter or pages in book

- [1] Palou, M., Kuzielová, E.: Biokompatibilné anorganické materiály, Editor(s): Ondřejkovičová I., Hojerová J., Hudecová D., Kaszonyi A., Koreňová A., Kovařík O., Palou M., Chapter: 7. Vydavateľstvo STU, Bratislava, (Palou M.: Spoločná budúcnosť chémie a biológie, STU v Bratislave 2006), pp. 69-76, 2006.

Article in journal

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Article in conference proceedings

- [1] Ayadi, A., Palou, M., Bichari, M.: Mechanical reinforcement of soda lime glass by thermal hardening. Editor(s): Hamieh T., In *Communications 5. conf. internat. sur la science de matériaux*, Beyrouth (Liban), 17-19 Mai 2006, vol. 5, pp. 477-481, 2006.
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- [3] Dovál, Martin, Palou, Martin: Accelerated test methods to assess ASR (alkali-silica reaction) in concrete. Editor(s): Fridrichová M, VUT v Brne, In *Zb. V. odborná konf. o vėde, výzkumu a aplikacích v oboru maltovín MALTOVINY 2006*, Brno (ČR), 14. dec. 2006, pp. 29-33, 2006.
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- [5] Dovál, Martin, Palou, Martin, Kovár, Vladimír: Hydration and microstructure of binder compounds containing C₂AS and C₂S synthesized by sol-gel method. Editor(s): Macháček J., Novotný M., In *Proc. XI. workshop of PhD students Inorganic non-metallic materials, processes - technology - properties*, Prague (ČR), Feb. 8-9, 2006, VŠCHT v Praze, pp. 67-88, 2006.
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Assistant Professors :

Helena Paulíková, PhD.; Martin Šimkovič, PhD.; Andrea Šovčíková, PhD.; Petra Olejníková

Research Fellows:

Boris Lakatoš, PhD.

PhD Students:

Eva Kadlečíková, Anita Kurucová, Silvia Letašiová, Andrej Repický, Monika Vaneková, Peter Vargovič, Zuzana Ondrušová, Lucia Birošová, Marica Theiszová

Technical staff:

Eva Drobná-Secretary; Eva Csenkeyová, Marta Fujáková, Ján Škvara;

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Animal Cell Cultures
Laboratory of Biochemistry of Cancer Cells
Laboratory of Fungal Biochemistry and Physiology
Laboratory of Immunochemistry
Laboratory of Microbiology

B. Research laboratories:

Laboratory of Animal Cell Cultures
Laboratory of Biochemistry of Cancer Cells
Laboratory of Fungal Biochemistry and Physiology
Laboratory of Immunochemistry
Laboratory of Microbiology

III._TEACHING

A. Undergraduate Study:

2. semester (Bc)	Biology	2/0/0	Jantová
	Laboratory Practices in Biology	0/0/2	Letašiová, Birošová, Kaliňák
3. semester (Bc)	Biochemistry I	2/0/0	Varečka
	Laboratory Practices in Biochemistry I	0/0/2	Paulíková, Lakatoš, Šimkovič
	Microbiology I	2/0/0	Hudecová
	Laboratory Practices in Microbiology I	0/0/2	Hudecová, Mikulášová, Olejníková
5. semester (Bc)	Principles of Human Nutrition	2/0/0	Miko
6. semester (Bc)	Laboratory Project	0/0/4	Miko, Varečka, Hudecová, Jantová, Mikulášová, Paulíková
1. semester (MSc)	Biochemistry II	2/0/0	Varečka
	Laboratory Practices in Biochemistry II	0/0/2	Paulíková, Hunová, Vargovič, Šimkovič
	Microbiology II	2/0/0	Hudecová
	Laboratory Practices in Microbiology II	0/0/2	Mikulášová, Olejníková, Hudecová
1. semester (MSc)	Immunochemistry	2/1/2	Šovčíková
	Laboratory project I	0/0/5	Miko, Paulíková, Varečka, Hudecová, Jantová, Mikulášová
2. semester (MSc)	Molecular Biology and Genetics	2/1/0	Mikulášová, Paulíková
	Applied Microbiology	2/0/0	Hudecová
	Bioenergetics	2/0/2	Miko
	Mechanisms of Action of Natural Compounds	2/0/2	Varečka, Šimkovič, Lakatoš
2. semester (MSc)	Laboratory project II	0/0/5	Miko, Paulíková, Varečka, Hudecová, Jantová, Mikulášová
3. semester (MSc)	Clinical Biochemistry	2/0/0	Lakatoš
	Laboratory Practices in Clinical Biochemistry	0/0/2	Lakatoš, Šimkovič
	Cell Cultures	2/0/0	Jantová
	Laboratory Practices in Cell Cultures	0/0/2	Jantová, Letašiová
3. semester (MSc)	Laboratory project III	0/0/5	Miko, Varečka, Hudecová, Jantová, Mikulášová
	Lab. Practices of the branch Biomedical Engineering,...	0/0/2	Miko, Horáková, Varečka, Hudecová, Jantová, Mikulášová
4. semester (MSc)	Master`s Thesis	0/0/27	Miko, Paulíková, Varečka, Hudecová, Jantová, Mikulášová

IV._CURRENT RESEARCH PROJECTS

VEGA Project No 1/1173/04 Cytotoxicity of novel xenobiotics and their mode of action (Soňa Jantová)

The overall aim of the project is to develop the new potential anticancer drug. Therefore the cytotoxic, genotoxic and antimicrobial properties of the chemical compounds of the different structure will be evaluated. Special attention will be focused to the mechanism of the action and the cytotoxic activity of chosen most active derivatives of oracine, organic ammonium salts, Cu⁺⁺ complexes, ITC and quinazolines; notably the interference on the biosynthesis of macromolecules, the interference with the cell cycle, their ability to induce apoptosis in different tumor cell lines as well as the influence actin cytoskeleton and the intracellular pH. The series of phenolic compounds and polyphenolic lignin derivatives will be investigated from the view point of their antimutagenic, antioxidative and adsorptive effect. The mechanism of these effects will be studied. Modulation of glutathion metabolism can provide a strategy for more efficacious sensitization of tumor cells to a standard anticancer drugs (doxorubicin) in chemotherapy and anticancer activity of new modulators of glutathione relative enzyme will be investigated.

Project duration: from 1. 1. 2004 to 31.12. 2006

APVT Project No 20-003904 Biochemical and genetic aspects of senescence and cell death of filamentous fungi (Boris Lakatoš)

In this project the biochemical and genetic mechanisms of senescence of filamentous fungi will be studied in context with their physiological functions, in particular conidiation and intrahyphal differentiation, in respect of possible utilization of this process in biotechnology. In the project a unique and never before used complex of experimental models combined of wild strains and mutants defective in conidiation will be used in combination with different cultivation conditions. Their simultaneous analysis will enable to solve general aspects of senescence in filamentous fungi.

Project duration: from 01.01.2005 to 31.12.2007

Vega Project No 1/2335/05 The role of proton-motive force in the Ca²⁺ homeostasis in filamentous fungi (Martin Šimkovič)

Ca²⁺ homeostasis represents an integrating system of every living cell and plays a crucial role in the regulation of numerous functions on both cellular and organism levels. There is only scarce knowledge on the Ca²⁺ homeostasis in filamentous fungi, which are scattered among several fungal species. Recently, we described properties of partial reactions of Ca²⁺ homeostasis and their developmental changes in deuteromycete *Trichoderma viride*. We found that uncouplers stimulated both Ca²⁺ influx and efflux across the cytoplasmic membrane. This means that the electrochemical potential of H⁺ couples Ca²⁺ translocation across this membrane. This observation is important for the understanding of Ca²⁺ homeostasis and opens new views on the physiology of fungi and its intentional manipulation. This project is mainly devoted to the analysis of this phenomenon, to ascertaining its universality and/or specificity. A part of this project will be devoted to experiments, which could elucidate the role of Ca²⁺ in the signaling pathway triggering the light-induced conidiation in *Trichoderma viride*.

Project duration: from 01.01.2005 to 31.12.2007

V._CURRENT EDUCATION PROJECTS

VI._COOPERATION

A._Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Institute of Molecular Physiology and Genetics, SAS, Bratislava	Characterisation of basal Ca ²⁺ transport in non-excitabile cells (Joint grant)	Dr. Jozef Orlický, Senior Research Scientist, Vlárská 5, 833 34 Bratislava	01.01.1990 -
Cancer Research Institute, SAS, Bratislava	Cytotoxicity of Novel Xenobiotics and Their mode of Action	Dr. Darina Slameňová, Head of Group, Vlárská 7, 833 91 Bratislava	01.01.1991 -
Tissue Bank, Hospital Ružinov, Bratislava	Cultivation and growth of human and animal tissue cultures on new biomaterials	Dr. Jana Dragúňová, Ružinovská 6, 826 06 Bratislava	01.01.1998 -
Dept. of Chem. Theory of Drugs, Fac. of Pharmacy, Comenius University, Bratislava	Study of antimicrobial activity of newly synthesized copper complexes	Dr. Aladár Valent, Associate professor, Kalinčiakova 8, 832 32 Bratislava	01.01.1999 -
Institute of Chemistry, Faculty of Science, PJŠU, Košice	New coordinating compounds of zinc, their preparation, study of physico-chemical properties and their biological activity (Joint grant)	Prof. Katarína Gyoryová, Full Professor, Moyzesova 11, 040 01 Košice	01.10.2001 -

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Laboratoire du Biomembranes et Messagers Cellulaires, Orsay	Apoptosis in dexamethasone treated murine thymocytes	Dr. Françoise Giraud, Director of Research, BMC CNRS - UMR 8619, Bat.440 Université Paris XI, Orsay 914 05, France	01.01.2000 -
Institute of cellular and molecular botany, Friedrich Wilhelms Universität, Bonn	Characterisation of microorganisms indigenous to low-rank coal, study of solubilisation of lignite by these microorganisms	Dr. Udo Hoelker, Head of group, Kirschallee 1, 53 115 Bonn, Germany	01.01.2001 -
Institut für Mikrobiologie, Universität zu Innsbruck	Membrane transport of organic acids in filamentous fungi (Joint grant)	Dr. Wolfgang Burgstaller, Head of Group, Technikerstrasse 25, 6020 Innsbruck, Austria	01.01 2002 -
Institute of Food Research, Norwich	Rapid, specific detection of Listeria monocytogenes by antibody-based techniques and on-line sensor technology	Dr. Gary Wyatt, Senior Research Scientist, Norwich Research Park, Colney, NR47UA - Norwich, Great Britain	01.01.1997 -
Institute of Chemical Technology, Prague	Rapid, specific detection of Listeria monocytogenes by antibody-based techniques and on-line sensor technology	prof. Pavel Rauch, Head of Department, Technická 5, 166 28 Prague, Czech Republic	01.01.1997 -

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Miko Milan	Slovak Society for Biochemistry and Molecular Biology, Bratislava	member	
Miko Milan	Editorial board of journal Biológia	member	
Miko Milan	Editorial board of journal Acta fytotechnica et zootechnica	member	
Miko Milan	Commission for evaluation of DrSc (DSc) thesis in Biochemistry	member	
Hudecová Daniela	Czecho-Slovak Society for Microbiology, Bratislava	member	01.01.1984 -
Hudecová Daniela	Scientific grant agency (VEGA)– Commission for cell and molecular biology , Bratislava-	member	30.04.2002 -
Hudecová Daniela	Commission for evaluation of PhD thesis in Microbiology	secretary	20.10.1997 -
Jantová Soňa	Slovak Medical Society, Bratislava	member	01.01.1980 -
Jantová Soňa	Slovak Society for Biochemistry and Molecular Biology, Bratislava	member	01.01.2002 -
Jantová Soňa	Scientific grant agency (VEGA)– Commission for cell and molecular biology	member	30.04.2002 -
Mikulášová Mária	Czecho-Slovak Society for Microbiology, Bratislava	member	01.07.1992 -
Mikulášová Mária	Czecho-Slovak Society for Biology, Brno	member	01.01.1993 -
Varečka Ľudovít	Editorial Board of journal General Physiology and Biophysics (GPB)	member	01.01.1993 -
Varečka Ľudovít	Slovak Society for Biochemistry and Molecular Biology, Bratislava	member of advisory board	01.10.1996 -
Varečka Ľudovít	Scientific board of Institute of molecular physiology and genetics SAS, Bratislava	member	01.01.2001 -
Lakatoš Boris	Slovak Society for Biochemistry and Molecular Biology, Bratislava	member	01.01.2002 -

Andrea Šovčíková	Slovak Society for Biochemistry and Molecular Biology, Bratislava	member	01.01.2003 -
Martin Šimkovič	Slovak Society for Biochemistry and Molecular Biology, Bratislava	member	01.01.2002 -
Varečka Ľudovít	Commission for evaluation of DSc thesis in Biochemistry	member	01.10.2005 -
Birošová Lucia	Czecho-Slovak Society for Microbiology, Bratislava	member	01.01.2005 -
Olejníková Petra	Czecho-Slovak Society for Microbiology, Bratislava	member	01.01.2006 -
Ondrušová Zuzana	Czecho-Slovak Society for Microbiology, Bratislava	member	01. 01. 2006 -
Letašiová Silvia	Slovak Society for Biochemistry and Molecular Biology, Bratislava	member	01.01.2006 -
Vargovič Peter	Slovak Society for Biochemistry and Molecular Biology, Bratislava	member	01.01.2006 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Letašiová Silvia	EACR (European Association for Cancer Research)	member	01.01.2006
Letašiová Silvia	ESTIV (European Society of Toxicology in Vitro)	member	01.01.2006

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Daussant, J	C.N.R.S., Meudon	France	November 2006 (5 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Birošová, L.	Tomáškovy dny mladých mikrobiologu	Czech Republic	June 7-9, 2006
Ondrušová, Z.	Tomáškovy dny mladých mikrobiologu	Czech Republic	June 7-9, 2006
Birošová, L.	10 th International Symposium on the Genetics of Industrial Microorganisms	Czech Republic	June 24-28, 2006
Olejníková, P.	10 th International Symposium on the Genetics of Industrial Microorganisms	Czech Republic	June 24-28, 2006
Lakatoš, B.	2nd FEMS Congress of European Microbiologists	Spain	July 4-8, 2006
Letašiová, S.	14 th International Workshop on in vitro Toxicology	Belgium	July 1-4, 2006
Letašiová, S.	19 th Meeting of the European Association for Cancer Research	Hungary	October 2-5, 2006
Theiszová, M.	14 th International Workshop on in vitro Toxicology	Belgium	July 1-4, 2006

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Beskydová, J.	Mycoses and possibilities of their therapy	Hudecová, D.
Brléjová, M.	Occurrence and characterization of anti-mannan antibodies in vaginal mycoses	Mikulášová, M.

Čičmanová, Z.	Isolation and characterization of calcium binding proteins from <i>Trichoderma viride</i>	Šimkovič, M.
Dudášová, H.	Characterisation of anti- <i>Saccharomyces cerevisiae</i> antibodies and their incidence in gastrointestinal diseases	Paulovičová, E.
Dudová, V.	Inhibitors of MRP in chemotherapy	Paulíková, H.
Fikarová, B.	Mycotoxines in feed and nutrition	Hudecová, D.
Frimmel, K.	Neurodegenerative defects	Miko, M.
Hamadová, M.	New metalocomplexes and their effects on selected microbes causing mycotic diseases	Hudecová, D.
Keltošová, S.	Available methods of assessing cell proliferation and viability (in vitro)	Theiszová, M.
Koláriková, K.	Biological activity of novel derivatives of quinoline	Repický, A.
Kučerák, J.	Cytotoxic effect of sage extract on cancer cells growing in vitro	Jantová, S.
Némethyová, K.	Antifungal agents. Sensibility and induction of resistance	Olejníková, P.
Ondrušová, Z.	Development of ciprofloxacin resistance due to mutations induced by 2-nitrofluorene	Birošová, L.
Poturnayová, A.	Utilization of redox activity of Cu(II) complexes in modulation of their cytotoxicity	Ondrušová, Z.
Smolinská, M.	Identification and classification methods of microorganisms	Olejníková, P.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Csorosová, E.	Adaptation of filamentous fungi to the intermediates of Krebs cycle as a sole carbon source	Hudecová, D.
Deáková, E.	Properties of induced organic acid transport into filamentous fungi	Kaliňák, M.
Farkašová, E.	Induction of secretion of proteolytic enzymes in <i>Saccharomyces cerevisiae</i>	Šimkovič, M.
Grznárová, P.	Study of biological activity of hydroxylapatite and new composite materials usable in medicine	Jantová, S.
Hamranová, A.	The effect of pyridinecarboxylates Cu(II) with biologically active ligands to glycolysis, respiration processes and membranes of Ehrlich ascites cell	Miko, M.
Chromá, M.	Some aspects of mutagenesis leading to bacterial antibiotic resistance	Mikulášová, M.
Kaldeckíková, E.	Modulation of Cu(II) complexes cytotoxicity by reducing agent	Paulíková, H.
Lešková, Z.	The exposure of bacteria to biocides reduces their susceptibility to antibiotics	Mikulášová, M.
Malachovská, V.	Electric field effects on the growth and other characteristics of model microorganisms and mammalian cells	Fedorko, P.
Moravčíková, E.	Apoptosis and necrosis induced by compounds with acridine skeleton	Paulíková, H.
Ondrušová, L.	Biological effects of rosemary extract on cancer cell lines	Jantová, S.
Vaneková, M.	Influx of Ca ²⁺ into human erythrocytes and its modulation by compounds influencing signal pathways	Lakatoš, B.
Žbodáková, O.	Sensitisation of cancer cells by new inhibitors of MRP	Paulíková, H.
Libjaková, L.	Study of changes in human immunity system associated with ageing	Šovčíková, A.
Neubauerová, E.	Effect of the ceramics fibers and NiO-elements on rat immunity system	Šovčíková, A.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Letašiová, S.	Screening of cytotoxicity in vitro and mechanism of action of selected natural and synthetic compounds	Jantová Soňa

VIII. PUBLICATIONS

Chapter or pages in book

- [1] Ondrejčovičová, I., Hudecová, D., Hojerová, J., Kaszonyi, A., Koreňová, A., Kovařík, P., Palou, M.: Spoločná budúcnosť chémie a biológie, Editor(s): Ondrejčovičová I., Izakovič M., Chapter: Mykotoxíny v životnom prostredí. STU Bratislava, pp. 47-56, 2006.
- [2] Ondrejčovičová, Iveta, Izakovič, Mário, Klein, Erik, Kovařík, Pavel, Jantová, Soňa: Chémia a biológia v domácnosti., Editor(s):

Article in journal

- [1] Ditte, Peter, Lakatoš, Boris, Varečka, Ľudovít, Šimkovič, Martin: H(+)-mediated coupling of transmembrane Ca(2+) fluxes in vegetative *Trichoderma viride* mycelia suggested by the study of ageing and adaptation to extreme Ca(2+) concentrations. *Biochim Biophys Acta*, (Epub 2006 Jul 28), 2006.
- [2] Jantová, S., Letašiová, S., Ovádeková, R., Múčková, M.: Cytotoxic/antiproliferative effects of new [1,2,4]triazolo[4,3-c]quinazolines in tumor cell lines HeLa and B16. *Neoplasma*, no. 4, vol. 53, pp. 291-300, 2006.
- [3] Jantová, S., Letašiová, S., Repický, A., Ovádeková, R., Lakatoš, B.: The effect of 3-(5-nitro-2-thienyl)-9-chloro-5-morpholin-4-yl[1,2,4]triazolo[4,3-c]quinazoline on cell growth, cell cycle, induction of DNA fragmentation and activity of caspase 3 in murine leukemia L1210 cells and fibroblast NIH-3T3 cells. *Cell Biochemistry and Function*, no. 6, vol. 24, pp. 519-530, 2006.
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- [5] Lakatoš, Boris: Súťažné úlohy chemickej olympiády v kategórii A / Štúdijská časť / Úlohy z biochémie. *Chemické rozhľady*, no. 3, pp. 154-157, 2006.
- [6] Lépine, Sandrine, Le Stunff, Herve, Lakatoš, Boris, Sulpice, Jean-Claude, Giraud, Françoise: ATP-induced apoptosis of thymocytes is mediated by activation of P2X7 receptor and involves de novo ceramide synthesis and mitochondria. *Biochim Biophys Acta*, no. 1, vol. 1761, pp. 73-82, 2006.
- [7] Letašiová, S., Jantová, S., Čipák, Ľ., Múčková, M.: Berberine-antiproliferative activity and induction of apoptosis/necrosis of the U937 and B16 cells. *Cancer Letters*, no. 239, pp. 254-262, 2006.
- [8] Letašiová, S., Jantová, S., Miko, M., Ovádeková, R., Horváthová, M.: Effect of berberine on proliferation, biosynthesis of macromolecules, cell cycle and induction of intercalation with DNA, dsDNA damage and apoptosis in Ehrlich ascites carcinoma cells. *Journal of Pharmacy and Pharmacology*, no. 2, vol. 58, pp. 263-270, 2006.
- [9] Letašiová, S., Jantová, S., Milata, V.: Skrining cytotoxicity in vitro a mechanizmus pôsobenia prírodných a synteticky pripravených látok využitelných v chemoterapii nádorov. *Česká a slovenská farmacie*, no. 3, vol. 55, pp. 99-109, 2006.
- [10] Ovádeková, Renáta, Jantová, Soňa, Letašiová, Silvia, Štěpánek, Ivan, Labuda, Ján: Nanostructured electrochemical DNA biosensors for the detection of berberine effect on DNA from cancer cells. *Analytical & Bioanalytical Chemistry*, no. 7-8, vol. 386, pp. 2055-2062, 2006.
- [11] Ovádeková, Renáta, Jantová, Soňa, Špirková, Katarína, Stankovský, Štefan, Labuda, Ján: Carbon nanotubes based DNA biosensor for the detection of DNA damage caused by quinazolines. *Chemické listy*, no. 8, pp. 593-594, 2006.
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- [13] Vaverková, Š., Mikulášová, M., Habán, M., Hollá, M., Sloboda, P.: Štúdium kvalitatívnych vlastností vybraných druhov rodu *Tanacetum* (L.). 35. konferencie Syntéza a analýza liečiv, (Veľké Karlovice, ČR), pp. 147, 2006.
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DEPARTMENT OF NUTRITION AND FOOD ASSESSMENT

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I. STAFF

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Technical staff:
Edita Kovačičová; Gabriela Sisáková

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Food Microbiology and Hygiene
 Laboratory of Food Analysis and Assessment
 Laboratory of Sensorical Analysis

B. Research laboratories:

Laboratory of Food Microbiology and Hygiene
 Laboratory of Food Analysis and Assessment
 Laboratory of Food Chemistry
 Laboratory of Nutrition and Health

III. TEACHING

A. Undergraduate Study:

5. semester (Bc)	Food Chemistry I.	(2 h)	Takácsová
	Bc. Project	(9 h)	All Department Staff
6. semester (Bc)	Food Analysis	(2 h)	Kováčová
	Laboratory of Food Analysis	(4 h)	Kováčová, Hozová, Frank, Mikulajová, Liptáková, Hybenová, gajdošová, Brindzová, Chovancová, Mériová, Moravčíková, Együdová
1. semester (MSc)	Food Microbiology	(2 h)	Valík
	Laboratory of Food Microbiology	(3 h)	Valík, Liptáková, Bajúsová, Medvedová
	Food Additives and Contaminants	(2-0 h)	Hybenová
	Laboratory Practice Food Additives and Contaminants	(0-2 h)	Hybenová
	Physiology and Pathophysiology of Human Nutrition	(2-2 h)	Kajaba
	Semestral Project I.	(0-5 h)	All Department Staff
	Laboratory of specialization		Hybenová, Fodran, Moravčíková
	Special Practice	(2-2 h)	Mikulajová
	Commodity Marketing	(2-2 h)	Lacková, Karkalíková
2. semester (MSc)	Food Hygiene	(2-1 h)	Valík
	Food Chemistry II.	(2 h)	Takácsová
	Diethology	(2 h)	Kajaba
	Semestral Project II.	(0-5 h)	All Department Staff
	Laboratory of Food Chemistry II	(1 h)	Takácsová
	Food Analysis II.	(2 h)	Prachár
	Special Training		Mikulajová
	Laboratory of Food Analysis II	(4 h)	Hozová, Hybenová, Kováčová, Jakubík, Mikulajová, Brindzová
	Laboratory of Specialization	(0-4 h)	Fodran, Moravčíková
3. semester (MSc)	Food Additives and Contaminants	(0-2 h)	Hybenová
	Food Evaluation	(2 h)	Žúbor, Fodran
	Laboratory of Food Evaluation	(0-2 h)	Fodran, Liptáková, Žúbor
	Laboratory Practice Food Additives and Contaminants	(0-2 h)	Hybenová
	Semestral Project III.	(0-5 h)	All Department Staff
	Food Legislative	(2 h)	Šinková
	Industry production of ready-to eat meal	(2 h)	Mráz
4. semester (MSc)	Diploma Project	(0-27 h)	All Department staff

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/3488/06 Study, mathematical description and prediction of behaviour of technologically and hygienically relevant microflora in treated and original Slovak fermented food with the aim enhance their safety, functional properties and shelf-life (L. Valík)

Microbial exposure assessment by selected heat-treated and cooled foods depending on storage temperature using predictive microbiology approach. Behaviour of micro-organisms during "time to consume" and microbial risk assessment connected with consumption of these foods. Selection and evaluation of lactic acid bacteria based on their growth parameters. Mathematical analysis of growth and relations among micro-organisms relevant from hygiene and technological point of view in raw, heat-treated and fermented dairy and bakery products. Enhancement of nutritive and dietetic properties of selected fermented dairy and bakery products with application of prebiotics and probiotics and their influence on hygienically undesirable micro-flora and shelf-life of the foods.

Project duration: from 2006 to 2008

B. APVV Project No 20-005605 Safety and microbial originality of cheeses produced artisanally from raw milk- application of predictive microbiology and PCR methods in risk assessment (L. Valík)

Mathematical analysis of the growth of lactic acid bacteria (LAB), supplement cultures and selected pathogenic micro-flora during fermentation and ripening of sheep lump cheese produced from raw milk. The principles of the predictive microbiology based on microbial responses to intrinsic and extrinsic environmental factors are applied. Effect of LAB, starter and supplement cultures producing substances with antimicrobial activity on the growth and multiplication of the pathogenic microflora is the main interest in our project.

Project duration: from 2006 to 2009

C. VEGA Project No 1/9133/02" Development and control of new food technologies and application of biological active components into foods to increase their quality according to criteria used in EU" (A. Dandár, V. Frank)

The growth of population leads to increased demands in food production with higher quality and durability. The modern trends in new food technologies are characterized with increased productivity, durability and nutritive value of produced foods. This is closely connected with the development and optimization of basic physicochemical and biochemical processes used from raw material to final products. These trends are topical all over the world preferred by advanced national and multinational institutions. In our country there are demands mainly defined by EU. Proposed project builds on the research have been solved in the last years at our department to develop gained results.

Project duration: from 2005 to 2007

V. CURRENT EDUCATION PROJECTS

A. Nutrition and health in training and education - M. Takácsová; V. Frank

Preparation of variable training and educational modules for various groups. Preparation of conceptual framework and subjects for whole-life education in nutrition, health and food safety in cooperation with the EAEA - European Association for the Education of Adults (<http://www.eaea.org/slovak/eaea.html>) and Institute of whole-life education at Slovak University of Technology (<http://www.stuba.sk/svk1/icv/slovak.html>). Establishing of the Educational centre STU in co-operation with College of Education of the Trnava University. Development of programmes for pre-school and school nutrition recommendations.

Project duration: from 2004 to 2006

B. Project ESF No. (ITMS) 131 201 10055 "Preparation and realization of specialists in the field of human nutrition" (V. Frank)

At the present time, it is generally accepted that in favour of health of human population it is necessary to focus our aim most of all on the field of prevention. It means to secure appropriate nutrition of population from point of

view of various ages, physical and intellectual activity, profession and the like. In this direction it is inevitable to prepare needed specialists already at this time.

Project duration: from 2005 to 2007

C. Project ESF No. (ITMS) 131 201 10100 "Training of enterprise skill for biotechnological industry" (E. Šturdík)

The aim of the project is to prepare an excellent scientists from research, academic and other institutions for practical enterprising and to lead them into founding (establishing) of own firm.

Project duration: from 2006 to 2009

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Adivit Nitra	Experimental and consult. projects	E. Šturdík, E. Hybenová, M. Kováčová, L. Dodok, B. Hozová, Ľ. Valík	Since 2004
Pečivárne Liptovský Hrádok	Consultations	L. Dodok	Since 2004
Institute of Food Research, Bratislava	Consultation	Ľ. Valík	Since 2003
AgriFood , accredited testing laboratory s.r.o., Prievidza	Microbiological analysis	V. Frank	Since 1998
Research Institute of Plant Production Piešťany	Cooperation on governmental project "Quality, safety and functionality of primary food resources"	E. Šturdík	Since 2003
Food Chamber of Slovakia, Bratislava	Consultation	Ľ. Valík	Since 2004
Institute of Molecular Physiology and Genetics SA of Sci. Bratislava	Experimental project	E. Šturdík	Since 2004
Institute of Experimental Oncology SA of Sci. Bratislava	Experimental project	E. Šturdík	Since 2004
Institute of Hearh research SAV, Bratislava	Experimental project	E. Šturdík	Since 2004
Kombucha Slovakia, Batizovce	Experimental project	E. Šturdík, B. Hozová, Ľ. Kuniak, M. Kováčová	2006
Institute of Preventive and Clinical Medicine, Bratislava	Experimental project	E. Šturdík	Since 2004
Mlyn Sládkovičovo, a.s.	Experimental project	L. Dodok	Since 2005
Mlyn Pohronský Ruskov, a.s.	Experimental project	L. Dodok	Since 2005
Ireks Enzyma, s.r.o.	Consultations	L. Dodok	Since 2004
Podnikateľský zväz pekárov, cukrárov a cestovinárov, Bratislava	Consultations	L. Dodok	Since 2005
Cech pekárov a cukrárov, Bratislava	Consultations	L. Dodok	Since 2005
Institute of Experimental Pharmacology SSPLPVV, Bratislava	Experimental project	E. Šturdík	Since 2005
PMD Union, a.s., Bratislava	Cooperation	A. Príbela	Since 2005
	Consultations	L. Dodok	Since 2005

Research Institute of Drugs, Modra	Experimental and consultation project	E. Šturdík	Since 2005
Rajo, a.s., Bratislava	Consultations	Ľ. Valík	Since 1995

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Institute of Food Research Norwich, UK	Experiment consultations	Ľ. Valík	Since 1997
Czech University of Life Sciences, Prague	Consultations	D. Liptáková, Ľ. Valík	Since 2005
University of Chemical Technology, Prague	Consultations	D. Liptáková, Ľ. Valík	Since 2000
JCC Vienna	Consultations	L. Dodok	Since 1985

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
B. Hozová	Expert of the Slovak National Accreditation Service – Technical Commission TVA-L4	member	2000
E. Hybenová	Member of Committee of the Food Section SCHS	member	1999
V. Frank, B. Hozová	Slovak Chemical Society (SCHS)	member	1990
E. Hybenová	Slovak Society of Forestry, Agricultural, Food and Veterinary Sciences at Slovak Academy of Sciences	member	1998
Ľ. Valík	Member of the Editorial Board of the Journal of Food and Nutrition Research	member	2005
A. Mikulajova	Slovak Society of Forestry, Agricultural, Food and Veterinary Sciences at Slovak Academy of Sciences, Bratislava	member	2000
B. Hozová	Expert of the Deutsches Akkreditierungssystem Profwessen GMBH (DAP) for the microbiological food control	member	2000
V. Frank, E. Šturdík	Slovak Society of Forestry, Agricultural, Food and Veterinary Sciences at Slovak Academy of Sciences	member	1995
E. Šturdík	Scientific board of the Institute of Preventive and Clinical Medicine	member	2003
E. Šturdík	Scientific board of the Chemical Institute of the Slovak Academy of Science	member	2003
E. Šturdík	Academic board of the Slovak Nuclear Society	member	2003
E. Šturdík	Scientific board of the UCM University Trnava	member	2003
Ľ. Valík	Editorial Board of the Journal of Food and Nutrition Research	member	2006
M. Takáčsová	Editorial Board-Czech Journal of Food Sciences	member	2003
L. Dodok, M. Kováčová, B. Hozová, A. Príbelá	Slovak Society of Forestry, Agricultural, Food and Veterinary Sciences at Slovak Academy of Sciences	member	1995
L. Dodok	SUTN Bratislava	member	1990
E. Šturdík	Editorial Board of the journal "Nutrition and Health"	chairmann	2002
E. Šturdík	Editorial Board of the journal "Nova Biotechnologica"	chairmann	2004
A. Príbelá	Editorial Board of the Czech Journal of Food Science	member	2005
A. Príbelá	Slovak Chemical Society	member	2005
A. Príbelá	Editorial Board of the Bulletin of Food Research	member	2005
E. Šturdík	Scientific Board of the Research Institute of Plant Production	member	2005

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
B. Hozová, V. Frank, Ľ. Valík, D. Liptáková	Czechoslovak Society for Microbiology	member	

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Ľ. Valík	University of Bologna/Food Micro	IT	September 2006
Ľ. Valík	Institute of Food Research, Norwich	GB	November/December 2006 (13 days)
M. Kokindová	Budapest University of Technology and Economics	H	from November 2005
D. Liptáková, B. Bajúsová	University of Chemical Technology, Prague	CZ	January 2006/2 days
Z. Sulová	National Center of Public Health Protection	BG	Since October 2005
Ľ. Valík	CS Microbiological Society/Mikrobiologie potravin 2007	CZ	May 2006/2 days

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
M. Florovičová	European chesses produced from raw milk	Ľ. Valík
Z. Ondrejčková	Vegetable diet	I. Kajaba
A. Pavlisková	Innovative trends in childrens diet	M. Takácsová
A. Potzyová	Microbiological and technological aspects of bryndza production	Ľ. Valík
M. Smuckerová	Microbiological and technological aspects of bread production	Ľ. Valík
D. Simonidesová	Health aspect of dietary fibre	A. Gajdošová
E. Drobcová	The important place of the soya and their products in the nutrition and food industry	M. Kováčová
Ľ. Mikuš	The importance and the utilization of the flavonoids as of natural antioxidants	M. Kováčová
P. Gereková	Phytoestrogenic and antioxidant effects of lignans	M. Kováčová
A. Opattová	Nutrients and diets composition in relation to body mass	J. Kobzová

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Alžbeta Medveďová	Quantitative analysis of the effect of Lactobacillus spp. on the growth of Staphylococcus aureus	Ľ. Valík
Nadiya Bordash	Growth dynamics of Candida maltosa YP1 in milk in presence of Lactobacillus rhamnosus	D. Liptáková
Mária Repašská	Folic acid in selected raw materials and products	E. Hybenová
Lucia Sekerešová	Isolation, identification and characterization of lactobacilli isolated from sheep cheese	E. Hybenová
Zuzana Karácsonyová	The effect of enzymes on the soya protein hydrolysates	M. Kováčová
Zuzana Petruláková	Determination of biologically active compounds from cereals	A. Gajdošová

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Brindzová L.	Free radicals formation, prevention by natural oat antioxidants and their effect on human health	M. Takácsová
Z. Petruláková	Biotechnological production of cereal functional foods	E. Šturdík
A. Medveďová	Application quantitative and perdictive microbiology in food safety	Ľ. Valík
Minarovičová- Petríková J.	Quantitative analysis of mutual relationships among microorganisms in foods.	Ľ. Valík
Bajúsová B.	Microbiology of selected fermented foods	Ľ. Valík

Moravčíková P.	Development of physiology acceptable aroma components based on natural precursors	J. Šajbidor, P. Fodran
Gajdošová A.	Choice, evaluation and using of cereals for the preparation of functional food products with immunomodulating properties	B. Hozová
Vidová B.	Development of rapid diagnostic methods for detection of food microbial pathogens.	E. Šturdík
Kukurová I.	Interactions of antibiotics in milk in the determination of detection limits.	B. Hozová
G. Bertaová	PCR application in food microbiology	Ľ. Valík
Viskupičová B.	Preventive and therapeutical aspects of flavonoid enzymatic transformation	E. Šturdík
Šramková Z.	Implementation of nutritive important genes into cereals	E. Šturdík
Kokindová M.	Isolation of natural extracts from herbs by supercritical fluid extraction	B. Simandi (H)
Mikulajová A.	Effect of addition of some raw materials and secondary raw materials on food lipids stability.	M. Takáčsová
Mériová K.	Development of plant nutraceuticals for preventive medical purpose	E. Šturdík
Chovancová A.	Medical aspects of nutraceuticals	E. Šturdík

VIII. PUBLICATIONS

Book

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Chapter or pages in book

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Article in journal

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- [5] Gajdošová, A., Hozová, B., Šturdík, E.: Preventívne a terapeutické vlastnosti beta-glukánov. Lek. Obzor, vol. 55, pp. 81-121, 2006.
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- [11] Hybenová, E.: Funkčné potraviny - história a súčasnosť. Výživa a zdravie, no. 3-4, vol. 50, pp. v tlači, 2006.
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- [1] Bajúsová, Barbora, Valík, Ľubomír, Liptáková, Denisa, Medvedová, Alžbeta: Správanie sa *Staphylococcus aureus* počas fermentácie mlieka mezofilnou kultúrou baktérií mliečneho kysnutia. In Bezpečnosť a kvalita surovín a potravín, II. vedecká konferencia s medzinárodnou účasťou (Zborník abstraktov), pp. 14, 2006.
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Miscellaneous

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Assistant Professors :

Helena Hronská, PhD; Lucia Sláviková

Research Fellows:

Ľudmila Krištofiková; Martin Rebroš PhD., Dušan Slugeň, PhD.

PhD Students:

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Technical staff:

Vlasta Sládková; Jaroslava Telgárska

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Bioanalytical Chemistry
Laboratory of Biotechnology
Laboratory of Fermentation Beverages
Laboratory of Pharmaceutical Biotechnology
Laboratory of Environmental Biotechnology
Laboratory of Lipid Biotechnology

B. Research laboratories:

Laboratory for the design of bioactive compounds
Laboratory for biotechnological production of organic acids and fine chemicals
Laboratory of microbial lipids and pigments
Laboratory of secondary metabolites
Laboratory of wine microbiology and oenology
Laboratory of bioengineering
Laboratory for solid-state fermentations
Laboratory of solid state fermentations

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Seminar of the Study Program	0/1/0	Šmogrovičová, Borodovčáková, Maruna, Křištofiková, Sejáková
2. semester (Bc)	Biochemical and Biotechnological Information	1/1/0	Šmogrovičová, Gdovin, Maruna, Mlichová, Skokanová, Šulák
5. semester (Bc)	Principles in Biotechnology	2/0/0	Šajbidor
	Xenobiochemistry	2/0/0	Dercová
6. semester (Bc)	Terminal Work	0/0/4	Čertík, Dercová, Rosenberg, Šmogrovičová, Šturdíková
1. semester (MSc)	Enzymology and Enzyme Engineering	2/0/0	Hronská
	Laboratory in Enzymology and Enzyme Engineering	0/2/0	Hronská, Křištofiková, Sláviková
	Information Systems and Data Processing	1/1/0	Šmogrovičová, Šulák
	Food Biotechnology	2/0/1	Malík, Slugeň
	Laboratory in Food Biotechnology		Křištofiková, Slugeň
1. semester (MSc)	Bioanalytical Methods	2/0/0	Šajbidor
	Laboratory in Bioanalytical Methods	0/0/2	Čertík, Borodovčáková, Garstková, Hronská, Sláviková
	Biosynthesis and Transformation of Metabolites	2/0/0	Rosenberg
	Laboratory in Biosynth. and Transformat. of Metabolites	0/0/1	Rosenberg
1. semester (MSc)	Terminal Work	0/0/5	Čertík, Dercová, Rosenberg, Šmogrovičová, Šturdíková
2. semester (MSc)	Bioanalytical Methods	2/0/0	Šajbidor
	Laboratory in Bioanalytical Methods	0/0/2	Čertík, Borodovčáková, Kundříková, Rebroš, Sláviková
	Bioengineering	0/2/0	Slugeň
	Pharmaceutical Biotechnologies	2/0/0	Šturdíková
2. semester (MSc)	Laboratory in Pharmaceutical Biotechnologies	0/0/1	Šturdíková
	Technical Microbiology	2/0/0	Šturdík
	Information Systems and Data Processing	1/1/0	Šmogrovičová, Mlichová, Firáková
2. semester (MSc)	Nutritional and Functional Properties of Food	2/0/0	Slugeň
	Modelling of biological processes	2/0/0	Slugeň
	Seminar of Modelling of biological processes	0/0/1	Slugeň
	Terminal Work Special Praxis	0/0/5	Čertík, Dercová, Rosenberg, Šmogrovičová, Šturdíková
3. semester (MSc)	Environmental Biotechnology	2/0/0	Dercová
	Laboratory in Environmental Biotechnology	0/0/2	Dercová, Lobpreis, Sejáková
	Malting and Brewing	2/0/0	Šmogrovičová
	Laboratory in Malting and Brewing	0/0/1	Šmogrovičová, Nádaský
	Chemistry and Microbiology of Wine	2/0/0	Malík
3. semester (MSc)	Laboratory in Chemistry and Microbiology of Wine	0/0/1	Furdíková
	Gene Manipulations	2/2/0	Čertík
	Special Laboratory Exercises	0/0/6	Čertík, Dercová, Rosenberg, Šmogrovičová, Šturdíková,
4. semester (MSc)	Diploma Work		Čertík, Dercová, Malík, Rosenberg, Šturdíková,

IV. CURRENT RESEARCH PROJECTS

A. Government contract 364/2003 Nutrition and Health in education programs (Ján Šajbidor)

The main aim of this project is preparation of education programs for universities, high and grammar schools focused on food, nutrition and health. Special interest is oriented on e-learning, lifetime education courses for adults.

Project duration: from 01.01.2003 to 31.12.2006

B. VEGA Project No. 1/2390/05 Evaluation of agroindustrial materials using biotechnological means by application of microorganisms producing metabolites for food, agriculture, pharmacy and veterinary uses (Milan Čertík)

The project is based on physiological regulation of microbial production of essential polyunsaturated and conjugated fatty acids, squalene and sterol derivatives, organic acids (lactic acid), polyols (erythritol), ethanol, pigments (carotenoids, azaphilonic metabolites, mitorubrinic acid), polyketide metabolites and pharmaceutical using agroindustrial sources. Observations gained from parameter studies and optimisation of fermentation process provide useful information about aimed regulation of biochemical processes in fermentation technologies and thus they will create basis for link between basic and applied research that will have uses in both domestic and international research in this field. The project will result in proposals of equipments for experimental transfer from laboratory scale to semi-industrial scale. Fermentation preparation of these metabolites will contribute to expanding of their application in food, medical, pharmaceutical and veterinary practices.

Project duration: from 01.01.2005 to 31.12.2007

C. VEGA project No.1/2391/05 Fermentation processes, bio-ethanol production, microorganisms, immobilisation systems, wine, beer (Daniela Šmogrovičová)

The aim of this project is to develop areas of biotechnology using fermentation processes with free and immobilized cells of microorganisms, for purpose of ethanol fermentation improvement in fermented beverages and bio-ethanol production. The focus will be on production of classical beverages fermentation productivity – traditionally fermented and special beer, different categories of wine and of fermented beverages with lowered content of alcohol and bio-ethanol production from renewable starch resources. Within the project possibility of “very high gravity” technologies – uses concentrated substrates – will be verified. An increase in gravity results in higher metabolic activity and increased ethanol production, but an effect of osmotic pressure and toxicity of produced ethanol affected cell viability. Since immobilised cells show various modifications in physiology and metabolic activity, biochemical composition and morphology, as well, an application of immobilised yeast can improve their ability to ferment concentrated substrates in dependence on carrier and technique used for immobilisation and protect the yeast cells against osmotic and ethanolic stress. Immobilisation also influence yeast by metabolites co-production and consequently flavour and character of fermented beverage. Systematical introduction of immobilization principle with continualisation of the processes should be driven to their practical application. Integration of up-to-date knowledge about yeast and bacteria metabolism should result into improvement of fermentation and production of alternative beverages, as well as bio-ethanol.

Project duration: from 01.01.2005 to 31.12.2007

D. VEGA Project No 1/4357/07 Bioremediation of soil contaminated by degradation products of the pesticides of the chlorophenols series: potential use of organomineral complex (OMC), humic acids, and zeolite (Katarína Dercová)

The project has an ambition to bring new knowledge regarding the binding of organic contaminants of the chlorophenol series (predominantly pentachlorophenol - PCP) onto inorganic and organic parts of the tested sorbent – organomineral complex (OMC, produced by binding humic acids onto zeolite) and to study sorption abilities of humic acids isolated from different sources (e.g. lignite and oxyhumolite) for detoxification purposes in contaminated soil. The potential effect of humic acids on improvement of biodegradation will be studied as well. Immobilization processes observed in natural soil are of a great environmental importance as they may lead to a considerable reduction in the bioavailability and, as a result, of a toxicity of xenobiotics, e.g. pesticides or their degradation products. This may then lead to facilitation of biodegradation after a subsequent release of the bound chlorophenols due to the activity of microorganisms and decrease of pH (acid rains). Investigation of the effect of chlorophenols on microbial cells of the indigenous bacterial consortium or bioaugmented bacteria and ecotoxicity

of soil will be also included in the project because presence of these compounds markedly influences biodegradation ability, survival, and colonization of microorganisms at their application in bioremediation technologies during decontamination.

Project duration: from 01.01.2007 to 31.12.2009

E. National project 2004 ŠP 26 028 0C 05 The use of domestic materials and resources – Phytosterols and fatty acid derivatives (Milan Čertík, Michal Rosenberg)

The aim of the project is focused on evaluation of co-products from rape seed oil and other industrial resources for technological preparation of phytosterols and fatty acid derivatives. The project is tended to optimization of isolation and purification processes for obtaining of phytosterols. The project will also solve the possible to prepare fatty acid derivatives for their use in food and pharmaceutical industry.

Project duration: from 01.07.2004 to 30.9.2007

F. APVT project 99-005002 Influence of sugar beet on structure and bonding potential of paper. part: Modification and characterization of sugar beet (Michal Rosenberg)

The project is coordinated by VUPC, a.s. Bratislava. Research will be focussed on exploitation of sugar beet pulp in paper industry as replacement of fibrous raw materials and additives for strength properties increase. Sugar beet pulp with optimal degree of accompanying compounds elimination and resulting in good development of fibre bonding surface will be prepared. The influence on refining (beating) process and degree of wire paper machine water pollution on transfer and strength properties of paper with addition of modified sugar beet pulp and cationic polymers to primary and recycled fibres will be evaluated

Project duration: from 1.5.2006 to 31.12.2008

G. National project 2004 ŠP 26 028 0C 05 Complex evaluation of plant sources, part 1.4. Rare saccharides and complex valuation of beet slice (Michal Rosenberg)

The project is coordinated by Research Institute of Food. Verification of methods used for preparation of L-arabinose from beet slice is the main aim of the project. The other sugars obtained from this process will be used as energy source for yeast biomass preparation with high content of trehalose. Purification methods for sugar preparation will be verify.

Project duration: from 01.01.2005 to 30.9.2007

H. VEGA Project No 1/1309/04 Biotechnological application of microorganisms in biodegradation of persistent organic pollutants (POPs) for decontamination of polluted environment (soil, water); the effect of POPs as stress environmental factors acting on microbial cell (Katarína Dercová)

The project is focused on an investigation of a possibility to use catabolic ability of microorganisms to degrade persistent chlorinated hydrophobic organic pollutants in different environmental components (water, soil). Study of the effect of the xenobiotics on microbial cells will be included in the project because presence of these compounds markedly influences biodegradation ability, survival, and colonization of microorganisms at application in bioremediation technologies during decontamination of the environment.

The goals of the project are to study metabolic pathways of chloroaromatics, intermediate and endproducts, their toxicity; to isolate and identify particular microbial strains with the appropriate biodegradation ability; to investigate biodegradation of chlorophenols mainly pentachlorophenol (PCP) in liquid media and defined soil samples, in aerated and intact soil profiles; to determine the effect of chloroaromatics as potential stress factors on microbial cells (membrane fluidity) with the emphasis on content and composition of total lipids and fatty acids in the major lipid membrane structures. The attention will be focused on the immobilization of soil contaminants using the prepared organomineral complexes (zeolite with the bound humic acids) with the purpose to decrease their bioavailability and hence toxicity, subsequently to allow for their biodegradation by indigenous and bioaugmented microorganisms.

Project duration: from 01.01.2004 to 31.12.2006

I. International project No. Gr/Slov/FCHPT/05 Biotechnological production of bioactive lipids from agro-industrial byproducts. Project for bilateral scientific & technological cooperation

between the Slovak Republic and the Hellenic Republic (Milan Čertík)

The project is aimed on physiological regulation of microbial overproduction of biologically active polyunsaturated fatty acids using agro-industrial sources and their application in food, medical, pharmaceutical and veterinary practices. The raw materials that will be used as carbon sources will be characteristic of agro-industrial activity in both Slovak Republic and Greece, providing an alternative and useful way of valorization of these materials. The conducted studies, hence, dealing with optimization of fermentation process will provide useful information about regulation of biochemical processes in fermentation technologies. The project also will result in proposals of equipments for experimental transfer from laboratory scale to semi-industrial scale and, thus, it will create basis for the link between basic and applied research in both Slovak Republic and Greece.

Project duration: from 01.01.2005 to 31.12.2006

J. APVV Project No. 20-014105 Using the microorganisms living with the higher plants to alternative production of anticancer taxanes, phytochemicals of yew-tree *Taxus* sp. (Mária Sturdíková)

Project is oriented to the investigation of anticancer compounds taxane family by prokaryotic Actinomycetes isolated from rhizoidal system and tissues of the higher plant *Taxus*. Verification of taxane production by Actinomycetes in conditions for alternative biosynthetic pathway of strains, there those is acknowledged production of these compounds by chemical analysis and by test with specific taxane antibodies. Optimization conditions for growth organism and stimulation of taxane biosynthesis, because microorganisms isolated from natural sources synthesize bioactive secondary metabolites as minor metabolites. Study of effect of culture media composition, biotic and abiotic factors and specific inhibitors to reach the higher taxane products level in culture medium of isolated strain.

Project objectives: To find optimal conditions for biosynthesis and alternative biotechnological production of higher amounts of phytochemicals possessing anti-cancer activity using Actinomycetes isolated from host plant *Taxus* sp. as production microorganisms

Project duration: from 02.05.2006 to 31.12.2008

V. CURRENT EDUCATION PROJECTS

A. CEEPUS CII-HU-0023-01-0607 - For the safe and healthy food and environment in Middle-Europe (Daniela Šmogrovičová)

The activity of the CEEPUS-I network focused on the safety and quality aspects of horticultural and food production, as well as on agricultural ecology and landscape management. In these fields 13 partner institutions carried out extensive and effective exchange of students and teachers.

Project duration: from 01.09.2006 to 31.08.2007

B. Erasmus/Socrates - Agricultural University of Athens (Milan Čertík)

The project deals mainly with educational and research activities between Faculty of Chemical and Food Technology SUT and Agricultural University of Athens. The work is focused on biotechnological utilization of renewable sources.

Project duration: from 01.09.2006 to 30.06.2007

C. Erasmus/Socrates - Faculty of Chemistry, Technical University Brno (Milan Čertík)

The project deals mainly with educational and research activities between Faculty of Chemical and Food Technology SUT and Faculty of Chemistry, Technical University Brno. The work is focused on biotechnological production of pigments.

Project duration: from 01.09.2005 to 30.06.2008

D. Erasmus/Socrates - Graz University of Technology (Milan Čertík)

The project deals mainly with educational and research activities between Faculty of Chemical and Food Technology SUT and Graz University of Technology. The work is focused on molecular study of lipid biosynthesis in yeasts.

Project duration: from 01.09.2005 to 30.06.2010

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
LIKO. Ltd. Bratislava	Biotransformation using bacteria Pseudomonas and Acetobacter.	Martin Minárik, director, Miletičova 23, Bratislava	01.03.2006 - 30.04.2006
KSG Ltd. Košice	Isolation of oil degrading bacteria from soil	Ing. Maroš Merjavý Malinová 35, Košice	01.07.2006 - 31.12.2006
Water Research Institute, Bratislava	Contaminated sediments	Hucko Pavol, Nábr. L. Svobodu 5, 812 49 Bratislava	01.01.2006 - 31.12.2007
Water Research Institute, Bratislava	Ecotoxicity of chlorophenols	Tóthová Lívia, Nábr. L. Svobodu 5, 812 49 Bratislava	01.01.2000 - 31.12.2006
Water Research Institute, Bratislava	Passive sampling	Vrana Branislav, Nábr. L. Svobodu 5, 812 49 Bratislava	01.09.2006 - 31.12.2009
Soil Science and Conservation Research Institute	Sorption of pentachlorophenol on organomineral complex (zeolite and humic acids)	Makovníková Jarmila, Mládežnícka 36, 974 05 Banská Bystrica	01.01.2003 - 31.12.2007
Soil Science and Conservation Research Institute	Biodegradation of PCP (pentachlorophenol) in different types of soils	Barančíková Gabriela, Reimannova 1, 080 01 Prešov	01.01.2003 - 31.12.2007
Chemical Institute	Use of humic acids for environmental purposes	Pekař Miloslav, Klučáková Martina, Purkyňova 118, Brno	01.09.2006 - 01.06.2007
Research Institute of Food, Bratislava	Enzymatic elimination of acrylamid from food	Ciesarová Zuzana, Priemyselná 4, 824 75 Bratislava	01.11.2006 - 01.06.2007
Institute of Chemistry, Slovak Academy of Sciences, Bratislava	Study of adaptation properties of yeasts under stress conditions	Breierová Emília, head of the Culture Collection of Yeasts, Dúbravská cesta 9, 842 38 Bratislava	01.09.2000 –
Research Institute of Plant Production, Piešťany	Quality, safety and functionality of primary food resources	Ján Kraic, director, Bratislavská cesta 122, 921 68 Piešťany	22.10.2003 –
LIKO. Ltd. Bratislava	Biotechnological production of carotenogenic pigments	Martin Minárik, director, Miletičova 23, Bratislava	01.01.2003 -
LIKO, Ltd. Bratislava	Phytosterols and fatty acid derivatives	Vladimír Sitkey, deputy director, Miletičova 23, Bratislava	01.07.2004 – 31.08.2007
Institute of Animal Biochemistry and Genetics, Slovak Academy of Sciences	Lipid biosynthesis in yeasts	Ivan Hapala, director Moyzesova 61, 900 28 Ivanka pri Dunaji	01.01.2002 –
Institute of Animal Physiology, Slovak Academy of Sciences	Biosynthesis of conjugated linoleic acid by bacteria	Andrea Lauková, head of Research group, Šoltésovej 4-6, 040 01 Košice	01.01.2005 –
Institute of Animal Physiology, Slovak Academy of Sciences	Effect of microbial oils on rumen fermentation	Dušan Jalč, head of Research group, Šoltésovej 4-6, 040 01 Košice	01.01.2004 –
Club of Cystic Fibrosis, Košice	Lipid profile of cystic fibrosis patients	Gabriela Sabolová, head of dietetic group, Cesta pod Hradovou 13/A, 041 77 Košice	01.01.2004 -
Drug Research Institute VULM, a.s.Modra	Cooperating organization. Evaluation of cytotoxic activity	Marta Múčková, Horná 36, 90001 Modra	01.01.1998
Institute of Molecular Biology SAV	Microbial genomic	Andrej Godány Dubravská cesta 21, 84551 Bratislava	01.09.2006
Pharmaceutical Faculty UK,	Evaluation of biological activity of	Lýdia Bezáková	1988

Bratislava	microbial products	Kalinčiakova 8	
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B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Department of Pharmaceutical Sciences, North Dakota State University, Fargo, North Dakota, USA	Prediction of the fate of xenobiotics in the environment	Baláž Štefan, professor, Sudro Hall 108, Fargo, North Dakota, USA	01.01.1996
School of Biological Sciences, University of Portsmouth, UK	Passive samplers – monitoring of organic contaminants	Greenwood Richard, assistant professor, King Henry I. Street PO12DY, Portsmouth, Hampshire, UK	01.02.2006 - 01.04.2006
Microbiological Institute of Czech Academic of Sciences	Isolation and identification of microorganisms from PCB-contaminated sediments	RNDr. Mária Brennerová, PhD. Vídeňská, Praha 4, Czech Republic	01.12.2006-01.03.2007
Microbiological Institute of Czech Academic of Sciences	PCP-degradation products	Ing. Tomáš Cajthaml, PhD., Vídeňská, Praha 4, Czech Republic	01.04.2006 - 0.1.06.2006
Agricultural University of Athens, Athens, Greece	Biotechnological production of bioactive lipids from agro-industrial byproducts.	Seraphim Papanikolau, leader group, Department of Food Sciences and Technology, Athens, Greece	01.01.2005 – 31.12.2006
Institute of Biochemistry, Graz University of Technology, Austria	Lipid biosynthesis in yeasts	Guenther Daum, group leader, Petersgasse 12/2; A-8010 Graz, Austria	01.10.2005 -
Mega a.s., Stráž pod Rálskem, Czech Republic	Encapsulation of microorganisms to PVA Gel	Novák Luboš, director, Pod Vinicí 83 471 27 Stráž pod Rálskem, Czech Republic	01.02.2006 - 19.12.2006
LentiKats, a.s., Praha Czech Republic	Microbial production of bioethanol by immobilized microorganisms	Ing Radek Stloukal, PhD. Technical director, Praha, CR.	01.09.2006 - 31.12.2006
Office International de la Vigne et du Vin, Paris, France	Evaluation of wine	Dutruc-Rosset Georges, general director, 18, rue d'Aquesseau 75008 Paris, France	01.01.1983
Faculty of Chemistry, Technical University Brno, Czech Republic	Study of stress conditions on carotenogenic yeasts	Márová Ivana, vicedean, Purkyňova 118, 61200 Brno, Czech Republic	01.01.2003 -
National Center for Agricultural Utilization Research, ARS, USDA, Peoria, Illinois, USA	Biotransformation of oils to value-added compounds	Ching Hou, Group leader Peoria, Illinois, USA	25.09.2004 -
Catholic University of Louvain-la Neuve, Belgium	Biodegradation of polyaromatic hydrocarbons	Spiros Agathos, head of Department of Applied Chemistry and Bioindustries, Place Croix du Sud, 2/9-1348 Louvain, Belgium	01.02.2003 – 31.05.2006

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Čertík Milan	Slovak Society for Agriculture, Forestry, Food and Veterinary Sciences	Member	01.01.2001 -
Čertík Milan	Slovak Society for Biochemistry and Molecular Biology	Member	01.01.2005
Dercová Katarína	Czecho-Slovak Society for Microbiology	Member	01.01.1987
Dercová Katarína	National Scientific Council of the PCB- Non-Combustion Project SR 2006 /supported by UNIDO, UNDP, GEF/	Member	01.01.2006
Malík Fedor	Editorial board of journal Vinič a víno	Member	01.01.2001 -
Slugeň Dušan	Slovak Society for Agriculture, Forestry, Food and	Member	01.01.1987 -

	Veterinary Sciences		
Slugeň Dušan	Editorial board of journal Vinič a víno	Member	01.01.2001 -
Šajbidor Ján	Slovak Society for Agriculture, Forestry, Food and Veterinary Sciences	Member	01.01.1987 -
Šajbidor Ján	Editorial board of journal Nutrition and Health	Member	01.01.2003
Šajbidor Ján	Editorial board of Journal of Food and Nutrition Research	Member	01.01.2005
Šajbidor Ján	National Committee – International Dairy Federation	Vice-president	01.06.2006
Šmogrovičová Daniela	Czecho-Slovak Society for Microbiology	Member	01.01.1979 -
Šturdíková Mária	Czecho-Slovak Society for Microbiology	Member	16.11.1988 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Čertík Milan	The American Oil Chemist's Society	Member	01.01.1994
Čertík Milan	The European Federation of Biotechnology	Member	24. 09.2003 -
Čertík Milan	The Society for Bioenergy and Biocatalysis	Member	06.12.2006 -
Dercová Katarína	IHSS (International Humic Substances Society)	Member	01.01.2006
Dercová Katarína	IBBS (Int. Biodeterioration and Biodegradation Society)	Member	01.01.2006
Dercová Katarína	EFB (European Federation of Biotechnology)	Member	01.01.2003
Malík Fedor	Editorial boards of the journal Kvasný prům.	Member of advisory	01.01.1985 -
Malík Fedor	Editorial boards of journal Mitteilungen Klosterneuburg, Wien	Member	01.01.2003 -
Šajbidor Ján	Editorial board of Czech Journal of Food Science	Member	01.01.2006
Šajbidor Ján	ISEKI FOOD Association	Member of Steering Committee	01.03.2005
Šmogrovičová Daniela	European Brewing Convention Brewing Science Group	Member	01.12.1998 -
Šmogrovičová Daniela	Editorial boards of the journal Kvasný prům.	Member of advisory	01.01.1999 -

E. Visitors from Abroad

Name	Organisation or Institution	State	Date / Duration
Miloslav Pekař	Technical University Brno	Czech Republic	20.10.2006/1 day
Seraphim Papanikolaou	Department of Food Science & Technology, Agricultural University of Athens, Greece	Greece	March 2006 (5 days)
George Aggelis	Department of Biology, University of Patras, Greece	Greece	March 2006 (5 days)
Jean-Mark Nicaud	Laboratoire de Microbiologie et de Génétique Moléculaire, UMR2585-INRA-CNRS-INAP-G, INRA Centre de Grignon, BP 01, F-78850 Thiverval-Grignon, France	France	May 2006 (7 days)
Gerda Lombard	Biosciences R&D, CSIR, Pretoria, South Africa	South Africa	September 2006 (3 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Čertík, M.	97th AOCS Annual Meeting & Expo, Saint Louis	USA	25.04.2006 – 05.05.2006
Čertík, M.	4th Euro Fed Lipid Congress, Madrid	Spain	29.09.2006 – 05.10.2006

Čertík, M.	Agricultural University of Athens, Athens	Greece	07.11.2006 – 11.11.2006
Čertík, M.	University of Patras, Patras	Greece	07.11.2006 – 11.11.2006
Čertík, M.	International Symposium on Biocatalysis and Bioenergy, Taichung	Taiwan	04.12.2006-08.12.2006
Čertík, M.	National Taiwan University, Taipei	Taiwan	09.12.2006 – 12.12.2006
Čertík, M.	King Mongkut's University of Technology Thonburi, Bangkok	Thailand	12.12.2006 – 14.12.2006
Čertík, M.	National Center for Genetic Engineering and Biotechnology, Bangkok	Thailand	15.12.2006 – 16.12.2006
Gdovin M.	XV. Tomasek days 2006, Brno	Czech Republic	07.06.2006-09.06.2006
Grosová Z.	XV. Tomasek days 2006, XV. Conference of Young Microbiologists, Brno	Czech Republic	07.06.2006-09.06.2006
Grosová Z.	6 th European Symposium on Biochemical Engineering Science, Salzburg	Austria	27.08.2006-30.08.2006
Lobpreis T.	ExTech 2006	UK	06.02.2006-08.02.2006
Rebroš M.	XV. Tomasek days 2006, Brno	Czech Republic	07.06.2006-09.06.2006
Rebroš M.	6 th European Symposium on Biochemical Engineering Science, Salzburg	Austria	27.08.2006-30.08.2006
Rosenberg M.	Project meeting, business trip. Mega, a.s., Stráž pod Ralskem	Czech Republic	25.10.2006
Rosenberg M.	Business trip, BCS Engineering, a.s. Brno	Czech Republic	23.05.2006
Malík F.	Int. Vine Competition Vinovita Zagreb	Croatia	0.3.04.2006--07.04.2006
Malík F.	Mondial Selection Lisabon	Portugal	19.04.2006-24.04.2006
Malík F.	Int. Competition Vino Ljubljana	Slovenia	02.06.2006-05.06.2006
Malík F.	Mundus Vini Neusbat	Germany	24.08.2006-27.08.2006
Sejáčková Zuzana	Junior Scientist Conference, Vienna	Austria	19.04.2006-21.04.2006
Skokanová, M.	Junior Scientist Conference, Vienna	Austria	19.04.2006-21.04.2006
Šmogrovičová D.	Corvinus University of Budapest, CEEPUS coordination meeting	Hungary	24.11.2006-25.11.2006
Šmogrovičová D.	Brewery Budvar, České Budějovice	Czech Republic	12.09.2006-13.09.2006
Šmogrovičová D.	33th Brewing-Malting Conference Plzeň	Czech Republic	17.10.2006-19.10.2006
Šulák M.	33th Brewing-Malting Conference, Plzeň	Czech Republic	17.10.2006-19.10.2006
Šulák M.	Brewery Budvar, České Budějovice	Czech Republic	12.09.2006-13.09.2006

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Adamechová, Z.	Biotechnological Production of Useful Metabolites by Solid State Fermentations	Čertík, M.
Hildebrandová, M.	Very High Gravity Fermentation vs. Yeast Performance	Šmogrovičová, D.
Jalčáková, M..	Preparation and Possible Applications of Phytosterols and their Derivatives	Čertík, M.
Michálková, P.	Microbial Production and Characterization of Plant-based Natural Compounds	Šturdíková, M.

Molnárová, J.	Biodegradation of Pentachlorophenol by a Bacterial Comamonas Strain	Dercová, K.
Palatáš, M.	New Technological Trends in Bioethanol Production	Rosenberg, M.
Sedláková, L.	Study of Phospholipid Degradation in Yeast <i>Saccharomyces cerevisiae</i>	Čertík, M.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Cibíková, P.	Study of Bioactive Metabolites of Endophytic Fungi Isolated from Magnolia	Šturdíková, M.
Čičmanová, J.	Isolation and Identification of PCB Degrading Microorganisms	Dercová, K.
Garstková, Z.	Biosynthesis of Conjugated Linoleic Acid by Bacteria	Čertík, M.
Chomisteková, K.	Production of Biologically Active Taxoids by Actinomycete Strain Isolated from <i>Taxus</i> sp.	Šturdíková, M.
Kmecová, K.	Biotechnological Production of Astaxanthin	Čertík, M.
Lengyelová, L.	Regulation of γ -linolenic Acid Production in the Process of Fungal Solid State Fermentations	Čertík, M.
Lobpreis, T.	Research, Development and Application of Passive Samplers for the Monitoring of Organic Contaminants in Water Environment	Dercová, K.
Siváková, Z.	Characterization of Wine Yeasts from Znojmo Subregion	Malík, F.
Strieženeč, V.	Characterization of Wine from Topolčany Region	Malík, F.
Šeligová, J.	Monitoring of Polychlorinated Biphenyls in Sediments of Zemplínska sirava Water Reservoir	Dercová, K.
Šipőcz, M.	Characterization of Immobilized β -Galactosidase and Application Perspectives	Rosenberg, M.
Vajdová, Z.	Ethanol Production from Saccharidic Substrates by Immobilized Biosystems	Rosenberg, M.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Rebroš, M.	Ethanol production by biological systems immobilized in PVA gel	Rosenberg, M.
Horváthová, V.	The preparation and properties of thermostable and native starch hydrolyzing amylases	Šturdík, E.

VIII. PUBLICATIONS

Chapter or pages in book

- [1] Dercová, K., Kočan, A., Petřík, J.: Problems of Persistent Organic Pollutants (POPs) in Slovakia: Environmental and Technical Aspects of PCBs Disposal, Monitoring and Remediation. In: Assessment of Contaminated Sediments, Editor(s): D. Reible, S. Apitz, Chapter: Chapter 1: Apitz S., Marcomini A., Critto A., Pippa R., Agostini P., Micheletti CH., Láncoz T., Dercová K., Kočan A., Petřík J., Hucko P., Kušnír P.: Approaches and Frameworks for Managing Contaminated Sediments - a European Perspective. In: "Assessment of Contaminated Sediments", p. 1-84. NATO Science Series, Series IV: Earth and Environmental Sciences. Springer, The Netherlands, vol. Vol. 19, pp. 1-84, 2006.

Article in journal

- [1] Dercová, K., Barančíková, G., Makovníková, J., Sejáková, Z., Skokanová, M.: Potential use of organomineral complex (OMC) at bioremediation of soil contaminated with organic (PCP) and inorganic (Pb, Cd) pollutants. *Vedecké práce VÚPOP*, vol. 28, pp. 22-31, 2006.
- [2] Dercová, K., Čičmanová, J., Lovecká, P., Demnerová, K., Macková, M., Hucko, P., Kušnír, P.: Toxicity and biodegradation of PCBs in contaminated sediments. *Acta Facultatis Ecologiae*, no. Suppl. 1, (in press), vol. 14, pp. 19-28, 2006.

- [3] Dercová, K., Sejáková, Z.: Rizikové látky v pôde. Časť 3. Pesticídy. Odpady, vol. 1, pp. 21-23, 2006.
- [4] Dercová, K., Sejáková, Z., Skokanová, M., Barančíková, G., Makovníková, J.: Potential use of organomineral complex (OMC) for bioremediation of pentachlorophenol (PCP) in soil. *Int. Biodeter. Biodegr.*, no. 3-4, vol. 58, pp. 248-253, 2006.
- [5] Dercová, K., Sejáková, Z., Skokanová, M., Barančíková, G., Makovníková, J., Ružička, J.: Využitie organo-minerálneho komplexu pri bioremedácii kontaminovaných pôd. *Chemické Listy*, (in press), 2006.
- [6] Čertík, M., Sláviková, L., Masmová, S., Šajbidor, J.: Enhancement of nutritional value of cereals with gamma-linolenic acid by fungal solid state fermentations. *Food Technology and Biotechnology*, no. 1, vol. 44, pp. 75-82, 2006.
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II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Chemical Engineering
 Laboratory of Unit Operations
 Laboratory of Reaction Engineering
 Laboratory of Membrane Processes
 Laboratory of Chemical Engineering Thermodynamics
 Membrane Processes and Membrane Reactors
 Laboratory of Adsorption

B. Research laboratories:

Laboratory of Chemical Reaction Kinetics and Reaction Engineering
 Laboratory of Membrane Processes and Membrane Reactors
 Laboratory of Adsorption and Bioprocess Engineering
 Laboratory of Bioprocess Engineering

III. TEACHING

A. Undergraduate Study:

1.semester(Bc)	Material balances of technological processes	0/2/0	M.Šefčíková, P.Ačai, E.Graczová, V.Illeová, M..Kiša, Z.Koreňová, F.Malík, Š.,Schlosser, I.Tatárová, .
1. semester (Bc)	Computer Chemical Engineering Calculations I	0/0/1	J.Stopka, J.Labovský, I.Síkula, M.Kotora
2.semester (Bc)	Introduction to Engineering Thermodynamics	0/3/0	M.Šefčíková
2.semester (Bc)	Computer Chemical Engineering Calculations II	0/0/1	J.Stopka, J.Labovský, I.Síkula
2.semester (Bc)	Fluid Flow Lectures Exercises Laboratory	2/2/1	J.Stopka J.Stopka J.Šefčík, M.Bafrnec
3.semester(Bc)	Heat and Mass Transfer	2/2/1	

	Lectures Exercises Laboratory		J.Stopka M.Šefčíková J.Šefčík, P.Timár
3.semester (Bc)	Computer Chemical Engineering Calculations III	0/0/1	J.Stopka, P.Laššák, M.Hucík
5. semester (Bc)	Chemical Engineering I Lectures	2/0/0	V.Báleš, L.Jelemenský, O.Mierka, J.Stopka
	Chemical Engineering I Exercises	0/3/0	J.Šefčík, P.Ačai, F.Malík, O.Mierka, P.Steltenpohl, P.Timár
	Chemical Engineering I Laboratory	0/0/1	P.Timár, P.Ačai, F.Malík M.Kiša, O.Mierka, Š.Schlosser, J.Šefčík
6. semester (Bc)	Chemical Engineering II Lectures	2/0/0	E.Graczová, M.Polakovič, V.Štefuca
	Chemical Engineering II Exercises	0/3/0	J.Šefčík, P.Ačai, M.Bafrnec, E.Graczová, M.Juma, P.Steltenpohl, P.Timár
	Chemical Engineering II Laboratory	0/0/3	P.Timár, P.Ačai, M.Bafrnec, V.Illeová, M.Juma, M.Lazor, M.Kiša, Z.Koreňová, Š.Schlosser, P.Steltenpohl J.Šefčík, I.Tatárová,
6. semester (Bc)	Engineering Thermodynamics Lectures Exercises	2/2/0	O.Mierka, P.Timár O.Mierka, M.Šefčíková, P.Timár
	Technological Project	0/0/4	E.Graczová, O.Mierka, M.Polakovič, V.Štefuca
1.semester(MS)	Chemical Engineering Thermodynamics Lectures Exercises	2/2/0	E.Graczová E.Graczová. M.Chlebovec
	Diffusional Separation Processes Lectures Exercises	2/2/0	M.Polakovič M.Juma
	Hydrodynamics and heat Transfer Lectures Exercises Laboratory	2/2/2	J.Stopka J.Stopka M.Kiša
	Mass Transfer Theory	2/1/0	L.Jelemenský
	Advanced Laboratory of Chemical Engineering III	0/0/3	J.Šefčík, E.Graczová, M.Hucík, M.Chlebovec, M.Juma, J.Stopka, Š.Schlosser, P.Steltenpohl, V.Štefuca
	Computer Chemical Engineering Calculations	0/0/3	M.Juma, M.Lazorl, M.Chlebovec
	Fire Engineering Lectures Exercises	2/2/0	L.Jelemenský Z.Švandová
	Selected Unit Operations	2/0/0	V.Štefuca, Š.Schlosser
2.semester(MS)	Chemical Reaction Engineering I Lectures Exercises Laboratory	2/2/2	J.Markoš M.Gramblička J.Markoš
	Project from Equipment of Chemical and Food Technology	0/0/3	P.Timár E.Graczová, L.Jelemenský, M.Juma, J.Markoš, O.Mierka, M.Polakovič, J.Stopka,
	Introduction to Safety Engineering	2/1/0	L.Jelemenský. Z.Švandová
	Bioprocess Engineering I Lectures	2/0/1	V.Báleš,

	Laboratory		M.Polakovič
	Safety Engineering I	2/1/0	L.Jelemenský, Z.Švandová
	Explosion Prevention Lectures Laboratory	2/0/2	L.Jelemenský J.Labovský
	Electrical Safety for Chemical Process Plants	1/0/1	D.Perniš
	Biochemical Engineering Lectures	2/0/1	Polakovič
	Safety Engineering	2/0/0	Jelemenský
3.semester(MS)	Advanced Laboratory of Chemical Engineering IV	0/0/6	E.Graczová, L.Jelemenský, M.Juma, M.Polakovič, J.Stopka, J.Šefčík Š.Schlosser, P.Steltenpohl, P.Timár
	Process System Engineering Lectures Laboratory	1/0/2	J.Markoš, M.Juma
	Chemical Reaction Engineering II	2/0/1	J.Markoš
	Cost Engineering of Industrials	0/2/0	M.Bafrnec
	Energetic Design Project	0/0/2	O.Mierka
	Solid Particles in Technology and Environment	2/0/0	P.Timár
	Bioprocess Engineering II Lectures Laboratory	1/0/1	V.Báleš
3.semester(MS)	Process System Engineering Lectures Laboratory	2/0/2	J.Markoš M.Juma
	Advanced Laboratory of Chemical Engineering I	0/0/4	M.Juma, L.Jelemenský O.Mierka, P.Steltenpohl, J.Stopka,
	Safety Engineering II	2/1/0	L.Jelemenský, Z.Švandová
	Laboratory of Process Plant Safety	0/0/3	L.Jelemenský
	Reaction Engineering II	2/0/0	J.Markoš
4. semester (MS)	Master Thésis	0/0/27	E. Graczová, M.Juraščík, J.Markoš, O.Mierka, P.Steltenpohl, M.Polakovič, J.Stopka,

IV. CURRENT RESEARCH PROJECTS

APVT-20-000804 Modeling, simulation and safety analysis of reactive distillation units in chemical industry (Jozef Markoš)

The design of a reactive distillation unit requires detailed knowledge of the reaction kinetics and equilibria of all reactions, vapour - liquid equilibria, and, in the case of heterogeneous catalysis, knowledge of transport phenomena in the catalyst particle as well. Through a mathematical model describing the unit properly, it is possible to predict changes of the performance parameters switching the unit from one steady state to another one, to find out how to avoid such situation, and how to set the initial parameters for start-up of the unit in order to reach the desired steady state, etc. The aim of the proposed project is to develop such model, to test it using real data from the literature, and to use it for safety analysis, mainly for multiple steady state identification, parametric sensitivity and response of the system to changes of the performance parameters.

Project duration: from 01.01.2005 to 31.12.2007

VEGA 1/1377/04 Quantitative framework for safety analysis of chemical reactors (Ludovít Jelemenský)

The effectiveness of any method used to identify hazards in chemical processes such as chemical reactors affects both safety and economics. To achieve maximum safety at minimum cost, a conservative but realistic hazard analysis must be carried out. The aim of the project is to further develop the integrated hazard simulation program, which was developed by our research group during the previous project. The extension of the integrated

program is proposed basing on a detailed process model, which includes nonlinear dynamics and uncertainty. For prediction of possible accidents and operating problems attention will be focused on the assessment of hazardous causes and effects of multiple steady states and possible disturbances.

Project duration: from 01.01.2004 to 31.12.2006

6 FP NMP2-CT-2005-515831 VIRTUALIS - Virtual Reality and Human Factors Applications for Improving Safety (Ľudovít Jelemenský)

The overall objective of the VIRTUALIS project is to reduce hazards in production plants and storage sites by addressing end-users' practical safety issues, such as training control room operators, designing proper alarm systems, training teams to cope with emergencies, assessing the impact of plant modifications on operators' reliability, helping managers to see the impact of their decisions on sharp-end operators' daily work, through the development of an innovative technology. The new technology will be achieved by merging Human Factors (HF) knowledge and Virtual Reality (VR) technologies. The innovative character of the VIRTUALIS technology will be mainly given by the new HF knowledge that will provide both solutions to cope with identified safety-critical issues and the "driving license" to profitably exploit VR technologies. The new HF knowledge will be produced ad hoc to cope with the specific safety case at hand based on the most advanced HF methodological concepts available.

Project duration: from 01.05.2005 to 31.04. 2009

D. Hybrid systems with membranes and solvents based on ionic liquids" Slovak Grant Agency project VEGA No. 1/2468/05 (Štefan Schlosser)

Formation and modeling of reaction-separation systems with membranes for simultaneous chemical or biochemical reactions and separations and/or several separation processes. A better understanding of a new generation of solvents and liquid membranes based on ionic liquids used for separation and biochemical transformations.

The aim will be creation of new reaction-separation hybrid systems and development of new analytical methods. Study of microfiltration through ceramic and polymeric membranes with different geometry aimed at modeling of mass transfer and interactions of solutes with the membrane.

Investigation of the possibilities of transfer of data obtained for various geometries of modules. Interactions will be studied mainly on model two-component suspensions.

Project duration: from 2005 to 2007

E. International joint project No. MEDRC 04-AS-004 Study of the adsorption- membrane filtration (Amf) hybrid process for removal of boron from seawater" (Štefan Schlosser)

International joint project No. MEDRC 04-AS-004 co-financed by MEDRC (www.medrc.org) coordinated by the Ege University, Izmir, Turkey with participation of teams from the Slovak University of Technology and Technical University of Wroclaw and individual experts from other Universities.

Project duration: from 2005 to 2007

F. Research contract of the Department of Agriculture, Food and Safety, subtopic 14b, Isolation and research of properties of bioactive compounds from Amaranthus and their using in human nutrition (Vladimír Štefuca)

The project aim is the developing of procedures of isolation of proteins and lipid compounds from green parts and the corn of Amaranthus. The final objective is to design technological solution for the production of compounds from Amaranthus that can be used in human nutrition as alternative sources of more conventional compounds.

Project duration: from 01.09. 2003 to 31.08.2006

G. Project FP6-SME-2003-1-508374, Ohmic heating for food processing (FOODPRO) (Milan Polakovič)

The aim of this CRAFT (scheme of FP6 focused on small and medium enterprises) project is to develop an alternative heating process through the use of ohmic heating, where the heat is generated through passing an electric current through the food heating it as a result of electric resistance. Thus overheating can be avoided and food with improved taste and nutritional content, and with maintained and in some cases improved microbial safety, may be produced. The role of STU in this project is to investigate the effects of ohmic heating on the

stability of food enzymes, the inactivation kinetics of individual enzymes in a broad temperature range and to carry out the comparative consumer study of food products obtained by conventional and ohmic heating.

Project duration: from 01.03.2004 to 28.02.2006

H. Project FP6-NMP3-CT-2004-500160, Advanced interactive materials by design (AIMs). (Milan Polakovič)

This integrated project (AIMs) is targeted at the design of a new class of interactive materials composed of functional elements (ligands) for use in the selective purification steps (*i.e.* chromatography, membrane separation, extraction) of pharmaceutical, chemical and bioindustries. A real breakthrough in the optimization of production processes in these areas requires the integration of material sciences and process development. AIMs focuses on the production of monoclonal antibodies as an example process. The main objectives in terms of radical innovation in monoclonal antibodies production are an increase in capacity by a factor of 10 to 50 and a reduction of cost of goods by a factor of 10 to 100. The STU teams act in one of six subprojects of this integrated project dealing with the characterization of structural and process parameters of investigated materials and processes. The role of STU is to determine accessibility of different chromatographic adsorbents by size-exclusion techniques, the static adsorption capacity of proteins of interest as well as their dynamics of binding. Together with other partners, the correlations between structural and performance parameters are made which are communicated to the partners involved in the material and process design, respectively.

Project duration: from 01.04.2004 to 31.03.2008

I. Project APVT-99-019604, Experimental study of gamma-decalactone production by microbial biotransformation (Vladimir Štefuca)

The basic aim of the project is the achievement of knowledge necessary for the development of a process of preparation of gamma-decalactone (GDL) - a bioaroma with high added value, by biotransformation from a natural precursor. In order to reach this objective, in the first part of the project, it will be necessary to determine cultivation and biotransformation conditions for a chosen microorganism. The next key task of GDL preparation will be isolation from the culture medium connected with lactonisation of the intermediate product and purification to final purity.

Project duration: from 01.01.2005 to 31.12. 2007

J. Project APVT-20-025704, Process development for biotechnological production of fructooligosaccharides (Milan Polakovič)

The growing demand for healthy food including non-synthetic additives forms a potential for significant enlargement of the existing production capacities of fructooligosaccharides, which belong to important prebiotics. The ambition of the project is to develop a technological process which could be implemented. The project elaborates all principal steps of the production process which are: aerobic cultivation of cells *Aureobasidium pullulans*, isolation and immobilization of enzyme fructosyltransferase, biocatalytic production of fructooligosaccharides, and the adsorption separation of fructooligosaccharides.

Project duration: from 01.01.2005 to 31.12. 2007

K. Project No. 11 of the Slovak-Hungarian Bilateral Cooperation in Science, Enhancement of the stability of lipase enzymes in ionic liquids (Milan Polakovič)

The joint project focuses on the bioprocess engineering aspects connected with the application of enzymatic reactions in ionic liquids. The improved efficiency of biotransformations is envisaged by investigating the effect of water activity and thermal stability on the performance of lipase in hydrolytic and esterification reactions using ionic liquids as solvents. By screening suitable enzyme sources and reaction media, it is expected to obtain chiral compounds of interest for the synthesis of fine chemicals and pharmaceuticals.

Project duration: from 01.01.2005 to 31.12. 2006

L. VEGA Project No 1/3581/06, Specification of prediction of multi-component vapor-liquid and liquid-liquid equilibria for the purpose of separation of liquids by distillation, extraction and extractive distillation (Elena Graczová)

Specification of prediction of two-phase multi-component vapor-liquid and liquid-liquid equilibria necessary for the design of industrial separation equipment like distillation and extraction columns, and for the estimation of optimum operation conditions. Extension of the method of correlation of three-component equilibrium data of two-phase systems (vapor-liquid and liquid-liquid) by the universal ternary contribution. Investigation of the influence of the ternary correction evaluated from ternary vapor-liquid equilibrium data and combined vapor-liquid and liquid-liquid data for obtaining more precise prediction of a complex two-phase four-component equilibrium. Application of the calculation for systems related to the separation of BTX aromatics with mixed extraction solvents.

Project duration: from 01.2006 to 12. 2008

M. LPP-0181-06 Modelling of reactive separation processes (Jozef Markoš)

Modelling of reactive separation processes. Industrial processes involving chemical reaction and separation in one unit are called reactive separations. Mathematical modelling of reactive separation units represents a useful tool for their design, optimization, parametric sensitivity and safety analysis. The main aim of the proposed project is to develop a non-equilibrium model of a reactive separation unit with very fast reactions in steady state and in dynamic regime and to apply the developed model for simulation of such units.

Project duration: from 2006 to 2009

N. VEGA-1/3573/06 Modelling, hydrodynamic and oxygen mass transfer in airlift bioreactors (Jozef Markoš)

Modelling, hydrodynamic and oxygen mass transfer in airlift bioreactors. The use of airlift reactors in biotechnology becomes more and more extensive. In spite of this fact, most papers published in the literature deals with the use of ALRs only with model media like air – water. The aim of this project is to study the hydrodynamics and mass transfer of oxygen in real fermentation air lift bioreactors. With help of a mathematical model of the reactor and experiments in laboratory ALRs with working volumes of 10, 40 and 200 liters, the influence of a real fermentation broth on ALR hydrodynamics and scale up will be studied.

Project duration: from 2006 to 2008

O. APVV-99-004405 Study of 2-phenylethanol formation in an integrated system with continuous product separation (Vladimír Bálaš)

The basic aim of the project is the achievement of knowledge on biochemistry of 2-phenylethanol formation by yeasts cultivated in media with organic phase. Study of the toxic influence of the product on microbial culture and its elimination by in-situ separation in an external unit will be done. The metabolic activities of selected yeast strains (*Saccharomyces* sp., *Kluyveromyces* sp.) related to the 2-phenylethanol production will be studied. Cultivation media composition as well as the process parameters will be optimized. To minimize the toxic effects of the product towards the culture, the mechanism and characteristics of in-situ product extraction during the fermentation process will be used and studied. A suitable organic phase will be selected and tested for in-situ extraction of the product. A continuous product separation system will be constructed and integrated into the system bioreactor - in-situ extraction - separation. Finally, the integrated process for 2-phenylethanol will be designed and optimized in lab- and pilot-scale experiments. Optimal parameters of the batch and continuous processes will be proposed and described. Process data should be used for design of the industrial scale process for production of 2-phenylethanol.

Project duration: from 01. 03.06 to 31.12. 09

P. APVV-51-033205, Genetically modified microorganisms as whole cells biocatalysts of enantioselective biooxidations for new immobilized biotechnologies (Vladimír Štefuca)

The project is aimed at the development of immobilized cell biocatalysts for oxidation of prochiral compounds through the Baeyer-Villiger reaction mechanism. The basic tasks of the Faculty involved are: 1. Development of an optimum biocatalyst particle using experimental and mathematical modeling involving kinetic and mass transfer phenomena; 2. Design and scale up of bioreactors for oxidative biotransformations of chosen compounds.

Project duration: from 2006 to 2008

Q. APVV project LPP-0234-06, Chromatographic separation of fruktooligosaccharides (Milan Polakovič)

This project is carried within a programme aimed at the stimulation and support of excellent PhD. supervisors. The content of the project is associated with the education of a PhD. student having the topic of the PhD. study identical with the title of the project.

Project duration: from 13.11. 2006 to 31.11.2009

R. VEGA project 1/3582/06, Mechanisms and kinetics of enzyme inactivation (Vladimír Štefuca)

Enzyme inactivation is a phenomenon, which has unfavorable impact in various areas, such as biocatalytic productions, food processing or application of diagnostic tests. A way to the increase of process stability of enzymes can be a better understanding of their inactivation mechanisms. The primary goal of this project is the investigation of the mechanism of heat and pH inactivation of enzymes in real media, in which the effect of stabilization of enzymes by components of the solution is manifested. The method of identification of inactivation mechanisms is based on a consequent connection of the design of experiments, its performance under a broad range of conditions and evaluation of the kinetics by mathematical modeling. In special cases, the investigation of the mechanism of inactivation will be based on a combined treatment of kinetic data of the loss of enzyme activity and quantities characterizing structural changes, as intensity of laser light scattering or molecular weight distribution obtained by electrophoresis or chromatography. The methods of the investigation of mechanisms are directly related to the elaboration of a procedure for quick determination of process stability of an immobilized biocatalyst in a differential fixed bed reactor.

Project duration: from 01.01. 2006 to 31.12.2008

S. VEGA project 1/3565/06, Engineering aspects of chromatographic separation of proteins and saccharides (Milan Polakovič)

The project deals with the investigation of engineering aspects of chromatographic separation of a mixture of proteins and saccharides, which are subject of practical interest. Particularly, the purification of IgG, fructosyltransferase (FTase) and fructooligosaccharides (FOS's) has been studied. A problem of general interest is the investigation of the accessibility of pores by batch and column size-exclusion techniques. The aim is the assessment of advantages, disadvantages and limitations of both techniques and the possibility of interpretation of basic data in the form of pore size distribution. A further part of the project includes investigation of equilibrium and kinetics of adsorption of proteins on affinity and ion-exchange adsorbents by a batch method. The investigation of multi-component adsorption equilibria of saccharides on ion-exchangers will be one of the important parts of the project for their further utilization for modeling and designing separation in a simulated moving bed. In the area of separation of enzymes the project will be aimed at characterizing equilibria in various concentrations of salts, which can be employed in mathematical description of separation using salt gradient. The last area of interest will concern the investigation of kinetics of affinity sorption of FTase on an adsorbent with a bound lectin ligand.

Project duration: from 01.01. 2006 to 31.12.2008

V. CURRENT EDUCATION PROJECTS

ACU/2005/04/AF/02 A laboratory for testing construction materials for Herat University (Haydary Juma)

The project's objective is to contribute to the improvement of quality of higher engineering education in Afghanistan. The major part of the project is implementation of a laboratory for the testing of construction materials at the Herat University and a training program for teachers, who will manage the laboratory. The overall project outcomes can be formulated as: long-term cooperation between the Herat University and the Slovak University of technology, improvement of the education process and the knowledge and skill of engineering graduates, improvement of knowledge and skill of the teachers of the Faculty of engineering of HU, and increase of the quality and safety of buildings which will be constructed in the region.

Project duration: from 2005 to 2007

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Rubber Research Institute Matador a.s. Púchov	Vulcanization conditions influencing the quality and economy of tire production	Klabník Miroslav, director, Terézie Vansovej 1054/45, 02032 Púchov	continually
VURUP, a.s., Vlčie hrdlo, Bratislava, Slovakia	cooperation	Mičíková, A., Ing., VURUP, a.s. Vlčie hrdlo, Bratislava, Slovakia	continually
NCHZ, a.s.	Engineering contracts	Čamaj, V. Goga V., NCHZ, a.s., Nováky	continually
EVPÚ, a.s.	Engineering contracts	A. Jurnečka, EVPÚ, a.s.	Since 2006
Liko Bratislava a.s.	Amaranthus exploitation in human food	Minárik Martin, Ing., director, Wolkrova 4, Bratislava	Since 2003
Liko Bratislava a.s.	FOODPRO, FP6-project	Mráz Igor, Ing. PhD., researcher, Miletičova 23, Bratislava	Since 2003
Liko Bratislava a.s.	Production of fructooligosaccharides	Minárik Martin, Ing., director, Wolkrova 4, Bratislava	Since 2004
Technical University Košice	co-supervisor of PhD students	Búgel M., assoc. professor, Technical University Košice	Since 2001
Institute of Chemistry of the Slovak Academy of Sciences	Glycerol biosensor development	Gemeiner, Peter, DrSc., researcher, Institute of Chemistry SAS, Dúbravská cesta 9, Bratislava	Since 2003
Faculty of Mechanical Engineering STU	Heat exchanger for blood pasteurization	Ivan Morávek, researcher, Department of Production Systems, nam. Slobody 17, Bratislava	Since 2005
Liko Bratislava a.s.	Fermentation of 2-phenylethanol with in-situ extraction of product	Minárik Martin, Ing., director, Wolkrova 4, Bratislava	Since 2006
Liko Bratislava a.s.	Microbial production of gamma-decalactone	Vladimír Sitkey, Ing., PhD., Wolkrova 4, Bratislava	Since 2006

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
ICPF AV ČR	cooperation	Drahoš, Jiri, professor, ICPF AV ČR	continually
TU VŠB, Praha, CR	cooperation	Wichterle, Kamil, professor, TU VŠB, Praha, CR	continually
Polimi, Milano, I	VIRRRTHUALIS, FP 6 project	Colombo, Simone, professor, Polimi, Milano, I	continually
University of Minho, Braga, P	ERASMUS	Jose A. Teixeira, professor, Department of Biological Engineering, University of Minho, 4710-057 Braga, Portugal	continually
University of Porto, P	ERASMUS	L. M. Madeira, professor	continually
Politehnica Bucurest	ERASMUS	V. Plesu, professor	Since 2006
Technical University Gdansk	ERASMUS	. B. Kawalec – Pietrenko, professor	Since 2006
University of Dortmund, D	common projects	A. Gorak, professor	Since 2001
Herat University	common projects	Dr. Naim Assad	Since 2005

VŠCHT Praha, ČR	scientific cooperation	Miloš Marek, professor VŠCHT Praha, CR	continually
CIBA Spezialitätenchemie AG, Basel, Switzerland	engineering contract	Krajnik Paul, Global Head of Engineering, Spezialitätenchemie AG, Basel	Since 2001
Ege University, Izmir, Turkey	joint research project	Kabay Nalan, professor Ege University, Izmir	2005-2007
Technical University Wroclaw, PL	joint research project	Bryjak Marek, Dr., Technical University Wroclaw	2005-2007
Cytec, Canada	support in our research	Robertson, Al-J., Cytec	Since 2004
Federal Agricultural Research Center, Braunschweig, Germany	FP5 project	Vorlop Klaus, director, FAL Braunschweig, Germany	Since 2003
Institute National Polytechnique de Lorraine	cooperation in the study of adsorption for the water treatment	Görner Tatiana, Assoc. Prof., Laboratoire Environnement et Minéralurgie, CNRS UMR 7569, 15 avenue du Charmoix BP 40, 54501 Vandoeuvre, France	Since 1999
Wroclaw Technical University	cooperation in the kinetics of starch enzyme action and enzyme inactivation kinetics	Bryjak Jolanta, Dr., researcher, Institute of Chemical Engineering ul. Norwida 4/6 50-373 Wroclaw, Poland	Since 1998
University of Strathclyde	collaboration in the application of laser light scattering in the investigation of enzyme inactivation	Šefčík, Ján, PhD., senior lecturer, Department of Chemical and Process Engineering, University of Strathclyde, Glasgow, Scotland	Since 2005
ETH Zürich	AIMs - FP6 project (leader of subproject)	Morbidelli Massimo, Professor, Head of the Group, Institut für Chemie- und Bioingenieurwissenschaften, ETH Hönggerberg, CH-8093 Zürich, Switzerland	Since 2003
University of Minho	FOODPRO, FP6-project	Vicente Antonio, Assis. Prof., Department of Biological Engineering, University of Minho, 4710-057 Braga, Portugal	Since 2003
C-Tech Innovation Ltd.	FOODPRO, FP6-project, project coordinator	Harrison Michael, senior research engineer, Capenhurst Technology Park, Capenhurst, Chester, CH1 6EH, United Kingdom	Since 2003
Blåtand AB	FOODPRO, FP6-project	Hagner Ulf, president, Blåtand AB, 86013 Stöde, Sweden	Since 2003
Quinta dos Moinhos Novos - Lacticínios, Lda	FOODPRO, FP6-project	Martins Paulo Jorge, managing director, 4830 Póvoa de Lanhoso, Portugal	Since 2003
SIK , The Swedish Institute for Food and Biotechnology	FOODPRO, FP6-project, consumer tests of food products	Lindbom Ingela, Dr., researcher, P.O. Box 5401, Gothenburg, SE-402 29 Sweden	Since 2003
Instituto de Investigaciones Marinas, C.S.I.C., Vigo	FOODPRO, FP6-project, modelling of ohmic heater	Banga Julio, Dr., team leader, Process Eng. Group, Inst. Invest. Marinas (CSIC), C/ Eduardo Caballero 6, 36208 Vigo, Spain	Since 2003

Nature's Best Ltd	FOODPRO, FP6-project	Paddy Callaghan, owner and director, Nature's Best Ltd., Dublin, Ireland	Since 2005
University of Dortmund	AIMs, FP6-project, project coordinator	Górak Andrzej, professor, chairman, Lehrstuhl für thermische Verfahrenstechnik, Emil-Figge-Straße 70, 44227, Dortmund, Germany	Since 2003
Bayer AG,	AIMs, FP6-project	Strube Jochen, Dr. Bayer Technology Services, Process Technology, 51368 Leverkusen, Germany	Since 2003
Merck KGaA	AIMs, FP6-project	Schulte Michael, Dr., Life Science & Analytics R&D Technical Support, Frankfurter Strasse 250, 64271 Darmstadt, Germany	Since 2003
University of Vienna	AIMs, FP6-project	Lindner Wolfgang, professor, Department of Analytical Chemistry, Waehringerstrasse 38, 1090 Wien, Austria	Since 2003
Prometics Biosciences Ltd	AIMs, FP6-project	Burton Steven James, Dr., 211 Cambridge Science Park, Milton Road, CB4 OZA Cambridge, United Kingdom	Since 2003
Centre National de la Recherche Scientifique	AIMs, FP6-project	Denoyel Renaud, Dr., researcher, Laboratoire Matériaux Divisés, Revêtements, Electrocéramiques (MADIREL), Centre de St Jérôme, 13397 Marseille, France	Since 2003
Sartorius AG	AIMs, FP6-project	Melzner Dieter, Dr., Weender Landstrasse 94-108, 37075 Göttingen, Germany	Since 2003
Veszprém University Institute of Chemical and Process Engineering, Veszprém	The Slovak-Hungarian Bilateral Cooperation in Science, enhancement of the stability of lipase enzymes in ionic liquids	László Gubicza, Dr., Research Institute for Chemical and Process Engineering, H-8200 Veszprém Egyetem u. 2	Since 2004

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Bafnec Milan	Scientific Board of the Rubber Research Institute	member	1997
Bafnec Milan	Slovak Society of Chemical Engineering	member	1995
Bobok Daniel	Slovak Society of Chemical Engineering	member	1995
Graczová Elena	Slovak Society of Chemical Engineering	member	1995
Illeová Viera	Slovak Society of Chemical Engineering	member	1998
Ačai Pavol	Slovak Society of Chemical Engineering	member	1998
Steltenpohl Pavol	Slovak Society of Chemical Engineering	member	1995
Bobok Daniel	Certificate Commission of STU Bratislava	member	2003
Timár Pavel	Slovak Society of Chemical Engineering	secretary	1995

Markoš Jozef	Slovak Society of Chemical Engineering (advisory board)	other	1998
Markoš Jozef	VEGA commission "Chemistry and Chemical Technology"	member	2005
J. Haydary	Slovak Society of Chemical Engineering	member	1994
Jelemenský Ľudovít	Slovak Society of Chemical Engineering (advisory board)	other	1998
Stopka Ján	Slovak Society of Chemical Engineering (advisory board)	other	2000
Vladimír Bálež	Slovak Society of Chemical Engineering - chairman	other	2002
Milan Polakovič	Slovak Society of Chemical Engineering Executive Board	other	2002
Milan Polakovič	Chemical Papers - editorial board	other	1998
Milan Polakovič	Editor-in-Chief of Chemical Papers	other	2005
Milan Polakovič	Guest Editor of Chemical Papers	other	1999
Báleš Vladimír	Economy and Social Committee of Slovak Republic vice-president	other	2005
Báleš Vladimír	Slovak Rector Conference - president	other	2005
Steltenpohl Pavol	Chemical Papers journal, Assistant Editor	other	2005
Schlosser Štefan	Slovak Society of Chemical Engineering (council)	member	1995
Štefuca Vladimír	Slovak Society of Chemical Engineering - member of advisory board	other	2000

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Markoš Jozef	Working party "Chemical Reaction Engineering" of EFCE	member	Since 2001
Stopka Ján	Working party "Education" of EFCE	member	Since 2002
Jelemenský Ľudovít	Working party „Loss prevention and safety“ of EFCE	member	Since 2004
Báleš Vladimír	European Federation of Chemical Engineering (executive committee)	other	Since 2002
Báleš Vladimír	Working Group on Bioreactor Performance of European Federation of Biotechnology	member	Since 1988
Schlosser Štefan	Working party Membranes of EFCE (delegate)	member	Since 1998
Schlosser Štefan	European Membrane Society	member	2005-2006
Schlosser, Štefan	Euromembrane 2006, Taormina, I (scientific committee)	member	2005-2006
Schlosser Štefan	Ars Separatoria, Torun (PL), editorial board	member	Since 2004
Schlosser Štefan	Ars Separatoria, Torun (PL), sci. committee	member	2005-2006
Polakovič Milan	Board of Section on Biochemical Engineering of European Federation of Biotechnology	member	Since 1999
Polakovič Milan	European Federation of Biotechnology, Section on Biochemical Engineering, Working Group on Biotransformations	chairman	Since 2004
Polakovič Milan	guest editor of Biocatalysis and Biotransformation	member	2004
Polakovič Milan	Scientific Committee of Section on Applied Biocatalysis of European Federation of Biotechnology	member	Since 1999
Schlosser Štefan	Permea 2007 organizing committee	member	Since 2006

Schlosser Štefan	Int. Frontiers and Interfaces of Ion Exchange, Antalya (Turkey), Scientific committee	member	2005-2006
Schlosser Štefan	Member of the Scientific committee of the Congress CHISA in Prague, (www.chisa.cz)	member	Since 1984
Jelemenský Ľudovít	National konvent about EU - Working section III Environment	member	Since 2006

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
J. Teixeira	Universidade do Minho, Braga	Portugal	4 days
V. Plesu	Universita Politehnica Bucurest	Romania	2 days
G. Bumbac	Universita Politehnica Bucurest	Romania	2 days
C. Csiornei	Universita Politehnica Bucurest	Romania	2 days
J. Hanika	ICPF AS CZ, Prague	Czech Republic	1 day
V. Machoň	Institute of Chemical Technology, Prague	Czech Republic	1 day
P. Dítl	Czech Technical University in Prague	Czech Republic	1 day
H. Dolores	University of Porto – ERASMUS	Portugal	4 months
A. Azimi	Herat University	Afganistan	3 months
N.G. Qader	Herat University	Afganistan	3 months
Bryjak Jolanta	Wroclaw Technical University, Institute of Chemical Engineering, Wroclaw	Poland	January / 1 week
Bryjak Jolanta	Wroclaw Technical University, Institute of Chemical Engineering, Wroclaw	Poland	December / 1 week
Koroknai Balázs	Veszprém University, Institute of Chemical Engineering, Veszprém	Hungary	May / 1 week
Fehér Erika	Veszprém University, Institute of Chemical Engineering, Veszprém	Hungary	October / 1 week
Fráter Tamás	Veszprém University, Institute of Chemical Engineering, Veszprém	Poland	May / 1 week

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Schlosser Štefan Blahušiak M.	Membranes, membrane processes and their applications, invited lecture, poster	Poland	April/4 days
Schlosser Štefan	Int. Workshop Frontiers and Interfaces of Ion Exchange	Turkey	June/7 days
Schlosser Štefan	Ars Separatoria	Poland	July/5 days
Schlosser Štefan	CHISA 2006	Czech Republic	August/5 days
Schlosser Štefan	Euromembrane 2006	Italy	September/6 days
Schlosser Štefan, Marták Ján	Green Solvents for Processes	Germany	October/4 days
Schlosser Štefan	Semipermeable membranes in Biomedical Applications, invited lecture	Poland	November/4 days
Markoš Jozef	Institute of Chemical Technology, Prague	Czech Republic	2 days
Markoš Jozef	ISCRE 19, Potsdam/Berlin	Germany	4 days
Jelemenský Ľudovít	ISCRE 19, Potsdam/Berlin	Germany	4 days
Síkula Ivan	ISCRE 19, Potsdam/Berlin	Germany	4 days
Kotora Milan	ISCRE 19, Potsdam/Berlin	Germany	4 days
Markoš Jozef	SACEC 2006, Durban, Univ. of Durban, CSIR, Johanensburg	South Africa	2 weeks

Jelemenský Ľudovít	SAGEC 2006, Durban, Univ. of Durban, CSIR, Johanensburg	South Africa	2 weeks
Kotora Milan	University of Dortmund, M. Curie Fellow	Germany	10 months
Markoš Jozef	VIII. Conference of Multiphase Flow, Gdansk	Poland	4 days
Síkula Ivan	VIII. Conference of Multiphase Flow, Gdansk	Poland	4 days
Haydary Juma	Herat University	Afganistan	3 weeks
Haydary Juma	Kabul Polytechnic University	Afganistan	1 week
Illeová Viera	University of Veszprém, Veszprém	Hungary	September / 12 days
Polakovič Milan	DECHEMA Frankfurt / DECHEMA Frankfurt / FP 6 Project meeting	Germany	March / 2 days
Polakovič Milan	Brussels / Seminar Strategic Research Agenda for Industrial Biotechnology	Belgium	March/ 5 days
Polakovič Milan	Veszprém University, Institute of Chemical Engineering, Veszprém	Hungary	September/ 2days
Polakovič Milan	FP 6 Project meeting, Milano	Italy	April / 3 days
Polakovič Milan	International Conference, Biocatalysis in Food and Drinks Industries, Wageningen	Netherlands	September / 5 days
Polakovič Milan	Workshop Implementation Action Plan for Industrial Biotechnology Platform, Brussels	Belgium	April / 2 days
Illeová Viera	European Symposium on Biochemical Engineering Science, Salzburg	Austria	August / 4 days
Ačai Pavel	European Symposium on Biochemical Engineering Science, Salzburg	Austria	August / 4 days
Ačai Pavel	TU Graz, Institut für Biotechnologie und Bioprozesstechnik	Austria	February-June/5 months
Vaňková Katarína	11th International Symposium on Preparative and Industrial Chromatography and Allied Technoloques	Austria	October/ 3 days
Vaňková Katarína	26 th International Symposium on the Separation of Proteins, Peptides and Polynucleotides	Austria	October/ 3 days
Wrzosek Katarzyna	11th International Symposium on Preparative and Industrial Chromatography and Allied Technoloques	Austria	October/ 3 days
Wrzosek Katarzyna	26 th International Symposium on the Separation of Proteins, Peptides and Polynucleotides	Austria	October/ 3 days
Tatárová Ivana	11th International Symposium on Preparative and Industrial Chromatography and Allied Technoloques	Austria	October/ 3 days
Tatárová Ivana	11th International Symposium on Preparative and Industrial Chromatography and Allied Technoloques	Austria	October/ 3 days
Tatárová Ivana	Institute of Chemical Technology, Department of Chemical Engineering, Prague	Czech Republic	September/ 3 days
Gramblička Michal	Institute of Chemical Technology, Department of Chemical Engineering, Prague	Czech Republic	September/ 3 days
Gramblička Michal	4 th Asian European Symposium on Biorecognition in Downstream Processing, BOKU, Vienna	Austria	October/ 1 day
Jelemenský Ľudovít	Demokritos - FP6 Project meeting	Greece	2 days
Jelemenský Ľudovít	Trinity College of Dublin - FP6 Project meeting	Ireland	3 days
Jelemenský Ľudovít	Torino University - FP6 Project meeting	Italy	2 days
Jelemenský Ľudovít	Total- FP6 Project meeting	Belgium	2 days
Labovský Juraj	Loughborough University	United Kingdom	1 month

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Andraščíková Alena	Process design for preparation of gama-dekalolactone by biofermentation	Štefuca, V.
Cengel' Samuel	Design of a chromatographic process for separation of fructooligosaccharides	Polakovič, M.

Čierna Marianna	Equilibrium characteristics of a zeolite adsorbent	Besedová, E.
Tonhajzerová Dagmara	Economic analysis of chosen energetic media	Mierka, O.
Ťapaj Peter	L-V equilibrium: measurement, treatment and application of equilibrium data in calculations of separation processes	Graczová, E.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Brežný M.	Optimization of the scrubber performance in SCP Ružomberok, a.s.	Mierka, O.
Chlebovec M.	Separation of aromatics by extractive distillation	Steltenpohl, P.
Hucík M.	Mass transfer and hydrodynamics in a three-phase airlift reactor	Juraščík, Martin
Kochan J.	Modeling of the permeate flow during microfiltration through ceramic membranes	Schlosser, Š.
Laššák P.	Modeling and simulation of a catalytic reactor	Markoš, J.
Mošovský Ľ.	Proposal of the optimal regime of melt solidification in the production of InP crystals	Stopka, J.
Neohyptová M.	Correlation and prediction of V-L equilibria of multicomponent systems	Graczová, E.
Székelyová M.	Treatment of multicomponent V-L and L-L equilibria	Graczová E.
Vaňková K.	Adsorption equilibrium of fructosyltransferase on a weak anion exchange resin	Polakovič, M.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Mierka Oto	CFD modeling of chemical reactions in turbulent liquid flow	Stopka, J.; Jelemenský, Ľ.
Juraščík Martin	Mathematical and experimental modeling of airlift reactors	Markoš, J.
Malík Fedor	Study of dynamic behavior of systems with an immobilized catalyst.	Štefuca, V.

VIII. PUBLICATIONS

Chapter or pages in book

- [1] Bálaš, V.: Biochemical Engineering Principles, Editor(s): Berovic M., Nienow A.W, Chapter: Biotechnology of immobilized cells. Povse Slovenia, pp. 178-204, 2006.

Article in journal

- [1] Garnier, C., Goerner, T., Villieras, F., De Donato, Ph., Polakovič, M., Bersillon, J.-L., Michot, L.J.: Activated carbon surface heterogeneity seen by parallel probing by inverse liquid chromatography at the solid/liquid interface and by gas adsorption analysis at the solid/gas interface. Carbon, vol. 45, pp. 240-247, 2006.
- [2] Juma, M., Bafnec, M.: Transfer Properties of Cord-Reinforced Rubber Composites. Journal of Reinforced Plastics and Composites, no. 18, vol. 25, pp. 1967-1975, 2006.
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- [4] Juraščík, M., Blažej, M., Annus, J., Markoš, J.: Experimental measurements of volumetric mass transfer coefficient by the dynamic pressure – step method in internal loop airlift reactor of different scale. Chemical Engineering Journal, vol. 125, pp. 81-87, 2006.
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- [7] Juraščík, M., Sikula, I., Annus, J., Markoš, J.: Design and scale – up of airlift bioreactors. Inzeneria i Aparatura Chemiczna, vol. 45, pp. 96-98, 2006.

- [8] Katrlík, J., Mastihuba, V., Voštiar, I., Šefčovičová, J., Štefuca, V., Gemeiner, P.: Amperometric biosensors based on two different enzyme systems and their use for glycerol determination in samples from biotechnological fermentation process. *Analytica Chimica Acta*, no. 1, vol. 566, pp. 11-18, 2006.
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- [11] Marták, J., Schlosser, Š.: Extraction of lactic acid by phosphonium ionic liquids, available online. *Separation and Purification Technology*; in press, 2006.
- [12] Marták, J., Schlosser, Š.: Pertraction of organic acids through liquid membranes containing ionic liquids. *Desalination*, vol. 199, pp. 518-520, 2006.
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Article in conference proceedings

- [1] Ačai, P., Polakovič, M.: Modelling and design of a large-scale bioreactor for production of biomass under surface aerated conditions. In 6th European Symposium on Biochemical Engineering Science ESBES 6, Salzburg, Austria, 2006.
- [2] Ačai, P., Polakovič, M., Sorrenti, E., Görner, T., de Donato, P., Villiéras, F.: Fixed-bed adsorption of humic acids on pyrite - bimodal and trimodal models. In Book of Abstracts of the 33rd International Conference of Slovak Society of Chemical Engineering, Tatranské Matliare, SK, pp. 123, 2006.
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- antibodies. In 33rd International Conference of Slovak Society of Chemical Engineering, CD ROM, Tatranské Matliare, SK; 12 pp., 2006.
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- [59] Švandová, Z., Markoš, J., Jelemský, L.: Steady state and dynamic simulation of reactive distillation. In Book of Abstracts of the 33th Int. Conference of SSCHE (CD), Tatranské Matliare, SK, ISBN 80-227-2409-2, pp. 254, 2006.

Phd's thesis

- [1] Juraščík, M.: Mathematical and experimental modeling of airlift reactors. FChFT STU, Bratislava, SK, 2006. (Supervisor: Jozef Markoš)
- [2] Mierka Jr., O.: CFD modelling of chemical reactions in turbulent liquid flow. FChFT STU, Bratislava, SK, 2006. (Supervisor: Stopka, J.; Jelemenský, L.)

Miscellaneous

- [1] Jelemenský, L.: Safety Engineering Study Program at the Institute of Chemical and Environmental Engineering, invited lecture at School of Chemical Eng., KwaZulu Natal University, Durban, Republic of South Africa. 2006.
- [2] Kabay, N., Bryjak, M., Schlosser, Š., Yuksel, M., Kitis, M., Avlonitis, S., Matejka, Z., Semiat, R., Al-Mutaz, I.: Study of the Adsorption-Membrane Filtration (Amf) Hybrid Process for Removal of Boron From Seawater, 2nd Periodic Report of the project MEDRC 04-AS-004. Izmir (TR), University of Ege, 80 p. 2006.
- [3] Kabay, N., Bryjak, M., Schlosser, Š., Yuksel, M., Kitis, M., Semiat, R., Al-Mutaz, I.: Study of the Adsorption-Membrane Filtration (Amf) Hybrid Process for Removal of Boron From Seawater, 3rd Periodic Report of the project MEDRC 04-AS-004. Izmir (TR), University of Ege, 66 p. 2006.
- [4] Markoš, J.: Experimental and mathematical modeling of air lift bioreactors, invited lecture at Biosciences CSIR, Modderfontein, Republic of South Africa, invited lecture. 2006.
- [5] Markoš, J.: Recenzia: Salejová, G., Effective transport properties of reconstructed porous bodies, PhD thesis, FCHI VŠCHT, Prague, Czech republic, 2006, (školitel: prof. M. Marek, Dr. J. Kosek). 2006.
- [6] Schlosser, Š.: Hybrid systems with membranes in biotechnology applications; invited lecture at the seminar: "Semipermeable Membranes in Biomedical Applications; Warszawa. 2006.

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Assistant Professors :

Július Annus; Ladislav Bušovský; Ľubomír Tancer (till 31.8.2006); Miroslav Tokarčík, PhD.; Daniela Žilinská; Michal Ilčin (since 1.9.2006)

Research Fellows:

Tibor Pálszegi, PhD.

PhD Students:

Michal Ilčin; Katarína Olejníková, Roland Šolc (since 1.10.2006)

Technical staff:

Anton Adamko; Zdenka Halaburková (till 31.7.2006)

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Physics I.

Laboratory of Physics II.

B. Research laboratories:

Laboratory of X-ray Diffraction

Laboratory of Electrical Properties of Conducting Polymers

Laboratory of Gamma Radiation Source Laboratory of Computational Chemical Physics

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Seminar in Basic Physics	0/2/0	Bušovský, Bučinský, Gál, Gróf, Ilčin, Tokarčík
1. semester (Bc)	Physics I	2/2/0	Bušovský, Fedorko, Holá, Laurinc, Lukeš, Tokarčík, Valach, Žilinská
	Physics Laboratory I.	0/0/2	Annus, Olejníková, Pálszegi
2. semester(Bc)	Physics II.	2/2/0	Bušovský, Holá, Fedorko, Laurinc, Lukeš, Tokarčík, Žilinská, Valach
	Physics Laboratory II.	0/0/2	Annus, Pálszegi, Olejníková
6. semester (Bc)	Semestral project	0/0/4	Lukeš, Ilčin
5. semester (Bc)	Modelling of the Molecular Properties	2/2/0	Laurinc, Lukeš
2. semester (MSc)	Statistical Thermodynamics	2/1/0	Laurinc, Lukeš

B. PhD Study:

	Biophysics I	2/0/0	Valach
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IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/3572/06 Molecular modelling of the structural fragments containing the transition element atoms in the crystal structures of metalloproteins (Fedor Valach)

Methods development for the structure solution of fragments involved in the crystal structures of metalloproteins. Molecular modelling of the structural fragments and quantification of their basicity properties. Structural correlations determination of hydrogen bonds and their structural interpretation for the crystal structures of organic, organometallic and coordination compounds. Prediction of valence-bond structure of anionic fragments in the crystals of proteins. Determination and interpretation of the correlations between the metal-ligand bond lengths in the structures of metalloproteins. The criteria development for reliability testing of the protein crystal structures solved from the X-ray and synchrotron diffraction data.

Project duration: from 01.01.2006 to 31.12.2008

B. VEGA Project No 1/3036/06 Research of elektro-optical properties of novel organic materials as precursors with potential application in electronic and nanotechnology (Vladimír Lukeš)

Quantum-chemical study (at the ab initio, DFT and semiempirical levels) of the electronic structure and properties of benzenoid and heterocyclic compounds of furane, thiophene, pyrrole, imidazole and pyrazine derivatives with potential electro- and photoactive properties will be performed. The basic relations between structure (e.g. conformations, effective conjugation length, effect of substituents), microscopic quantities (dipole moments, polarizabilities, hyperpolarizabilities, HOMO-LUMO separation) and absorption and luminescence spectral characteristics will be investigated. A selection of new molecules which are perspective candidates for electro-optical applications and nano-technique will be proposed on the basis of this research.

Project duration: from 01.01.2006 to 31.12.2008

C. VEGA Project No 1/2021/05 Physical properties of conducting polymers, conducting polymer nanocomposites and new conjugated systems (Pavol Fedorko)

The project deals with two representatives of the conducting polymers, doped polyaniline and doped substituted polythiophene gels, in which the effect of the structural disorder on the electrical properties is studied. In doped polyaniline, disorder is created by thermal and irradiation aging of the material and by adding plasticizers. This also gives information useful from the application point of view. In the frame of this part of the project, the metallic character of the conductivity of doped polyaniline is investigated more in detail. In substituted polythiophene gels, the conformational state of the polymer network and thus the degree of the structural disorder is varied by swelling in solvents and the dependence of the conductivity of the gel on its swelling ratio is studied. Preparation and properties of conducting polymer nanocomposites as materials enlarging the application potential of the conducting conjugated systems are also studied, using polypyrrole covered nanoparticles and carbon nanotubes as conducting fillers. Theoretical modeling and design of new aromatic and heteroaromatic conjugated systems with properties interesting from the point of view of applications in molecular electronics are also part of the project.

Project duration: from 01.01.2005 to 31.12.2007

D. VEGA Project No 1/1376/04 Nonlinear optical spectroscopy of molecules and systems with energy transfer (Tibor Palszegi)

The influence of the intermolecular electronic and vibrational coupling on the energy transfer between the electronic states of molecules and molecular systems is studied by theoretical methods of nonlinear optical spectroscopy (photon-echo, pump-probe, time-dependent fluorescence). The nonlinear optical signals are analysed to get information on the electronic coupling, vibrational coherence and inhomogeneous with of spectral lines. The 2D signal analysis is applied also for the identification of molecular conformations.

Project duration: from 1.1.2004 to 31.12.2006

E. APVT Project No 20-005004 Study of stabilisers in polymer matrices – relation between their structure and stabilising effects (Vladimír Lukeš)

Project is oriented on finding suitable (environment-friendly and non-toxic) antioxidants and their concentration relations which are necessary for effective stabilization of polymers (e.g. polyisoprene, PVC, polyurethane, etc.).

The stability of polymers with selected additives is experimentally investigated (DSC, spectral measurements). The materials suitable for application in medicine and food industry are subjected to the gamma irradiation and the irradiation effect is investigated. As a part of our research, the dependence between effect and structure of used antioxidants is also studied.

Project duration: from 01.01.2005 to 31.12.2007

F. APVT Project No 20-029804 Functional supramolecular surface nanostructure based on cyclodextrins (Tibor Palszegi)

Project proposes an integration of theoretical and experimental research results with a focus on a functional surface nanostructure. Our proposal on the nanostructured surface is based on three main components, first a practical solid surface is a base, second an attachment film is prepared from chemically modified cyclodextrin molecules to form supramolecular complexes with guest molecules, and third two kinds of functional molecules are selected which provide a functionality as chemical sensor and magnetic memory unit.

Project duration: from 01.06.2005 to 31.05.2007

G. APVV Project No SK-AT-005006 (Bilaterálny projekt, rakúsko-slovenská spolupráca) Theoretical study of photo-physical properties of small five- and six-membered aromatic molecules using TD-DFT and CEO methods (Vladimír Lukeš)

Quantum-chemical study of cyano- substituted paradiaminophenylene and heterocyclic compounds of thiophene and pyrrole derivatives with potential electro- and photoactive properties will be performed. The vertical excitations based on the RI-CC2, TD-DFT, CIS-ZINDO/S and CEO-ZINDO/S will be calculated. The theoretical and the available experimental data will be compared and will be analysed in terms of MO theory and compared with CEO modes.

Project duration: from 1.1. 2006 to 31.12. 2007

V. CURRENT EDUCATION PROJECTS

A. KEGA Project No 3/3062/05 Multimedia study programme for subject: Ionizing radiation and radiation protection (Ol'ga Holá)

Creation of a modern internet textbook in ionizing radiation and radiation protection. The output of project - the multimedia textbook - will be available to all students at our university's servers and other users will have CDs at their disposal. It is proposed to use this multimedia didactic means also in various forms of the distance e-learning. The distance e-learning form of education can solve also the problem with the acquisition of the professional qualifications for the work with ionizing radiation. This is the reason for usage of the mentioned textbook not only as the fundamental and unified textbook for the students of universities, but also as the study material for the civil servants responsible for radiation protection, for in-service workers and providers of the professional training.

Project duration: from 01.01.2005 to 31.12.2007

B. Developing project of Ministry of Education of SR: Application of multimedia into teaching-learning process of physics (Ol'ga Holá)

Verification of asynchronous communication between teachers and students by LMS Moodle. Preparation of study materials and their transformation into Moodle modul, training of teachers, organisation of pilot course. Creation of new multimedia didactic tools for the basic course of physics and application of multimedia tools in pedagogical practise.

Project duration: from 1.4.2006 to 30.4.2007

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Faculty of Electrical Engineering and Information Technology, SUT Bratislava	e-learning	Assoc.prof. P.Ballo, PhD	2000-
Faculty of Mathematics and Physics, Comenius University, Bratislava	Monitoring of Rn in atmosphere, water and soil	Assoc.prof. K. Holý, PhD	1990-
Faculty of Civil Engineering, SUT Bratislava	Didactic methods	Assoc.prof. J.Lukovičová, PhD	2000-
Institute of Polymers, Slovak Academy of Sciences, Bratislava	Optical measurements of polymers	Prof. P.Hrdlovič, DSc	2000-
Faculty of Natural Science, Comenius University, Bratislava	Simulations of linear and nonlinear optical signals	Dr. V.Szőcs, PhD	2000-
Faculty of Mathematics and Physics, Comenius University, Bratislava	e-learning	Mgr. K.Holá	2003-

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Institut für Organische Chemie, J.W.Goethe Universität, Frankfurt/M., Germany	X-ray crystallographic research	Prof. E.Egert	1988-
Institute of Molecular Genetics, Academy of Sciences, Prague, Czech Republic	Protein synthesis	Ing. J.Sedláček	2003-
Institut für Physikalische Chemie, Universität Wien, Vienna, Austria	Electronic excitation transport in polymers	Prof. H.F.Kauffmann	1997-
Institute of Chemistry, University of Wrocław, Wrocław, Poland	X-ray crystallographic research	Prof. Dr. J.Mrozinski	1989-
Laboratoire de Cristallographie, Université de Genève, Switzerland	X-ray crystallographic research	Prof. A.F.Williams	2001-
Chemical Crystallography Laboratory, Oxford University, Oxford, UK	X-ray crystallographic research at low temperatures, crystallographic statistics	Prof. C.K.Prout	1999-
Commissariat a l'Energie Atomique, Grenoble, France	Conducting polymers	Dr. J.P.Travers	1999-
Max-Planck Institut für Festkörperphysik, Stuttgart, Germany	Carbon nanotubes	Dr. S.Roth	2000-
Institute of Physical and Theoretical Chemistry, TU Graz, Austria	Spectral properties of organic molecules	Dr. A.M. Kelterer	2005-
Mangalore University, Department of Chemistry, India	X-ray crystallographic research	Prof. B.T. Gowda	2006-
Universität Wien, Austria	Quantum mechanical calculations	Prof. H. Lischka	2006-

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Holá Olga	Union of Slovak Mathematicians and Physicists, Bratislava	member	1970
Laurinc Viliam	Union of Slovak Mathematicians and Physicists, Bratislava	member	1975
Bušovský Ladislav	Union of Slovak Mathematicians and Physicists, Bratislava	member	1975
Fedorko Pavol	Union of Slovak Mathematicians and Physicists, Bratislava	member	1977
Holá Olga	Slovak Physical Society, Bratislava	member	1993
Laurinc Viliam	Slovak Physical Society, Bratislava	member	1993
Valach Fedor	Slovak Physical Society, Bratislava	member	1993
Bušovský Ladislav	Slovak Physical Society, Bratislava	member	1993
Fedorko Pavol	Slovak Physical Society, Bratislava	member	1993
Valach Fedor	Slovak Chemical Society, Bratislava	member	1970

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Valach Fedor	Int. Society for Theoretical Chemical Physics, Erlangen, Germany	member	1990
Laurinc Viliam	Int. Society for Theoretical Chemical Physics, Erlangen, Germany	member	1990
Fedorko Pavol	European Physical Society	member	1994
Valach Fedor	European Physical Society	member	1994
Holá Olga	European Physical Society	member	1994

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Hofman O.	Technische Universität Graz	Austria	July 2006 (4 days)
Hofman O.	Technische Universität Graz	Austria	Aug. 2006 (15 days)
Kelterer A.-M.	Technische Universität Graz	Austria	July. 2006 (4 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Valach F.	XVth Winter School on Coordination Chemistry, Karpacz & Faculty of Chemistry, University of Wroclaw (Prof. J. Mrozinski)	Poland	Dec. 2006 (5 days)
Laurinc V.	Central European Symposium on Theoretical Chemistry, Zakopane	Poland	Sept. 2006 (4 days)
Lukeš V.	Central European Symposium on Theoretical Chemistry, Zakopane	Poland	Sept. 2006 (4 days)
Lukeš V.	Technische Universität Graz (Dr. A.-M. Kelterer)	Austria	Oct. 2006 (6 days)
Holá O.	Research in Didactics of Science, 2nd International Conference, Krakow	Poland	June-July 2006 (6 days)
Holá O.	XXVIII. Days of Radiation Protection, Luhačovice	Czech Republic	Oct. 2006 (14 days)
Fedorko P.	Max-Planck Institut für Festkörperphysik, Stuttgart (Dr. S.Roth)	Germany	Nov-Dec 2006 14days
Fedorko P.	International conference on Science and Technology of Synthetic Metals (ICSM 2006), Dublin	Ireland	July 2006 (8 days)
Pálszegi T.	Institute of Physical and Theoretical Chemistry, Graz University of Technology (Dr. A.-M. Kelterer)	Austria	June 2006 (5 days)

VII. THESES AND DISSERTATIONS

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Roland Šolc	The theoretical study of dendrimers of triphenylamine type in different oxidation states	Lukeš V.
Viera Malachovská	Electric field effect on the growth and characteristics of model microorganisms and mammalian cells	Fedorko P.

VIII. PUBLICATIONS

Article in journal

- [1] Cibulková, Zuzana, Polovková, Júlia, Lukeš, Vladimír, Klein, Erik: DSC and FTIR study of the gamma radiation effect on cis-1,4-polyisoprene. *Journal of Thermal Analysis*, vol. 8, pp. 709-713, 2006.
- [2] Gowda, T., Paulus, H., Kožíšek, J., Tokarčík, M., Fuess, H.: Effect of Substitution on the Molecular Geometry of N-(2/3/4-Substituted-phenyl)-2,2-dichloro-acetamides, 2/3/4-XC₆H₄NH-CO-CHCl₂ (X = CH₃ or Cl). *Z. Naturforsch. A*, vol. 61A, pp. 675 – 682, 2006.
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- [1] Bulko, M., Holý, K., Polášková, A., Holá, O., Šimon, J.: Volume activity of ²²²Rn in the atmosphere of the nearby localities with the different orography. Editor(s): V.Lalík, P.Hybler, M.Veverka, In VII.Banskoštiavnické dni 2005. Proceedings of Conference, ISK Senec, pp. 1-8, 2006.
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DEPARTMENT OF CHEMICAL TECHNOLOGY OF WOOD, PULP AND PAPER

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Technical staff:
Valeria Töröková, Pavol Vančo, Zuzana Žaškovská

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Chemical Treatment of Wood
Laboratory of Pulping and Papermaking Technology
Laboratory of Structure and Properties of Paper
Laboratory of Wood Chemistry

B. Research laboratories:

Laboratory of Natural Polymers
Laboratory of Papermaking Fibres and Additives
Laboratory of Structure and Analysis of Wood
GC-MS Laboratory
Laboratory of physical properties of lignocellulosics and biomaterials
Laboratory of conservation and restoration of printing documents
Laboratory of plasma treatment of wood

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Pulp and Paper	2/0	Vrška, Šutý
2. semester (Bc)	Lignocellulosic materials	2/1	Katuščák
6. semester (Bc)	Semestral Project	0/4	members of department
	Paper and Printing	2/2	Šutý, Panák
1. semester (MSc)	Physics of Polymers and Paper	2/2	Šutý, Chodák
	Natural Polymers	2/1	Bakoš, Vizárová, Šurina
	Chemistry and Analysis of Wood	2	Vizárová, Katuščák
	Pulping Technology	3/1	Vrška, Šutý
	Laboratory I.	8	Vizárová, Tiňo, Šurina
	Environmental Management in Pulp and Paper Industry	2	Vizárová, Katuščák
2. semester (MSc)	Paper Machines	2/2	Čerňanský, Fekete
	Engineering of Pulp Production	1/1	Vrška, Šutý
	Paper Technology I.	3/0	Šutý, Panák
	Chemical Treatment of Wood I.	3/0	Šurina, Katuščák

	Laboratory II.	8	Šurina, Vrška
	Practical Training Course	3 weeks	
3. semester (MSc)	Chemical Treatment of Wood II.	2/0	Katuščák, Šurina
	Paper Technology II.	3/0	Šutý, Panák
	Packaging Materials	2/0	Tiňo
	Papermaking aids	2/0	Vizárová
	Laboratory III.	9	Vrška, Šurina, Šutý
4. semester (MSc)	Thesis	30	members of department

IV. CURRENT RESEARCH PROJECTS

Project of ME SR No 2003 č. 661/2003 Preservation, Stabilization and Conservation of Traditional Information Supports in the Slovak Republic (Svetozár Katuščák)

This project covers program of saving, stabilization and conservation of traditional holders of information (books, archival documents etc.). Big portion of cultural heritage stored in historical books and archival documents is endangered with destructive impacts of abiotic and biotic factors. This can cause irretrievable loss of cultural heritage of Slovak Republic. Solving of this problem is divided into two time steps. First includes years 2003 - 2005 and its subject covers basic research. Except of this, second step will also include applied research and development.

Project duration: from 01.10. 2003 to 31.12. 2008

APVT Project No. 20-034202: The deterioration of historical manuscripts and documents related to transitional elements in writing inks (Michal Ceppan)

In overall there are 13.1 mil. pieces of threatened documents and manuscripts destined for preservation in the Slovak Republic. Hand written documents (letters, letter sets, drawings, book pages etc.) often contain transitional elements (mainly copper and iron) in their inks which cause and promote destruction and degradation processes of supporting lignocelluloses materials. This project is focused on investigation of ageing process reactions and kinetics by modern optical and spectral methods. Gathered knowledge should contribute to material and method selection positively affecting the durability and capacity of historical documents and manuscripts preservation in feasible economical and ecological conditions

Project duration: from 01.01.2004 to 31.12.2006

APVT Project 20-033004: Study of influences of electrical plasma generated at atmospheric pressure onto surface of massive wooden materials (Svetozár Katuščák)

Main goal of the project is to study effect of electrical plasma treatment of the wood surface using inovative nowadays generated plasma source. Application topic is to study inovative environmentally and economically advantageous use of plasma for surface treatment procedures in woodprocessing and furniture industry.

Project duration: from 01.01.2005 to 31.12.2007

V. CURRENT EDUCATION PROJECTS

The department realized an educational course "Training Program" for employees of MONDI BUSINESS PAPER SCP a.s. Special sections of the course included advance knowledge in pulp and paper chemical technology with some focus on production programme of the company. The course also included basics in chemistry, mathematics, physics, pulping and papermaking, engineering, regulation and controll of the paper machines. The course covered the basic of problemsolving in pulp and paper production.

Project duration: from 01.01.2006 to 31.12.2006

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
MONDI BP SCP a.s. Ružomberok	Specialized education	Jakubík Peter, manager, Bystrická cesta 13, 034 17 Ružomberok	01. 01. 2006 - 31. 12. 2006
Faculty of Natural Science, Comenius University, Bratislava	Study of influences of electrical plasma onto wood surface	Černak Miro, Prof., Mlynská dolina, 842 15 Bratislava	01.01.2005 -
Slovak National Library, Martin	Preservation of archived books and documents	Bukovský Vladimír, manager, SNK Martin	5.5.2002-
Slovak National Archives, Bratislava	Preservation of archived books and documents, education.	Hanus Jozef, manager, SNA Bratislava	permanently
Pulp and Paper Research Institute, Bratislava	Information System, Research	Boháček Štefan, president of board, VÚPC Bratislava, Lamačská 3	01.01.2005-
Smurfit Kappa Štúrovo a.s.	Influence of AQ on SAQ pulp properties	Szabo Eugen, Babinec Ivan, Smurfit Kappa	05. - 09. 2006
Slovak National Museum	Quantification and Saving of Cultural Heritage	Lalíková, N. SNM	2006 - 2008
Slovak National Gallery	Quantification and Saving of Cultural Heritage	Homolová, A. SNG	2006 - 2008
Technical University, Zvolen	Education	Sedliačik Ján, TU Zvolen	permanently

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Dept. of Chem. Technology of Wood, Pulp and Paper, Technical University, Pardubice, Czech Republic	Education	Milichovský Miloslav, Prof. TU Pardubice	permanently
Library of Congress, Washington, D.C.	Research	Ch. J. Shahani, Chief of Preservation Research & Testing Division	2004-2006
French Institute of Papermaking and Graphics Industry, Grenoble, France	Education and Research	Roux, J. C., professor, Ecole Française de Papeterie et des Industries Graphiques, Grenoble, France	permanently

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Vrška Milan	Slovak Chemical Society	member	01.01.1980 -
Vrška Milan	SNAS -acreditation group	member	23.09.2002 -
Vrška Milan	SUTN -Technical normalization committee - TC 19 - pulp, paper, board	member	26.05.2003 -
Katuščák Svetozár	SUTN -Technical normalization committee - TC 72 - environmental management	member	permanently
Krkoška Pavel	Slovak Chemical Society	member	1979 -
Katuščák Svetozár	Wood Research, editorial board	member	permanently
Katuščák Svetozár	Chemical Papers, editorial board	member	2005 -
Šutý Štefan	Slovenská spoločnosť priemyselnej chémie	member	2002 -
Polovka Martin	Slovak Chemical Society	member	2002 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Katuščák Svetozár	European Panel Federation	member	20. 12. 2004
Katuščák Svetozár	TAPPI	member	01. 01. 2005
Šutý Štefan	Association of the pulp and paper industry, Czech republic (member of EUCEPA)	member	01. 01. 2000 -
Šurina Igor	Association of the pulp and paper industry, Czech republic (member of EUCEPA)	member	01. 01. 1998 -
Vrška Milan	IASPM – International Association of Scientific Papermakers (USA)	member	1995 -

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Milichovský, M.	University Pardubice	Czech Republic	June 2006 (1 day)
Cameron, J.H.	Western Michigan University	USA	July 2006 (1 day)
Escabasse J.Y.	PTS Munich	Germany	September 2006 (1 day)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Katusčák, S.	Florida International University	USA	09.01. - 09.02. 2006
Katusčák, S.	University of Pardubice	Czech Republic	07.06. 2006
Katusčák, S.	Switzerland National Library	Switzerland	05.09. - 16.09. 2006
Katusčák, S.	XIII. Colloquium of Restaurators and Historicians	Czech Republic	03.10. - 06.10. 2006
Šutý, Š.	Seminar of Association of the pulp and paper industry	Czech Republic	25.04. - 26.04. 2006
Vizárová, K.	XIII. Colloquium of Restaurators and Historicians	Czech Republic	03.10. - 06.10. 2006
Kirschnerová, S.	XIII. Colloquium of Restaurators and Historicians	Czech Republic	03.10. - 06.10. 2006

VII. THESES AND DISSERTATIONS

Tino, R.: Composite Materials Made from Pulp Fibers and Synthetic Latexes. Deposition of Synthetic Latexes onto Pulp Fibers

Cedzová, M.: Evaluation of Deacidification Processes Efficiency and Development of New Compounds for Stabilisation of Lignocellulosic Carrier Information

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Bamburová, A.	Biofuels. Energetical Potential of Wood Mass	Šurina I.
Kosinková, J.	The Efficiency Evaluation of Selected Deacidification Processes for Preservation of Books	Vizárová, K.
Mondočko, M.	Effect of Water on Decrease of Strength of Old News Paper	Tiňo, R.
Frisová, M.	The Study of Paper and Documents Based on Paper Properties in Connection with Ageing	Šurina, I.
Poláková, J.	Ink Jet Papers - Coatings Properties and Print Quality	Šutý, Š.
Siekelová, V.	The Cultural Heritage Saving in Galleries of Slovak Republic	Katuščák, S.
Šmatko, L.	The Study of Enzyme During Ecological Pulping	Vrška, M.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Benko, B.	Microparticle Retention System in Production of Electrographic Paper	Šutý, Š.
Gallová, I.	Development of System for Deacidification and Stabilization of Acid Lignocellulosic Carrier of Information	Vizárová, K.
Holeš, M.	Non - Process Elements in Pulping	Vrška, M.
Majerčáková, K.	Comparison of Know and Development Processes on Conservation and Deacidification of Paper	Katuščák, S.
Učňová, L.	Effect of Atmospheric Plasma on Films Based on Waters Dispersion of Thermoplastics	Tiňo, R.

VIII. PUBLICATIONS

Article in journal

- [1] Bilá, A., Šurina, I., Májek, P.: Application of methodology of terpenes and terpenoids analysis in Norway Spruce assimilation organs (PICEA ABIES L. Karst.) within monitoring health conditions of forest tree species. Ecology (Bratislava), no. 1, (Received 31.5.2004), vol. 25, pp. 14, 2006.
- [2] Cedzová, M., Katuščák, S.: Comparison of deacidification method of newsprint paper with different pH value. Papír a Celulóza, no. 1, vol. 61, pp. 10-12, 2006.
- [3] Cedzová, M., Šutý, Š., Hnát, M., Jablonský, M.: Vzdelávanie a výskum na Katedre chemickej technológie dreva, celulózy a papiera, FCHPT, STU Bratislava v školskom roku 2004/2005. Papír a Celulóza, no. 1, vol. 61, pp. 7-9, 2006.
- [4] Góra, R., Hutta, M., Vrška, M., Katuščák, S., Jablonský, M.: Characterization of Klason lignins by reversed-phase high-performance liquid chromatography using wide-pore octadecylsilica and stepwise gradients of dimethylformamide in water. J. Sep. Sci., no. 29, pp. 2179-2189, 2006.
- [5] Jablonský, M., Vrška, M., Cedzová, M.: Vplyv teploty na stabilitu radikálov po ozónovom stupni. Papír a Celulóza, no. 4, vol. 61, pp. 117-119, 2006.
- [6] Jablonský, M., Vrška, M., Katuščák, S., Šutý, Š., Tiňo, R.: Influence of New Cellulose Protectors in Ozone Bleaching. Papír a celulóza, no. 2, vol. 61, pp. 44-45, 2006.
- [7] Polovka, M., Brezová, V., Staško, A., Mazúr, M., Suhaj, M., Šimko, P.: EPR investigations of gamma-irradiated ground black pepper. Radiat. Phys. Chem., vol. 75, pp. 309-321, 2006.
- [8] Rýchly, J., Matisová - Rýchla, L., Bukovský, V., Pleteníková, M., Vrška, M.: The Progress of Ageing of Lignin-containing Paper Induced by Light and its Relation to Chemiluminescence - Temperature Runs. Macromol. Symp., no. 231, pp. 178-192, 2006.
- [9] Staško, A., Polovka, M., Brezová, V., Biskupič, S., Malík, F.: Tokaj wines as scavengers of free radicals (An EPR study). Food Chemistry, vol. 96, pp. 185-196, 2006.
- [10] Suhaj, M., Rácová, J., Polovka, M., Brezová, V.: Effect of gamma-irradiation on antioxidant activity of black pepper (Piper nigrum L.). Food Chemistry, vol. 97, pp. 696-704, 2006.
- [11] Vrška, M., Cedzová, M., Jablonský, M.: Porovnanie účinnosti modifikácie ponárania a striekania novinového papiera s disperziou MgO v perfluóralkáne. Papír a celulóza, no. 9, vol. 61, pp. 276 -278, 2006.
- [12] Vrška, M., Jablonský, M., Tiňo, R.: Effect of pH on the kinetics of cellulose degradation and delignification in ozonization oxygen delignified hardwood kraft pulp. Wood Research, (akceptované), 2006.
- [13] Šutý, Štefan, Gigac, Juraj, Kozánková, Janka, Vizárová, Katarína, Lehotský, Vladimír: Stanovenie hĺbky zapíjania pri inkjetovej tlači a charakterizácia náterov inkjetových papierov SEM mikroskopiou. Papír a celulóza, no. 3, vol. 61, pp. 80-83, 2006.

Article in conference proceedings

- [1] Šutý, Štefan, Gigac, Juraj: Štruktúrne porovnanie ofsetových a inkjetových papierov ortuťovou mikroporozimetriou. In Challenges of Pulp and Papermaking Technology - symposium proceedings, (EUCEPA supported International Symposium "Challenges of Pulp and Papermaking Technology" November 8-10, 2006; Bratislava), 2006.

Technical manual

- [1] Šurina, Igor: LCM - 2 kapitola: Fotosyntéza (študijný text). 2006

DEPARTMENT OF ENVIRONMENTAL ENGINEERING

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PhD Students:

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Technical staff:

Eleonóra Hornáčková; Marta Onderová;

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Water Chemistry
Laboratory of Nuclear Analytical Chemistry
Laboratory of Water Technology

B. Research laboratories:

Laboratory of Air Protection Technology
Laboratory of Microbiology and Ecotoxicology
Laboratory of Organic Chemistry
Laboratory of Radioecology
Laboratory of Water and Wastewater Engineering
Laboratory of Computer Modelling

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Ecology and Environmental Principles	2/0/0	Prousek,
2. semester (Bc)			
3. semester (Bc)	Environmental Engineering I.	2/0/0	Čík
5. semester (Bc)	Nuclear Chemistry and Technology	1/1/0	Koprda
6. semester (Bc)	Environmental Technology	2/0/0	Piatrik, Čík, Koprda
1. semester (MSc)	Biology of Water, Air and Soil	2/0/0	Frank
	Atmospheric and Water Chemistry	2/2/0	Prousek, Bodík
	Hydrology, Meteorology and Pedology	2/0/0	Frank
	Nuclear Chemistry and Technology	2/0/0	Koprda
	Laboratory Practice I.	0/0/8	Bodík, Földesová, Harangozó,
2. semester (MSc)	Air Protection Technology	2/0/0	Čík
	Radioecology	2/0/0	Harangozó,
	Processes and Technologies of Wastewater treatment	2/2/0	Derco, Drtíl
	Laboratory Practice II.	0/0/8	Derco, Földesová, Čík

3. semester (MSc)	Risk Properties of Substances	2/0/0	Prousek,
	Elimination and Utilization of Wastes	2/0/0	Piatrik, Koprda
	Environmental Technological Project	2/1/0	Drtil, Derco
	Environmental Impact Assessment	2/0/0	Piatrik, Koprda
	Laboratory Practice III.	0/0/10	Drtil, Harangozó, Čík
	Control of Environmental Pollution	2/0/0	Harangozó
	Special Ecology and Ecotoxicology	2/0/0	Prousek
	Processes and Technology of Water Treatment	2/1/0	Hutňan, Bodík
	Air Protection Technology and Air Treatment	2/1/0	Čík
	Diploma Work	0/0/30	all members of the staff

IV. CURRENT RESEARCH PROJECTS

Part of the VEGA project No. 1/1379/04 Syntheses directed towards novel heterocyclic compounds with optoelectronic properties, specific biological activity and apoptosis (Gabriel Čík)

A new type of copolymer of alkylated oligomeric thiophene and polyethylene oxide was synthesized. The copolymer is soluble in common organic solvents and in solid state, which creates structurally-organized clusters composed of conducting (oligothiophenic) and non-conducting (PEO) segments. Separated thiophenic phase was confirmed by TEM, and localised fluorescence of the thiophenic clusters.

A new heterogenous photocatalyst was prepared by oxidative polymerization of the thiophene in the ZSM-5 zeolite type. The polythiophene absorb radiation in the visible range of the spectrum and by illumination with visible light generates reactive oxygen species (ROS) in water medium. Efficiency of the photocatalyst was tested on the killing of Gram-positive bacteria *Staphylococcus aureus* and Gram negative bacteria *Escherichia coli*.

Project duration: from 01.01.2004 to 31.12.2006

VEGA project No. 1/1381/04 The study of separation and isolation of metals and radionuclides from environmental components by natural and chemically modified sorbents (Vasil Koprda)

This project is focussed to select natural and modified sorbents having the best (structural, mechanical, physico-chemical and sorption) properties for waste water treatment, reduction of concentration of metals and radionuclides in waste waters and for a casual use as barriers against water or soil contamination at ecological incidents.

The project is aimed to research properties of ion exchangers and their modifications to improve removal, especially kations of heavy metals and radionuclides at waste water treatment. Concerning the high dose equivalents of Pb^{210} in human bones, the project is focussed as well for optimalisation of this heavy metal determination in mineral waters to assure the human limit of effective dose. The possibilities to affect transdermal penetration of radionuclides and/or tracer substances and their bioavailability are evaluated. The subject of the project is also the study of possibilities of limitation of effects at toxic wastes treatment in connection with introduction and improvement of the environmental management system.

Project duration: from 01.12.2004 to 31.12.2006

VEGA project No. 2/5051/25 The effects of antioxidants and substances affecting imunity system studied in vivo on model of adjuvant arthritis (Principal researcher Katarína Bauerová - IEP SAS, Vice-principal researcher for FChFT - Vasil Koprda)

The aim of the project is to research possibilities to influence a transport of drugs, drug and diagnostic substances through the skin and its components. In the case of harmful contaminants to search the possibilities of increasing the penetration barriers, and in the case of drugs to find out possibilities how to enhance the process of penetration. For this sake use both, in vitro and in vivo models. To define the share of transepidermal and transfollicular penetration. To study of markers transport across synthetic biomembranes.

In this project, using animal model of 5- and 9-day skin of new-born rat, model of human forearm and synthetic biomembranes of different composition, the transdermal and transfollicular transport of drugs, drug substances, radioactive markers and biogene substances across the skin and its components is researched. The possibilities to influence the penetration barriers are determined

Project duration: from 01.01.2005 to 31.12.2007

VEGA Project No. 1/1382/04 Advanced methods for water, wastewater, sludge and organic wastes treatment (Ján Derco)

Addition of silicate rocks in order to intensify processes of nutrient removal is insufficient and expensive. More convenient is performance of nitrification and denitrification processes in sludge water in separated reactor with activated sludge regeneration and phosphorus precipitation in sludge water after sludge stabilisation. Control of the second step of denitrification process is realistic but too complicated. More appropriate is to optimise denitrification process by using convenient external organic carbon source for complete denitrification with regard to actual costs. Anaerobic technology for treatment of corn silage was designed and process parameter values were determined. Parameter values obtained from laboratory investigation of treatment of organic solid wastes were used for design, construction and starting-up of full-scale station for biogas production. From results of testing of anaerobic-aerobic wastewater treatment technologies for small pollution sources followed satisfactory results in all pollution indicators. Anaerobic baffled reactor is convenient for degradation of hexamethylenetetramine. Increase of removal efficiency and biodegradability enhancement of biologically resistant and priority pollutants were achieved by oxidation with ozone and modified procedures of the Fenton reaction. Significant increase of treatment efficiency of the Fenton reaction was observed after addition of catechol and hydroquinone.

Project duration: from 01.01.2004 to 31.12.2006

APVV project No. APVT-20-029804: Functional supramolecular surface nanostructure on the basis of cyclodextrins (Dušan Velič, Josef Prousek)

J. Prousek participation: The study of the radical reactions influence on the stability of cyclodextrin and cyclodextrin's complexes. For this purpose the utilization of Fenton reaction has been tested as a source of reactive hydroxyl radicals.

Project duration: from 01.01.2005 to 31.12.2007

APVV project No. APVV-20-000705 Rapid gas chromatography-mass spectrometry for analysis of selected organic pollutants in environmental and food matrices (Eva Matisová, Josef Prousek)

J. Prousek participation: Evaluation of environmental estrogens with endocrine disruptor activity in environmental and food matrixes. The utilization of different AOP processes for their degradation.

Project duration: from 01.01.2006 to 31.12.2008

VEGA project No. VEGA 1/2462/05 Sensors of chemical toxicity - ascertaining of selected environmental chemical risk factors by the use of biosensors based on DNA and LDL (Ján Labuda, Josef Prousek)

J. Prousek participation: The study of different antioxidant and prooxidant activity of some natural phenolic compounds by the use of Fenton reaction. Further, literature study of environmental pollutants with carcinogenic activity such are nitroaromatics and polyaromatic hydrocarbons, metals and chlorinated compounds.

Project duration: from 01.01.2005 to 31.12.2007

Bilateral Slovak – Slovene Science and Technology Co-operation Project No. SK-SI-01506: Development of methodology for evaluation of biodegradability of wastewaters after oxidation treatment (Ján Derco)

The main goal of the project is to set up appropriate methodology for evaluation of economically and ecologically applicable treatment methods by means of advanced chemical oxidation processes for heavily polluted industrial wastewaters as well as landfill leachates with low biotreatability potential. The chemical oxidation processes are studied as possible independent or pretreatment methods before biological treatment. The study will be conducted also with synthetic and actual wastewaters. Biotreatability of the wastewaters will be evaluated prior and after optimised chemical pretreatment using complex toxicity and biodegradability assessment. Those characteristics are considered as key summary factors for effective performance of biological wastewater treatment plant. It is expected that combination of both treatment methods will lead not only to pollution prevention but also to the overall cost management of related wastewater treatment plants. Methodology will gain knowledge on wastewater treatment and it will improve understanding of behaviour of the heavily polluted persistent wastewaters.

Project duration: from 01.05.2006 to 01.05.2008

V. CURRENT EDUCATION PROJECTS

A. EU project. No MSCF-2005-029529 Postgraduate School of Industrial Ecology (PSIE) – activity Maria Curie Conferences and Training Courses (Gabriel Čík)

Postgraduate School will offer a set of 7 PhD-level research training courses in the period 2007-08. The aim of these courses is to develop the research skills and knowledge of early stage researchers in Industrial Ecology. PSIE targets PhD candidates, young researchers and faculty members from throughout Europe and beyond who want to address sustainable production and consumption in their research

Project duration: from 01.06.2006 to 30.06.2008

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Novácke chemické závody a.s.	Solving of Selected problems of wastewater treatment in NCHZ Novaky	Beňo, L. director	11.3.2005-
INA s.r.o. Skalica	Determination of cause of suspended solids creation in industrial wastewater of INA Skalica and design of technology for problem elimination	Hubinová M., kontakt persona	6.10.2005-
STIFI Zelená háj, Hurbanovo	Start-up and trial operation of biogas station	Štifner, Š. contact persona	20.10.2005-
Agrochemix, Sereď	Anaerobic treatment of G-phase, by-product of biodiesel production	P.Černý, director	01.04.2006-
Slovak Office of Standards, Metrol. and Test., Cyclotron Center of the SR, Bratislava	Applied radiation chemistry, production of positron radiopharmaceuticals	Ružička J., vicedirector	01.02.2000 -
ASIO-SK s.r.o.	Anaerobic-aerobic wastewater treatment	Kratochvíl, K., director, Malobyčianska ul., Bytča	01.01.1997 -
FELLEGI Int.	Anaerobic treatment processes	Fellegi, J., director, Na Hrebienku 38, Bratislava	01.03.2003 -
Slovak distilleries and liquories, Leopoldov	Evaluation of ethanol and acetic acid properties from point of view of possible effect to quality of ground and underground water	Miklovič, S., Slovenské liehovary a likérky a.s., Trnavská cesta, 920 41 Leopoldov	02.04.2004 - 16.04.2004
North-Slovak waterworks, Žilina	Possibility of odour elimination from sewerage in Sučany town	Kundrík, M., director, SVS a.s., Bôrická cesta 107, 010 10 Žilina	01.07.2004 - 31.7.2004
Ecological servis, ltd. Strážske	Study of WWTP operation from point of view of emission reduction	Kovaľ, E., director, Ekologické služby s.r.o., Priemyselná 720, 072 22 Strážske	17.09.2004 - 31.10.2005
Institute of Experimental Phytopathology and Entomology of the SAC	Radioecology	J.Kráľovič, Ľ.Weismann, Slovak Academy of Science, Ivánka pri Dunaji	01.01.2002 -
Dep. of Chemistry, Matej Bel Univ., Banská Bystrica	Education studies in Environmental chemistry	Tólgýessy, J., Ružička, J., Cejpek, K., Matej Bel University, 974 01 Banská Bystrica	01.01.2001 -
Department of Analytical Chemistry, Faculty of Pharmacy, Comenius University	Environmental analytical chemistry	Havránek, Mlynská dolina, 824 15 Bratislava	01.01.2003 -

Podtatranská vodárenská spoločnosť a.s., Poprad	Evaluation of wastewater treatment plant Poprad and proposal of reconstruction	Svrbický Vladimír, director, Hraničná 662/17, 058 01 Poprad	01.10.2004 - 31.12.2005
Ministry of Environment SR, Department of Environmental Impact Assessment – EIA	Preparation of Register of Wastes, Preparation of Judgements about Wastes	Ing. V. Húsková, Head of Department	05.01.2004 – 20.12. 2005
Department of Ekology Faculty of Natural Sciences University of Mathias Bel. B. Bystrica	Education studies in environmental Sciences	PaedrDr. S. Vincíková, PhD., Head of Department	03.01.2004 – 20.12. 2005
Slovak Office of Standards, Metrol. and Test., Cyclotron Center of the SR, Bratislava	Applied radiation chemistry, production of positron radiopharmaceuticals and seed irradiation with gamma rays	Ružička J., vicedirector; Kassai Z. , Dept.of positron emitters, Štefanovičova 3, 810 05 Bratislava	01.02.2000 -
Dep. of Nuclear Chemistry, Faculty of Natural Sci., Com. Univ., Bratislava	Education, Lecturing, Dep. of Nuclear Chemistry, Faculty of Natural Sci., Com. Univ., Bratislava	Mátel Ľubomír, head of depart., Mlynská dolina, 824 15 Bratislava	01.01.1992 -
Dep. of Chemistry, Matej Bel Univ., Banská Bystrica	Education studies in Environmental chemistry	Tomeček Otto, research worker,974 01 Banská Bystrica	01.01.2001 -
Water Research Institute, Bratislava	LSC measurements of radionuclides	Vršková Marta, head of dep., Nabr. L. Svobodu 5, 812 49 Bratislava	01.01.1996 -
Chemical Institute of Faculty of Natural Sciences of Comenius University, Bratislava	Analysis of dust particles	Krištín J., head of Dept. of Physical Methods, Mlynská dolina , 842 15 Bratislava	01.05.2002 -
Comenius University, Faculty of Pharmacy, Dpt. of Galenic Pharmacy, Bratislava	Penetration of Terbinafine across the skin	Duckova K., vicedean, ul.Odbojárov 10, 832 32 Bratislava	01.04.2002 -
Matej Bell University, Faculty of Natural Sciences, Dpt. of Environmental Chemistry	Cold electron radiation sterilisation	Tolgyessy J., Prof.emeritus, Tajovského 40, 97401 Banská Bystrica	01.06.2001 -
Institute of Experimental Pharmacology of Slovak Academy of Sciences, Bratislava	Transdermal penetration, animal skin models	Bauerová K., department. head, Dúbravská cesta 9, 842 16 Bratislava	01.02.1998 - 31.12.2005
Research Institute of Nuclear Power Stations, Trnava, Ltd., Dept. of RWPT	Nuclear wastes likvidation	Chnapko P., doctoral study, Okružná 5, 918 64 Trnava	01.08.2002 -
Nuclear Regulatory Authority of the Slovak Republic	Nuclear and radiation safety - Advisory Committee of the director	Žiakova M., director, Bajkalská 27, 820 07 Bratislava	01.05.1999 -
Pharmacobiochemical Lab., School of Medicine, Comenius Univ., Bratislava	Transdermal transportation of coenzyme Q10	Gvozdjakova M., department head, Kucharska J., Hlboká 2, 811 04 Bratislava	01.05.2003 -

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
ASIO, s.r.o., Brno, Czech Republic	Anaerobic and aerobic wastewater treatment, domestic wastewater	Plotěný, K., director, ASIO s.r.o, Tuřanka, Brno, Czech Republic	01.01.2004 -
GRANIT Technologies S.A. Lausanne, Swiss	Anaerobic and aerobic wastewater treatment, sludge stabilisation	Doppenberg, F., technical director, Lausanne, Swiss	01.12.2004 -
Cellulosa 2000, Crotone, Italy	Anaerobic and aerobic wastewater treatment, sludge stabilisation	Scichitano J., technical director, Crotone, Italy	01.01.2005 -

Institute of Chemical Technology, Prague, Czech Republic	Water and wastewater treatment, sludge treatment, nutrients removal, biogas production	Jeníček, P., department head, VŠCHT, Technická 6, Prague, Czech Republic	01.01.2004 - 31.12.2005
University of Ljubljana, Faculty of Chemistry and Chemical Technology	Science and Technology Cooperation	Dr. A. Žgajnar Govajn	01.05.2006-
ISMAC-CNR Milano	FP6-2002-NMP-1, Proposal: No STPR 001495 OSSO	Alberto Bolognesi, ISMAC-CNR Milano, Italy	01.06.2003 -
Faculty of Chemistry, Brno, Czech Republic	Lectures on Wastewater Engineering	Prof. Ing. Jaroslav Fiala, CSc., Faculty of Chemistry TU Brno, Purkyňova 118, 612 Brno, Czech Republic	16. 02.2005-30.06.2005
ART.BIO.FERM. s.r.o., Moravské Bránice, Czech Republic	Anaerobic treatment of wheat stillage	Krčmař, S., director, Moravské Bránice 59, 664 64 Dolní Kounice	15.05.2004 - 15.6.2004
Department of Chemistry, Yangon University, Yangon, Myanmar	Radiometric Flow Injection Analysis	Mynt U, head of department, Yangon University, Yangon, Myanmar	01.01.1990 -
Medway Sciences Univ. of Greenwich	Transdermal penetration of pharmacologically active substances across skin	Hadgraft J.-head of Skin research, Central Ave., Chatham Maritime, Kent ME4 4TB, UK	01.02.1995 -

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Bodík Igor	Association of Wastewater Treatment Experts of the Slovak Republic	member of advisory board	13.05.1999 -
Bodík Igor	Global Water Partnership Slovakia	member of advisory board	20.04.2005 -
Čík Gabriel	Slovak Chemical Society	member	01.01.1991
Drtíl Miloslav	Association of Wastewater Treatment Experts of the Slovak Republic	president	13.05.1999 -
Derco Ján	Association of Wastewater Treatment Experts of the Slovak Republic	member of advisory board	13.05.1999 -
Derco Ján	Slovak Society of Chemical Engineering	member	29.09.1995 -
Derco Ján	Slovak Chemical Society	member	01.05.1997 -
Derco Ján	Common Field Committee -28-95-9 Chemistry and Technology of Environment	member	18.12.1997 -
Derco Ján	Common Field Committee - 36-05-9 Sanitary-technical buildings	member	02.12.2003 -
Derco Ján	Common Field Committee - Chemistry and Technology of Environment Protection	member	11.04.2006
Derco Ján	Common Field Committee - 4.3.2. Environmental Engineering	member	11.04.2006
Derco Ján	Acta Facultatis Ecologiae	member of advisory board	30.11.2006
Harangozó Margita	Slovak Chemical Society, Bratislava	member	15.2.1986
Harangozó Margita	Slovak Pharmaceutical Society, Bratislava	member	28.10.1994
Hutňan Miroslav	Slovak Society of Chemical Engineering	member of advisory board	30.04.1995 -
Hutňan Miroslav	Association of Wastewater Treatment Experts of the Slovak Republic	member	13.05.1999 -
Koprda Vasil	Slovak Nuclear Society (SNUS Acad. Board)	president	01.01.2000 -
Koprda Vasil	Slovak Chemical Society, Bratislava	member	01.01.1965 -
Koprda Vasil	Slovak Medical Society, Pharm.Soc	member	01.01.1977 -
Prousek Josef	Slovak Chemical Society	member	01.01.1979 -
Piatrik Milan	Faculty of Natural Sciences University of Matthias Bel in Banská Bystrica	Science Council member	03.01.2004 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
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Bodík Igor	International Water Association	member	01.01.1990 -
Bodík Igor	Journal Vodní hospodářství - Water management	other	01.01.2004 -
Bodík Igor	Association of Wastewater Treatment Experts in Czech Republic	member	01.05.1997 -
Derco Ján	International Water Association	member	01.01.1994 -
Derco Ján	Association of Wastewater Treatment Experts in Czech Republic	member	01.05.1997 -
Derco Ján	Management Committee of the International Water Association (IWA) Specialist Group on Pretreatment of Industrial Wastewaters	member	07.03.2006
Derco Ján	Journal of Polish Environmental Study	other	01.04.1995 -
Derco Ján	Council of European Water Association	member	15.07.2002 -
Derco Ján	Common Field Committee - Chemistry and Technology of Environment Protection - Faculty of Chemistry TU, Brno	member	01.02.2003 -
Čík Gabriel	European Photochemical Association, Mulheim, Germany	member	01.01.1992
Drtíl Miloslav	Association of Wastewater Treatment Experts of the Czech republic	member of advisory board	01.01.1994 -
Proušek Josef	Czech Chemical Society	member	01.05.1979 -
Proušek Josef	European Photochemical Association	member	01.01.1986 -
Patrik Milan	Czech Science Foundation – GACR, Prague	member	03.01.2004 -
Koprda Vasil	FECS Division for Chemistry and Environment - delegate for Slovakia	member of advisory board	01.04.2002 -
Hutňan Miroslav	Association of Wastewater Treatment Experts in Czech Republic	member	01.05.1997 -

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Žgajnar Gotvajn, A.	University of Ljubljana, Ljubljana	Slovenia	25. 9. – 21.10.2006 (27 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Almásiová, B.	University of Ljubljana	Slovenia	December 2006 (5 days)
Bodík, I.	World Water Days in Stockholm	Sweden	August 2006 (7 days)
Bodík, I.	Conference Waste and Sludge 2006	Czech republic	June 2006 (2 days)
Bodík, I.	Advisory board Vodní hospodářství	Czech Republic	June 2006 (1 day)
Derco, J.	University of Cagliari	Sardinia, Italy	May 2006 (10 days)
Derco, J.	State Examination, VUT Brno	Czech Republic	June 2006 (2 days)
Derco, J.	CHISA 2006 Conference, Prague	Czech Republic	August 2006 (5 days)
Derco, J.	University of Ljubljana	Slovenia	September 2006 (5 days)
Drtíl, M.	Institute of Chemistry and Technology Prag	Czech Republic	June 2005 (3 days)
Drtíl, M.	Conference Wastes and Sludges 2006	Czech Republic	June 2006 (3 days)
Drtíl, M.	Cooperation on Wastewater Treatment Processes, VUT Brno	Czech republic	October 2006 (3 days)

Hutňan, M.	Excursion on Biogas Station in Germany	Germany	April 2006 (6 days)
Hutňan, M.	Institute of Chemistry and Technology Prag	Czech Republic	February 2006 (2 days)
Hutňan, M.	Institute of Chemistry and Technology Prag	Czech Republic	June 2006 (2 days)
Hutňan, M.	Conference Wastes and Sludges 2006	Czech Republic	June 2006 (3 days)
Koprda, V.	Conf. Perspectives of Percutaneous Penetration, La Grande Motte	France	April 2006 (5 days)
Koprda, V.	Conf. Europa Uomo na ECPC Master Class, Milano	Italy	May 2006 (2 days)
Koprda, V.	United against Cancer, 06, Ljubljana,	Slovenia	November 2006 (2 days)
Koprda, V.	Internat. Congress on Oncology, Znojmo,	Czech Republic	November 2006 (3 days)

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Krausková, A.	The Treatment of RAW in Slovakia	Koprda, V.
Sobkovčíková, Z.	The Back-Part of the Fuel Cycle of Nuclear Power Stations	Koprda, V.
Kulichová, Z.	The Potential of Non-Fossil Fuel Sources	Koprda, V.
Tričko, T.	The Perspectives of Bioenergetic Sources of Energy	Koprda, V.
Sedláček, S.	Mamebrane biological wastewater treatment	Bodík, I.
Rybár, M.	Organic Sources of Carbon for Denitrification	Bodík, I.
Kltonová, M.	Transformation of surplus activated sludge by ozone	Derco, J.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Almásiová B.	Utilisation of ozone for decreasing of surplus activated sludge production.	Derco, J.
Pagáčová, P.	Wastewater treatment plant in Volkswagen Bratislava	Bodík, I.
Ševčík, P.	Preparation and Properties of Modified Catalyst Based on Titanium Dioxide	Čík, G.
Bišťáková, A.	Industrial wastewater treatment with nutrient removal	Drtil, M.
Hajósová, L.	Parameters in biological wastewater treatment with nutrient removal	Drtil, M.
Kostrová, Z.	The comparison of zeolite sorption properties with other natural sorbents	Földesová, M.
Gergelyová P	The influence of pH and concentration on the sorption properties of natural and modified zeolites.	Földesová, M.
Behrová, J.	Photochemical reductive dehalogenation of chlorinated environmental pollutants by the use of zero-valent iron	Prousek, J.
Ferenceiová, M.	Estimation of Polonium-210 by LSS in the mineral waters	Harangozó, M.

VIII. PUBLICATIONS

Chapter or pages in book

- [1] Bodík, I.: The Environment and Sustainable Development in the New Central Europe, Editor(s): Zbigniew Bochniarz, Gary B. Cohen, Chapter: 11. Wastewater treatment in the Postcommunist Danube River Basin. Berghahn Books, pp. 167-182, 2006.
- [2] Koprda, V.: Štúdie v jadrovej chémii a rádiotoxikológii 6: "Chemické a rádioaktívne kontaminanty", Editor(s): L. Mátel, J. Kuruc,, Chapter: Ochrana pred žiarením. OMEGA Info, Bratislava, pp. 188-202, 2006.

Article in journal

- [1] Derco, Ján, Mitaľová, Lucia: Ozonation of sythetic wastewater containing 2-Mercaptobenzothiazole. *Petroleum and Coal*, no. 48, vol. 1, pp. 34-39, 2006.
- [2] Drtil, Miloslav, Hutňan, Miroslav: Reálne účinnosti a vybrané prevádzkové náklady pri odstraňovaní nutrientov. *Vodní hospodárství*, no. 3, vol. 56, pp. 76-78, 2006.
- [3] Drtil, Miloslav, Rajczyková, Elena: Implementácia Rámцovej smernice o vodách – prehľad legislatívnych predpisov týkajúcich sa čistenia odpadových vôd.. *SOVAK*, no. 7-8, vol. 15, pp. 29-32, 2006.
- [4] Čík, G., Priesolová, S., Bujdákova, H., Šeršeň, F., Petheová, T., Krištín, J.: Inactivation of Bacteria G+ - S.Aureus and G- -E.Coli by Phototoxic Polythiophene Incorporated in ZSM-5 Zeolite. *CHEMOSPHERE*, vol. 63, pp. 1419-1426, 2006.
- [5] Foldesová, Mária, Hudec, Pavol: Štúdium povrchových vlastností slovenského prírodného zeolitu - klinoptilolitu fyzikálnou adsorpciou dusíka. *Petroleum and Coal*, (Zaslané do tlače 7.4.2006), 2006.
- [6] Foldesová, Mária, Hudec, Pavol, Dillinger, Pavel: Štúdium povrchov prírodných sorbentov fyzikálnou adsorpciou dusíka. Zborník z konferencie Banskotiavnické dni 2006, (Zaslané do tlače, august 2006), 2006.
- [7] Foldesová, Mária, Hudec, Pavol, Dillinger, Pavel, Holá, Oľga: Štúdium povrchov prírodného a chemicky modifikovaného klinoptilolitu. Zborník príspevkov z 26. konferencie Priemyselná toxikológia 2006, pp. 213-218, 2006.
- [8] Hutňan, Miroslav, Drtil, Miloslav, Kalina, Andrej: Anaerobic stabilisation of sludge produced during municipal wastewater treatment by electrocoagulation. , 1-3(2006), 163-169. *Journal of Hazardous Materials*, no. 1-3, vol. B131, pp. 163-169, 2006.
- [9] Koprda, V.: Potenciál obnoviteľných zdrojov energie na znižovanie oxidu uhličitého v porovnaní s jadrovou energiou. Zborník z 26-tej vedeckej konferencie "Priemyslová toxikológia 2006" Piešťany, 23-25.May 2006, ((Editory V. Romačík, V. Koprda, A. Manová)), pp. 36-42, 2006.
- [10] Koprda, V., Bakoš, D., Bujnová, A., Kukolíková, L., Dianiška, T.: Penetration of Ions Across the Synthetic Skin Membranes. 10th Internat. Conf. PPPC, Presentations, La Grande Motte, France, april 18.-22.2006, (STS Publishing, Cardiff CF 10 3xf, UK), pp. 67, 2006.
- [11] Májeková, M., Koprda, V., Boháčik, L., Bohov, P., Hadgaft, J., Bezáková, Ž., Májek, P.: Skin Permeation of Acyl Derivatives of Stobadine. *Drug Delivery*, no. 13, pp. 51-54, 2006.
- [12] Priesolová, S., Čík, G., Bujdákova, H.: Inaktivácia Baktérií G+ - S.Aureus, G- - E.Coli a kvasinky C.Albicans fototoxickým polytiofénom inkorporovaným v zeolite ZSM-5. Zborník z konferencie Priemyselná toxikológia 2006, Piešťany, 23.-25. máj 2006, pp. 312-317, 2006.

Article in conference proceedings

- [1] Bodík, I., Hutňan, M., Kalina, A., Dančová, L., Pethečová, T.: G-fáza - možnosti a perspektívy jej využitia. In CD Zborník z Workshop Chémia bionafy a vedľajších produktov, Prievidza, 26.-27.10.2006, 2006.
- [2] Bodík, I., Hutňan, M., Kalina, A., Dančová, L., Pethečová, T.: G-fáza z výroby bionafy - možnosti a perspektívy jej zhodnotenia. In Zborník z medzinárodnej konferencie TOP 2006, 28.-30.06.2006, Častá-Papiernička, pp. 53-58, 2006.
- [3] Bodík, I., Hutňan, M., Kalina, A., Dančová, L., Pethečová, T.: Možnosti využitia odpadu z výroby bionafy. In Zborník prednášok konferencie s medzinárodnou účasťou "Kaly a odpady 2006", Brno, 19.-21. júna 2006, pp. 117-124, 2006.
- [4] Bodík, I., Hutňan, M., Kalina, A., Pethečová, T., Dančová, L.: Anaeróbna fermentácia odpadových produktov z výroby bionafy. Editor(s): Bodík, I., Hutňan M., In Zborník prednášok 4. konferencie s medzinárodnou účasťou "Odpadové vody 2006", Tatranské Zruby, 18.-20. októbra 2006, pp. 318-324, 2006.
- [5] Bodík, I., Marková, M., Valent, A., Dančová, L., Pagáčová, P., Blšťáková, A.: Vplyv vybraných prúdov technologických odpadových vôd na prevádzku ČOV Volkswagen Slovakia a.s.. Editor(s): Bodík, I., Hutňan M., In Zborník prednášok 4. konferencie s medzinárodnou účasťou "Odpadové vody 2006", Tatranské Zruby, 18.-20. októbra 2006, pp. 208-215, 2006.
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- [8] Dančová, L., Bodík, I., Polesňák, M., Plotěný, K., Kratochvíl, K.: Skúseností z dvoročnej prevádzky domovej ČOV s membránovou filtráciou. Editor(s): Bodík, I., Hutňan M., In Zborník prednášok 4. konferencie s medzinárodnou účasťou "Odpadové vody 2006", Tatranské Zruby, 18.-20. októbra 2006, pp. 230-237, 2006.
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- [10] Derco, Ján, Dudáš, Jozef, Jakubčová, Zuzana, Lukáčová, Lucia, Almásiová, Beáta: Minimization of activated sludge production by ozonation. Editor(s): Markoš J., Štefuca V. eds., In Proceedings of 33rd International Conference of Slovak Society of Chemical Engineering, Tatranske Matliare, Slovak Republic, pp. 8 (CD ROM), 2006.
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- [14] Derco, Ján, Mitaľová, Lucia, Žgajnar Gotvajn, Andrea, Almásiová, Beáta: Biodegradability of wastewaters after ozonation. In The 12th Slovenian chemical event., Maribor, Slovenia, pp. 107, 2006.
- [15] Drtil, Miloslav, Hutňan, Miroslav: Kalové hospodárstvo ČOV s biologickým odstraňovaním N a P - vybrané výsledky. In Konferencia Kaly a odpady 2006, Brno, pp. 145-152, 2006.
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- [17] Čík, Gabriel, Priesolová, Soňa, Hroboňová, K., Lehotay, J., Ševčík, Peter: Heterogénna fotokatalýza v technológii ochrany životného prostredia. In Zborník 8. Banskooštiavnické dni 2006, pp. 59-64, 2006.
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DEPARTMENT OF FIBRES AND TEXTILE CHEMISTRY

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I. STAFF

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Associate Professors:

Michal Krištofič, PhD., Anna Murárová, PhD., Anna Ujhelyiová, Ph.,

Research Fellows:

Eva Bolhová, Ondrej Dolgoš, Marcela Hricová, Jaroslav Legéň, PhD., Konštantín Marcinčin, PhD.

PhD Students:

Mária Dulíková (since 1.10.2004), Alena Hoferíková (since 1.10.2006), Ľubica Fleischmannová-Škrovanová (since 1.10.2003), Silvia Podobeková (since 1.10.2006), Andrej Rusnák (since 1.10.2003), Jozef Ryba (since 1.10.2004), Zuzana Strecká (since 1.10.2005), Iveta Vassová (since 1.10.2005)

Technical staff:

Agnesa Chlebáková, Albína Pokorná, Jarmila Nemčeková

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Macromolecular Chemistry
Laboratory of Polymer Fibre and Fibrous Material Structure (DSC, TMA, Surface Properties)
Laboratory of Fibre Technology
Laboratory of Textile Chemistry, Bleaching, Dyeing and Finishing (Ahiba, Pretema)
Laboratory of Fibre and Textile Testing
Laboratory for Fibre Spinning, Drawing and Texturing, extruders 16 and 30 mm

B. Research laboratories:

Laboratory for Thermal and Electrical Properties of Fibres and Textiles (DTA, DSC 7, TGA 7 - Perkin Elmer, Derivatograph Q 1500 D, integral electromer Polystat PS-1, Alambeta)
Laboratory for Thermomechanical Properties (TMA-50 M and TA)
Laboratory for Mechanical Properties (Instron, model 3334, dynamic viscoelastomer Rheovibron DDV-II-C)
Laboratory of Rheological Properties (Dynamic viscoelastomer model Rheo200, capillary rheometer, extrusiometer GOTTFERT 20 mm)
Laboratory for Structural Properties (Microscope Olympus model BHT, SALS),
Laboratory for Exhaust Dyeing Process and its Evaluation (Ahiba, Pretema, Spectrophotometer LIBRA S12, See System – Surface Energy Evaluation)
Laboratory for Spinning of Fibres (extruders 16 and 30 mm resp.)
Laboratory for fibrous materials based on biopolymers

III. TEACHING

A. Undergraduate Study: Chemical Technology

1. semester (Bc)	Basis of Textile Technology I	2/0/0	Ujhelyiová
3. semester (Bc)	Physiology and Comfort of Clothing	2/0/0	Murárová
5. semester (Bc)	Textile Materials I	2/1/0	Marcinčin, Ujhelyiová
1. semester (MSc)	Physics of Polymers and Paper	2/0/2	Chodák
	Fibre Science and Technology	2/0/2	Marcinčin
	Laboratory I	0/0/8	Marcinčin

Optional	Special and Modified Fibres	0/0/2	Marcinčin
	Structure and Properties of Fibres	1/0/1	Krištofič
	Modelling and Simulation of Processes in Polymers	1/0/1	Marcinčin
2. semester (MSc)	Colorants and Textile Auxiliaries	2/0/0	Murárová
	Technical Textiles	2/0/0	Krištofič
	Principles of Textile Engineering	2/0/0	Ujhelyiová
	Laboratory II	0/0/8	Marcinčin
3. semester (MSc)	Textile Chemistry and Technology	2/2/0	Ujhelyiová
	Technology of Polymeric Films	2/0/0	Marcinčin
	Fibre and Textile Testing	2/0/0	Murárová, Legéň
	Laboratory of Textile Chemistry and Technology	0/0/10	Ujhelyiová
4. semester (MSc)	Diploma work	0/0/27	Marcinčin

IV. CURRENT RESEARCH PROJECTS

A. Project of APVT Grant Agency APVT 20-011-404 (Anton Marcinčin), Composite Fibres and Textiles

The aim of this project is the preparation of new types of fibres based on polymer nanocomposite and to the preparation of textiles with new multifunctional properties mainly barrier against UV light, thermoregulative, further with electric conductivity and with some aspects of intelligent materials (sensors). New properties of textiles will be the consequence of nano modification of polymers and fibres with additives as well as new construction aspects of textiles. The project is oriented to the basic material research of fibres and fabrics.

Project duration: from 01.05.2005 to 31.12.2007

B. International EU Project 6 FP 505 567-1(Anton Marcinčin), Biotechnological Process for Manufacturing Cellulosic Product with added Value

Project is focused to the basic investigation of new biochemical ways how to dissolve the cellulose and change its original form. Method is based on the safe, biodegradable enzymes used instead of toxic dangerous CS₂ with the aim to create products from regenerated cellulose. Biocelsol technologies are break through in comparison with existing processes for preparation of regenerated cellulose and give harmless technologies for modification of cellulose with selected enzymes. Enzymatically modified cellulose is better soluble in water-alkali solutions and its processing to solutions is more simple. Scientific goals of the project:

- understand enzymatic processes in cellulose and their influence on the structure and processability of the cellulose,
- investigate new products with involved functional properties based on enzymatically modified cellulose,
- ensure exceptional decrease of environmental and health influence in comparison with viscose process,
- prove new, acceptable procedures which reduce production cost in cellulose industry.

Project duration: from 2004 to 2007

C. International EU Project 6 FP 6 516972 (Anton Marcinčin), Nanohybrid – designed nanostructured hybrid polymers: polymerisation catalysis and Tecton assembly

The project is focussed on to: 1. Creation of new knowledge related to macromolecular architecture designs via transition metal catalysis which will be up access to novel random and block copolymers and polymer product compositions. 2. Understanding the phenomena of nanocompomers and nanocomposites' formation either during in-situ polymerisation or during melt processing. 3. Investigation of fundamental characteristics of the organic-inorganic interphase region by multi-scale analysis.

4 Application-oriented property enhancement, thanks to nanostructured hybrid polyolefins.

Project duration: from 01.03.2005 to 28.02.2008

D. VEGA project 1/2475/05 (Anton Marcinčin), Composite fibres based on polymer blends with fibrillar phase structure

Project is focussed to acquirement of experience from the formation of phase structure of new fibres on the basis of binary and ternary polymer blends with hierarchical morphology of micro- and nano-structure elements. Phase structure of composite fibres is polyfibrillar. Dispersed polymer component in the matrix of fibre is in the shape of highly deformed particles. The aim of the project is to acquire a knowledge about principles of formation of composite polyfibrillar fibre structure, about interphase interactions of functional groups, about influence of rheological properties of components and the control of threephase structure formation and selected fibre properties mainly mechanical, electric, barrier and sorptive ones.

Project duration: from 01.01.2005 to 31.12.2007

E. VEGA project 1/2451/05 (Anna Murárová), Physical activation of polymer fibre surfaces

Project is focussed to the evaluation of the influence of laser, microwave and low-temperature plasma energy and other media to the activity of the polymer fibre surfaces. The change of the morphological and supermolecular structure on the surface level of fibres causes the change of properties of this surface.

Project duration: from 01.01.2005 to 31.12.2007

V. CURRENT EDUCATION PROJECTS

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Fibrochem, a.s., Svit	Technical and material assistance	Marcinčin	2006
VÚCHV Svit	Common APVT project	Marcinčin	2006
Rhodia IY, a.s. Humenné	Technical and material assistance	Marcinčin	2006
VÚTCH Chemitex Žilina	Common APVT project	Marcinčin	2006
TnUAD FPT Púchov	Technical and personal assistance	Marcinčin	2006
Polymer Institute SAV Bratislava	Technical and personal assistance	Marcinčin	2006

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
AUTEX, Gent, Belgium	Member of AUTEX, organization of conferences	Prof. P. Kiekens	since 2002
Univberty of Zagreb	Cooperation in research, organization of conferences	Prof. A.M. Grančarič	since 2004
TU Liberec	Cooperation in research and study programme	Prof. J.Militký	since 2005
Kiev National University of Technologies and design	Surface activity of textiles	Assoc. prof. V. Vlasenko	since 2004

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Marcinčin Anton	Slovak Union for Industrial Chemistry	member	2001
Ujhelyiová Anna	Slovak Union for Industrial Chemistry, Slovak Chemical Society	member	2001, 1999
Murárová Anna	Slovak Union for Industrial Chemistry	member	2001
Krištofič Michal	Slovak Union for Industrial Chemistry, Slovak Chemical Society	member	2001, 1999
Hricová Marcela	Slovak Union for Industrial Chemistry	member	2001

Legéň Jaroslav	Slovak Chemical Society	member	1999
Borsig Eberhard	Slovak Chemical Society	member	1999

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Marcinčin Anton	Assoc. of Universities for Textiles, AUTEX, B Scientific Council, TU Liberec, CZ	member	since 2001
Borsig Eberhard	General Assembly of National Representatives of European, Polymer Federation	member	since 1998

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
M. Caocci	Cimatec Srl	Italy	March 2006, (2 days)
E. Weselovska	Institut of Chemical Fibres, Lodz	Poland	March 2006, (2 days)
A. Urbanovski	Institut of Chemical Fibres, Lodz	Poland	March 2006, (2 days)
S. Posner	IFP Research Ab	Germany	March 2006, (2 days)
Matti Siika-aho	VTT Technical Research Centre	Finland	March 2006, (2 days)
A. Kallioinen	VTT Technical Research Centre	Finland	March 2006, (2 days)
P. Fardim	Aabo Aakdemi University	Finland	March 2006, (2 days)
P. Martin	University of Potsdam	Germany	March 2006, (2 days)
J. Janicky	University of Bialsko-Biala	Poland	March 2006, (2 days)
M. Rom	University of Bialsko-Biala	Poland	March 2006, (2 days)
Cz. Slusarczyk	University of Bialsko-Biala	Poland	March 2006, (2 days)
K. E. Christofferson	Domsjo Fabriker Ab	Sweden	March 2006, (2 days)
K. Lonquist	Vivoxid Ltd.	Sweden	March 2006, (2 days)
Y. Klingenberg	Oy Visko Ab	Finland	March 2006, (2 days)
E. Vuorinen	Oy Visko Ab	Finland	March 2006, (2 days)
A. Kovalainen	Suominen Nonwovens Ltd.	Finland	March 2006, (2 days)
Zd. Hroch	Spolsin	CZ	March 2006, (2 days)
N. Cartier	Ahlstrom Research and Services	France	March 2006, (2 days)
M. Vehvilainen	Tampere University of Technology	Finland	March 2006, (2 days)
T. Kamppuri	Tampere University of Technology	Finland	March 2006, (2 days)
P. Vesa	Tamlink Ltd.	Finland	March 2006, (2 days)
S. Hoikkala	Tamlink Ltd.	Finland	March 2006, (2 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Borsig E.	Congress Macro	Brasil	July2006, (6 days)
Borsig E..	Institut of Macromol. Chemistry, Albert-Ludvigs Univ. Freiburg	Germany	March 2006, 30 days
Borsig E..	Nanohybrid results evaluation, Bruxelles	B	October 2006, 3 days
Marcinčin A.	Nanohybrid results evaluation, Grenoble	France	January 2006, 4 days
Marcinčin A.	Conference in Bialsko-Biala	Poland	February 2006, 3 days
Marcinčin A.	Biocelsol result evaluation, Lodz	Poland	February 2006, 4 days
Marcinčin A.	Nanohybrid results evaluation, Bruxelles	B	October 2006, 3 days
Marcinčin A.	TU Liberec	CZ	June 2006, 3 days
Marcinčin A.	8 th Dresdner Textiltagung 2006	Germany	June 2006, 3 days
Marcinčin A.	Biocelsol meeting, VTT Techn. Res. Centre, Espoo	Finland	Sept. 2006, 4 days
Marcinčin A.	45 th Dornbirn Man-Made Congress	Austria	Sept. 2006, 4 days

Marcinčin A.	3 rd Int. Text., Clothing and Design Conference	Croatia	Oct. 2006, 7 days
Marcinčin A.	Lille	France	Nov. 2006, 5 days
Marcinčin A.	13 th International Conference - STRUTEX	CZ	Nov. 2006, 4 days
Marcinčin A.	Grenoble	France	Dec. 2006, 4 days
Ujhelyiová A.	Biocelsol meeting, VTT Techn. Res. Centre, Espoo	Finland	Sept. 2006, 4 days
Ujhelyiová A.	3 rd Int. Text., Clothing and Design Conference	Croatia	Oct. 2006, 7 days
Ujhelyiová A.	13 th International Conference - STRUTEX	CZ	Nov. 2006, 4 days
Krištofič M.	3 rd Int. Text., Clothing and Design Conference	Croatia	Oct. 2006, 7 days
Murárová A.	45 th Dornbirn Man-Made Congress	Austria	Sept. 2006, 4 days
Murárová A.	13 th International Conference - STRUTEX	CZ	Nov. 2006, 4 days
Murárová A.	58. Sjezd chemických společností	CZ	Sept. 2006, 5 days
Dulíková M.	IV. Czech – Slovak Conference- Polymery	CZ	Sept. 2006, 4 days
Hricová M.	IV. Czech – Slovak Conference- Polymery	CZ	Sept. 2006, 4 days
Rusnák A.	58. Sjezd chemických společností	CZ	Sept. 2006, 5 days
Dolgoš O.	Biocelsol result evaluation, Lodz	Poland	February 2006, 4 days
Dolgoš O.	7 th Int. Symposium "Alternative Cellulose", Rudolstadt	Germany	Sept. 2006, 4 days
Bolhová E.	58. Sjezd chemických společností	CZ	Sept. 2006, 5 days
Škrovanová L.	Junior Scientist Conference 2006, Wien	Austria	April 2006, 3 days
Ryba, J.	Junior Scientist Conference 2006, Wien	Austria	April 2006, 3 days

VIII. PUBLICATIONS

Article in journal

- [1] Bolhová, E., Ujhelyiová, A., De Clerck, K., Van Oostveldt, P., Marcinčin, A.: Influence of the Poly (Trimethylene Terephthalate) phase distribution on the dyeing of Polypropylene/ Poly (Trimethylene Terephthalate) bicomponent fibres. *Vlákna a textil*, no. 1-2, pp. 16-21, 2006.
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- [3] Dulíková, M., Ujhelyiová, A.: Štruktúra a bariérové vlastnosti PP vlákien modifikovaných nanoaditívami, II. Bariérové vlastnosti vlákien modifikovaných nanoaditívami. *Vlákna a textil*, no. 3, vol. 13, pp. 87-90, 2006.
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- [5] Kovtun, C.I., Vlasenko, B.I., Murárová, A.: Konstryjuannaja bagatošarovich tekstilnich materialiv. *Visnik*, no. 3, (Reg. Séria KB), vol. 26, pp. 183-186, 2006.
- [6] Krištofič, M., Ujhelyiová, A.: Copolyamides of e-caprolactam with Nylon Salt of Diethylenetriamine + Adipic Acid and their Thermal Properties. *Fibres and Textiles in Eastern Europe*, no. 4 (58), pp. 21-24, 2006.
- [7] Krištofič, M., Ujhelyiová, A.: Thermal properties of poly-e-caprolactam and copolyamides based on e-caprolactam. *Journal of Thermal Analysis and Calorimetry*, (v tlači), 2006.
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- [9] Marcinčin, A., Hricová, M., Hoferíková, A.: Rheological Properties and Spinning of Polypropylene/Organoclay Nanocomposites. *Vlákna a textil*, no. 1-2, vol. 13, pp. 3-8, 2006.
- [10] Marcinčin, A., Hricová, M., Körmendyová, E., Ujhelyiová, A., Broda, J., Janicki, J.: Polypropylene/(polyethylene terephthalate/polybutylene terephthalate) blend fibres – phase structure and mechanical properties. *Fibres and Textiles in EE*, no. 5, vol. 59, pp. 92-95, 2006.
- [11] Marcinčin, A., Körmendyová, E., Hricová, M., Rusnák, A., Aneja, A.P.: Rheological Behaviour of Polyester Blend and Mechanical Properties of the Polypropylene-Polyester Blend Fibres. *J. of Appl. of Polym. Sci*, (v tlači), 2006.
- [12] Murárová, A.: Textile materials from the point of view of an evaluation of their physiology and comfort. *Chemické listy*, no. 8, (Abstrakt), vol. 100, pp. 745, 2006.
- [13] Murárová, A.: Textilné materiály a wellness. *ChemZi*, no. 2, vol. 2, pp. 82, 2006.
- [14] Murárová, A.: Vlákňité materiály XXI. storočia. *ChemZi*, (v tlači), 2006.
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- [17] Murárová, A., Jambrich, M., Murárová, Z.: Heat transfer through a textile layer composed of hollow fibre. *Fibres and Textiles in Eastern Europe*, (v tlači), 2006.
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- [20] Murárová, A., Podobeková, S., Rusnák, A.: The adaptation of a method for the measurement of the thermal conductivity of fibres in a perpendicular direction. *Chemické listy*, no. 8, vol. 100, pp. 753, 2006.
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- [22] Murárová, Z., Murárová, A.: Súčasný možnosti fotoprotekcie. *Kniha abstraktov. II. Kongres slovenských a českých dermatovenerológov s medzinárodnou účasťou*, pp. 83, 2006.
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- [29] Vlasenko, V., Kovtun, S., Berezenko, N., Suprun, N., Murárová, A.: Water and heat transfer through multilayer textile composite. *Vlákna a textil*, no. 1-2, vol. 13, pp. 46-50, 2006.

Article in conference proceedings

- [1] Bolhová, E., Ujhelyiová, A., De Clerck, K., Marcinčin, A.: Vplyv distribúcie polyesterových fibril na vyfarbitelnosť zmesných PP/PES vlákien klasickým postupom. In 58. sjezd chemických spoločností, Ústí nad Labem, (sekcia 4: Petrochémia a polyméry), pp. 675, 2006.
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DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

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Technical staff:

Katarína Halášová; Jarmila Mikletičová; Helena Morávková; Margita Piatriková

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory Practice of Dairy Technology I., II
Laboratory of the Specialization I., II
Laboratory Practice of Fats, Detergents and Oleochemistry
Laboratory of PC Application in Food Industry
Laboratory of Cosmetology

B. Research laboratories:

Laboratory of Sugar Technology
Laboratory of Starch, Confectionary Chemistry and Technology
Laboratory of Cereal Technology
Laboratory of Canned Products
Laboratory of Meat and Meat Products
Laboratory of Food Preservation
Laboratory of Fats and Detergents and Oleochemistry
Laboratory of Milk Chemistry and Technology
Laboratory of Cosmetology

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Hygiene and Health Protection	2/0/0	Hojerová
	Seminary of Educational Program	0/1/0	Schmidt
5. semester (Bc)	Fundamentals of Food Technology	2/0/0	Karovičová
	Fundamentals of Hygiene and Sanitation	1/1/0	Hojerová, Boreková
6. semester (Bc)	Fats and Oleochemistry	1/1/0	Schmidt, Sekretár
	Packaging and Packaging Materials	1/1/0	Sekretár
	Cosmetic and Household Chemistry	1/1/0	Hojerová, Boreková
	Semester Project	0/0/4	All members of the staff
1. semester (MSc)	Food Engineering	2/0/1	Schmidt

	Chemistry and Technol. of Sacharides	2/0/2	Dandár, Kostičová, Minarovičová
	Theory of Food Preservation	3/0/1	Greif
	Dairy Technology I.	2/0/0	Greifová,
1. semester (MSc)	Laboratory Practice of Dairy Technology I.	0/0/2	Greifová, Krajčová
	Semester Project	0/0/5	All members of the staff
2. semester (MSc)	Cereal Chemistry and Technology	4/0/1	Kohajdová
	Sugar technology	4/0/0	Dandár
	Laboratory of the Specialization I.	0/0/4	Kohajdová, Minarovičová
	Preserved and Frozen Food Technology	2/0/1	Karovičová, Greif
2. semester (MSc)	Meat and Poultry Technology I.	2/0/1	Staruch
	Raw Materials for Canning Industry	2/0/0	Karovičová, Staruch
	Laboratory of the Specialization I.	0/0/4	Staruch, Karovičová, Greif
	Fats, Detergents and Oleochemistry	4/0/0	Schmidt, Sekretár
2. semester (MSc)	Laboratory Practice of Fats, Detergents and Oleochemistry	0/0/3	Sekretár, Schmidt, Záhradníková
	Dairy Technology II.	2/0/0	Greifová, Mastihuba
	Laboratory Practice of Dairy Technology II.	0/0/3	Krajčová, Greifová
	Microbiology of Milk, Fats and Cosmetics	1/0/0	Greifová
	Semester Project	0/0/5	All members of the staff
3. semester (MSc)	Chemical Engineering Processes in Sugar Technology	2/0/0	Dandár
	Technology Optimising in Canning Industry	1/0/1	Greif
	Laboratory of the Specialization II.	0/0/4	Staruch, Karovičová
	Semester Project III.	0/0/5	All members of the staff
3. semester (MSc)	Chemistry and Technology of Cosmetics	2/0/2	Hojerová, Boreková
	Laboratory Practice of Microbiology of Milk, Fats and Cosmetics	0/0/2	Greifová, Krajčová
	Laboratory of the Specialization II.	0/0/4	Minarovičová
	Meat and Poultry Technology II.	2/0/0	Staruch
3. semester (MSc)	Laboratory of Meat and Poultry Technology II.	0/0/2	Staruch
	By-products in Food Industry	2/0/0	Augustín
	Laboratory of By- products in Food Ind.	0/0/2	Augustín
	PC Application in Food Industry	2/0/0	Sekretár
	Laboratory of PC Application in Food Industry	0/0/2	Sekretár
	Technology Optimising in Sugar Industry	2/0/0	Dandár
	Laboratory Practice of Technology Optimising in Sugar Industry	0/0/2	Dandár
4. semester (MSc)	Diploma Work	0/0/27	All members of the staff

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/2392/05 Methods for control of quality of food and health care products (Š.Schmidt)

The project proposes development and innovation of methods for control of quality and safety of food and health care products via controlling their chemical, physical and microbiological changes during production, storage and distribution to consumer as well as development and validation of analytical methods for this purpose. Special focus will be taken on oxidative changes of fat products, use of selected starter cultures possessing antimicrobial activity in production of fermented dairy and meat products, use of biosensors in assessment and authentication of food, development and validation of alternative methods for assessment of cosmetic products, study of rheology of hydrocolloids and preparation of alternative food and cosmetic additives with new functional properties or produced by procedures friendly to the environment.

Project duration: from 01.01.2005 to 31.12.2007

B. VEGA Project No 1/9133/02 Development and control of new food technologies and application of biological active components into foods to increase their quality according to criteria used in EU (Alexander Dandár)

The growth of population leads to increased demands in food production with higher quality and durability. The modern trends in new food technologies are characterized with increased productivity, durability and nutritive value of produced foods. This is closely connected with the development and optimization of basic physicochemical and biochemical processes used from raw material to final products. These trends are topical all over the world preferred by advanced national and multinational institutions. In our country there are demands mainly defined by EU. Proposed project builds on the research have been solved in the last years at our department to develop gained results.

The main goals of the project are:

- 1/ development and modification of progressive technological procedures in utilization of cereals and non-traditional pseudocereals (amaranth)
- 2/ application of natural substances to improve the food quality; i.e. natural antioxidants, stabilisers and substances with preventive effect on humans.
- 3/ utilization of microelements and other biologic important substances in raw materials and final products.
- 4/ using of lactic fermentation as a conservation method to produce semi- and final products.
- 5/ application of new liming agents without toxic compounds. Study of colorants formation and their elimination to improve sugar quality.

Project duration: from 01.01.2005 to 31.12.2007

C. VEGA Project No. 1/3546/06 Monitoring and prevention of creation of biogenic amines to ensure food quality and safety (Karovičová Jolana)

Monitoring of occurrence of biogenic amines in plant and animal foods. Study of effect of model conditions (temperature, pH, content of NaCl, NaNO₃ and preservatives) on the growth and production of biogenic amines by both contaminating bacteria and starter cultures. Evaluation of inhibition effect of probiotic bacteria and starter cultures on contaminants originating from raw materials (estimation of biogenic amines and organic acids). Selection of starter cultures and bacteria employed in dairy and meat technology characterised by production of bacteriocins and/or low production of biogenic amines. Use of multistatistic variation methods for evaluation of microbiological and chemical analyses for prediction of occurrence of biogenic amines and behaviour of microorganisms in model conditions and in food products.

Project duration: from 01.01.2005 to 31.12.2007

D. KEGA Project No. 3/3019/05 Education of Secondary School Teachers of Chemistry and Biology Oriented to Solve Problem Tasks of Daily Life and New Trends in Chemistry and Biology. (Pavel Kovařík)

Acquaintance of Secondary School Teachers with New Information in Chemistry and Biology, with New Forms in Chemistry and Biology Teaching – Teaching by Solving Problem Tasks, e-Learning and Exploitation Multimedia Means.

Cooperator: Jarmila Hojerová

Project duration: from 01.01.2005 to 31.12.2007

E. Project APVV-51-0179 05 Molecular mechanisms of action of new drugs interfering with oxidative stress – the important factor in etiopathogenesis of numerous diseases“.(/Doc. MUDr. Svorad Štolc, DrŠc., Institute of Experimental Pharmacology, SAS Bratislava.), Cooperators: Hojerová, Boreková

Explanation of molecular mechanism´ effects of selected antioxidants and free radical scavengers in the determined conditions. In our stages are searched the effective transdermal vehicles for delivery antioxidants and free radical scavengers and theirs profylactive effects against oxidative stress on the topical applications.

Project duration: from 01.01.2005 to 31.12.2007

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Ministry of Agriculture of Slovak Republic, Bratislava	Consultations, Grant No. 524 and 526 (13a and 13b)	Karovičová,J Schmidt,Š	continue
Food Research Institute, Bratislava	Member of Editorial Board of Bull.PV	Dandár,A Schmidt,Š	continue
Slovak Academy of Sciences	Modification of Saccharides Development of Biosensors	Mastihuba,V	continue
TAURIS, Rimavská Sobota	Development and Inovation of Meat Products	Staruch,L	continue
RAJO, Co. Bratislava	Improvement of quality and safety control of dairy products	Hojerová,J	continue
Palma-Henkel, Co. N.Mesto nad Váhom	Educational process	Schmidt,Š Sekretár,S	continue
Palma-Tumys, Bratislava	Educational process	Schmidt,Š Sekretár,S	continue
Institute of Dairy Research, Žilina	Consultation; Development of improved control of food safety for industry	Greifová,M Greif,G.	continue
Slovak Society of Cosmetology, Bratislava	Cooperation at the scientific conferences	Hojerová,J	continue
Central Laboratory MILEX-Progress, Co, Bratislava	Consultation	Greifová,M	continue
De Miclén, Co, Levice	Consultation of cosmetics quality and safety	Hojerová,J.	continue
Q-CHEM, Modra	Modification of Saccharides	Bilaničová, D.	2003-
Incheba, Co., Bratislava	Consultation about quality of cosmetic products	Hojerová,J	continue
Zentiva, Co., Hlohovec	Educational process	Hojerová,J.	2005 -
Fytofarm, Co., Bratislava	Consultation	Hojerová,J.	continue

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
BBSRC Institute of Food Research, Norwich, UK	Development of improved control of food safety for industry	Greifová,M	continue
Department of Saccharide´s Technology	Publications	Dandár,A	continue
Dublin City University, Biomedical and Enviromental Seneor Technology Centre, Dublin, Ireland	Development of improved control of food safety for industry	Greifová,M	continue
Institute of Chemical Technology, Dep. Of Dairy and Fat Technology, Prague	Natural antioxidants	Schmidt,Š Greifová,M Sekretár,S	continue
Milcom – Dairy Research Institute, Prague	Development of improved control of food safety for industry	Greifová,M	continue

Institute of Food Research, Manchester, UK	Research of Antioxidants	Schmidt,Š Sekretár,S	continue
Akademia Rolnicza, Krakow, Poland	Clarification agents in sugar industry	Dandár,A Kostičová,M	continue
Zuckerforschungsinstitut Tulln, Austria	Problems in sugar industry	Dandár,A.	continue
Technical University Lodž, Poland	Microbial activity during sucrose extraction	Dandár,A. Kostičová,M Minařovičová,L	continue
Research Institute of Sugar Technology, Prague	Member of Editorial Board of Sugar Papers	Dandár,A	continue
International Federation of Cosmetic Chemists, UK	Cooperation. Publications	Hojerová, J.	continue
Czech Society of Cosmetology, Prague, Czech Republic	Cooperation	Hojerová, J.	continue
Institute of Hydrodynamic, Academy of Science of Czech Republic, Prague	Development of rheology of food and cosmetic materials and products	Hojerová, J.	continue

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Schmidt,Š	Slovak Chemical Society	Member	Since 1995-
Schmidt,Š	Editorial Board of Bull. Of Food Research	Member	Since 1989-
Schmidt,Š	Committee of the Slovak Chemical Society	member	Since 1990-
Schmidt,Š	Grant Agency of ME SR and SAS, editorial board VEGA No. 10	Member	continue
Staruch,L	Slovak Soc. Of Agricultural, FORESTRY, food and Veterinary Sci., Bratislava	Member	Since 1990-
Staruch,L	Foundation SLOVAK GOLD, Bratislava	Member	continue
Staruch,L	The Union of Slovak Butchers	Member	Since 1994-
Staruch,L	Slovak Institute of Technical Normalization, Bratislava	Member	Since 2003-
Staruch,L	Food Processing, Development and Food Products	Judge expert	Since 1999-
Staruch,L	Committee DANUBIUS GASTRO	Member	Since 2003-
Augustín,J	Slovak Soc. Of Agricultural, FORESTRY, food and Veterinary Sci., Bratislava	Member	Since 1985-
Karovičová, J.	Slovak Soc. Of Agricultural, FORESTRY, food and Veterinary Sci., Bratislava	Member	Since 1985-
Kohajdová, Z.	Slovak Soc. Of Agricultural, FORESTRY, food and Veterinary Sci., Bratislava	Member	Since 2000-
Hojerová,J	Commission for Technical Standards No 79, Slovak Institute for Technical Standards	Member	continue
Hojerová,J	Editorial board of DERMA	Member	continue
Hojerová,J	Editorial board of DERMA Revue	Member	continue
Greifová,M	Slovak Chemical Society	Member	Since 1999-
Greifová,M	Scientific board of VÚM, Žilina	Member	Since 2003-
Dandár,A	Slovak Soc. Of Agricultural, FORESTRY, food and Veterinary Sci., Bratislava	President	continue
Dandár,A	Slovak Academy of Agricultural Sci., Bratislava	Member	continue
Dandár,A	Slovak Academy of Technical Sciences, Bratislava	Member	continue
Dandár,A	ICUMSA, Slovak National Committee	Chairman	Since 1980-

Dandár,A	Slovak Agricultural Academy, Nitra	Member	Since 1992-
Dandár,A	SAPV, specialization of Food	Vice-president	continue
Dandár,A	Editorial board of Bull. Of Food Research	Member	continue
Hojerová,J	Foundation SLOVAK GOLD, Bratislava	Chairman of Cosmetic Committee	continue
Hojerová,J	INCHEBA, Joint Stock Company, Technical Committee for Cosmetics	Chairman of Cosmetic Committee	continue
Hojerová,J	Slovak Society of Cosmetology	President	continue
Hojerová,J	Member of Editorial Board of SLOVAK CHOICE	Member	Since 2005

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Schmidt,Š	Federation of European Chemical Societies, division of Food Chemistry	Member	continue
Schmidt,Š	Editorial board of European Journal of Lipid Science and Technology	member	continue
Staruch,L	Editorial board of journal MASO	Member	Since 2003-
Staruch,L	WEPSA, Israel	member	continue
Augustín,J	Czechoslovak Microbiology Society	member	continue
Hojerová,J	International Federation of Societies of Cosmetic Chemists, USA	member	continue
Greifová,M	Czechoslovak Microbiology Society	member	continue
Dandár,A	American Chemical Society	Member	continue
Dandár,A	International Commission for Uniform Methods of Sugar Analysis – ICUMSA, Italy	Member	continue
Dandár,A	Commission International Technique de Sucrierie – CITS, Brussels, Belgium	Member	continue
Dandár,A	Verein der Zuckerfabriken Österreichs, Vienna, Austria	Member	continue
Dandár,A	Stowarzyszenie Technikow Cukrownikow, Wroclaw, Poland	Member	continue
Dandár,A	Scientific board at FCHPT VŠCHT, Prague	Member	continue

E. Visitors from Abroad

Name	Organisation or Institution	State	Date / Duration
Plocková,M. Filíp, V.	University of Chemical Technology, Prague	Czech Republic	June 2006 (2 days)
Chumchalová, J., Fialová, J.	University of Chemical Technology, Prague	Czech Republic	March 2006 (5 days)
Jelen, P	University in Alberta, Edmoton	Canada	June 2006 (5 days)
Lappiere, C. Bauberger, S.	Institute National Agronomique, Paris, Grignon	France	November 2006 (2 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation or Institution	State	Date / Duration
Minarovičová, L., Zahradníková, L., Krajčová, E., Jancurová, M.	International Congress on Food Safety, Budapest	Hungary	June 2006 (4 days)
Minarovičová, L., Dandár.A.	Sugar Technology Conference, Luhačovice	Czech Republic	February 2006 (3 days)

Schmidt, S. Sekretár, S. Zahradníková, L. Lehkoživová, J.	Chemical Congress, Ústí nad Labem,	Czech Republic	Sept. 2006 (5 days)
Dandár, A. Schmidt, S.	Technical University of Łódź	Poland	Sept. 2006 (4 days)
Dandár, A. Staruch, L.	Akademia Rolnicza, Krakow	Poland	October 2006 (4 days)
Greif, G. Greifová, M. Schmidt, S. Sekretár, S. Staruch, L.	University of Chemical Technology, Prague	Czech Republic	January 2006 (3 days)
Schmidt, S.	University of Chemical Technology, Prague	Czech Republik	March, May, June, Oct., Dez. 2006 (20 days)
Bilaničová, D.	Università di Cagliari	Italy	1.10. – 31.12.2006

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Hradecká, A	Rheology and Cosmetics	Hojerová, J.
Macák, P	The Consumption of Meat and its Position in Human Nutrition	Staruch, L.
Majerníková, S	Production and Further Utilization of By-Products Originating from the Processing of Fruits and Vegetables (Non-Storageable Foods)	Augustín, J.
Medovčíková, A	Occasion and Perspective of the Phyco Materials in the Cosmetics	Hojerová, J.
Orságová, L.	Meaning of the Rapid Allert System for Food of the European Union to Consumers Health Protection	Hojerová, J.
Pagurko, A	Quality and Food Safety of Meat Products	Staruch, L.
Polačok, J.	Polysaccharides their Occurence and Using in Food Industry	Kostičová, M.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Bradíková, K.	Spelt wheat –chemical composition and using in the cereal technology	Kohajdová, Z.
Dovičičová, K.	Study of Rheological Properties of Modified Starches	Kostičová, M.
Fekiačová, M.	Study of Stevioside Extractability from the Leaves of Stevia Rebaudiana, Bertoni	Dandár, A.
Petruláková, Z.	Determination of Bioactive Substances of Selected Cereals and Pseudocereals	Schmidt, Š.
Schneiderová, R	Reduction of Limestone in the Purification Process	Minarovičová, L.
Ivanová, B.	Analysis of tomato products from point of view their quality and authenticity	Kohajdová, Z.
Komárová, M.	Probiotics and Starter Cultures in Meat Products	Staruch, L.
Slaná, D.	Analysis of lactic acid fermented vegetable juices	Kohajdová, Z.
Vinková, L.	Using of HPLC and ITP for determination of selected food compounds	Karovičová, J.

Žiaková, Z	Sensorical and analytical evaluation of honey	Karovičová, J.
Klasová, S.	Rheological Modifiers of Cosmetics and Food Texture	Hojerová, J.
Boreková, M.	Enzymatic Preparation of Feruloylated Saccharides	Bilaničová, D.
Földesiová, L.	Utilisation of Natural Compounds for Fat stabilisation	Sekretár, S.
Húšťavová, D.	Relation of Environmental Factors and Dynamics of Tyramine Production	Greifová, M.
Janáč, L.	Possibilities of Fat Stabilization During Microwave Heating	Sekretár, S.
Janegová, J.	Influence of Additives on Stability of Packed Fats	Sekretár, S.
Šovčíková, D.	Effectiveness Evaluation of Selected Photoprotective Materials	Hojerová, J.
Vydrová, J.	Study of Antimicrobial Effect of Lactic Acid Bacteria	Greifová, M.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Kukurová, K.	Methods to detect adulteration and authentication of selected food products	Karovičová, J.

VIII. PUBLICATIONS

Chapter or pages in book

- [1] Ondrejkočičová, I., Hojerová, J., Hudecová, D., Kaszonyi, A., Koreňová, A., Kovařík, P., Palou, M.: Spoločná budúcnosť chémie a biológie, Editor(s): Ondrejkočičová Iveta, Chapter: Biologicky aktívne látky v kozmetike. Vydavateľstvo STU Bratislava, no. 1, pp. 87, 2006.

Article in journal

- [1] Augustín, Jozef: Voda a jej vplyv na organizmus.. Výživa a zdravie 1, 14-15, 2006.
- [2] Augustín, Jozef, Dandár, Alexander: Biologicky aktívne látky v čaji a ich účinky na organizmus.. Zborník prednášok z Medzinár.konferencie Výživa a zdraví, Teplice 19.-21.september, pp. 107-109, 2006.
- [3] Augustín, Jozef, Dandár, Alexander: Fyziologické účinky obsahových látok v káve.. Zborník prednášok v Medzinír. konferencie Výživa a zdraví, Teplice 19.-21.9., pp. 110-112, 2006.
- [4] Augustín, Jozef, Dandár, Alexander: Fyziologické účinky stopových prvkov (mikroelementy) na organizmus. Mikroelementy (in press), 2006.
- [5] Augustín, Jozef, Dandár, Alexander: Vplyv niektorých minerálnych látok na organizmus (in press). MIKROELEMENTY, 2006.
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DEPARTMENT OF GRAPHIC ARTS TECHNOLOGY AND APPLIED PHOTOCHEMISTRY

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II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Printing Technology
Laboratory of Photochemistry and Photography
Laboratory of Optical Spectroscopy and Photometry
Laboratory of Thin Films and Plasma Technology
Laboratory of Rheology

B. Research laboratories:

Laboratory of Absorption Spectroscopy and Colorimetry

III. TEACHING

A. Undergraduate Study:

6. semester (Bc)	Paper and Printing, Graphic Arts	2/2/0	Panák, Šutý
	Term Project	0/4/0	Mikula and other members of the academic staff
1. semester (MSc)	Colloids Systems and Interfaces	2/1/0	Bakoš, Reháková, Mikula, Jakubíková
	Polymer and Paper Physics	0/2/0	Jančovičová
	Photochemistry and Photography I.	2/1/0	Čeppan, Jančovičová, Reháková
	Surface and Thin Film Technology	2/0/0	Mikula
	Advanced Laboratory Course I.	0/0/9	Havlínová, Jančovičová, Mikula
	Typography and Text Processing	0/2/0	Dvonka
2. semester (MSc)	Photochemistry and Photography II.	2/0/0	Čeppan
	Printing Technology I.	2/0/0	Panák
	Advanced laboratory Course II.	0/0/7	Čeppan, Dvonka, Havlínová, Jančovičová
	Planning for Printing Production	0/2/0	Panák, Dvonka
	Text and Image Processing	1/1/0	Čeppan, Dvonka
3. semester (MSc)	Printing Technology II.	2/0/0	Panák
	Repronc	1/3/0	Mikula, Dvonka
	Advanced Laboratory Course III:	0/0/10	Panák, Dvonka
4. semester (MSc)	Diploma Thesis	0/0/27	members of the academic staff

B. Undergraduate Study: Technology of Polymer Materials

1. semester (Bc)	Surface and Thin Film Technology	2/0/0	Mikula
	Project I.	0/1/0	Bakoš and other members of the academic staff
2. semester (Bc)	Project II.	0/1/0	Bakoš and other members of the academic staff
3. semester (Bc)	Polymers in Restoration	2/0/0	Reháková

IV. CURRENT RESEARCH PROJECTS

VEGA Project No 1/2454/05 Atmospheric Plasma Treatment and Modification of the Surface Properties of Paper and Cellulose Fibre Based Materials (Milan Mikula)

Preparation and modification of thin layer properties on a paper or on flat cellulose fibre based materials, focusing in the functionality, quality, strengthening, stabilization and protection. Modification/treatment of paper by a new type of atmospheric barrier discharge directly in active zone of reactive gas plasma, or by consecutive grafting and/or UV curing. Hydrophobization of paper using UV cured polymers based on siloxanes, acrylates and water-based polymers and their unsaturated derivatives. The study of the final surface properties of modified paper, final strength, layer adhesion, optical and permeation barrier properties. Cleaning and deacidification of naturally aged paper from archives (saving of cultural heritage) in alkaline plasma (nitrogen, ammonia) and its strengthening and stabilization by layers prepared

Project duration: from 01. 01.2005 to 31. 12. 2007

5th FrameWork Programme of EU: Thematic Network /EVK4-CT-2002-20010 Transitional Metals in Paper (MIP), (Michal Čeppan)

Transitional metals may cause an accelerated ageing of historic paper documents, drawings and other cellulose containing objects. The aim of the network MIP is to exchange present knowledge related to the effects and on how to reduce the effects of transitional metals in paper and how to fit in these results to innovative conservation strategies consisting of assessments methods and treatment technologies.

Project duration: from 01. 03. 2003 to 01. 03. 2006

VEGA Project No 1/2455/05 Study of properties of inks, dyes and printing inks in the structures of graphic images (Michal Čeppan)

Development of methods of molecular spectroscopy (IR, UV-VIS) aimed to the study of documents with graphic records. Chemometric procedures will be utilized to extract useful chemical information from complex sets of spectra (factor analysis, multivariate statistical analysis). These methods will be used in study of processes during the ageing of historical documents containing iron-gall inks. Study of processes of photochemical decay of inks containing aryl methane dyes as well as the relation between conservations procedures and properties of ink records. Study of relation between properties of paper, transfer characteristics and quality of printed image.

Project duration: from 01. 01.2005 to 31. 12. 2007

Project of ME SR No 661/2003 Preservation, Stabilization and Conservation of Traditional Information Supports in the Slovak Republic (Dušan Bakoš, Milena Reháková)

This project covers programme of saving, stabilization and conservation of traditional holders of information (books, archival documents etc.). Big portion of cultural heritage stored in historical books and archival documents is endangered with destructive impacts of abiotic and biotic factors. This can cause irretrievable loss of cultural heritage of Slovak Republic. Solving of this problem is divided into two time steps. First includes years 2003 - 2005 and its subject covers basic research. Except of this, second step will also include applied research and development.

Project duration: from 01.10. 2003 to 31. 12. 2006

APVT Project No. 20-034202 The Deterioration of Historical Manuscripts and Documents Related to Transitional Elements in Writing Inks (Michal Čeppan)

In overall there are 13.1 mil. pieces of threatened documents and manuscripts destined for preservation in the Slovak Republic. Hand written documents (letters, letter sets, drawings, book pages etc.) often contain transitional elements (mainly copper and iron) in their inks which cause and promote destruction and degradation processes of supporting lignocelluloses materials.

This project is focused on investigation of ageing process reactions and kinetics by modern optical and spectral methods.

Gathered knowledge should contribute to material and method selection positively affecting the durability and capacity of historical documents and manuscripts preservation in feasible economical and ecological conditions.

Project duration: from 01. 01. 2004 to 31. 12. 2006

6th Framework Programme of European Commission: Innovation and Sustainable Development in the Fibre Based Packaging Value Chain. (SUSTAINPACK) (Dušan Bakoš, Milan Mikula).

The participation is based on the study of the deposition kinetics of polymer emulsion particles to the pulp fibers, rate of deposition, degree of cover, retention, retention agents – polyelectrolytes and characterization of materials. Particularly, it includes photo- and plasmochemical activation, modification and/or covering of cellulose fibres in suspension or in a paper-like material, and characterization of materials and activation/deposition kinetics by FTIR spectroscopy, UV Vis. spectral and colorimetry analysis, wetting, adsorption, mechanical and barrier properties measurements.

Project duration: from 01. 06. 2004 to 31. 5. 2008

APVT Project No 26-038602 The Influence of Fiber Net and Fiber Properties on Transfer and Qualitative Paper Parameters. Phase 6 – Study of the Printing Quality Evaluation (Juraj Gigac, Ján Panák)

The printing characteristics of selected offset printing papers samples – Transfer curves measurements and determination of Walker-Fetsko and Tolenaar-Oittinen equations parameters and their correlation with some paper parameters. Study and comparison of the current print quality evaluation methods. Development of a new evaluation method for the missing screen dots based on an image analysis. Optimization of the fractal analysis for the characterization of the printing paper properties and prints printed on them. Evaluation of the screen dots and details reproductions using modulatory transfer function.

Project duration: from 01. 02. 2004 to 30. 6. 2006

COST ACTION D42 Chemical Interaction between Indoor Environment And Cultural Artefacts (Michal Čeppan)

The main objective of the Action is to explore chemical interactions between cultural artefacts and typical indoor environmental conditions through field studies and laboratory experiments and to translate the results into preventive conservation. The Action focuses on the chemical impact of pollutants on materials, thus also considering physical and environmental aspects, materials technology, chemical analytics, emission and standardisation.

Project duration: from 1.9.2006 to 31. 8. 2010

V. CURRENT EDUCATION PROJECTS

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Slovak National Archives	Study of preservation of historical documents	Hanus Jozef, head of the Department of archival preservation, Drotárska cesta 42, 817 01 Bratislava	01. 01. 2000 -
Institute of Physics SAS	Amorphous a-Si:H structures for solar cells Study of barrier layers	Pinčík Emil, Dúbravska cesta 9, 845 11 Bratislava	01. 01. 2001 -
Faculty of Mathematics, Physics and Informatics, CU, Bratislava	Polymer surface treatment by atmospheric discharges	Černák Miroslav, Mlynská dolina, 842 48 Bratislava	01. 09. 2000 -
Slovak National Library, Martin	Study of preservation of historical documents	Maková Alena, Námestie J. C. Hronského 1, 036 01 Martin	01. 01. 2004 -
Institute of Forensic Science, Slovak Police Corps, Bratislava	Properties and diagnostics of printed documents	Adriana Jabconová, Sklabinská 1, 812 37 Bratislava	01. 01.2002

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Fraunhofer Institute Process Engineering and Packaging (IVV), Freising, Germany	Research of barrier layers on flexible foils	Noller Klaus, dr., Fraunhofer Inst. IVV, 853 54 Freising	01. 09. 2002 -
Fraunhofer Institute for Silicate Research, Wurzburg, Germany	Properties of Ormocer lacquer layers	Amberg-Schwab Sabine, dr., Fraunhofer Inst. ISC, 970 82 Wurzburg	01. 09. 2002 -
Faculty of Chemistry, Technical University Brno, Czech Republic	Photochemical properties of light sensitive layers	Michal Veselý, Purkyňova 118, 612 00 Brno	01. 09. 2001 -
State Central Archives in Prague, Czech Republic	Longlasting measurements of nonaged and aged papers	Đurovič Michal, head of department, Archivní 4, 149 01 Praha 4 - Chodovec	01. 01. 2001 -
Faculty of Natural Sciences and Engineering, University of Ljubljana, Slovenia	Analysis of coatings of paper for ink jet printing	Hladnik Ales, Snezniska 5 1000 Ljubljana	01. 10. 2006 -
Netherlands Institute for Cultural Heritage	Analysis of spectra of historical documents	Han Neevel, 1070 KA Amsterdam, Netherlands	01. 09. 2004 -
Institut Royal du Patrimoine Artistique	Analysis of pigments in paint layer of historical materials	Sanyova-Debongnie Jana, Cellule technique picturale, Park du Cinquantenaire 1, B-1000 Bruxelles	01. 09. 2004 -

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Čeppan Michal	Slovak Union for Industrial Chemistry	member	1980 -
Dvonka Vladimír	Slovak Union for Industrial Chemistry	member	1996 -
Havlíková Bohuslava	Slovak Union for Industrial Chemistry	member	1980 -
Jančovičová Viera	Slovak Union for Industrial Chemistry	member	1999 -
Mikula Milan	Slovak Union for Industrial Chemistry	member	1980 -
Panák Ján	Slovak Union for Industrial Chemistry	member	1978 -
Reháková Milena	Slovak Union for Industrial Chemistry	member	2001 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Čeppan Michal	European Photochemistry Association	member	1990 -
Čeppan Michal	International Society of Imaging Science and Technology, Springfield, USA	member	1985 -
Michal Čeppan	Graphic Arts Technical Foundation, Sewickley, USA	member	1988 -

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Debongnie – Sanyová, J.	Institut Royal du Patrimoine Artistique Brussel	Belgicko	April 2006 (3 days)
Đurovič, M.	National Archives in Prague	Czech Republic	June 2006 (2 days)
Paulusová, H.	National Archives in Prague	Czech Republic	June 2006 (2 days)
Kaplanová, M.	University of Pardubice, Pardubice	Czech Republic	June 2006 (2 days)
Lapčík, L.	Tomas Bata University, Zlín	Czech Republic	June 2006 (1 day)
Veselý, M.	Brno University of Technology, Brno	Czech Republic	June 2006 (2 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Havlíňová, B.	National Archives in Prague	Czech Republic	March 2006 (6 days)
Čeppan, M.	Brno University of Technology, Brno	Czech Republic	March 2006 (2 days)
Havlíňová, B.	7th European Commission Conference Safeguarded Cultural Heritage, Prague	Czech Republic	June 2006 (5 days)
Čeppan, M.	Tomas Bata University, Zlín	Czech Republic	May 2006 (1 day)
Čeppan, M.	Brno University of Technology, Brno	Czech Republic	May 2006 (1 day)
Dvonka, V.	University of Ljubljana	Slovenia	June 2006 (4 days)
Čeppan, M.	University of Pardubice, Pardubice	Czech Republic	June 2006 (3 days)
Čeppan, M.	Brno University of Technology, Brno	Czech Republic	June 2006 (3 days)
Havlíňová, B.	National Archives in Prague	Czech Republic	July 2006 (3 days)
Panáč, J.	University of Pardubice, Pardubice	Czech Republic	September 2006 (3 days)
Panáč, J.	University of Pardubice, Pardubice	Czech Republic	September 2006 (1day)
Petrovičová, M., Belányiová, E.	National Archives in Prague	Czech Republic	September 2006 (2 days)
Čeppan, M., Havlíňová, B., Dvonka, V., Jančovičová, V., Reháková, M.	XIII. Seminar of Restorers and Historians, Třeboň	Czech Republic	October 2006 (4 days)
Panáč, J.	Meeting of Czech and Slovak Printing Industry, Luhačovice	Czech Republic	October 2006 (2 days)
Jančovičová, V., Mrlláková, I.	Brno University of Technology, Brno	Czech Republic	November 2006 (2 days)
Čeppan, M.	Meeting of Managing Komitee of COST ACTION D42, Braunschweig	Germany	November 2006 (3 days)
Čeppan, M.	Brno University of Technology, Brno	Czech Republic	November 2006 (1 day)
Havlíňová, B.	National Archives in Prague	Czech Republic	December 2006 (4 days)
Čeppan, M.	Brno University of Technology, Brno	Czech Republic	December 2006 (1 day)
Mikula, M.	Masaryk University Brno	Czech Republic	December 2006 (1 day)

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Ambróz, P.	Study of Polymer Substrate Printability	Jakubíková, Z.
Bobáľová, L.	Identification of Natural Dyes in Historical Samples (Books, Manuscripts, Paints)	Reháková, M.
Borská, K.	Study of Degradation of Model Systems of Historical Documents	Čeppan, M.
Gilan, A.	Measurement of Gloss of Chosed Paper and Foils by Laser Beam	Mikula, M.
Marušicová, B.	Influence of Various Types of Antioxidants onto Retardation of Ageing of Historical Documents	Havlíňová, B.
Naqy, G.	Preparation and Properties of Thin Polymer Layers	Jančovičová, B.
Slížová, M.	Standard Measurements of Gloss of Planar Materials	Mikula, M.
Šedivá, Z.	Study of Red Dyes Used in Color Layers of Artworks	Reháková, M..

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Bražinová, V.	Study of Stabilization Methods of Documents Containing Transitional Elements Compounds	Reháková, M.
Klásková, Z.	Study of Model Systems of Historic Inks	Jančovičová, V.
Kovašičová, Z.	Kinetic Study of Ageing of Historical Documents caused by Transitional Metals	Čeppan, M.
Lendacký, M.	Study of Graphical Images on Polymer Substrates	Dvonka, V.
Miháľová, M.	Study of Retardation Effect of Antioxidants on Degradation of Historical Documents	Havlíňová, B.
Nagyová, A.	Study of Methods of Evaluation of Printing Quality and Printability of Offset Lithography Printing Papers	Panák, J.
Poľková, A.	Treatment and Modification of Surface Properties of Papers Using Atmospheric Plasma	Mikula, M.
Raková, S.	Preparation and Study of Properties of Polymer Layers Using in Packaging	Jančovičová, V.

VIII. PUBLICATIONS

Article in journal

- [1] Bukovský, Vladimír, Trnková, Mária, Jakubíková, Zuzana: Light-induced Oxidation of Newsprint Sheets in a Paper. Part 2: Extent of Degradation Changes. *Restaurator* 27, 3, pg. 200-217, 2006.
- [2] Hanus, Jozef, Čeppan, Michal: Európsky projekt MIP Prechodné prvky v papieri -Tematická sieť 5RP/EVK4-CT-2002-2010. *Slovenská archivistika*, no. 2, vol. 41, pp. 210-215, 2006.
- [3] Havlíňová, B., Jančovičová, V., Brezová, V., Čeppan, M., Turanová, M.: Study of Ageing of Arylmethane Dyes by UV-VIS Spectroscopy. *Restaurator*, vol. 27, pp. 24-34, 2006.
- [4] Murárová, Anna, Podobeková, Silvia, Jakubíková, Zuzana: Zmáčateľnosť povrchovo upravených textilných materiálov. *Chem. Listy* 8, 100, pg. 753, 2006.
- [5] Murárová, Anna, Podobeková, Silvia, Jakubíková, Zuzana, Rusnák, Andrej: The Wetting Ability of Polyester and Polypropylene Textile Materials Modified by Pigments on Their Surfaces. *Vlákná a Textil* 1 - 2, 2006.

Article in conference proceedings

- [1] Brezová, V., Staško, A., Zalibera, M., Jančovičová, V., Čermáková, T.: Antioxidant properties of honey samples. In *Vitamins 2006 (Health Ingredients Metabolism Analysis)*, 6th International Conference, Pardubice, Czech Republic, pp. 115-116, 2006.
- [2] Búc, D., Bello, I., Mikula, M., Kováč, J., Čaplovičová, M., Chong, Y.; M.: Magnetron sputtering of boron based oxides. In *Proc. of Int. Symp. of Transparent Thin Oxid, TCO 2006, Greece – Crete, FORTH 2006*, pp. 123, 2006.
- [3] Búc, D., Bello, I., Mikula, M., Kováč, J., Hotový, I., Siu, G.: Boron Oxide Films Prepared by Magnetron Sputtering. In *Proc. of Int. Conf. Electronic Devices and Systems, EDS 2006, Brno 2006, Vysoke Uceni Technicke Brno 2006*, pp. 226-231, 2006.
- [4] Csefalvayová, L., Brezová, V., Havlíňová, B.: Application of EPR Spin Trapping Technique in the Investigation of Radical

- Intermediates Involved in Paper Degradation. In 7th European Commission Conference in Prague (31/5-3/6/2006) on cultural heritage research, 2006.
- [5] Csefalvayová, L., Havlínová, B., Čeppan, M., Paulusová, H.: Monitoring of corrosive effects on iron-gall ink on paper. In Pre-Conference Proceedings The Final MIP Conference/2nd International Iron Gall Meeting, Newcastle upon Tyne (UK), pp. 24-26, 2006.
- [6] Dvonka, Vladimír, Čeppan, Michal, Hladník, Aleš: Study of ink-jet prints by fractal analysis and modular transfer function. Editor(s): Barbara Simončič, Klementina Možina, Slava Jeler, Andrej Demšar, In Book of Abstracts - 2nd International Symposium on Novelty in Graphics, University of Ljubljana, Faculty of Natural Sciences and Engineering, Department of Textiles, Ljubljana, Slovenia, pp. 123, 2006.
- [7] Dvonka, Vladimír, Panák, Ján, Čeppan, Michal: Image analysis of the offset printing papers. Editor(s): Barbara Simončič, Klementina Možina, Slava Jeler, Andrej Demšar, In Book of Abstracts - 2nd International Symposium on Novelty in Graphics, University of Ljubljana, Faculty of Natural Sciences and Engineering, Department of Textiles, Ljubljana, Slovenia, pp. 149, 2006.
- [8] Čeppan, M., Dvonka, V., Reháková, M., Hanus, J.: Identifikácia železozalových atramentov fotografou v NIR oblasti. In v tlači, 2006.
- [9] Čeppan, M., Havlínová, B., Ďurovič, M., Csefalvayová, L., Hanus, J., Jančovičová, V.: Chemické aspekty korózie železozalových atramentov. In Zborník XIII. seminára reštaurátorov a historikov, Třeboň, pp. v tlači, 2006.
- [10] Čeppan, M., Neevel, J., Reháková, M.: Identifikácia železozalových atramentov v kresbách pomocou reflexnej optovláknovej spektroskopie. In Zborník XIII. seminára reštaurátorov a historikov, Třeboň, pp. v tlači, 2006.
- [11] Čeppan, Michal, Reháková, Milena, Jančovičová, Viera, Voltmarová, Veronika, Hanus, Jozef: Effect of Copper on Iron Gall Ink Corrosion - Kinetic and Colorimetric Study. In Pre-Conference Proceedings The Final MIP Conference/2nd International Iron Gall Meeting, Newcastle upon Tyne (UK), pp. 80-81, 2006.
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- [13] Hanus, Jozef, Hanusová, Emília, Mináriková, Jarmila, Szabóová, Zuzana, Bukovský, Vladimír, Čeppan, Michal, Katuščák, Svetozár, Vrška, Milan: Preventive conservation - the role of macro- and micro-environment in archives and libraries. In Pre-Conference Proceedings The Final MIP Conference/2nd International Iron Gall Meeting, Newcastle upon Tyne (UK), pp. 45-47, 2006.
- [14] Havlínová, B., Jančovičová, V., Marušicová, B., Maková, A.: Vplyv antioxidantov na spomalenie starnutia historických dokumentov. In Zborník XIII. seminára reštaurátorov a historikov, Třeboň, pp. v tlači, 2006.
- [15] Hojerová, J., Šovčíková, D., Mikula, M.: In vitro evaluation photostability of the commercial UV filter's. In Proceedings of the International Conference of Cosmetology, Bratislava - Baronka 2006, pp. 77-82, 2006.
- [16] Jančovičová, V., Čeppan, M., Reháková, M., Havlínová, B.: Vplyv medi na koróziu železozalových atramentov. Kinetické a kolorimetrické štúdium. In Zborník XIII. seminára reštaurátorov a historikov, Třeboň, pp. v tlači, 2006.
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- [21] Mikula, M., Pinčík, E.: Structural Properties of SiO_x Layer Deposited on Flexible PET Foil. In Int. Conf. 5th on Solid State Surfaces and Interfaces, SSSI V, Smolenice 2006, Institute of Physics SAS, Nov. 2006, pp. 69, 2006.
- [22] Mináriková, J., Mihálová, B., Havlínová, B.: Konzervovanie historických dokumentov so železozalovým atramentom pomocou antioxidantov. In Zborník XIII. seminára reštaurátorov a historikov, Třeboň, pp. v tlači, 2006.
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- [24] Pinčík, E., Brunner, R., Mikula, M.: On Solar Energy Demand and Si-based Solar Cell Technology. In SILIKON 06, Rožnov, pp. 22, 2006.
- [25] Pinčík, E., Brunner, R., Takahashi, M., Mikula, M., Rusnák, J.: Brief solar photovoltaic industry overview with focus to Japan production. In ECOVAST Biennial General Assembly, 2006.
- [26] Pinčík, E., Kobayashi, H., Brunner, R., Glesková, H., Mikula, M.: Very thin and ultrathin oxide/a-Si:H structures and polycrystalline-Si MOS type of solar cells. In SILIKON 06, Rožnov, pp. 21, 2006.
- [27] Vizárová, K., Reháková, M., Kirschnerová, S., Klizánová, H., Škuciová, R.: Štúdium stability materiálov použitých na reštaurovanie barokovej olejomalby. In v tlači, 2006.

Technical report

- [1] Panák, Ján, Dvonka, Vladimír, Čeppan, Michal: Záverečná správa k projektu č. APVT-26-038602: Vplyv štruktúry vláknitej siete a vlastností vlákien na prenosové a kvalitatívne parametre papiera. Etapa 6 Výskum hodnotenia kvality tlače. Fakulta chemickej a potravinárskej technológie, 2006.

DEPARTMENT OF INFORMATION ENGINEERING AND PROCESS CONTROL

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I. STAFF

Full Professors:

Ján Mikleš, PhD, DSc; Alojz Mészáros, PhD;

Associate Professors:

Monika Bakošová, PhD; Ján Danko, PhD; Ján Dvoran, PhD; Miroslav Fikar, PhD;

Assistant Professors :

Ľuboš Čírka, PhD; Mária Karšaiová, PhD; Magdaléna Ondrovičová; Anna Vasičkaninová; Tomáš Hirmajer;

PhD Students:

Karol Calík; Peter Burian; Lukáš Dermíšek; Martin Herceg; Tomáš Hirmajer; Peter Líška; Lucia Pastoreková; Dalibor Puna; Katarína Vaneková; Juraj Vöröš; Jana Závacká;

Technical staff:

Monika Cepeková; Miroslav Haruštiak; Andrea Kalmárová; Stanislav Vagač;

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Process Control
Laboratory of Control Systems
Laboratory of Measuring Instruments and Techniques
Computer Laboratory (PC - Windows, Linux)
Computer Laboratory (Solaris)

B. Research laboratories:

Laboratory of Control Theory
Laboratory of Modelling and Simulation
Laboratory of Identification
Laboratory of Optimisation
Laboratory of Neural Networks
Laboratory of Fuzzy Control and Expert Systems
Laboratory of Chemical Reactor Analysis and Control
Laboratory of Biochemical Process Analysis and Control
Laboratory of Distillation Column Analysis and Control
Laboratory of Computer Aided Design (Siemens – SIMATIC S-7 300, FOXBORO, Yokogawa)

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Informatics	1/0/2	Hirmajer, Čižniar, Herceg, Líška, Pastoreková, Puna, Vaneková, Vasičkaninová, Závacká
2. semester (Bc)	Computer Based Data Processing	0/0/2	Čírka, Dermíšek, Burian, Karšaiová, Ondrovičová
	Optimisation	3/3/0	Dvoran, Calík, Hirmajer, Ondrovičová, Pastoreková, Vasičkaninová
5. semester (Bc)	Computer Based Data Processing	0/0/2	Dermíšek, Karšaiová,

			Ondrovičová
6. semester (Bc)	Automatic Control Fundamentals	2/0/0	Bakošová, Fikar
	Laboratory Exercises of Automatic Control Fundamentals	0/0/2	Bakošová, Fikar, Karšaiová, Vasičkaninová, Puna, Závacká
	Bachelor projects	0/0/4	Bakošová, Čirka, Fikar, Hirmajer, Puna
1. semester (MSc)	Process Control	1/0/2	Bakošová, Karšaiová
	Process Dynamics	2/0/0	Bakošová
	Operating Systems	1/0/1	Fikar
	Control Devices and Systems	2/0/1	Danko
	Computer Programs	1/0/2	Čirka
	Laboratory Project I	0/0/8	Bakošová, Čížniar, Karšaiová, Čirka
2. semester (MSc)	Optimisation	2/0/1	Dvoran
	Control Theory I	2/0/2	Čirka, Mikleš
	Laboratory Exercises of Control Theory I	0/0/2	Mikleš
	Experimental Identification	2/0/0	Fikar
	Laboratory Project II	0/0/6	Čirka, Danko, Dvoran, Mikleš, Ondrovičová
	Modelling and Control of Polymerisation Processes	2/0/2	Dvoran
	Process Dynamics	2/0/0	Bakošová
	Laboratory Exercises of Process Dynamics	0/0/1	Bakošová
	Measurement of Process Variables	1/2/0	Čirka
3. semester (MSc)	Control Theory II	2/0/0	Mikleš
	Laboratory Exercises of Control Theory II	0/0/2	Mikleš
	Intelligent Control Systems	2/0/0	Dvoran
	Semestral Project	0/0/8	Čirka, Dvoran, Karšaiová, Vaneková
	CAD systems	2/0/0	Karšaiová
	Industrial Applications of Process Control	2/0/0	Vaneková
	Control of Technological Processes	1/0/2	Bakošová
	Robust Control	2/0/0	Fikar
4. semester (MSc)	Diploma Theses	0/0/27	Čirka, Fikar, Mikleš, Ondrovičová

IV. CURRENT RESEARCH PROJECTS

VEGA Project No 1/1046/04 Progressive methods of adaptive and intelligent control applied to processes of chemical/biochemical technologies (Alojz Mészáros)

The scientific project is focused on development of new strategies of adaptive, robust and intelligent control with respect to potential applications to the processes of chemical/biochemical technologies. The main goal is to make further progress in the field of adaptive lambda-tracking and artificial neural network (ANN) based identification and control. For effective ANN training a new approach is proposed: the hybrid modelling method. New adaptive and robust control structures are designed and tested by both, computer simulations and laboratory control experiments. An original, inverse plant model based robust neural controller is introduced through bias neuron weights adaptation as well as neuro-fuzzy system utilization. An integrating factor of project objectives is application of results to non-linear chemical processes through simulation experiments as well as laboratory scale implementation. As reference processes chemical reactor, biochemical reactor, fixed-bed tube reactor and distillation column are chosen. Results achieved will be offered for industrial application in collaboration with external partners.

Project duration: from 01.01.2004 to 31.12.2006

VEGA Project No 1/3081/06 Optimisation and control of chemical and biochemical processes (Miroslav Fikar)

The project deals with development of modern control and optimisation methods and focuses into processes typical in chemical and food industries: chemical reactors, distillation columns, waste-water treatment plants, and others. Involves static and dynamic, and global optimisation methods, predictive control as well as supervisory

control. Developed algorithms, controllers, and control structures will be tested by simulations and in laboratory conditions.

Project duration: from 01.01.2006 to 31.12.2008

Project of French National Science Foundation Polynomial optimisation of complex systems ECO-NET (Miroslav Fikar)

The project investigates the possibility to use the newest results in polynomial methods and linear matrix inequalities developed in LAAS-CNRS Toulouse for solution of various problems: robust control (CTU Prague), control of chaotic systems (ITIA Prague), predictive control (STU Bratislava), nonlinear control (IMPRES, Sankt Peterburg). The cooperation enables to spread the field of applications and the partners become familiar with the latest progress in theoretical and practical aspects of polynomial optimisation.

Project duration: from 01.01.2006 to 31.12.2007

Project of Slovak – Czech Scientific Cooperation No SK-CZ 11206 Progressive robust and adaptive control methods for processes with heat and mass transfer (Monika Bakošová)

The project deals with development of progressive approaches to control of systems with uncertainties and focuses on processes with heat and mass transfer typical for chemical and food technologies, as e.g. distillation columns, heat exchangers, chemical reactors and others. Development of methods of robust analysis, robust stabilization and robust control of systems with uncertainties constitutes the core of the project. Modern adaptive control methods are investigated as well. Designed algorithms and control structures are tested by simulations and on laboratory processes.

Project duration: from 01.01.2006 to 31.12.2007

Project of Slovak – Czech Scientific Cooperation No SK-CZ 11106 Advanced control methods for processes of chemical and food technologies (Miroslav Fikar)

The aim of the project is to develop advanced methods for control and optimisation of processes in chemical and food technology, e.g. chemical reactors, distillation columns, sludge processes, etc. Methods of dynamic and global optimisation, predictive control and multistage control design are investigated. Developed control algorithms, controllers and control structures are tested by simulations and in laboratory conditions.

Project duration: from 01.01.2006 to 31.12.2007

Project of Slovak – Hungarian Scientific Cooperation No 21 Modelling and control of modern processes with heat and mass transfer (Alojz Mészáros)

With regard to ongoing research projects at the two partner departments, 3 research areas can be selected for future scientific collaboration. They are: Chemical Process Modelling and Control, Integrated Process Design, Hybrid Separation Process Design.

Project duration: from 01.01.2005 to 31.12.2006

V. CURRENT EDUCATION PROJECTS

KEGA Project No 3/3121/05 Network of virtual laboratories for control of real systems (Miroslav Fikar)

The aim of the project is to create an open network of virtual laboratories in Slovakia connected together via Internet and to laboratory networks abroad. The project will also implement and test properties of centralised network managed by an educational portal and distributed network created from servers on the participants' laboratories.

Project duration: from 1.1.2005 to 31.12.2007

ESF Project No 13120110014 Program of continuing education in industrial automation and information technologies (Miroslav Fikar)

The aim of the project is to realize various courses in industrial automation and information technologies for support of employment.

Project duration: from 1.1.2005 to 31.12.2006

ESF Project Development of human resources for research in the field of automation (Miroslav Fikar)

The main aim of the project is to improve quality of employment of Bratislava region using development of human resources in research. Project should enforce regional research in automation, to create and develop learning society and network connected to national and international communities, to transfer the newest knowledge from academia to industry, and to increase awareness of enterprises about the research potential in the region.

Project duration: from 1.10.2004 to 31.12.2006

ESF Project No 13120120287 Training of university teachers for using of ICT in educational process (Miroslav Fikar)

The main aim of the project is to improve quality of training of university teachers for using of ICT in educational process, to give them possibility to obtain the certificate comparable with ECDL, to attract them for using of e-learning and to create the consulting service for ICT.

Project duration: from 1.11.2006 to 31.11.2008

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
ProCS, Ltd., Šaľa	Education in process dynamic and control	Bartošovič Štefan, director, Kráľovská 8, Šaľa	01.12.2006 -
Institute of Control and Industrial Informatics, FEEIT STU, Bratislava	Education in information technologies and automatic control.	Huba Mikuláš, associate professor, Ilkovičova 3, Bratislava	01.06.2004 -
Department of Automation, Informatics and Instrumentation, FME STU, Bratislava	Education in information technologies and automatic control.	Rohal'-Ilkiv Boris, professor, Nám. Slobody 17, Bratislava	01.06.2004 -

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Department of Process Control and Computer Techniques, FCT, University of Pardubice, Czech Republic	Advanced control methods for processes of chemical and food technologies.	Taufer Ivan, professor, Nám. Čs. legií 565, Pardubice, Czech Republic	01.01.2000 -
LSGC-CNRS, Ecole Nationale Supérieure des Industries Chimiques (ENSIC), Nancy, France	Dynamic optimisation of distillation columns, waste-water treatment plants.	Latifi Mohamed Abderrazak, professor, 1 rue Grandville, Nancy, France	01.01.1997 -
LAAS CNRS, Toulouse, France	polynomial methods	Didier Henrion, professor, 7 avenue du Colonel Roche, Toulouse, France	01.01.2006 -
Control Engineering Laboratory, FEIS, Ruhr University, Bochum, Germany	Closed-loop identification, predictive control.	Unbehauen Heinz, professor, Universitätstr. 150, Bochum, Germany	01.01.1998 -

Control Engineering Laboratory, FEIS, Ruhr University, Bochum, Germany	E-learning in control.	Schmid Christian, professor, Universitätstr. 150, Bochum, Germany	01.01.2003 -
Institute of Information Technologies, Tomas Bata University, Zlín, Czech Republic	Adaptive control, decentralized control.	Dostál Petr, professor, Nám. T. G. Masaryka 275, Zlín, Czech Republic	01.01.1998 -
Institute of Information Technologies, Tomas Bata University, Zlín, Czech Republic	Adaptive control, robust control.	Prokop Roman, professor, Nám. T. G. Masaryka 275, Zlín, Czech Republic	01.01.1998 -
Department of Chemical Engineering, TU Budapest, Hungary	Modelling of chemical processes,	Mizsey Peter, professor, Mülgzetem rkp. 3, Budapest, Hungary	01.01.1996 -
Faculty of Electrical Engineering, Czech Technical University, Prague, Czech Republic	Adaptive control, polynomial synthesis.	Šebek Michael, Technická 2, Prague, Czech Republic	01.01.1998 -

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Bakošová Monika	Slovak Society of Chemical Engineering	member	03.05.1995 -
Dvoran Ján	Slovak Society of Chemical Engineering	member	03.05.1995 -
Mészáros Alojz	Slovak Society of Chemical Engineering	member	03.05.1995 -
Mikleš Ján	Slovak Society of Chemical Engineering	member	03.05.1995 -
Dvoran Ján	Slovak Society for Cybernetics and Informatics	member	01.01.1992 -
Mikleš Ján	Slovak Society for Cybernetics and Informatics	member	01.01.1992 -
Mészáros Alojz	Slovak Society for Cybernetics and Informatics	member	01.01.1992 -
Bakošová Monika	Slovak Society of Industrial Chemistry	member	01.01.1983 -
Čírka Ľuboš	Slovak Society of Industrial Chemistry	member	01.01.1998 -
Danko Ján	Slovak Society of Industrial Chemistry	member	01.01.1975 -
Dvoran Ján	Slovak Society of Industrial Chemistry	member	01.01.1975 -
Fikar Miroslav	Slovak Society of Industrial Chemistry	member	01.01.1990 -
Karšaiová Mária	Slovak Society of Industrial Chemistry	member	01.01.1975 -
Mészáros Alojz	Slovak Society of Industrial Chemistry	member	01.01.1981 -
Mikleš Ján	Slovak Society of Industrial Chemistry	member	01.01.1975 -
Ondrovičová Magdaléna	Slovak Society of Industrial Chemistry	member	01.01.1991 -
Vasičkaninová Anna	Slovak Society of Industrial Chemistry	member	01.01.1985 -
Dermíšek Lukáš	Slovak Society of Industrial Chemistry	member	01.01.2003 -
Mikleš Ján	Scientific Grant Agency VEGA MŠSR a SAV - Commission for Electrotechnics and Informatics	member	30.04.2002 -
Mikleš Ján	Commission for defense of dissertations (DSc) at science 28-30-9 Chemical Engineering and Process Control	member	01.11.1998 -
Mikleš Ján	Commission for defense of dissertations (DSc) at science 38-01-9 Automation and Control	chairmann	01.01.1998 -
Mikleš Ján	Common branch commission for PhD study at science 28-30-9 Chemical Engineering and Process Control	vice-chairman	01.01.1998 -
Bakošová Monika	Common branch commission for PhD study at science 28-30-9 Chemical Engineering and Process Control	member	02.12.2003 -
Danko Ján	Common branch commission for PhD study at science 28-30-9 Chemical Engineering and Process Control	member	01.01.1998 -
Dvoran Ján	Common branch commission for PhD study at science 28-30-9 Chemical Engineering and Process Control	member	01.01.1998 -
Fikar Miroslav	Common branch commission for PhD study at science 28-30-9 Chemical Engineering and Process Control	member	02.12.2003 -
Mészáros Alojz	Common branch commission for PhD study at science 28-30-9 Chemical Engineering and Process Control	member	01.01.1998 -
Mikleš Ján	Common branch commission for PhD study at science 38-01-9 Automation and Control	member	09.09.1997 -
Bakošová Monika	Common branch commission for the field of study 5.2.14 Automation	member	01.03.2005 -
Dvoran Ján	Common branch commission for the field of study 5.2.14 Automation	member	01.03.2005 -

Fikar Miroslav	Common branch commission for the field of study 5.2.14 Automation	member	01.03.2005 -
Mészáros Alojz	Common branch commission for the field of study 5.2.14 Automation	member	01.03.2005 -
Mikleš Ján	Common branch commission for the field of study 5.2.14 Automation	member	01.03.2005 -
Mikleš Ján	Editorial board of AT&P Journal	member	01.01.1993 -
Dvoran Ján	Editorial board of AT&P Journal	member	01.01.1993 -
Mészáros Alojz	Editorial board of AT&P Journal	member	01.01.1993 -
Mikleš Ján	Editorial board of Cybernetics and Informatics	member	01.01.1993 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Mikleš Ján	International Federation of Automatic Control, Technical Committee on Control Design	member	01.01.1996 -
Mikleš Ján	International Federation of Automatic Control (IFAC), Slovak National Member Organisation (Slovak NMO)	other	01.01.1997 -
Bakošová Monika	Czech Society of Chemical Engineering	member	01.01.2000 -
Mészáros Alojz	Czech Society of Chemical Engineering	member	01.01.2000 -
Mészáros Alojz	The New York Academy of Sciences	member	01.01.1996 -
Mészáros Alojz	Public Board of the Hungarian Academy of Sciences	member	01.01.2004 -
Mészáros Alojz	European Federation of Biotechnology	member	01.01.1997 -
Fikar Miroslav	EUCA (European Union Control Association) Council	member	01.12.2005 -

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Taufer, I.	Faculty of Technology, University of Pardubice, Pardubice	Czech Republic	October 2006 (5 days)
Javurek, M.	Faculty of Technology, University of Pardubice, Pardubice	Czech Republic	October 2006 (4 days)
Pekař, L.	Faculty of Applied Informatics, Tomas Bata University, Zlín	Czech Republic	October 2006 (3 days)
Prokop, R.	Faculty of Applied Informatics, Tomas Bata University, Zlín	Czech Republic	October 2006 (3 days)
Dlapa, M.	Faculty of Applied Informatics, Tomas Bata University, Zlín	Czech Republic	October 2006 (5 days)
Kvasnica, M.	Faculty of Applied Informatics, Tomas Bata University, Zlín	Czech Republic	October 2006 (5 days)
Mizsey, P.	Budapest University of Technology and Economics	Hungary	November 2006 (1 day)
Horvath, M.	Budapest University of Technology and Economics	Hungary	November 2006 (6 days)
Mate, G.	Budapest University of Technology and Economics	Hungary	November 2006 (6 days)
Matušu, R.	Faculty of Applied Informatics, Tomas Bata University, Zlín	Czech Republic	December 2006 (6 day)
Taufer, I.	Faculty of Technology, University of Pardubice, Pardubice	Czech Republic	November 2006 (5 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Bakošová, M.	5th MATHMOD, Vienna	Austria	February 2006 (2 days)
Fikar, M.	Cybernetics and Systems 2006, Vienna	Austria	April 2006 (3 days)
Hirmajer, T.	Cybernetics and Systems 2006, Vienna	Austria	April 2006 (3 days)
Mészáros, A.	Budapest University of Technology and Economics, Budapest	Hungary	April 2006 (2 days)
Mikleš, J.	7th International Carpathian Conference, Rožnov	Czech Republic	May 2006 (3 days)
Fikar, M.	IFAC Symposium ACE 2006, Madrid	Spain	June 2006 (5 days)
Bakošová, M.	Faculty of Applied Informatics, Tomas Bata University, Zlín	Czech Republic	June 2006 (2 day)
Bakošová, M.	7th International Scientific-Technical Conference Process Control 2006, Kouty nad Desnou	Czech Republic	June 2006 (4 days)
Čírka, L.	7th International Scientific-Technical Conference Process Control 2006, Kouty nad Desnou	Czech Republic	June 2006 (4 days)
Čížniar, M.	7th International Scientific-Technical Conference Process Control 2006, Kouty nad Desnou	Czech Republic	June 2006 (4 days)
Fikar, M.	7th International Scientific-Technical Conference Process Control 2006, Kouty nad Desnou	Czech Republic	June 2006 (4 days)
Hirmajer, T.	7th International Scientific-Technical Conference Process Control 2006, Kouty nad Desnou	Czech Republic	June 2006 (4 days)
Ondrovičová, M.	7th International Scientific-Technical Conference Process Control 2006, Kouty nad Desnou	Czech Republic	June 2006 (4 days)
Pastoreková, L.	7th International Scientific-Technical Conference Process Control 2006, Kouty nad Desnou	Czech Republic	June 2006 (4 days)
Vasičkaninová, A.	7th International Scientific-Technical Conference Process Control 2006, Kouty nad Desnou	Czech Republic	June 2006 (4 days)
Závacká, J.	7th International Scientific-Technical Conference Process Control 2006, Kouty nad Desnou	Czech Republic	June 2006 (4 days)
Mikleš, J.	7th International Scientific-Technical Conference Process Control 2006, Kouty nad Desnou	Czech Republic	June 2006 (4 days)
Bakošová, M.	14th Mediterranean Conference on Control and Automation, Ancona	Italy	June 2006 (5 days)
Čírka, L.	ECO-NET Workshop on Polynomial Optimization for Systems Control, Toulouse	France	July 2006 (5 days)
Puna, D.	17th Int. Congress of Chemical and Process Engineering CHISA, Prague	Czech Republic	August 2006 (6 days)
Fikar, M.	ENSIC-INPL, Nancy	France	August-September 2006 (12 days)
Bakošová, M.	Principia Cybernetica, Zlín	Czech Republic	September 2006 (3 days)
Dvoran, J.	Principia Cybernetica, Zlín	Czech Republic	September 2006 (3 days)
Mikleš, J.	VDI/VDE-GMA IFAC, Heidelberg	Germany	September 2006 (3 days)
Fikar, M.	European Union Control Association, Sevilla	Spain	September 2006 (4 days)
Bakošová, M.	Faculty of Applied Informatics, Tomas Bata University, Zlín	Czech Republic	September 2006 (1 day)
Mikleš, J.	IEEE International Conference on Control Applications	Germany	October 2006 (5 days)
Čírka, L.	Conference Technical Computing, Prague	Czech Republic	October 2006 (2 days)
Fikar, M.	e-learning Conference, Eisenstadt	Austria	October 2006 (3 days)
Čížniar, M.	Budapest University of Technology and Economics	Hungary	October 2006 (7 days)
Fikar, M.	Budapest University of Technology and Economics	Hungary	October 2006 (5 days)

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Beňová, G.	Cascade control of a laboratory fan heater.	Bakošová, M.
Hudý, S.	Design of dynamic HTML documents.	Čírka, L.
Lanák, R.	Creation of dynamic HTML forms with the help of PHP and MySQL.	Hirmajer, T.
Paulen, R.	Control of time-delay systems.	Bakošová, M.
Šlapanský, P.	Creation of the LCZA module in the e-learning system MOODLE.	Hirmajer, T.
Švančarová, Z.	Dynamic HTML pages.	Puna, D.
Zika, R.	Modelling and control of dynamical systems in MATLAB/Simulink	Čírka, L.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Herceg, M.	Nonlinear model predictive control of a diesel engine with exhaust gas recirculation and variable geometry turbocharger.	Fikar, M.
Petrůš, P.	Identification toolbox for MATLAB/Simulink.	Čírka, L.
Stolárik, I.	Optimization of a CSTR.	Mikleš, J.
Šátková, B.	E-learning module for laboratory exercises of Process Control Fundamentals.	Čírka, L.
Ševčík, Š.	Dynamic optimisation of processes.	Fikar, M.
Vaneková, K.	Control by control system Simatic.	Ondrovičová, M.

F. Inauguration Theses

Name	Title of Thesis	Head of Board
Fikar, M.	Control of Processes with Constraints.	Báleš, V.

VIII. PUBLICATIONS

Article in journal

- [1] Hirmajer, T., Fikar, M.: Dynamic Optimization of a Hybrid Coupled Tanks System. Journal of Electrical Engineering, no. 3, vol. 57, pp. 167-172, 2006.
- [2] Hirmajer, T., Fikar, M.: Optimal Control of a Two-Stage Reactor System. Chemical Papers, no. 5, vol. 60, pp. 381-387, 2006.
- [3] Hirmajer, T., Fikar, M.: Optimálne riadenie sústavy chemických reaktorov. AT&P Journal, no. 11, vol. 13, pp. 69-72, 2006.
- [4] Vasičkaninová, A., Bakošová, M., Dvoran, J.: Tvorba neuro-fuzzy modelov metódou Anfis. AT&P journal, no. 11, vol. 13, pp. 73-76, 2006.
- [5] Vasičkaninová, A., Bakošová, M., Dvoran, J.: Využitie fuzzy regulátorov pri kaskádovom riadení chemického reaktora (2). AT&P Journal, no. 1, vol. 13, pp. 65-66, 2006.
- [6] Závacká, J., Bakošová, M., Puna, D.: Robustné riadenie chemického reaktora. AT&P journal, no. 11, vol. 13, pp. 65-68, 2006.

Article in conference proceedings

- [1] Bakošová, M, Puna, D, Závacká, J: Robust control of a chemical reactor using static output feedback. In Proc. 17. Int. Congress of Chemical and Process Engineering CHISA 2006, Process Engineering Publisher, pp. CDR0M- 0816, 2006.
- [2] Bakošová, M, Puna, D, Závacká, J: Robust control of a chemical reactor using static output feedback. In Summaries 4, System Engineering, CHISA 2006, Process Engineering Publisher, pp. 927-928, 2006.
- [3] Bakošová, M., Baleja, J., Čírka, L.: MODELTOOL 1.0 - a Model Toolbox for MATLAB/Simulink. In 14th Annual Conference Proceedings: Technical Computing Prague 2006, pp. 12-12, 2006.

- [4] Bakošová, M., Baleja, J., Vasičkaninová, A.: MODELTOOL 1.0 - a model toolbox for MATLAB/Simulink. Editor(s): Troch, I., Breitenecker, F., In Proc. 5th MATHMOD Vienna, AGRESIM - Verlag, Vienna, 2006, Vienna, Austria, vol. 1, pp. 347, 2006.
- [5] Bakošová, M., Baleja, J., Vasičkaninová, A.: MODELTOOL 1.0 – A MODEL TOOLBOX FOR MATLAB/SIMULINK. Editor(s): Krejčí, S., In Proc. 7. Int. Scientific-Technical Conf. Process Control 2006, University of Pardubice, Kouty nad Desnou, Czech Republic, pp. 115, 2006.
- [6] Bakošová, M., Baleja, J., Vasičkaninová, A.: MODELTOOL 1.0 – A MODEL TOOLBOX FOR MATLAB/SIMULINK. Editor(s): Krejčí, S., In Proc. 7. Int. Scientific-Technical Conf. Process Control 2006, University of Pardubice, Kouty nad Desnou, Czech Republic, pp. CD ROM R074a-1 - R074a-5, 2006.
- [7] Bakošová, M., Baleja, J., Vasičkaninová, A., Puna, D.: MODELTOOL 1.0 - a model toolbox for MATLAB/Simulink. Editor(s): Markoš, J., Šefuca, V., In Proc. 33rd Int. Conf. SSCHE, Publishing House of STU, Bratislava, Tatranské Matliare, Slovakia, pp. 189, 2006.
- [8] Bakošová, M., Baleja, J., Vasičkaninová, A., Puna, D.: MODELTOOL 1.0 - a model toolbox for MATLAB/Simulink. Editor(s): Markoš, J., Šefuca, V., In Proc. 33rd Int. Conf. SSCHE, SSCHE Bratislava, Tatranské Matliare, Slovakia, pp. CDROM 044p, 2006.
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- [10] Bakošová, M., Fikar, M.: Using the LMS Moodle in Process Dynamics Education. Editor(s): M. Huba, In Proc. of 7th International Conference Virtual university 2006, Bratislava, pp. 224-228, 2006.
- [11] Bakošová, M., Puna, D., Mészáros, A.: Control of a continuous-time stirred tank reactor via robust static output feedback. In Prep. 14th Mediterranean Conference on Control and Automation, Ancona, Italy, pp. CD ROM TM5-5, 2006.
- [12] Bakošová, M., Puna, D., Závacká, J., Ondrovičová, M.: ROBUST CONTROLLER DESIGN OF A CHEMICAL REACTOR USING LMIs. Editor(s): Krejčí, S., In Proc. 7. Int. Scientific-Technical Conf. Process Control 2006, University of Pardubice, Kouty nad Desnou, Czech Republic, pp. 43, 2006.
- [13] Bakošová, M., Puna, D., Závacká, J., Ondrovičová, M.: ROBUST CONTROLLER DESIGN OF A CHEMICAL REACTOR USING LMIs. Editor(s): Krejčí, S., In Proc. 7. Int. Scientific-Technical Conf. Process Control 2006, University of Pardubice, Kouty nad Desnou, Czech Republic, pp. CD ROM R074b-1 - R074b-11, 2006.
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- [15] Burian, P., Horváth, M., Mizsey, P., Mészáros, A.: Modeling of Ethylbenzene Production Process with Internal Recycle. In Proc. 33rd Int. Conference of SSCHE, Tatranské Matliare, Slovakia, (prednáška: Burian), pp. CD ROM, 061p, 2006.
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7. International Scientific-Technical Conference Process Control 2006, University of Pardubice, Kouty nad Desnou, Czech Republic, pp. CD ROM R075-1 - R075-9, 2006.
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Technical manual

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DEPARTMENT OF LANGUAGES

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Assistant Professors :

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Technical staff:

Katarína Věpyová;

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

English language classroom
German language classroom
Computer-operated Data Video Projector Room

B. Research laboratories:

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Technical English I.	0/2/0	Horáková, Kachničová, Oreská, Polóniová, Štefanovičová
	Technical German I.	0/2/0	Kuželová
	English language I.	0/2/0	Horáková, Kachničová, Oreská, Polóniová
	Slovak language I. (for foreign students)	/0/4/0	Kuželová
1. semester (Bc)	Russian language	0/2/0	Kachničová
	German language	0/2/0	Kuželová
	English conversation	0/2/0	Kachničová
2. semester (Bc)	Technical English II.	0/2/0	Horáková, Oreská, Polóniová, Štefanovičová
	Technical German II.	0/2/0	Kuželová
	English language II.	0/2/0	Horáková, Kachničová, Oreská, Polóniová
	Slovak language II. (for foreign students)	/0/4/0	Kuželová
2. semester (Bc)	Russian language	0/2/0	Kachničová
	German language	0/2/0	Kuželová
	English conversation	0/2/0	Kachničová
3. semester (Bc)	Technical English I.	0/2/0	Horáková, Oreská, Polóniová, Štefanovičová
	Technical English II.	0/2/0	Horáková, Kachničová, Oreská, Polóniová
	English language I.	0/2/0	Horáková, Oreská, Polóniová, Štefanovičová
	English language II.	0/2/0	Horáková, Oreská, Polóniová, Štefanovičová
3. semester (Bc)	Russian Language	0/2/0	Kachničová
	German Language	0/2/0	Kuželová
	English conversation	0/2/0	Kachničová
4. semester (Bc)	Technical English I.	0/2/0	Horáková, Oreská, Polóniová, Štefanovičová
	Technical English II.	0/2/0	Horáková, Kachničová, Oreská, Polóniová
	English language I.	0/2/0	Horáková, Oreská, Polóniová, Štefanovičová
	English language II.	0/2/0	Horáková, Kachničová, Oreská, Polóniová, Štefanovičová
4. semester (Bc)	Russian Language	0/2/0	Kachničová
	German Language	0/2/0	Kuželová
	English conversation	0/2/0	Kachničová

5. semester (Bc)	Technical English I.	0/2/0	Horáková, Oreská, Polóniová, Štefanovičová
	Technical English II.	0/2/0	Horáková, Oreská, Polóniová, Štefanovičová
	English language I.	0/2/0	Horáková, Kachničová, Oreská, Polóniová, Štefanovičová
	English language II.	0/2/0	Horáková, Kachničová, Oreská, Polóniová, Štefanovičová
5. semester (Bc)	Russian Language	0/2/0	Kachničová
	German Language	0/2/0	Kuželová
	English conversation	0/2/0	Kachničová
6. semester (Bc)	Technical English I.	0/2/0	Horáková, Oreská, Polóniová, Štefanovičová
	Technical English II..	0/2/0	Horáková, Oreská, Polóniová, Štefanovičová
	English language I.	0/2/0	Horáková, Kachničová, Oreská, Polóniová, Štefanovičová
	English language II.	0/2/0	Horáková, Kachničová, Oreská, Polóniová, Štefanovičová

B. Postgraduate Study:

3 semesters of an optional course in English for Specific Purposes /0/2/0; Oreská, Horáková

V. CURRENT EDUCATION PROJECTS

A. Poster Design and Presentation

Continual preparation of talented students for annual language competition.

Participation: 17 students

Date: 15 May 2006

Place: Department of Languages

References: www.chtf.stuba.sk/kj in: News after expiration

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Language departments of STU, Bratislava	Preparing syllabuses for EU exam courses UNICERT introducing besides the general language also the area of professional language	Polóniová Veronika, assistant professor, FCHPT STU, Radlinského 9, 812 37 Bratislava	01.01.2000 -
Specialist departments of FCHPT STU, Bratislava	Language section of the annual "Students' Scientific and Research Activity" competition - advisers Zálupský Peter, Šima Jozef	Oreská Alžbeta, head of Language Department, FCHPT STU, Radlinského 9, 812 37 Bratislava	01.01.1994 -
Slovak Association of Translators and Interpreters, Bratislava	Multimedia and Translation	Polóniová Veronika, assistant professor, FCHPT STU, Radlinského 9, 812 37 Bratislava	01.01.1998 -
University of Third Age, STU, Bratislava	Language course	Oreská Alžbeta, head of Language Department, FCHPT STU, Radlinského 9, 812 37 Bratislava, Horáková Magdaléna, assistant professor, FCHPT STU, Radlinského 9, 812 37 Bratislava	1. 9. 2003 - 1. 1. 2006 -
Language Centre, Rectorate of STU, Bratislava	Language courses: ZoD 2/330/06, ZoD 111/06	Kuželová Viera, head of Language Centre STU, Radlinského 9, 812 37 Bratislava	01.01.1994 -

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Leonardo da Vinci Community	EU Vocational Action Programme - practical placements for Slovak University students (cooperation with Civil Engineering Faculty STU)	Horáková Magdaléna, assistant professor, FCHPT STU	12.12.2003 -

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Slovak Association of Translators and Interpreters, Bratislava	Translation and Interpreting in Technical English(Polóniová Veronika)	member	01.01.1998 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
British Council - Resource Centre, Bratislava	Teaching English for Specific Purposes (Horáková Magdaléna)	member	01.09.1996 -

VIII. PUBLICATIONS

Article in conference proceedings

- [1] Czuka, G., Polóniová, V.: Translation of Scientific Headlines. In Zborník z medzinárodnej konferencie Translation from/into Languages with Limited Diffusion, Budmerice, 2006.

DEPARTMENT OF MANAGEMENT

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Štefan György, Ph.D.; Dr. Milan Majerník; Jana Kajanová, Ph.D.; Jana Plchová, PhD.; Monika Zatrochová, PhD.; Martina Kuperová; Pavol Olejník.

Technical staff:

Katarína Macušková

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Computerized Technique

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Fundamentals of Environmental Philosophy	(2-0 h)	Špirko
	Philosophy	(2-0 h)	Špirko
	Fundamentals of Law	(2-0 h)	György
2. semester (Bc)	Fundamentals of General Theory of Economy	(4-0 h)	Majerník
	Fundamentals of General Theory of Economy	(2-2 h)	Majerník
	Fundamentals of General Theory of Economy	(2-0 h)	Majerník
	General Theory of Economy	(2-0 h)	Majerník
	Fundamentals of Law	(2-0 h)	György
3. semester (Bc)	Human Resource Management	(2-0 h)	Herzka
	Economics and Company Management	(2-2 h)	Herzka
	Logics	(2-0 h)	Špirko
5. semester (Bc)	Economics and Management of Enterprise	(2-2 h)	Šostroneková, Kajanová, Olejník
	Corporate Finances	(2-2 h)	Baran
	Economics and Company Management	(2-2 h)	Herzka
	Quality Management	(2-1 h)	Herzka
	Marketing	(2-2 h)	Špirko
	Social Communication	(2-0 h)	Špirko
6. semester (Bc)	Accounting	(2-2 h)	Šostroneková
	Introduction to Law	(2-0 h)	György
	Semester Project	(0-4 h)	Baran
1. semester (MSc)	Calculations and Prices	(2-2 h)	Šostroneková, Kajanová
	Enterprise Economy	(2-2 h)	Herzka
	Operations Research	(3-2 h)	Šostroneková, Kuperová
	Strategic Management of Chemical Plants	(2-1 h)	Herzka, Kuperová
	Supplying and distribution logistics	(2-2 h)	Kuperová, Olejník
2. semester (MSc)	Capital Market and Corporation Finances	(2-0 h)	Baran, Olejník, Zatrochová
	Financial Market	(2-2 h)	Baran, Olejník, Zatrochová
	Production Management	(2-1 h)	Herzka
	Management of Investment Development	(1-1 h)	Herzka, Plchová

	Marketing	(2-0 h)	Špirko
	Marketing	(2-2 h)	Plchová
	Operational Analysis	(2-2 h)	Kuperová
3. semester (MSc)	Analysis of Corporate Economics	(3-2 h)	Baran, Majerník
	Financial Management	(3-2 h)	Baran, Svítková, Zatrochová
	Fundamentals of Mercantile and Financial Law	(2-0 h)	György
	System of Taxes	(2-0 h)	Baran, Plchová
	Annual Project	(0-4 h)	Baran

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/3768/06, Development of controlling as a management instrument in enterprises of the chemical, pulp and paper, and food industry (Dušan Baran)

The research project deals with the up-to-date and very important problems of the research and application of the modern management methods considered from the aspects of economic sciences. The project analyses the current state of the application and implementation modern management methods in the conditions of the Slovak Republic and abroad, especially in EU and USA. The project considers the external and internal conditions of the above-mentioned application and formulates the solutions for creating the scientific background of subsystem and controlling instruments (subject, key words, explanations and definitions of the research).

Following the presented analyses, the project defines and develops already used methods, procedures, models and management techniques under the conditions of the market economy of the transforming states.

Subsequently, the project recommends the unified models of solution, applications and the implementation of the subsystem and controlling instruments into the entrepreneurial sphere.

The project contributes to developing the scientific and theoretical basis and above all to the development of modern management methods.

Project duration: from 1 January 2006 to 31 December 2008

B. VEGA Project No 1/3610/06, Philosophical, Ethical, Social and Environmental Aspects of the Engineer-Technological and Managerial Activities- Professional, Social and Environmental Responsibility of the Engineer and Manager (Dušan Špirko)

The project is aimed do identify, analyze and develop some philosophical-methodological, ethical (also some legislative) and environmental aspects of the future professional activities carried out by graduates of the Slovak University of Technology, especially of the Faculty of Chemical and food Technology.

The practical purpose of the project is to apply and integrate the above-indicated aspects into the process of the professional preparation of engineering-technological and managerial workers; these assignments will be implemented on considering some peculiarities of the chemistry and food-industry and emphasizing the principles of the professional, social and environmental responsibility of the engineer and manager.

Analysis and Development of the Ethical Aspects of Managerial Activities (the Source Principles of Business Ethics - the Principles of the Social Responsibility of a Manager).

Project duration: from 1 January 2006 to 31 December 2008

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person
Frucona Košice, Inc.	Material-technical cooperation	Ing. Ján Király, general manager and chairman of the Board of directors
CCW, Ltd. Bratislava	Pedagogic cooperation	Dipl.Ing. Magdaléna Sulanová, marketing manager
Slovak association of small enterprises	Scientific-technical cooperation	Ing. Vladimír Sirotko, PhD.
Stock exchange, Inc. in Bratislava	Pedagogic cooperation	Ing. Barbora Lazorová

TENTO, Inc. Žilina	Material-technical cooperation	Ing. Marián Majtán, financial director
Chemosvit, Inc. Svit	Material-technical cooperation	Ing. Vlad. Balogh, Ing. Ján Olekšák
Matej Bel University, Faculty of Economics, Banská Bystrica	Pedagogical cooperation	Prof. Jaroslav Ďado Prof. Eva Marková
University of Economy, Bratislava	Pedagogical cooperation	Prof. Július Alexy Prof. Miroslav Majtán Prof. Štefan Slávik Assoc. Prof. Šubertová Elena
University of Žilina, Faculty of Economics, Transport and Communication	Pedagogical cooperation	Prof. Štefan Cisko Prof. Štefan Hittmar Assoc. Prof. Jozef Strišš Assoc. Prof. Szilágyi
Slovak University of Technology, Faculty of Materials Science and Technology, Trnava	Pedagogical cooperation	Prof. Jozef Sáblik Assoc. Prof. Miloš Čambal Assoc. Prof. Alexander Štrbka Prof. Peter Sakál
Slovak University of Technology, Faculty of Mechanical Engineering	Pedagogical cooperation	Assoc. Prof. Štepka Igor Prof. Dita Hekelová
Slovak University of Technology, Faculty of Civil Engineering	Pedagogical cooperation	Prof. Koloman Ivanička, Prof. Trávník Igor, Assoc. Prof. Mária Zúbková
Alexander Dubček University, Faculty of Social-Economic Relations, Trenčín	Pedagogical cooperation	Doc. Miroslav Mečár, CSc., Assoc. Prof. Sergej Vojtovič
Comenius University Bratislava, Faculty of Management	Pedagogical cooperation	Prof. Sedlák Michal Assoc. Prof. Ľubica Bajžíková
Technical University, Faculty of Mechanical Engineering, Košice	Pedagogical cooperation	Prof. Ing. Igor Liberko, CSc., Doc. Ing. Jozef Mihok, CSc.

B. International Cooperation

Institution	Type of cooperation	Responsible person
BORSOD CHEM Moravian Chemical Plants, Ostrava Czech Republic	Material-technical and pedagogic cooperation	Ing. Alexander Pálffy, CSc. general manager
University of Economics, Faculty of Business Administration, Prague, Czech Republic	Pedagogical cooperation	Prof. Eduard Stehlík, Prof. Ing. Kisligerová, PhD. Assoc. Prof. Ludmila Mládková, Assoc. Prof. Jan Koudelka
Institute of Chemical Technology, Faculty of Chemical Engineering, Prague, Czech Republic	Pedagogical cooperation	Prof. Ivan Gros Assoc. Prof. Stanislava Grosová
Karol Adamiecki University of Economics in Katowice, Faculty of Management, Poland	Pedagogical cooperation	Prof. Kornelia Karcz Prof. Żofia Kedzior
University of Economics in Krakow, Faculty of Management, Poland	Pedagogical cooperation	Prof. Jan W. Wiktor
Tallin Technical University	Pedagogical cooperation	Prof. habil. doctor Vaino Rajangu
Vilnius University, Faculty of Humanities in Kaunas, Lithuania	Pedagogical cooperation	Prof. Vítuskas Vengrauskas Assoc. Prof. Jogaila Mačerinskas Assoc. Prof. Irena Mačerinskiene
Masaryk University Brno, Faculty of Economics and Administration, Czech Republic	Pedagogical cooperation	Prof. Blažek Miroslav Dr. Viliam Záthurecký
Technische Universität (Technical University) Darmstadt, Institut für Betriebswirtschaftslehre	Pedagogical cooperation	Prof. Dr. Günther Specht

Lvov Polytechnic National University, Institute of Economics and Management, Ukraine	Pedagogical cooperation	Assoc. Prof. Natalia Čuchraj
Kiev National Economic University, Ukraine	Pedagogical cooperation	Prof. I. L. Reshetnikova
University of Pardubice, Faculty of Chemical Technology, Czech Republic	Pedagogical cooperation	Prof. Hana Lošťáková, Assoc. Prof. Oto Machač, Assoc. Prof. Jaroslava Hyršlová
University of Daugavpils, Latvia	Pedagogical cooperation	Prof. Gončarovs, Genadij Prof. S. Didenko, (Dean)
Technical University of Riga, Latvia	Pedagogical cooperation	Prof. Natalia Lace
University of Kuopio, Finland	Pedagogical cooperation	Molnár, Ferdinand, PhD.

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Baran, D.	Slovak Society for Industrial Chemistry	member	from 2000
György, Š.	Slovak Society for Industrial Chemistry	member	from 2000
Herzka, P.	Slovak Society for Industrial Chemistry	member	from 2000
Kajanová, J.	Slovak Society for Industrial Chemistry	member	from 2000
Kuperová, M.	Slovak Society for Industrial Chemistry	member	from 2000
Macušková, K.	Slovak Society for Industrial Chemistry	member	from 2000
Majerník, M.	Slovak Society for Industrial Chemistry	member	from 2000
Olejník, P.	Slovak Society for Industrial Chemistry	member	from 2006
Přichová, J.	Slovak Society for Industrial Chemistry	member	from 2000
Šostroneková, M.	Slovak Society for Industrial Chemistry	member	from 2000
Špirko, D.	Slovak Society for Industrial Chemistry	member	from 2000
Špirko, D.	Scientific Council of Faculty of Arts of University of Constantin the Philosopher in Nitra	member	from 2006
Špirko, D.	Academy Senate of FCHPT	member	from 2001
Špirko, D.	Slovak Philosophical Association	member	from 1990
Špirko, D.	Slovak Society of Military History and Historical Guns Shooters	secretary	from 1993
Špirko, D.	Slovak Shooting Federation	member	from 1992
Zatrochová, M.	Slovak Society for Industrial Chemistry	member	from 2000

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Baran, D.	Corporate Governance Association	member	from 2004
Baran, D.	Czech Marketing Society	member	from 2004
Špirko, D.	Central European Napoleonic Society	member	from 2000

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Pálffy, A.	Borsodchem MCHZ, Ostrava	Czech Republic	June 2006 / 2 days September 2006 / 2 days
Němeček, P.	Brno University of Technology	Czech Republic	September 2006 / 2 days
Šimberová I.	Brno University of Technology	Czech Republic	September 2006 / 2 days
Botek, M.	Institute of Chemical Technology, Prague	Czech Republic	September 2006 / 2 days
Gros, I.	Institute of Chemical Technology, Prague	Czech Republic	June 2006 / 2 days September 2006 / 2 days

Name	Organisation or Institution	State	Date / Duration
Grosová, S.	Institute of Chemical Technology, Prague	Czech Republic	June 2006 / 2 days September 2006 / 2 days
Hloušková, P.	Institute of Chemical Technology, Prague	Czech Republic	September 2006 / 2 days
Hradecký, P.	Institute of Chemical Technology, Prague	Czech Republic	September 2006 / 2 days
Kodera J.	Institute of Chemical Technology, Prague	Czech Republic	September 2006 / 2 days
Nolčová, V.	Institute of Chemical Technology, Prague	Czech Republic	September 2006 / 2 days
Strachota, S.	Institute of Chemical Technology, Prague	Czech Republic	September 2006 / 2 days
Strachotová D.	Institute of Chemical Technology, Prague	Czech Republic	September 2006 / 2 days
Vegnerová, P.	Institute of Chemical Technology, Prague	Czech Republic	September 2006 / 2 days
Mačerinskiene, I.	Kaunas University of Technology	Lithuania	September 2006 / 2 days
Oržekauskas, P.	Kaunas University of Technology	Lithuania	September 2006 / 2 days
Šimanauskas, S.	Kaunas University of Technology	Lithuania	September 2006 / 2 days
Przybysz, J.	Poznan University of Technology, Faculty of Computing Science and Management, Institute of Management Engineering, Poznan	Poland	September 2006 / 2 days
Hyršlová J.	University of Pardubice, Faculty of Chemical Technology, Pardubice	Czech Republic	September 2006 / 2 days
Lošťáková, H.	University of Pardubice, Faculty of Chemical Technology, Pardubice	Czech Republic	June 2006 / 2 days
Machač, O.	University of Pardubice, Faculty of Chemical Technology, Pardubice	Czech Republic	September 2006 / 2 days
Nožička, J.	University of Pardubice, Faculty of Chemical Technology, Pardubice	Czech Republic	September 2006 / 2 days
Koudelka, J.	University of Economics, Prague	Czech Republic	September 2006 / 2 days
Mládková, L.	University of Economics, Prague	Czech Republic	September 2006 / 2 days
Mačerinskas, J.	Vilnius University, Kaunas Faculty of Humanities, Kaunas	Lithuania	September 2006 / 2 days
Simanavičienė, Ž.	Vilnius University, Kaunas Faculty of Humanities, Kaunas	Lithuania	September 2006 / 2 days
Hluchníková, M.	VŠB - Technical University of Ostrava	Czech Republic	September 2006 / 2 days
Steinová, M.	VŠB - Technical University of Ostrava	Czech Republic	September 2006 / 2 days

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Baran, D.	Borsodchem MCHZ, Ostrava	Czech Republic	March 2006 / 1 day
Baran, D.	Borsodchem MCHZ, Ostrava	Czech Republic	May 2006 / 2 days
Baran, D.	Borsodchem MCHZ, Ostrava	Czech Republic	November 2006 / 1 day
Baran, D.	Brno University of Technology	Czech Republic	May 2006 / 2 days
Baran, D.	Brno University of Technology	Czech Republic	June 2006 / 2 days
Baran, D.	Czech University of Agriculture, Prague	Czech Republic	March 2006 / 3 days
Baran, D.	Institute of Chemical Technology, Prague	Czech Republic	February 2006 / 1 day
Baran, D.	Technical University of Riga	Latvia	September 2006 / 4 days /
Baran, D.	Technical University of Tallin	Estonia	May 2006 / 2 days

Name	Organisation / Institution / Conference	State	Date / Duration
Baran, D.	University of Pardubice	Czech Republic	Juni 2006 / 2 days
Baran, D.	University of Pardubice	Czech Republic	November 2006 / 1 day
Baran, D.	University of Economics, Prague	Czech Republic	June 2006 / 2 days
Baran, D.	University of Kuopio	Finland	May 2006 / 5 days
Baran, D.	Vilnius University, Vilnius	Lithuania	September 2006 / 3 days
Špirko, D.	University of Pardubice	Czech Republic	November 2006 / 1 day

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Baričová, L.	Multinational Harmonization of Accounting	Šostroneková, M.
Belková, D.	Cost and its Construction in Firm's Practice	Kajanová, J.
Fuksová, N.	Costs in Enterprises Activities	Píchová, J.
Hammerová, Z.	Procurement of Work for Employees by Personal Agencies	Herzka, P.
Harajdová, M.	Corporate Costs and Their Classification	Baran, D.
Kolandrová, B.	Position of Accounting in the Firm's Managerial processes	Kajanová, J.
Matogová, S.	Information Sources for the Strategic Planning of a Firm	Špirko, D.
Záchenská, Z.	Relationship of firm and firm's Finance and Foreign	Zatrochová, M.

B. Graduate Theses (M.Sc. Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Bednářová, Z.	Solution of the Distribution of Goods by Means of Logistic Instruments, Informatics and Synergistic Effects	Kuperová, M.
Benčková, M.	Product of Insurance Market in Selected Insurance Company	Zatrochová, M.
Bilančíková, B.	Financial and Economic Analysis of the Selected Company	Baran, D.
Bogdanová, T.	Utilization in Costplus Pricing Inside Research Institute Water System	Šostroneková, M.
Brtková, M.	Position of Marketing Agency on the Market in SR	Špirko, D.
Dušová, R.	Impact Assessment of Quality Management System on Economy of Food Enterprise	Píchová, J.
Feranc, J.	Financial Analysis in a Selected Enterprise	Kajanová, J.
Filipovičová, P.	Communication Strategy of a Selection Business Company	Špirko, D.
Kozempelová, L.	Strategic System of Measuring the Performance of the Company Smurfit Kappa Obaly Štúrovo, a.s. through the Balanced Scorecard Method	Baran, D.
Lukáčová, K.	Application of Controlling in the Sphere of a Company	Kajanová, J.
Nagy, M.	Project Management of EU Funds	Majerník, M.
Nagyová, E.	Creating of Integrated Management Systems in Food Company	Píchová, J.
Ostrochovská, E.	Goals and Functions of the Human Resource Management in a Business Sphere	Herzka, P.
Pastucha, M.	Price Influences on the Business Activity of Enterprise	Kajanová, J.
Ridzoň, J.	Financial Analysis of a Medium Business Firm	Majerník, M.
Škvarková, L.	Implementation of the Intercompany Controlling in the Company's Practice	Baran, D.
Uhnava, X.	Management of Sales Activities in Business	Kuperová, M.
Žídeková, Z.	Application of the Project Management in Conditions of the Selected Organization	Baran, D.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Píchová, J.	The economical aspects of implementation of EMS in the practice of industrial enterprises	Piatrík, M.
Zatrochová, M.	Real estate market - business center	Ivanička, K.

VIII. PUBLICATIONS

Book

- [1] Baran, D., Pálffy, A., Čvančarová, Z., Olejník, P.: Finačno-ekonomická analýza podniku v praxi, IRIS Bratislava, 134 pages, 2006.
- [2] Majerník, M.: Základy všeobecnej ekonomickej teórie, STU Bratislava, 160 pages, 2006.

Article in journal

- [1] Baran, D.: Strategický rozvoj podniku a Balanced Scorecard. Podniková ekonomika a manažment, no. 3, 2006.
- [2] Baran, D., Mikloš, M.: European Chemical Industry - The Past, Present, and Future. VADYBA (Management). Vilnius University, Lithuania, no. 2/2006, pp. 15 - 21, 2006.
- [3] Baran, D., Olejník, P.: Quo vadis chemický priemysel. Vedecké listy FCHPT STU v Bratislave, Katedry manažmentu, no. 3, pp. 6-13, 2006.
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- [5] Kajanová, J.: Informačný systém podniku ako nástroj zvyšovania konkurencieschopnosti. Vedecké listy Fakulty chemickej a potravinárskej technológie Slovenskej technickej univerzity v Bratislave, Katedry manažmentu, no. 2/2006, vol. roč. II, pp. 60 - 67, 2006.
- [6] Kajanová, J.: Motivation in Small and Medium sized Enterprises. VADYBA (Management). Vilnius University, Lithuania, no. Nr. 1(9), (vyšlo v roku 2005), 2006.
- [7] Kajanová, J.: Populárne verus nepopulárne zvyšovanie cien. Vinič a víno, no. 4, vol. 6, pp. príloha 12, s. 85, 2006.
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- [9] Kajanová, J.: The relationship between business finance and accounting. VADYBA (Management). Vilnius University, Lithuania, no. Nr. 2 (11), pp. 58 – 64, 2006.
- [10] Kajanová, Jana: Záverečné hodnotenia a analýzy. Vinič a víno, no. 6, pp. 131-132, 2006.
- [11] Majerník, M.: Finačná analýza skupiny podnikov. Vedecké listy Fakulty chemickej a potravinárskej technológie Slovenskej technickej univerzity v Bratislave, Katedry manažmentu, no. 2/2006, vol. roč. II, pp. 80 - 88, 2006.
- [12] Majerník, M.: Využitie finančnej analýzy v riadiacej činnosti manažéra a finančné prostriedky z Európskej únie. Podniková ekonomika a manažment, pp. 74 - 79, 2006.
- [13] Plchová, J.: Integrácia manažérskych systémov v praxi. Vedecké listy Fakulty chemickej a potravinárskej technológie Slovenskej technickej univerzity v Bratislave, Katedry manažmentu, no. 2/2006, vol. Roč. II, pp. 107 - 112, 2006.
- [14] Zatrochová, M.: Credit Sources and Possibilities of their Acquisition in Slovakia. Vadyba (Management). Vydáva Vilniuská univerzita, Vilnius, no. 2/2006, pp. 170 - 176, 2006.

Article in conference proceedings

- [1] Baran, D.: Čo je projektový management?. In Moderné prístupy k manažmentu podniku. Oddelenie manažmentu FCHPT STU, STU, pp. 13-16, 2006.
- [2] Baran, D.: Experience with a tax reform in the Slovak republic after two years from its implementation. In Management, Economics and Business Development in the new European Conditions. FP VUT Brno, pp. 9, 2006.
- [3] Baran, D.: Implementácia vnútropodnikového controllingu v podnikovej praxi. In Trendy v systémoch riadenia podnikov. TU Košice, Strojnícka fakulta, Herľany 26. - 27. 10. 2006, pp. 1-13, 2006.
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- [10] Baran, D., Olejník, P., Hrotko, L.: Tax and Parafiscal burden in the present period in the Slovak republic. In Business Development

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- [36] Špirko, D.: Profesionálna, spoločenská a environmentálna zodpovednosť – dôležitý faktor vo výchove inžiniera i v humanizácii technického vzdelávania. In Problémy a perspektívy humanizácie vzdelania. Zborník príspevkov z vedeckého seminára. Fakulta ekonomiky a manažmentu SPU, Nitra 13. 11. 2006., SPU Nitra, pp. 44 - 54, 2006.

Phd thesis

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- [2] Zatrochová, Monika: Rozvinutý realitný trh - obchodné centrá. SvF STU Bratislava, 2006. (Supervisor: prof. Ing. Koloman Ivanička, PhD.)

DEPARTMENT OF MATHEMATICS

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Associate Professors:

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Assistant Professors :

Jozef Antoni, PhD; Július Bánki, PhD; Štefan Boor, MSc; Ivan Garaj, PhD; Eva Hainzlová, MSc; Ľubomíra Horanská, PhD; Milan Jasem, PhD; Peter Sarkoci, Ing.; Štefan Babinec, Ing.

PhD Students:

Štefan Babinec, Ing., Jozef Babjak, Ing., Peter Grančič, Ing., Dagmar Zelisková, Ing.

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory equipped by personal computers for the Basics of Computer Science

B. Research laboratories:

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Calculus I	2/3/0	Antoni, Baláž, Horanská, Jasem, Fabrici Kolesárová, Šabo, Hainzlová, Bánki, Garaj
	Calculus I (external study)	2/2/0	Kolesárová, Jasem
	Calculus I (FA STU)	2/2/0	Boor, Varga
	Informatics	1/0/2	Antoni, Bánki, Hainzlová, Babinec, Boor
	Informatics (external study)	1/0/2	Babinec, Boor, Hainzlová
	Informatics and algorithms	2/0/1	Babinec, Kvasnička
	Informatics and algorithms (external study)	2/0/1	Babinec, Kvasnička
2. semester (Bc)	Calculus II	4/4/0	Baláž, Horanská, Jasem, Šabo, Kolesárová, Bánki, Boor, Garaj, Hainzlová
	Calculus II (external study)	2/2/0	Baláž
	Programming I	1/0/2	Pospíchal, Antoni, Babinec
	Programming I (external study)	1/0/2	Antoni, Babinec
3.semester (Bc)	Applied Statistics	1/0/1	Varga, Garaj
	Calculus III	1/0/1	Baláž
	Calculus III (external study)	1/0/1	Baláž, Horanská
	Programming II	1/0/2	Pospíchal, Antoni, Babinec
	Programming II (external study)	1/0/2	Antoni, Babinec
5. semester (Bc)	Calculus III	2/0/2	Garaj, Varga, Jasem
	Calculus III (external study)	1/0/1	Garaj
2. semester (MSc)	Artificial intelligence in chemistry	2/0/1	Kvasnička
	Statistics	2/0/1	Varga
	Laboratory of specialization II	0/0/6	Sarkoci, Zelisková
	Numerical Mathematics	2/0/1	Šabo
3. semester (MSc)	Database systems	2/0/1	Antoni
	Laboratory of specialization	0/0/10	Horanská, Boor, Antoni
	Financial mathematics	2/0/0	Horanská

IV. CURRENT RESEARCH PROJECTS

Conjunctive aggregation operators VEGA GRANT No. 1/3012/06 (Anna Kolesárová)

Aggregation is an important process in any sphere of life where it is necessary to obtain from a partial information a single output value representing the input data. In many areas, e.g., in knowledge-based systems, multi-criteria decision making, applications in fuzzy set theory, etc., various types of numerical aggregation operators are needed. We are interested in conjunctive types of aggregation operators, especially triangular norms, which are associative conjunctive operators, important, e.g., in fuzzy logics; copulas and quasi-copulas, which are types of conjunctive 1-Lipschitz aggregation operators, not necessarily associative, playing an important role in probability theory and statistics. We focus our attention on the construction of such operators or their best possible bounds from partial information on subdomains and on the problem of dominance of triangular norms. The aim of the project is also to propose methods for identification of copulas from observed data and application of the obtained results for investigation of the dependence structure of more dimensional random variables.

Project duration: from 01/01/2006 to 31/12/2008

Many valued logics in expert systems VEGA GRANT No. 1/ 2005/05 (Michal Šabo)

Many valued logics allow to use vague and uncertain human knowledge expressed in natural language in decision processing. Preference modelling, fuzzy modelling, multicriteria decision making, utilisation of neural network, prediction of time series, fuzzy regression models are important parts of many valued inference processes. These projects face many problems for solution of which can be used the classical knowledge from mathematical analysis, discrete mathematics, graph theory, theoretical computer science. Such problems are, e.g., problems of convenience of fuzzy connectives, existence of preference structures, domination of operators, similarities of objects. Applications of the results of this project can be expected in many-valued inference modelling, fuzzy analysis, topology, chemical technology, energetics, management etc. Some theoretical results can enrich the classical set theory and mathematical analysis.

Project duration: from 01/2005 to 12/2007

Echo state neural networks VEGA GRANT No. 1/1047/04 (Jiří Pospíchal)

The goal of the project is the study of a modern approach to recurrent neural networks, which is exceptionally suitable both for a time series prediction, as well as for modeling of cognitive processes in artificial neural systems. Neural network in this approach includes a block of neurons with a recurrent architecture, which is randomly generated and the weight coefficient of its connections are fixed during the learning stage of the network. The input activities incoming to the neural network will be mapped onto a rich dynamic structure of activities of hidden neurons, which are used as an input to the layer of output neurons. The learning of this network consists in adjusting of weight coefficients between hidden neurons and output neurons. Weight coefficients between the hidden and the input neurons and in-between hidden neurons are randomly generated and do not change during the learning stage. Current research emphasis is on evolutionary improvement of networks bringing more robustness to the quality of predictions.

Project duration: from 01/01/2004 to 31/12/2006

Predictions in Neural Networks and Regression models Project Kniha SK (Štefan Varga)

Predictions in neural networks and regression models is a partial theme that we have solved in the project Kniha SK (co-ordinator Svetozár Katusčák, ODCP). The aim of the project is the study of modern methods of predictions of discrete and continuous random variables and random vectors. In the field of regression analysis our interest is oriented to the logistic regression models, where the output variable is qualitative and to the nonparametric regression, where the regression model for the output variable is unknown. The problem in the both studied parts of regression analysis is to predict the output variables. Another problem is to compare these predictions with the predictions acquired using the neural networks.

Project duration: from 01/01/2006 to 31/12/2007

V. CURRENT EDUCATION PROJECTS

A. Mathematics on-line: An internet course KEGA GRANT No. 3/10063 (Jana Dobráková / Anna Kolesárová)

The aim of the project is to propose and create the framework for a dynamical mathematical electronic education using XML documents, with respect to new pedagogical methods. The electronic net course will be addressed to the students of all faculties at STU in the first year of their study.

Project duration: from 01/01/2003 to 31/12/2006.

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
SjF STU Bratislava	New trends in teaching mathematics	Doc. J. Dobráková, Mgr. M. Kováčová	2003-2006
FEI STU Bratislava	New trends in teaching mathematics	Doc. Ľ. Marko	2003-2006
SAV Bratislava	Scientific cooperation in Number Theory	Doc. O. Strauch, Doc.S. Jakubec	2003-2006
FMFI UK Bratislava	Scientific cooperation in Theory of Real function	Prof. P. Kostyrko	2003-2006
SvF STU	Scientific cooperation - Theory of aggregation operators and multi-criteria decision making	Prof. RNDr. R. Mesiar, DrSc.	2006-

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
J. Kepler University, Linz	Scientific cooperation - Theory of aggregation operators	Prof. E.P. Klement	2006
Universita di Lecce, Italy	Scientific cooperation in Statistics	Prof. C. Sempi	2006
J. Kepler University, Linz	Scientific cooperation - Theory of triangular norms and copulas	Prof. E.P. Klement, Dr. Saminger, Dr. F. Durante	2006
University of Gent, Belgium	Scientific cooperation - Theory of triangular norms	Prof. B. De Baets	2006
Center for Machine Perception, UK Praha	Scientific cooperation - Theory of triangular norms	Prof. Ing. M. Navara, DrSc.	2006
FFP UO, Opava	Organization of a seminar on Artificial Life and Cognition	Prof. RNDr. J. Kelemen, DrSc.	1.5.2000-
University J. Monnet, St. Etienne	Scientific cooperation (prog. Štefánik)	Prof. G. Grekos	2006
University de Provence, CMI, Marseille	Scientific cooperation in Uniform Distribution Theory	Prof. P. Liardet	2006-2007
Prírodoved. Fak. OU Ostrava	ERASMUS	Doc. L. Mišík, CSc	2006-2007
Pedagog.. Fak. OU Ostrava	ERASMUS	Doc. J. Kostra, CSc	2006-2007
Univ. Luminy, Marseille de Provence IMP	Scientific cooperation	Prof. H. Favvre	2006

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Kvasnička Vladimír	Slovak Academic Society	member	1997
Kvasnička Vladimír	Slovak Artificial Intelligence Society	chairmann	29.8.2000-
Kvasnička Vladimír	Slovak Computer Science Society	member	1.1.1996-
Kvasnička Vladimír	Slovak Society for Mathematicians and Physicists	member	1980-1992
Kvasnička Vladimír	Scientific Commity of FCHPT STU	member	1.9.2002-
Kvasnička Vladimír	Scientific Commity of FIIT STU	member	1.10.2003-
Kvasnička Vladimír	Joint Commission for PhD study in Applied Informatics	member	1.1.1998-
Kvasnička Vladimír	Joint Commission for PhD study in Artificial Intelligence	member	1.1.2000-
Šabo Michal	Joint Commission for PhD study in Applied Mathematics	member	1.1.1998-
Kvasnička Vladimír	Commission for defence of DrSc. dissertations in Chemical Physics	member	1.1.1998-
Garaj Ivan	Technical commission TK71 Applications of statistical methods in quality control	member	1.1.2003
Garaj Ivan	Committee of Slovak Statistical and Demographic Society	member	1.1.2000
Kolesárová Anna	Slovak Society for Mathematicians and Physicists	member	1974-
Kolesárová Anna	Editorial Board of Tatra Mountains Math. Publ.	member	1998
Šabo Michal	Slovak Society for Mathematicians and Physicists	member	1968-
Pospíchal Jiří	Slovak Computer Science Society	member	1.1.1996-
Pospíchal Jiří	Slovak Artificial Science Society	member	29.8.2000-
Antoni Jozef	Slovak Society for Mathematicians and Physicists	member	1968-
Baláž Vladimír	Slovak Society for Mathematicians and Physicists	member	1978-
Baláž Vladimír	Slovak Mathematical Society	Member	1996-
Jasem Milan	Slovak Society for Mathematicians and Physicists	member	1978-
Varga Štefan	Slovak Society for Mathematicians and Physicists	member	1968-
Horanská Ľubomíra	Slovak Society for Mathematicians and Physicists	member	1993-

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Kvasnička Vladimír	MATCH Communications in Mathematical Chemistry	member of advisory board	1.1.1998 -
Kvasnička Vladimír	Neural Network World	member of advisory board	1.1.2001 -
Kvasnička Vladimír	Croatica Chimica Acta	member of advisory board	1.1.2002 -
Kolesárová Anna	European Society for Fuzzy Logic and Technology (EUSFLAT)	member	1998-
Šabo Michal	European Society for Fuzzy Logic and Technology (EUSFLAT)	member	1998-
Šabo Michal	SEFI - Mathematical Working Group	member	1994-
Sarkoci Peter	European Society for Fuzzy Logic and Technology (EUSFLAT)	member	2005-
Baláž Vladimír	Editorial Board of Uniform Distribution Theory	manager editor	2005-
Pospíchal Jiří	EURO Working group on fuzzy sets (EUROFUSE) (http://allserv.rug.ac.be/~bdebaets/members.html#SlovakRepublic)	member	1999-

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Varga Štefan	TU Brno: 5th International Mathematical Workshop	Czech Republik	19.-20. 10. 2006
Kolesárová Anna	J.Kepler University, Linz, 27th Linz Seminar	Austria	7. – 11. 2. 2006
Kolesárová Anna	UPMC,Paríž, 11th Int. Conference IPMU ' 2006	France	2. – 7. 7. 2006
Kolesárová Anna	Hochschule Zittau-Goerlitz, 13th East-West Fuzzy Colloquium, Zittau	Germany	13. – 15. 9. 2006
Kolesárová Anna	Universita di Lecce, Lecce	Italy	19. – 27.5. 2006
Šabo Michal	11th Int. Conference IPMU'2006 Paris	France	2. – 7. 7. 2006
Sarkoci Peter	11th Int. Conference IPMU'2006 Paris	France	2. – 7. 7. 2006
Sarkoci Peter	Center for Machine Perception, UK Praha	Czech Republik	1-30.6.2006
Baláž Vladimír	St. Etienne, Conf. Arithmétique et Combinatoire	France	27.6. –29.6. 2006
Baláž Vladimír	Univ. J. Manet, St. Etienne - workshop	France	30.6.–6.7. 2006
Baláž Vladimír	Univ. de Provence, CMI Marseille, stay	France	7.7. – 13.7. 2006
Babinec Štefan	TU Brno: 12th Int. Conf. On Soft Computing Mendel	Czech Republik	31.5-2.6.2006
Babinec Štefan	Int. Conf. On Artificial Neural Networks, Athens	Greece	10.9-14.9.2006
Sarkoci Peter	27th Linz Seminar on Fuzzy Set Theory - Preferences, Games and Decisions	Austria	7. – 11. 2. 2006

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Kadaši Tibor	Predictions in Fuzzy Regression Models	Varga Štefan
Michalková Silvia	Application of Genetic Programming for a Prediction Physico-Chemical Properties	Pospíchal Jiří
Mináriková Kamila	Predictions in Neural Networks and Regression Models	Varga Štefan
Pigoš Ján	Application of Genetic Programming for a Prediction Physico-Chemical Properties	Pospíchal Jiří

VIII. PUBLICATIONS

Article in journal

- [1] Babinec, Š.: Optimization Echo State neural networks with Hebbian learning and Genetic algorithm. Journal of Electrical Engineering, no. 12/s, vol. 56, pp. 28-31, 2006.
- [2] Baláž, V., Strauch, O., Šalát, T.: Remarks on several types of convergence of bounded sequences. Acta Mathematica Universitatis Ostraviensis, no. 14, pp. 1-12, 2006.
- [3] Baláž, V., Šalát, T.: Uniform density u and corresponding I_u convergence. Mathematical Communications, no. 11, pp. 1-7, 2006.
- [4] Cisko, P., Janiga, I., Garaj, I.: Softvér na výpočet minimálnej detegovateľnej hodnoty v prípade konštantnej smerodajnej odchýlky. Forum Statisticum Slovacum, no. 5, pp. 39-42, 2006.
- [5] Garaj, I.: Číslo π a rozvoje funkcií b_f a $\ln(b_f)$. Forum Statisticum Slovacum, no. 5, pp. 60-64, 2006.
- [6] Garaj, I.: Jednostranné preberacie plány meraním. Forum Statisticum Slovacum, 2006, vol. 1, pp. 32-37, 2006.
- [7] Garaj, I.: Požiadavky na rozsah náhodného výberu jednostranných preberacích plánov meraní. Forum Statisticum Slovacum, 2006, vol. 1, pp. 38-43, 2006.
- [8] Janiga, I., Garaj, I.: Necentrálne t-rozdelenie v odhadovaní minimálnej detegovateľnej hodnoty pomocou lineárnej kalibračnej funkcie s konštantnou smerodajnou odchýlkou. Forum Statisticum Slovacum, 2006, vol. 1, pp. 44-50, 2006.
- [9] Janiga, I., Garaj, I.: One-sided Tolerance Factors of Normal Distributions with Unknown Mean and Variability. Measurement science review, Section 1, no. 2, vol. 6, pp. 12-16, 2006.

- [10] Janiga, I., Mocák, J., Cisko, P., Garaj, I., Szarková, D.: Detekcia obsahu ortuťi v potravinách alebo liekoch pomocou lineárnej kalibračnej funkcie. *Forum Statisticum Slovaca*, no. 4, pp. 67-72, 2006.
- [11] Kolesárová, A., Mesiar, R., Mordelová, J., Sempi, C.: Discrete copulas. *IEEE Trans. on Fuzzy Systems*, no. 5, vol. 14, pp. 698-705, 2006.
- [12] Kolesárová, A., Mordelová, J.: Quasi-copulas and copulas on a discrete scale. *Soft Computing*, no. 6, vol. 10, pp. 495-501, 2006.
- [13] Saminger, S., Sarkoci, P., De Baets, B.: The dominance relation on the class of continuous t-norms from an ordinal sum point of view. *Lecture Notes in Artificial Intelligence*, no. 4342, pp. 334-354, 2006.
- [14] Varga, Š.: Regresné modely so zmiešanými efektmi. *Forum Statisticum Slovaca*, vol. 3, pp. 159 - 164, 2006.

Article in conference proceedings

- [1] Babinec, Š, Pospíchal, J.: Merging Echo State and Feedforward Neural Networks for Time Series Forecasting. In *Proceedings of the 16th International Conference ICANN 2006*, Springer-Verlag Berlin Heidelberg, pp. 367-375, 2006.
- [2] Babinec, Š.: Evolutionary optimization methods in Echo State neural networks. In *Proceedings of Mendel 2006, 12th International Conference on Soft Computing*, pp. 95-100, 2006.
- [3] Babinec, Š.: Forecasting with Combined Echo State and Feedforward Neural Networks. Editor(s): M.Bieliková, In *Proceedings of Conference in Informatics and Information Technologies*, Bratislava, pp. 55-62, 2006.
- [4] Babinec, Š.: Metódy evolučnej optimalizácie pri tréňovaní Echo State neurónových sietí. In *Kognice a umělý život VI*, Slezská univerzita, Opava, pp. 25-35, 2006.
- [5] Babinec, Š.: Time Series Prediction with Echo State Neural Networks Adapted by Backpropagation. In *Proceedings of ISCAM*, Bratislava, pp. 6, 2006.
- [6] Klement, E. P., Kolesárová, A., Mesiar, R., Sempi, C.: Copulas Determined by Their Horizontal Sections. Editor(s): Erich Peter Klement, Radko Mesiar, Eva Drobná, Ferdinand Chovanec, In *Eight International Conference on Fuzzy Set Theory and Applications FSTA 2006*, pp. 62-62, 2006.
- [7] Kolesárová, A.: Revision of parametric evaluation of aggregation functions. In *Proceedings 13th Zittau Fuzzy Colloquium*, University of Applied Sciences, Zittau/Goerlitz, pp. 202-211, 2006.
- [8] Kolesárová, Anna, Mesiar, Radko, Sempi, Carlo: Three copulas and copmatibility. In *Proc. of 11th International Conference IPMU'2006*, Éditions EDK, Paris, Les Cordeliers, vol. 1, pp. 658-663, 2006.
- [9] Sarkoci, P.: Conjunctors Dominating Classes of t-conorms. Editor(s): Erich Peter Klement, Radko Mesiar, Eva Drobná, Ferdinand Chovanec, In *Eight International Conference on Fuzzy Set Theory and Applications FSTA 2006*, pp. 93-93, 2006.
- [10] Sarkoci, P.: Dominance of Continuous Triangular Norms and its Transitivity. Editor(s): Janos Fodor, Erich Peter Klement, Marc Roubens, In *27th Linz Seminar on Fuzzy Set Theory - Preferences, Games and Decisions*, Universitätsdirektion, Johannes Kepler Universtat, Linz, pp. 125-128, 2006.
- [11] Varga, Š.: Predictions in mixed effects models. In *5. Matematický workshop 2006*, Brno, pp. 123-124, 2006.
- [12] Varga, Š.: Predikcie v regresných modeloch so zmiešanými efektmi. In *Zborník konf. PRASTAN' 2006*, Selce, pp. CD, 6 strán, 2006.
- [13] Šabo, M., Sarkoci, P.: On Some Functional Equations in Theory of Self-reversible Binary Operations. Editor(s): Erich Peter Klement, Radko Mesiar, Eva Drobná, Ferdinand Chovanec, In *Eight International Conference on Fuzzy Set Theory and Applications FSTA 2006*, pp. 97-98, 2006.
- [14] Šabo, M., Sarkoci, P.: Self-reversible Binary Operations and Their Constructions. In *Proceedings of 11th Int. Conference IPMU'2006*, Éditions EDK, Paris, Les Cordeliers, vol. 1, pp. 617-621, 2006.

DEPARTMENT OF ORGANIC CHEMISTRY

Head of Department:
Prof. Tibor Gracza, PhD, DSc

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I. STAFF

Full Professors:

Prof. Ľubor Fišera, PhD, DSc; Prof. Tibor Gracza, PhD, DSc; Prof. Štefan Marchalín, PhD, DSc;

Associate Professors:

Dušan Berkeš, PhD; Ľubomír Floch, PhD (until 30. 06. 2006); Viktor Milata, PhD; František Považanec, PhD; Štefan Stankovský, PhD; Katarína Špirková, PhD (until 30. 06. 2006); Ladislav Štibrányi, PhD;

Assistant Professors :

Mária Bobošíková, PhD; Anna Koreňová, PhD; Angelika Lásiková PhD; Peter Szolcsányi PhD; Peter Šafář, PhD;

Research Fellows:

Matej Babjak, PhD; Branislav Dugovič, PhD; Andrej Kolarovič, PhD (since 01. 03. 2006); Daniel Végh, PhD, DSc; Peter Zálupský, PhD; Jozefína Žúžiová, PhD;

PhD Students:

Anita Andicsová; Barbora Baumlová; Maroš Bella (since 01. 10. 2006); Eva Hýrošová; Mária Gardiánová; Rasha Jame (since 01. 10. 2006); Peter Kooš; Peter Kubizna; Andrej Pažitný (since 01. 10. 2006); Martin Petro; Zita Puterová; Juraj Rehák; Tomáš Solčán; Tomáš Wiesenganger; Dagmar Winklerová; Miroslava Žáková (since 01. 10. 2006);

Technical staff:

Eva Kaisová; Mária Krajčírová; Mária Nemcová; Anton Pavlíček; Jakub Rečičár; Iva Viskupičová;

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Basic Skills in Organic Chemistry Laboratory I, II.
Organic Synthesis Laboratory

B. Research laboratories:

Laboratory of Organic Synthesis
Laboratory of Chiral Cycloaddition Reactions
Laboratory of Heterocyclic Chemistry
Laboratory of Stereoselective Synthesis
Laboratory of Applied Organic Synthesis
Laboratory of Natural Compounds
Laboratory of Nuclear Magnetic Resonance Spectroscopy
Laboratory of IR and UV Spectroscopy
Laboratory of Gas Chromatography

III. TEACHING

A. Undergraduate Study:

2. semester (Bc)	Chemical Information	1/2/0	Zálupský, Berkeš
2. semester (Bc)	General and Organic Chemistry Laboratory	0/0/4	Stankovský, Kotočová
3. semester (Bc)	Organic Chemistry	2/2/0	Gracza
3. semester (Bc)	Organic and Bioorganic Chemistry	2/1/0	Marchalín, Štibrányi
	Organic Chemistry Laboratory	0/0/4	all teachers and research workers
4. semester (Bc)	Organic Chemistry	2/2/0	Fišera, Považanec
	Organic Chemistry Laboratory	0/0/4	all teachers and research workers
3. semester (Bc) (Pt)	Organic Chemistry	1/1/0	Fišera, Štibrányi

	Organic Chemistry Laboratory	0/0/4	Lásiková, Wiesenganger
4. semester (Bc) (Pt)	Organic Chemistry	1/1/0	Špírková
	Organic Chemistry Laboratory	0/0/4	Stankovský, Winklerová
5. semester (Bc)	Chemical Information	1/1/0	Zálupský,
6. semester (Bc)	Chemical Specialities	2/2/0	Mravec, Štibrányi
	Semestral Project	0/0/4	Berkeš, Fišera, Koreňová, Stankovský, Šafář
1. semester (MSc)	Organometallic Compounds	1/1/0	Gracza
	Mechanisms of Organic Reactions I	3/1/0	Fišera
	Bioorganic Chemistry	2/0/0	Berkeš
	Laboratory Project I	0/0/10	Koreňová, Berkeš
1. semester (MSc)	Organic Chemistry III	1/1/0	Považanec
2. semester (MSc)	Organic Synthesis	2/1/0	Floch
	Asymmetric Synthesis	2/1/0	Gracza
	Stereochemistry	0/2/0	Štibrányi
	Spectroscopic Methods in the Control of Technology	2/2/0	Milata, Segľa
2. semester (MSc)	Laboratory Project II	0/0/6	Šafař, Štibrányi
	Training at Industrial Production Floor	15 d	Fišera, Gracza, Lásiková, Marchalín, Milata, Považanec, Szolcsányi
3. semester (MSc)	Mechanisms of Organic Reactions II	1/1/0	Marchalín
	Applied Organic Synthesis	1/1/0	Považanec
	Physical Organic Chemistry I	0/2/0	Milata
	Chemistry of Heterocyclic Compounds	2/0/0	Stankovský
	Chemistry of Natural Substances and Drugs	2/0/0	Berkeš
	Chemical Information Systems	2/0/0	Zálupský
3. semester (MSc)	Laboratory Project	0/0/10	Fišera, Gracza, Lásiková, Marchalín, Milata, Považanec, Szolcsányi
4. semester (MSc)	Diploma Seminar		Považanec
	Diploma Thesis Project		Fišera, Milata, Štibrányi, Végh

C. Doctoral Study:

1. semester (PhD)	Advanced Organic Chemistry	2/0/0	Gracza
1. semester (PhD)	Advanced Stereochemistry	2/0/0	Fišera
2. semester (PhD)	Structure Reactivity Relationship	2/0/0	Marchalín
3. semester (PhD)	Advanced Organic Chemistry	2/0/0	Milata
3. semester (PhD)	Chemistry of Heterocyclic Compounds	2/0/0	Végh

IV. CURRENT RESEARCH PROJECTS

VEGA project No 1/3549/2006 Asymmetric and Stereoselective Reactions. Dipolar Cycloadditions, Sm(II)-Induced Additions, Cyclizations and Oxycarbonylations in the Total Syntheses of Natural Products and Its Analogues (Lubor Fišera)

The Sm(II) induced diastereoselective reductive coupling of sugar derived nitrones with ethyl acrylate will provide access to a variety of functionalized amino acids directly, or to amino acids as constituents of small peptides. The stereoselective synthesis of optically active polysubstituted pyrrolidin-2-ones and piperidine-2-ones from chiral amino acids which are promising precursors for the synthesis of several pyrrolizidine, pyrrolidine, indolizidine and piperidine alkaloids. The synthesis of non-proteinogenic amino acids derived nitrones, isoxazolidinyl nucleosides, spironucleosides and azanucleosides. The study of the effect of Lewis acids to influence diastereoselectivity of nitron cycloaddition reactions.

Asymmetric palladium(II)-catalyzed oxy-/aminocarbonylation and oxa-/aminobicyclization of unsaturated polyols and aminopolyols. Catalyst design using the calculation of the model for transition state. Correlation of enantioselectivity with calculated models of the transition states for prediction of the reaction stereoselectivity and stereochemistry of the products. The application of these reactions as the asymmetric key-steps in the total syntheses of natural compounds.

Project duration: from 01.01.2006 to 31.12.2008

APVV project LPP-0238-06 Asymmetric synthesis based on a template for crystallization-induced asymmetric transformation (CIAT) (Lubor Fišera)

Detailed information on application of acylacrylic subunit as a template for crystallization-induced asymmetric transformation (CIAT). Marking out the boundary for effective asymmetric synthesis by this method. Acquisition of information essential for next shift from acylacrylic template towards crystallization auxiliaries, making accessible future synthetic options. Simplification of existing synthetic procedures leading to chiral amino and hydroxyamino acids, respectively. 1,3-DCA of prepared alkenes with subsequent transformation to corresponding aminohydroxy acids and derivatives. Utilization of prepared chiral hydroxyamino acids in synthesis of selected target compounds containing piperidine or pyrrolidine skeleton.

Project duration: from 01.12.2006 to 30.11.2009

APVV project No 20-000305 New strategies for stereoselective and asymmetric syntheses of biologically active natural compounds (Tibor Gracza)

Development of the new stereoselective and asymmetric strategies for functionalization of C=C double bond of alkenes with introduction of O- and/or N-functions. Asymmetric Pd(II)-catalyzed oxy-/aminocarbonylations of unsaturated polyols and amino polyols. Catalyst design using X-ray and electron density analysis and QM method. Theoretical calculations of TS-models for prediction of stereochemical outcome (ee%) of the reactions. Their application in the syntheses of natural compounds and biologically interesting compounds. Stereoselective synthesis of optically active polysubstituted pyrrolidin-2-ones and piperidin-2-ones from chiral α -aminoacids - precursors for preparation of polyhydroxylated pyrrolidines, piperidines, pyrrolizidines and indolizines. The synthesis of non-proteinogenic amino acids derived nitrones, isoxazolidinyl nucleosides, spironucleosides and azanucleosides. The study of the effect of Lewis acids to influence diastereoselectivity of nitrone cycloaddition reactions.

Project duration: from 01.03.2006 to 28.02.2009

VEGA project No 1/2456/05 Stereoselective Syntheses of Chiral 1,4-Dihydropyridines and Analogs of Indolizine type Alkaloids (Stefan Marchalín)

The principal goal of the project is to investigate possible utilization of 2-formyl- dihydropyridines in the synthesis of novel chiral nonracemic 2-substituted dihydropyridines, bi- and tricyclic heterocycles respectively, containing a 1,4-dihydropyridine ring. Preparation and characterization of coordination compounds of both transition and non transition metals carrying 1,4-dihydropyridine based ligands, examination of their composition, structure, and investigation of their catalytic activity. The project aims at preparation of carefully designed substituted indolizines and indolizidines - compounds with possible bioactivity. Practical application of regio-, chemo- and stereoselective reactions making use of novel features of organic synthesis. Elaboration of novel, simple, and generally applicable stereocontrolled syntheses of pure analogs of indolizine type alkaloids, utilizing chiral synthons based on hetero[β]indolizidinediones.

Project duration: from 01. 01. 2005 to 31.12.2007

VEGA project No 1/1379/04 Syntheses directed towards novel heterocyclic compounds such that show opto-electronic properties, specific bioactivity, and apoptosis (Daniel Végh)

Design of syntheses of novel compounds supported by modern trends gleaned from theoretical studies. Synthesis of novel heterocyclic compounds from the furan, thiophene, pyrrole, imidazole, pyrazine, pyrone series a modeling of their biological activity. Study of controlled di- and trimerization of the prepared conjugated heterocyclic compounds aiming at preparation of molecular and supramolecular functional units and nano-structures. Modeling of supramolecular structures and potential conjugated antennae systems for molecular recognition and self-organization by theoretical calculations a combination of building blocks. Utilization of perfluoroaromatics for molecular recognition. Structure modeling of compounds with cancerostatic effects and those capable of initiating apoptosis.

Project duration: from 01.01.2004 to 31.12.2006

VEGA project No 1/2469/05 Study of stereoselective transformations of non proteinogenic oxoaminocarboxylic acids (Dušan Berkeš)

Synthesis of enantiomerically pure, conformationally restricted derivatives of homophenylalanine and of its heteroanalogues by crystallization induced asymmetric transformation (CIAT) coupled with the aza-Michael addition and electrophilic lactonization. Study of simultaneous CIAT taking place at two stereogenic centers. Synthesis

and stereoselective transformations of bicyclic tetramic acid derivatives. Utilization of such asymmetric transformation in the synthesis of natural polysubstituted amino acids and their derivatives. Preparation of 5 aryl-substituted 3-amino-2-hydroxytetrahydrofurans and study of their conversion to optically pure substituted C-aryl amino-furanosides.

Project duration: from 01.01.2005 to 31.12.2007

VEGA project No 1/248/05 Polyazaheterocycles and their oxygen analogues. Ecologically more suitable syntheses, supramolecular structure, biological – physical properties (Viktor Milata)

The project aims at preparation of novel aromatic polyazaheterocycles on the bases of triazines, dihydropyridines, pyrimidines, quinolines and quinazolines, having additional fused aromatic or saturated ring. In the early stages of the project we shall concentrate on preparation of precursors to the above heterocycles by modern, more ecological methods. Next the precursors will be used in cyclization and cyclocondensation reaction leading to target compounds. Prepared heterocycles will be modified to enhance their hydrophilicity and hence bioactivity by attaching a sugar or other hydrophilic moiety. Our attention will concentrate on physicochemical and spectral characteristics, combined with x-ray analysis, supramolecular chemistry and quantum chemical calculations.

Project duration: from 01.01.2005 to 31.12.2007

APVV Project No. 20-007304 Synthesis and properties of the pharmacologically potentially active nitrogen heterocycles (Viktor Milata)

Study and optimisation of the new synthetic methods for preparation of analogues of natural condensed aromatic polyazaheterocyclic compounds with fused aromatic or saturated ring containing O, S, Se or N atoms. Preparation of precursors of cited heterocycles and their nitro- and aminoderivatives, imidoylchlorides, imidoyl and amidinoylisothiocyanates. Exploitation of new precursors in cyclisation and cyclocondensation reactions for preparation of target compounds. Derivatisation of newly prepared heterocyclic compounds by introduction of carbohydrate or other hydrophilic part aiming to higher solubility of prepared compounds allowing their more effective biological application. Study of physico-chemical properties and spectral characteristics of final derivatives in relation to their X-ray structural analysis, supramolecular chemistry using quantum-chemical calculations.

Project duration: from 01.01.2005 to 31.12.2007

APVT Project No. 20-000904 Asymmetric Pd(II)-catalysed reactions as a methodology for the preparation of chiral building blocks for the synthesis of biologically active natural compounds (Peter Szolcsányi)

The main aim of the project is to develop a new and efficient methodology of asymmetric palladium-catalysed intramolecular and intermolecular aminocarbonylations and halocyclisations for the enantioselective preparation of optically pure building blocks. These valuable intermediates will serve as suitable chiral precursors for targeted total syntheses of biologically active natural compounds and/or their analogues with their potential use in human medicine. The sub-objectives of the project involve the development of a simple and rapid preparation of necessary aminoalkenitols as starting substrates in multi-gram quantities and required purity, as well as an effective synthesis of enantiomerically pure chiral Pd-catalysts essential for key asymmetric transformations.

Project duration: from 01.01.2005 to 31.12.2007

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Synkola, Bratislava	Seminars and conferences	Karvaš Milan, director, Mlynská dolina, 842 15 Bratislava 4	01.01.1992-
Duslo, Šaľa	The synthesis of heterocyclic compounds.	Lehocký Peter, director, Duslo, a. s. 927 03 Šaľa	01.01.1990-
Slovak Academy of Sciences, Bratislava	The synthesis of heterocyclic compounds.	Tvaroška Igor, director, Dubravská cesta 9, 841 04 Bratislava 4	01.01.1970

Slovak Academy of Sciences, Bratislava	The synthesis of heterocyclic compounds.	Šoltés Ladislav, UEF, Dubravská cesta 9, 841 04 Bratislava 4	01. 01.1997-
Tau-Chem, Bratislava	The synthesis of heterocyclic compounds.	Žvak Vladimír, director, Nobelova 34, 836 05 Bratislava 3	01.01.1996
Institute of Drugs Research, Modra	The synthesis of heterocyclic compounds.	Šmahovský Vendelín, director, Horná 36, 900 01 Modra	01.01.1980-
Tatra Trade, Prievidza	The synthesis of heterocyclic compounds.	Klínovský Ján, director, Matice slovenskej 10, 971 01 Prievidza	01.01.2000-
Georganics, Bratislava	The synthesis of heterocyclic compounds.	Đuriš Juraj, director, Koreničova 1, 811 03 Bratislava 1	01.01.2000-
CMS, Bratislava	The synthesis of heterocyclic compounds.	Toman Jaromír, director, Nobelova 34, 836 03 Bratislava 3	01.01.2000-
Zentiva a.s., Hlohovec	Research and teaching	Chyliik Jaroslav Dr., API prod. manager, Nitrianska cesta 100, 920 27 Hlohovec	01.07.2003-

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Inst. für Angewandte Synthese Chemie TU Vienna, Austria	The synthesis of heterocyclic compounds	Fröhlich Hannes, dean, professor, Getreide Markt 9, A-1060 Vienna, Austria	01. 01. 1991-
Inst. für Organische Chemie Univ. Stuttgart, Germany	Stereoselective dipolar cycloaddition and oxycarbonylation reactions	Jäger Volker, professor, Pfaffenwaldring 55, D-70569 Stuttgart, Germany	01. 01. 1989-
Max Plank Institute, Stuttgart, Germany	The synthesis of heterocyclic compounds for nanotubes	Roth Siegmar, Dr., Helsenbergerstr. 1, D-70569 Stuttgart, Germany	01.01.2002-
Inst. für Organische Chemie Univ. Berlin, Germany	Stereoselective reactions of chiral nitrones	Reissig Hans-Ulrich, professor, Takustr. 3, D-14195 Berlin, Germany	01. 01. 2002-
Inst. de Chimie Moleculaire d'Orsay, France	Resau formation recherche	Basch E. H., professor, IUT d'Orsay Université de Paris-Sud (XI) Département Chimie Plateau du Moulon 91400 ORSAY, France	01.01.1976-
Institute de Chimie Moleculaire, Orsay, Univ. Paris-Sud, France	NMR study of chiral compounds and cooperation in exchange of students	Loupy, A. , professor, Institut of Molecular Chemistry, ICMO, University Paris – South, Orsay, France	01.01.2000-
URCOM, Univ. Le Havre, France	The synthesis of condensed heterocyclic compounds	DECROIX B., DAICH A., professors Laboratoire de Chimie URCOM, EA 3221 Faculté des Sciences et Techniques Université du Havre 25, r	01.01.1990
Inst. für Festkörperphysik der Univ. Vienna, Austria	New materials for microelectronics	Kauffmann H. F. professor, University of Vienna, Intitut fur Physikalische chemie, Währingerstrasse 42, Wien, Austria.	01.010.2001-
Laboratorium für Org. Chem, ETH, Zürich, Switzerland	The total synthesis of natural products	Vasella Andrea, professor ETH Hönggerberg, HCI H315 CH-8093, Zürich, Switzerland	01.01.1990-
Institute of Organic Chemistry, U Warsaw, Poland	The synthesis of heterocyclic compounds	Cyranski, M. K., professor, 02 093 Warsaw, Poland	01.01.1996-
Department of Organic Chem. and Biology UNED, Madrid, Spain	The synthesis of heterocyclic compounds, NMR spectroscopy	Claramunt, R. M., Cabildo, P., Lopéz G., professors, UNED, Madrid, Spain	01.01.1998-
Instituto de Quimica Medica (CSIC), Madrid, Spain	Physical organic chemistry	Elguerro, J. B., professor, Madrid, Spain	01.01.1998-

Institute of Organic Chemistry, Panon Univ. Mosonmagyaróvár, Hungary	The synthesis of heterocyclic compounds. Utilization in Agriculture	Schmiedt Rudolf, professor, Mosonmagyaróvár, Hungary	01.01.1997-
Institute of Organic Chemistry, Technical Univ. Budapest, Hungary	NMR Spectroscopy of fluorinated heterocycles	Szöllösy Aron, professor, Budapest, Hungary	01.01.2004-
Department of Chemistry, Univ. Puerto Rico, USA	Structure determination of amino acids and peptides	Baran Peter, Dr, Department of Chemistry, Univ. of Puerto Rico, Rio Pedras, PO Box 23346, San Juan 00931-3346, Puerto Rico, USA	2002
Department of Chemistry, Keele University, United Kingdom	The synthesis of heterocyclic compounds	Ramsden Christopher, professor, Keele, Staffordshire ST55BG, United Kingdom	1980
Department of Chemistry, Cambridge University, United Kingdom	The total synthesis of natural products	Ley Steven V., professor, Cambridge University, United Kingdom	1998
School of Chemistry, Manchester University, United Kingdom	The total synthesis of natural products	Dixon Darren J., professor, Manchester University, United Kingdom	2005

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Fišera Ľubor	Academic board of STU	member	2003
Fišera Ľubor	Academic board of FCHPT	member	1997
Fišera Ľubor	APVV Grant Agency	member	2006
Gracza, Tibor	Scientific Grant Agency	member	2005
Fišera Ľubor	Chemical Papers	member	1994
Berkeš Dušan	Slovak Chemical Society	member	1984
Bobošíková Mária	Slovak Chemical Society	member	1993
Fišera Ľubor	Slovak Chemical Society	chairmann	1971
Floch Lubomír	Slovak Chemical Society	member	1972
Gracza Tibor	Slovak Chemical Society	member	1984
Koreňová Anna	Slovak Chemical Society	member	1983
Milata Viktor	Slovak Chemical Society	vice-president	1977
Považanec František	Slovak Chemical Society	member	1983
Stankovský Štefan	Slovak Chemical Society	member	1971
Szolcsányi, P.	Slovak Chemical Society	member	2006
Šafař Peter	Slovak Chemical Society	member	2000
Špirková Katarína	Slovak Chemical Society	member	1983
Végh Daniel	Slovak Chemical Society	member	1972
Žúžiová Jozefína	Slovak Chemical Society	member	1989
Gardianová Mária	Slovak Chemical Society	member	2002
Lásiková Angelika	Slovak Chemical Society	member	1996
Marchalín Štefan	Slovak Chemical Society	member	2005
Berkeš Dušan	Slovak Society of Industrial Chemistry	member	1995
Bobošíková Mária	Slovak Society of Industrial Chemistry	member	1995
Fišera Ľubor	Slovak Society of Industrial Chemistry	member	1993
Floch Lubomír	Slovak Society of Industrial Chemistry	member	1995
Gracza Tibor	Slovak Society of Industrial Chemistry	member	1996
Koreňová Anna	Slovak Society of Industrial Chemistry	member	1995
Milata Viktor	Slovak Society of Industrial Chemistry	member	1993
Marchalín Štefan	Slovak Society of Industrial Chemistry	member	1996
Považanec František	Slovak Society of Industrial Chemistry	member	1995
Stankovský Štefan	Slovak Society of Industrial Chemistry	member	1995
Šafař Peter	Slovak Society of Industrial Chemistry	member	1998
Špirková Katarína	Slovak Society of Industrial Chemistry	member	1993
Végh Daniel	Slovak Society of Industrial Chemistry	member	1993
Žúžiová Jozefína	Slovak Society of Industrial Chemistry	member	1995
Gardianová Mária	Slovak Society of Industrial Chemistry	member	2003

Lásiková Angelika	Slovak Society of Industrial Chemistry	member	1996
Zálupský Peter	Slovak Society of Industrial Chemistry	member	1996
Štibrányi Ladislav	Slovak Society of Industrial Chemistry	member	1995
Dugovič Branislav	Slovak Society of Industrial Chemistry	member	2003
Babjak Matej	Slovak Society of Industrial Chemistry	member	2000

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Fišera Ľubor	ARKIVOC	member	2000
Fišera Ľubor	American Chemical Society	member	1994
Fišera Ľubor	German Chemical Society	member	1994
Fišera Ľubor	Czech Chemical Society	member	1994
Fišera Ľubor	Jordan Journal of Chemistry	member	2006
Gracza Tibor	American Chemical Society	member	2006
Gracza Tibor	German Chemical Society	member	1994
Gracza Tibor	Czech Chemical Society	member	1997
Marchalín Štefan	Czech Chemical Society	member	1980
Milata Viktor	Czech Chemical Society	member	2002
Milata Viktor	ARKIVOC	member	2000
Végh Daniel	Magyar Tudomanos Akademia	member	2001
Gracza Tibor	Advisory Board of EUROCAT	member	2002
Milata Viktor	Molecules	member	2000
Milata Viktor	Eur. J. Org. Chem.	member	2002

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Lamoureux, A.	IUT Orsay, Univ. Paris-Sud	France	May-June 2006 (60 days)
Antoine, M.	IUT Orsay, Univ. Paris-Sud	France	May-June 2006 (60 days)
Mabille, G.	IUT Orsay, Univ. Paris-Sud	France	May-June 2006 (60 days)
Bellus, D.	Basel	Switzerland	October 2006 (2 days)
Carell, T.	MU Munich	Germany	May 2006 (1 day)
Meijere, A.	Univ. Göttingen	Germany	October 2006 (1 day)
Fröhlich, H.	TU Vienna	Austria	October 2006 (1 day)
Gärtner, P.	TU Vienna	Austria	October 2006 (1 day)
De Rosa, M	Media, Pennsylvania	USA	February 2006 (3 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Andicsová, A.	Conference, Pecs	Hungary	June 2006 (5 days)
Andicsová, A.	Conference, Ústi nad Labem	Czech. Republic	September 2006 (5 days)
Babjak, M.	Univ. Grenoble	France	2006 (365 days)
Baumlová, B.	Univ. Grenoble	France	2006 (365 days)
Berkeš, D.	Conference, Prague	Czech. Republic	October 2006 (3 days)
Dugovič, B.	FU Berlin	Germany	2006 (365 days)
Fišera, Ľ.	TU Vienna	Austria	May 2006 (5 days)
Fišera, Ľ.	Conference, Chernogolovka	Russia	June 2006 (3 days)
Fišera, Ľ.	Conference, Thessaloniki	Greece	August 2006 (5 days)
Fišera, Ľ.	Conference, Bari	Italy	September 2006 (5 days)
Fišera, Ľ.	Conference, Jaipur	India	December 2006 (5 days)
Gracza, T.	TU Vienna	Austria	July 2006 (2 days)
Gracza, T.	Conference, Thessaloniki	Greece	August 2006 (5 days)
Gracza, T.	Conference, Prague	Czech. Republic	October 2006 (3 days)
Gracza, T.	IOB CAV, Prague	Czech. Republic	November 2006 (2 days)

Lásiková, A.	Univ. Clermont-Ferrand	France	October, November 2006 (61 days)
Koóš, P.	Univ. Grenoble	France	2006 (365 days)
Marchalín, Š.	Univ. Le Havre	France	June 2006 (30 days)
Milata, V.	T. Univ. Vienna	Austria	2006 (10 days)
Milata, V.	Conference, Ústi nad Labem	Czech. Republic	September 2006 (5 days)
Milata, V.	Conference, Gdansk	Poland	September 2006 (5 days)
Milata, V.	MU Univ. Brno	Czech. Republic	May, 2006 (2 days)
Puterová, Z.	Univ. Dublin	Irland	2006 (180 days)
Szolcsányi, P.	Conference, Ústi nad Labem	Czech. Republic	September 2006 (5 days)
Solčan, T.	Conference, Ústi nad Labem	Czech. Republic	September 2006 (5 days)
Végh, D.	Conference, Ústi nad Labem	Czech. Republic	September 2006 (5 days)
Végh, D.	MU Univ. Brno	Czech. Republic	May, 2006 (2 days)
Végh, D.	Conference, Gdansk	Poland	September 2006 (5 days)
Végh, D.	Univ. Mosonmagyaróvár, Univ. Budapest	Hungary	May, 2006 ((4 days)
Végh, D.	TU Vienna	Austria	May, 2006 (1 day)
Végh, D.	Univ. Vienna	Austria	October, 2006 (2 days)

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Đuriš, A.	Tetramic acid – bicyclic analogues	Berkeš, D.
Moravčíková, D.	Utilization of condensed derivatives of oxocyclohexylideneacetic acids in the synthesis of unnatural α -amino acids	Koreňová, A.
Peter, J.	CIAT in the synthesis of amino acids. Intermediates and analogues of Haloperidole and Molindole	Šafař, P.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Bella, M.	Preparation and properties of condensed heterocyclic selenium compounds	Milata, V.
Bobula, T.	Utilisation of Gewald reaction for the preparation of 3,4-substituted thiophene derivatives as new electron-transporting materials with opto-electronical properties	Végh, D.
Bošmanská, K.	Preparation and reactions of substituted <i>N</i> -(2-thienylmethyl)-5-oxo-proline-2-carboxylic acids	Štibrányi, L.
Pažitný, A.	Samarium induced reactions of nitrones with alkyl acrylates	Fišera, Ľ.
Al Jame, R. M.	Utilization of chiral nitrones in the isoxazolidinyl nucleosides synthesis	Fišera, Ľ.
Štefko, M.	Synthesis of thienylidene-fluorene based oligoheterocycles as new thermally stable fluorescent dyes and opto-electronical materials	Végh, D.

VIII. PUBLICATIONS

Chapter or pages in book

- [1] Fišera, Ľubor: Nitrogen-containing Heterocycles, Editor(s): V. C. Kartsev, Chapter: Control of regio- and stereoselectivity in nitrene cycloadditions and their utilization in synthesis. ICSPF Moscow, vol. 1, pp. 46-51, 2006.
- [2] Ondrejovičová, Iveta, Hojerová, Jarmila, Hudecová, Daniela, Kaszonyi, Alexander, Koreňová, Anna, Kovařík, Pavel, Palou, Martin T.: Spoločná budúcnosť chémie a biológie, Editor(s): Ondrejovičová Iveta, Izakovič Mário, Chapter: Chiralita prírodných látok. Slovenská technická univerzita v Bratislave, pp. 39-46, 2006.

Article in journal

- [1] Babjak, Matej, Kanazawa, A., Anderson, J. R., Greene, A. E.: Concise synthesis of 22-hydroxyacuminatine, cytotoxic camptothecinoid from *Camptotheca acuminata*, by pyridone benzannulation.. *Org. Biomol. Chem.*, no. 3, pp. 407-409, 2006.
- [2] Babjak, Matej, Remeň, Luboš, Szolcsányi, Peter, Zálupský, Peter, Mikloš, Dušan, Gracza, Tibor: Novel bicyclisation of unsaturated polyols in PdCl₂-CuCl₂-AcOH catalytic system. *J. Organomet. Chem.*, pp. 928-940, 2006.
- [3] Čižmárik, J., Uher, Michal, Hudecová, Daniela, Koreňová, Anna, Brtko, Július: Kyselina kojová a jej využitie vo farmácii. Zborník príspevkov 26. vedeckej konferencie PRIEMYSELNÁ TOXIKOLÓGIA 06, pp. 343-344, 2006.
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- [5] Gróf, Martin, Milata, Viktor, Kožíšek, Jozef, Tokarčík, M.: 3-(Methylaminomethylene)pentane-2,4-dione.. *Acta Cryst. E*, no. E62, pp. 4060-4061, 2006.
- [6] Hrnčáriková, Katarína, Szöllösy, Áron, Végh, Daniel: Synthesis and characterization of monosubstituted hexapyrrolylbenzene derivatives. *Arkivoc(ii)*, vol. (ii), pp. 125-129, 2006.
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- [8] Jakubec, Pavol, Berkeš, Dušan, Kolarovič, Andrej, Považanec, František: Asymmetric Synthesis of Aliphatic α-Amino and γ-Hydroxy α-Amino Acids and Introduction of a Template for Crystallization-Induced Asymmetric Transformation. *Synthesis*, pp. 4032-4040, 2006.
- [9] Letašiová, Silvia, Jantová, Soňa, Milata, Viktor: Skríning cytotoxicity in vitro a mechanizmus pôsobenia prírodných a synteticky pripravených látok využiteľných v chemoterapii nádorov. *Česká a slovenská farmacie*, no. 3, vol. 55, pp. 99-109, 2006.
- [10] Lokaj, Ján, Kettmann, Viktor, Katuščák, Svetozár, Černuchová, Petra, Milata, Viktor, Gregáň, Friedrich: Structure of 5-methyl-1,2,4-triazolo[1,5-a]pyrimidine-6-carbonitrile. *Acta Crystallographica Section E*, no. E62, pp. 1252-1253, 2006.
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DEPARTMENT OF ORGANIC TECHNOLOGY

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I. STAFF

Full Professors:

Milan Hronec, PhD., DrSc., Dušan Mravec, PhD.

Associate Professors:

Alexander Kaszonyi, PhD., Magdaléna Štolcová, PhD.

Assistant Professors :

Dana Gašparovičová, PhD.

Research Fellows:

Zuzana Cvengrošová, PhD., Blažej Horváth, Katarína Fulajtárová

PhD Students:

Katarína Klepáčová, Gabriel Kostráb, Barbora Krejčová, Miroslav Mrzula, Karol Rakottyay, Marek Slobodník, Miroslav Vlčko

Technical staff:

Gabriel Mikeš, Eva Šuleková, Ľudmila Tvarožková,

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Technological laboratory 1, 2, 3, 4

B. Research laboratories:

Laboratory of catalytic processes
Laboratory of reactor technique
Laboratory of separation (chromatographic) methods
Laboratory of spectroscopic methods

III. TEACHING

A. Undergraduate Study:

3. semester (Bc)	Organic Technology and Petrochemistry- SP- Chemical Technology	(2-3 h)	Hronec, Kaszonyi, Gašparovičová
	Organic Technology and Petrochemistry- SP- Polymer Materials and Technology	(2-1 h)	Hronec, Gašparovičová
	Organic Technology and Petrochemistry- SP- Chemical Engineering	(2-0 h)	Hronec,
4. semester (Bc)	Organic Technology and Petrochemistry	(3-1 h)	Hronec, Kaszonyi, Gašparovičová
6. semester (Bc)	Fine Chemicals	(2-2 h)	Mravec
	Semestral project	(0-4 h)	Cvengrošová, Hronec, Kaszonyi, Mravec, Štolcová, Gašparovičová
1. semester (MSc)	Chemical-Engineering Thermodynamics	(0-2 h)	Gašparovičová
	Catalysis	(2-0 h)	Hronec
	Engineering Calculations on a Computer	(1-2 h)	Kaszonyi

	Processes of Organic Technology	(2-1 h)	Králík
1. semester (MSc)	Laboratory Practise I	(0-8 h)	Cvengrošová, Gašparovičová, Hronec, Horváth, Kaszonyi, Mravec, Štolcová
2. semester (MSc)	Kinetics and Reactors	(0-2 h)	Kaszonyi
	Process Design	(2-1 h)	Hronec, Králík
	Technology of Monomers and Polymers	(2-0 h)	Štolcová
	Special Organic Products	(2-0 h)	Mravec
2. semester (MSc)	Analysis of Complex Organic Systems	(0-2 h)	Štolcová, Cvengrošová
	Laboratory Practise II	(0-7 h)	Cvengrošová, Horváth, Hronec, Kaszonyi, Gašparovičová, Mravec, Štolcová
3. semester (MSc)	Coating Materials	(2-0 h)	Kramár
	Manufacturing of Pharmaceuticals	(2-1 h)	Mravec
	Laboratory Practise III	(0-14 h)	Cvengrošová, Horváth, Hronec, Kaszonyi, Gašparovičová, Mravec, Štolcová
	Environmental Technologies	(2-0 h)	Mravec
4. semester (MSc)	Seminar to Masters Theses	(0-3 h)	Cvengrošová, Hronec, Kaszonyi, Štolcová
1. -2. semester (PhD)	Sophisticated Materials	(2 h)	Hronec
	Kinetics and Modeling	(2 h)	Kaszonyi

IV. CURRENT RESEARCH PROJECTS

VEGA project No.1/2459/05 Catalysts for speciality chemicals (M. Hronec)

The scientific objective of the project is to use a series of well characterized catalysts in the synthesis of nitrogen and oxygen containing compounds in order to establish quantitative relationships between the catalytic properties (activity, selectivity, deactivation) and chemical properties of the catalysts. Catalytic reactions are focused on the preparation of industrially very important nitrogen and oxygen containing compounds or their precursors using oxidation, hydrogenation, and condensation processes. Gas-phase hydroxylation and oxidative amination of benzene, liquid phase hydrogenation of aromatic nitro compounds, partial oxidation of methane to formaldehyde, selective oxidation of cyclohexylamine to cyclohexanone oxime, oxidation of propylene to propylene oxide and head-tail oxidative condensation of aniline are the main reactions. The benefits expected are mainly clean processes for the synthesis of these chemicals or new catalysts.

Project duration: from January 2006 to December 2008

VEGA project No. 1/3587/06l ntermediates for fine chemicals (D. Mravec)

The main objective of the project is utilisation of enviro-catalysts (ion-exchange resins and zeolites) for development of important organic chemicals: Glycerol ethers as perspective oxygenate additives to fuels (utilisation of bioglycerol from FAME production), shape-selective alkylation of toluene with isobutylene over zeolite catalysts with the aim of 4-tert-butyl toluene (intermediate) preparation. Shape selective alkylation of aromatic amines over zeolite catalysts. The benefits are enviromentaly-friendly ways for preparation of organic intermediates and products.

APVV project No. 20-036805 Chemical and biochemical transformations of glycerol from renewable sources to fine chemicals and fuel components without sulfur (A. Kaszonyi)

Research and development of new catalytic and biochemical methods of production of chemical specialties and fuel components without sulfur, which enhance the appreciation of glycerol from renewable bio-sustainable sources. Mainly catalytic and biochemical transformation of glycerol to commercially prospective products and development of refining technology of raw glycerol. The goal of

project in the field of catalytic process is to specify the catalyst (from the group of rare metals) and reaction conditions (temperature, pressure, reactor) for selective transformation of glycerol to desired products. To substantial products of glycerol transformation belong glycerol carbonate, propandiol, and the products of condensation, etherification, oxidation and oligomerisation.

Project duration: from May 2006 to February 2009

APVV project No. 99-P00405 Research of chemical specialties production based on home-made raw materials APVVL. (Komora VUP, A. Kaszonyi FCHFT)

Development of design fundamentals for technology of 4-oxo-2,2,6,6-tetramethylpiperidin-N-oxyl and 4-hydroxy-2,2,6,6-tetramethylpiperidin-N-oxyl from domestic raw materials.

Project duration: from September 2005 to August 2008

APVV project No. 99-003105 Highly-effective catalysts for polyurethanes (M. Matisová VUP, A. Kaszonyi FCHFT)

Development of design fundamentals for technology of highly-effective catalysts for polyurethanes based on diaminoethers from domestic raw materials. The new catalyst, which after action is chemically bounded to polyurethanes, eliminate the shortage of old one, which are volatile and causes smell of products.

Project duration: from May 2006 to March 2008

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
DETOX, a. s. Banská Bystrica		Kaszonyi	from 1996
DUSLO, a. s., Šaľa		Hronec	from 1996
FERMAS, s. r. o., Slovenská Ľupča		Kaszonyi	from 2003
NCHZ, a. s., Nováky		Kaszonyi	from 1995
PlasticOmnium, s. r. o., Lozorno		Kaszonyi	from 2002
SLOVNAFT VURUP, a. s., Bratislava	APVV project in 2006	Kaszonyi, Hronec	from 1990
VUCHT, Bratislava		Hronec	from 1990
Tento, Žilina		Kaszonyi	from 2005
CarCode, Bratislava		Kaszonyi	from 2001
Mostex		Mravec	from 2005
Faculty of Natural Sciences, CU, Bratislava	APVV project	Kaszonyi	from 2006
VUP a.s., Prievidza	APVV projects	Kaszonyi	from 2005
SLOVAKOFARMA, a.s., Hlohovec		Mravec	from 1995

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
ENSCM, Montpellier, France	- zeolite catalysts, - physico-chemical characterisation of solid catalysts	Mravec, Hronec	from 1992
Universita di Padova, Italy	ad hoc projects on polymer supported catalysts, characterisation	Králik, Hronec	from 1991
Italian National Centre of research, Padova - Legnaro, Italy	ad hoc project on preparation of organic supports for catalysts	Králik, Hronec	from 1993
Bangkok University Thailand	Catalysts for oxidation processes	Hronec	from 2004
Research Support. Dep. Korea	Oxidation of alkylaromatics	Hronec	from 2005

M&G Fin. Industr., Italy	Oxidation processes	Hronec	from 2003
Gifu University, Japan	Alkylation of aromatics, zeolites characterization	Mravec	from 2003
CNRS, Lyon, France	Oxidation of organic materials	Hronec, Horváth	from 2002
Institut für Anorganische Chemie, Rheinische Friedrich-Wilhelms-Universität, Bonn, Germany	Catalysts for oxidation of methane	Štolcova, Hronec	from 2005
Institut für Materialchemie, Universität Wien, Austria	Catalytic reduction of nitrates	Hronec, Králik, Gašparovičová	from 2002

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Hronec M.	SAIV (Slovak Academy of Engineering Sciences)	chairmann	from 2001
Hronec M.	SSPCH (Slovak Society for Industrial Chemistry)	chairmann	from 1990
Hronec M., Kaszonyi A., Mravec D., Cvengrošová Z., Štolcova M.	SSPCH (Slovak Society for Industrial Chemistry)	member	from 1990
Hronec M., Kaszonyi A., Mravec D.	SCHS (Slovak Chemical Society)	member	from 1990
Hronec M.	Editorial Board of Journal: Petroleum and Coal	member	from 1992

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Hronec M.	National representative of the European Federation of catalysis Societies (EFCATS)	member	from 1992
Hronec M.	Member of the European Academy of Sciences and Arts	member	from 1995

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Ramakul Prakorn	University Bangkok	Thailand	11. 9. 2005 – 31. 8. 2006
Kongsuebchart Wilasinee	University Bangkok	Thailand	5. 12. 2005 – 5. 6. 2006
Glaum Robert	Institut für Anorganische Chemie, Rheinische Friedrich-Wilhelms-Universität, Bonn	Germany	2. – 4. 1. 2006
Litterscheid Christian	Institut für Anorganische Chemie, Rheinische Friedrich-Wilhelms-Universität, Bonn	Germany	11. – 22. 1. 2006 14. – 28. 5. 2006
Rancharoen Ura	University Bangkok	Thailand	1. – 7. 9. 2006

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Hronec M.	University Bangkok	Thailand	5 – 15.1. 2006
Slobodník M.	ICT Prague	CR	16. 1. – 16. 3. 2006
Hronec M.	ICT Prague	CR	19. 1. 2006
Hronec M.	Concorde, Thessaloniki	Greece	24. – 29. 1. 2006
Horváth B.	Concorde, Thessaloniki	Greece	25. – 29. 1. 2006
Hronec M.	SC ICT, Prague	CR	2. - 3. 5. 2006
Hronec M.	Concorde, Sevilla	Spain	15. – 19. 5. 2006
Hronec M.	SC ICT, Prague	CR	24. – 25. 5. 2006
Hronec M.	State exams ICT, Prague	CR	6. - 7. 6. 2006

Hronec M.	SC ICT, Praha	CR	28. – 29. 6. 2006
Hronec M., Horváth B., Gašparovičová D., Kaszonyi A., Štolcová M., Krejčová B., Mrzula M., Slobodník M., Vlčko M., Klepáčová K.	8 th Pannonian Symp. on Catalysis, Szeged	Hungary	4. – 7. 7. 2006
Hronec M.	5 th TOCAT, Tokyo	Japan	22. – 30. 7. 2006
Hronec M., Ramakul P.	CHISA, Prague	CR	27. – 31. 8. 2006
Kaszonyi A.	1. EUCHEMC, Budapest	Hungary	27. – 31. 8. 2006
Hronec M.	SC ICT, Prague	CR	24. – 25. 10. 2006
Hronec M., Gašparovičová D., Horváth B., Krejčová B., Slobodník M., Vlčko M.	XXXVIII. Symposium on Catalysis, Prague	CR	5. - 7. 11. 2006
Hronec M.	EFCAT, Paris	France	24. – 26. 11. 2006
Hronec M.	State exams PhD, ICT Prague	CR	11. – 12. 12. 2006

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Čepec Pavol	Výroba a využitie základných aromatických uhľovodíkov Manufacture and uses of basic aromatic hydrocarbons	Mravec Dušan
Hrnčiariková Lucia	Príprava derivátov fenolu a ich použitie Preparation and uses of phenol derivatives	Hronec Milan
Mihálik Michal	Výroba a použitie anilínu Manufacture and uses of aniline	Štolcová Magdaléna
Podmaka Andrej	Výroba a použitie polyuretánov Manufacture and uses of polyurethanes	Kaszonyi Alexander
Tavaly Peter	Výroba a použitie anhydridu kyseliny octovej Manufacture and of uses of anhydride of acetic acid	Kaszonyi Alexander
Katlerová Milada	Výroba a využitie syntézneho plynu Manufacture and uses of synthesis gas	Štolcová Magdaléna

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Gireth Róbert	Katalytická hydrogenácia chlórinitrobenzénov Catalytic hydrogenation of chloronitrobenzenes	Gašparovičová Dana, Králik Milan
Lengyelová Melinda	Syntéza pyridínu z etanolu, formaldehydu a čpavku Synthesis of pyridine from ethanol, formaldehyde and ammonia	Cvengrošová Zuzana
Mišút Michal	Parciálna oxidácia metánu na formaldehyd Partial oxidation of methane to formaldehyde	Štolcová Magdaléna
Rakottyay Karol	Oxidácia cyklohexylamínu v parnej fáze Oxidation of cyclohexylamine in gas phase	Kaszonyi Alexander

VIII. PUBLICATIONS

Chapter or pages in book

- [1] Ondrejovičová, Iveta, Hojerová, Jarmila, Hudecová, Daniela, Kaszonyi, Alexander, Koreňová, Anna, Kovarik, Pavel, Palou, Martin T.: Spoločná budúcnosť chémie a biológie., Editor(s): Ondrejovičová Iveta, Izakovič Mário, Chapter: Chemická technológia a životné prostredie. STU Bratislava, 2006.

Article in journal

- [1] Cvengroš, Ján, Paligová, Jarmila, Cvengrošová, Zuzana: Properties of alkyl esters based on castor oil. Eur. J. Lipid Sci. Technol. 108

(2006), p. 629-635, 2006.

- [2] De Zan, L., Gašparovičová, D., Králik, M., Centomo, P., Carraro, M., Campestrini, S., Jerabek, K., Corain, B.: Nanoclustered palladium(0) supported on a gel-type poly-acrylonitrile-N,N-dimethylacrylamide-ethylenedimethacrylate resin: nanostructural aspects and catalytic behaviour. *Journal of Molecular Catalysis A: Chemical*, doi:10.1016/j.molcata.2006.09.020, In Press, Accepted Manuscript, 2006.
- [3] Gašparovičová, D., Králik, M., Hronec, M., Biffis, A., Zecca, M., Corain, B.: Reduction of nitrates dissolved in water over palladium-copper catalysts supported on a strong cationic resin. *Journal of Molecular Catalysis A: Chemical*, vol. 244, pp. 258-266, 2006.
- [4] Gašparovičová, Dana, Králik, Milan, Hronec, Milan, Vallušová, Zuzana, Vinek, Hannelore, Corain, Benedetto: Supported Pd-Cu catalysts in the water phase reduction of nitrates: Functional resin versus alumina. *Journal of Molecular Catalysis A: Chemical*, doi:10.1016/j.molcata.2006.08.081, Corrected Proof, 2006.
- [5] Hudec, Jozef, Bakoš, Dušan, Mravec, Dušan, Kobida, Lubomír, Burdová, Mária, Turianica, Ivan, Hlušek, Jaroslav: Content of phenolic compounds and free polyamines in Black Chokeberry (*Aronia melanocarpa*) after application of polyamine biosynthesis regulators. *J. Agric. Food Chem.* 54 (2006) 3625-3628, vol. 54, pp. 3625-3628, 2006.
- [6] Klepáčová, K., Mravec, D., Bajus, M.: Etherification of glycerol with tert-butyl alcohol catalysed by ion-exchange resins. *Chemical Papers*, 60(3) (2006) 224-230, 2006.
- [7] Kostrab, G., Mravec, D., Bajus, M., Janotka, I., Sugi, Y., Cho, S.J., Kim, J.H.: Tert-Butylation of toluene over mordenite and cerium-modified mordenite catalysts. *Applied Catalysis A: General* 299 (2006) 122-130, 2006.

Article in conference proceedings

- [1] Gašparovičová, Dana, Gireth, Róbert, Králik, Milan, Vallušová, Zuzana, Hronec, Milan: Hydrogenation of chloronitrobenzenes over iron modified palladium and platinum supported catalysts. In XXXVIII Symposium on Catalysis, Nov. 6-7, 2006, Prague, Czech Republic, 2006.
- [2] Gašparovičová, Dana, Holecová, Miroslava, Hronec, Milan, Králik, Milan: A liquid-phase catalytic reduction of nitrates - science and technology. In Proceedings of the 8th Pannonian International Catalysis Symposium, Book of Abstract, Szeged, Hungary, 2006.
- [3] Horváth, Blažej, Hronec, Milan: Epoxidation of propylene in the gas phase. In 8th Pannonian International Catalysis Symposium, July 4 - 7, 2006, Szeged, Hungary, pp. 88-93, 2006.
- [4] Horváth, Blažej, Hronec, Milan, Glaum, Robert: Iron silicate catalysts for gas-phase epoxidation of propylene. In 2nd CONCORDE conference, Jan. 26-28, 2006, Thessaloniki, Greece., 2006.
- [5] Horváth, Blažej, Hronec, Milan, Glaum, Robert: One-step epoxidation of propylene in gas phase. In XXXVIII Symposium on Catalysis, Nov. 6-7, 2006, Prague, Czech Republic, 2006.
- [6] Kaszonyi, Alexander: Chemické a biochemické transformácie glycerolu na chemické špeciality. In Workshop- Chémia bionafy a vedľajších produktov, Zborník na CD, Prievidza 26.-27.10.2006, 2006.
- [7] Kaszonyi, Alexander, Cvengrošová, Zuzana, Hronec, Milan: WEAK SOLID ACIDS AND THEIR ROLE IN CATALYSIS OF CYCLOHEXYLAMINE OXIDATION. In 1st European Chemistry Congress, abstract book ISBN 9639319619, abstracts on CD, 2006.
- [8] Kaszonyi, Alexander, Cvengrošová, Zuzana, Rakottay, Karol, Hronec, Milan: Oxidation of cyclohexylamine to cyclohexanone oxime by molecular oxygen over structured alumina. In , 8th Pannonian International Catalysis Symposium, July 4 - 7, 2006, Szeged, Hungary., 2006.
- [9] Klepáčová, Katarína, Mravec, Dušan, Bajus, Martin: Ion-exchange resins - Catalysts for glycerol etherification. In 8th Pannonian International Catalysis Symposium, July 4 - 7, Szeged, Hungary, 2006.
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- [11] Krejčová, Barbora, Hronec, Milan, Štolcová, Magdaléna: Gas-phase oxidation of picoline to nicotinic acid. In 8th Pannonian International Catalysis Symposium, July 4 - 7, Szeged, Hungary, p. 167., 2006.
- [12] Litterscheid, Christian, Štolcová, M., Glaum, R., Hronec, M.: Oxidation of Methane over Metal(II)-Iron(III)-phosphate catalysts (M²⁺ = Mg, Co, Ni, Cu, Zn) Chemical and Structural Effects. In Book of Abstracts, Second Conference of the Coordination Action Concorde, Thessaloniki (Greece) January 26-28th 2006, 2006.
- [13] Mravec, Dušan, Klepáčová, Katarína, Bajus, Martin: Etery glycerolu ako potenciálne oxygenátové prísady do palív. In Workshop- Chémia bionafy a vedľajších produktov, Zborník na CD, Prievidza 26.-27.10.2006, 2006.
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DEPARTMENT OF PETROLEUM TECHNOLOGY AND PETROCHEMISTRY

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Technical staff:
Dagmar Machatová; Marta Olléová

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Catalysts Characterization
Laboratory of High Pressure Reactors
Laboratory of Gas and Liquid Chromatography
Laboratory of Chemistry and Analysis of Fuels
Laboratory of Pyrolysis
Laboratory of Thermal Cracking and Copyrolysis of Polymer Wastes
Laboratory of Petrochemistry
Laboratory of Rheology of Lubricants
Laboratory of Infra-Red Spectroscopy
Laboratory of Natural Gas Conversion

B. Research laboratories:

Laboratory of Catalysts Characterization
Laboratory of High Pressure Reactors
Laboratory of Gas and Liquid Chromatography
Laboratory of Chemistry and Analysis of Fuels
Laboratory of Pyrolysis
Laboratory of Petrochemistry
Laboratory of Rheology of Lubricants
Laboratory of Infra-Red Spectroscopy
Laboratory of Natural Gas Conversion

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Energy Technologies and Materials	2/2/0	Bajus, Hájeková
3. semester (Bc)	Equipments of Chemical Technology	2/0/0	Smiešková
1. semester (MSc)	Technology of Crude Oil	3/0/0	Židek, Daučík
	Analysis of Petroleum Products	2/0/0	Daučík, Židek
	Combustion Processes	1/2/0	Smiešková
	Refinery and Petrochemical Plants	1/2/0	Daučík, Ambro

	Laboratory practice I	0/0/8	Daučík, Židek
1. semester (MSc)	Catalysis	0/1/0	Hudec
2. semester (MSc)	Catalytic and Thermal Processes in Crude Oil Treatment	2/0/0	Židek, Smiešková
	Alternative Fuels	2/0/0	Bajus, Hájeková
	Lubricants in Tribology	2/0/0	Hájeková, Daučík
	Kinetic and Reactors	0/2/0	Hudec
2. semester (MSc)	Laboratory practice II	0/8/0	Hudec
3. semester (MSc)	Petrochemistry	3/0/0	Bajus, Hudec
	Gas Industry	2/0/0	Hudec, Daučík
	Laboratory practice III	0/0/10	Hudec, Židek

IV. CURRENT RESEARCH PROJECTS

VEGA project No 1/3587/06 Alternative feedstocks in hydrocarbon technologies in the production of ecological fuels and petrochemicals (Martin Bajus)

The subject of the scientific project was the study of reaction kinetics of the thermal and catalytic transformations of the alternative feedstocks over heterogeneous catalysts in hydrocarbon technologies by chemical recycling of waste polyethylene (LDPE) and polypropylene (PP) to desired alkenes; pyrolysis of used tyres; the utilization of glycerol as an alternative feedstock of biogenic origin by etherification with C₄-fraction to ethers of glycerol suitable as oxygenate additives to diesel fuel.

Project duration: from 01. 01. 2006 to 31. 12. 2008

APVV Project No. 20-036705 The use of waste polymer and oil materials in production of bitumen (Pavol Daučík)

The project deals with using of waste polymers, waste rubber as modifiers along with waste oil in asphalt compositions. The aim is to find correlation between composition and use properties of system asphalt - polymer - waste oil. Based on study of polymer and waste rubber' structure's influence on properties of modified asphalts, the possibility of industrial use of waste polymers and rubber will be assessed. The possibility of mixing of waste materials with fresh SBS and EVA copolymers in production of asphalt. Study of possible use of waste oil is focused on production of fluxing agents, used in production of blown asphalts. Most modern separation (LC, GPC), spectral (NMR, IR) and thermal (DSC) methods along with rheological testing will be deployed for characterization of asphalt, polymer and waste's composition.

Project duration: from: 01.03. 2006 to 31. 12. 2008

VEGA project No 1/3575/06 Possibilities of treatment of liquid and solid hydrocarbon wastes in catalytic cracking processes of petroleum fractions treatment – fluid catalytic cracking and hydrocracking to fuels. Modification and characterization of zeolites and zeolite catalysts for these processes (Assoc. Prof. Agáta Smiešková PhD.)

The project deals with the study of the treatment of liquid and solid waste hydrocarbons – waste oils and plastics – in catalytic cracking processes of treatment of petroleum fractions: fluid catalytic cracking and hydrocracking mainly to fraction of motor fuels – gasoline and diesel fuel. The work comprises modification and characterization of zeolites and zeolite catalysts for hydrocracking (HC) and fluid catalytic cracking (FCC), treatment of liquid and solid waste hydrocarbons to fraction suitable for above-mentioned catalytic processes, laboratory catalytic tests FCC (MAT – Micro-Activity Test according to ASTM standard) and HC (laboratory flow pressure reactor) with industrial feeds additivated with treated waste hydrocarbon fractions in suitable ratio, as well as developing of methods to evaluate properties of prepared motor fuels.

Project duration: from 01. 01. 2006 to 31. 12. 2008

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
SLOVNAFT, j.s.co., Bratislava		Židek, Daučík	from 1990

Bio Plus	MERO, Renewable sources	Bajus	from 2003
TRANSPETROL, j. s. co., Bratislava	Evaluation of crude oil	Daučík	from 2000
VÚRUP, j. s. co., Bratislava		Hudec, Daučík	from 1989
DRON - Sklady, ltd. co.	Recycling of polymer waste	Bajus	
Slovak Academy of Science, Institute of Polymers, Bratislava		Bajus	
Institute of Chemistry, Faculty of Natural Sciences, Comenius University, Bratislava	Characterization of silica aerogels	Hudec	from 1998
Department of Nuclear Physics and Technology, Faculty of Electrical Engineering, Bratislava	Moessbauer spectroscopy of Fe-modified zeolites	Hudec	from 1997

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
ABO – University, Finland	Modification and characterization of zeolites and their application in izomerization reactions	Hudec	from 2001
University of Calgary, Canada	Determination of physical properties and chemical structure of polymer modified bitumens	Daučík	from 2000
Institute of Physico-Chemistry and Electrochemistry, Academy of Sciences, Prague, Czech Republic	Evaluation of adsorption properties of zeolites	Hudec.	from 1997

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Daučík Pavol	Slovak Society of industrial Chemistry	member	
Hájeková Elena	Slovak Society of industrial Chemistry	member	01. 01. 1994
Hudec Pavol	Slovak Society of industrial Chemistry	member	
Smiešková Agáta	Slovak Society of industrial Chemistry	member	
Židek Zdenek	Slovak Society of industrial Chemistry	member	
Daučík Pavol	Slovak institute of technical normalization	member	30. 04. 2001
Daučík Pavol	Examining board in the field of oils	member	29. 11. 2001
Hudec Pavol	Slovak zeolite association at SSPCH	president	01. 01. 2001
Smiešková Agáta	Slovak zeolite association at SSPCH	member	
Židek Zdenek	Slovak zeolite association at SSPCH	member	
Hudec Pavol	Slovak Society of Chemical Engineering	member	
Smiešková Agáta	Slovak Society of Chemical Engineering	member	
Židek Zdenek	Slovak Society of Chemical Engineering	member	

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Bajus M.	17th International Symposium on Analytical and Applied Pyrolysis	Hungary	21.-26.5.2006
Bartková A.	8th Pannonian International Symposium on Catalysis	Hungary	4.-7.7.2006
Hájeková E.	17th International Symposium on Analytical and Applied Pyrolysis	Hungary	21.-26.5.2006
Hornáček M.	8th Pannonian International Symposium on Catalysis	Hungary	4.-7.7.2006
Hornáček M.	XIII Forum Zeolitowe Polanczyk	Poland	10.-15.9.2006
Hornáček M.	XXXVIII Symposium on Catalysis Prague	ČR	6.-7.11.2006
Hudec P.	8th Pannonian International Symposium on Catalysis	Hungary	4.-7.7.2006

Hudec P.	17th International Congress of Chemical Engineering	ČR	27.-31.8.2006
Hudec P.	XIII Forum Zeolitowe Polanczyk	Poland	10.-15.9.2006
Hudec P.	XXXVIII Symposium on Catalysis Prague	ČR	6.-7.11.2006
Mlynková B.	17th International Symposium on Analytical and Applied Pyrolysis	Hungary	21.-26.5.2006
Smiešková A.	8th Pannonian International Symposium on Catalysis	Hungary	4.-7.7.2006
Smiešková A.	XIII Forum Zeolitowe Polanczyk	Poland	10.-15.9.2006
Špodová L.	17th International Symposium on Analytical and Applied Pyrolysis	Hungary	21.-26.5.2006

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Gabriel Csiba	Biofuels and Biocomponents	Bajus M.
Milan Hrnčířik	Chemical Recycling of Hydrocarbon Wastes in Catalytic Cracking	Hudec P.
Marián Lapšanský	Pyrolysis of Petroleum Fractions	Bajus M.
Miroslav Medovčík	Ion-exchange Properties of ZSM-5 Zeolites with Co ²⁺	Smiešková A.
Zdenka Tadiálová	Preparation and Characterization of Mo/ZSM-5 Catalysts for Aromatics Preparation from Methane	Smiešková A.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Tomáš Baláž	Study of the Aromatization of Methane	Smiešková A.
Martin Berek	IR – Spectra of Acid Centers of Zeolites	Hudec P.
Miloš Bartík	Recycling of Wastes by Pyrolysis	Bajus M.
Lucia Priadková	Microactivity Tests of FCC Catalysts – Influence of Feed Composition and Additives to Catalysts	Hudec P.
Martin Šándor	Effect of Diesel Fuel Composition their Low Temperature Properties	Daučík P.
Ondrej Šimko	Separation and Analysis of Products from Thermal Cracking of Individual and Mixed Plastics	Hájeková E.
Richard Taranda	Copyrolysis of Mixed Plastics with Straight-run Naphtha	Hájeková, E.
Ladislav Vdovjak	Separation and Characterization of Asphalt according to the Group Composition	Daučík P.

VIII. PUBLICATIONS

Book

[1] Bajus, M., Buláková, L.: 150 rokov plynárenstva na Slovensku, Slovenský plynárenský a naftový zväz na Slovensku, 2006.

Article in journal

[1] Hájeková, Elena, Bajus, Martin: Príprava chemického surovín z odpadných polyalkénov a ich využitie v kopyrolýze. Ropa, uhlie a petrochémiá, no. 43, vol. 3-4, pp. 73-77, 2004, 2006 nebolo zaradené v roku 2005.

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- [5] Klepáčová, Katarína, Mravec, Dušan, Bajus, Martin: Terc-Butylation of glycerol catalysed by ion-exchange resins. *Applied Catalysis A: General*, no. 294, pp. 141-147, 2005, 2006 nebolo zaradené v roku 2005.
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Article in conference proceedings

- [1] Ambro, J., Daučík, P., Gazdík, J., Hudec, P.: Nízokoteplotné vlastnosti dieselových palív. Editor(s): Daniel Bratský, In 7th International Symposium Motor Fuels 2006 PROCEEDINGS, pp. 348-352, 2006.
- [2] Bajus, M.: Technológia GTL. Editor(s): Daniel Bratský, In 7th International Symposium Motor Fuels 2006 PROCEEDINGS, pp. 398-412, 2006.
- [3] Bajus, Martin, Hájeková, Elena, Špodová, Lenka: Pyrolýza - základ recyklácie polyalkénov na petrochemikálie. In APROCHEM 2005, 14th International Conference, Chemical Technology, Petrochemistry, Polymers, Petroleum, Fuels, Natural gas, October 24 – 26 2005 Milovy, pp. 105-110, 2005, 2006 nebolo zaradené v roku 2005.
- [4] Bartková, A., Hudec, P., Smiešková, A., Horňáček, M.: Study of influence of particle characteristics on catalytic activity of ZSM-5 zeolites. Editor(s): István Pálínkó, In Proceeding of the 8th Pannonian International Symposium on Catalysis, pp. 202-207, 2006.
- [5] Bartková, Alena, Hudec, Pavol, Smiešková, Agáta, Horňáček, Michal: Influence of synthesis conditions of ZSM-5 zeolite on particle properties and catalytic activity. Editor(s): Waclaw Makowski, In Materiały XIII forum zeolitowego Polanczyk, 10-15 septembra 2006, pp. 158-163, 2006.
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- [10] Hájeková, Elena, Bajus, Martin: Thermal Cracking of Polyalkene Wastes as a Source Petrochemical Feedstocks. Editor(s): M. Müller – Hagedorn, H. Bockhorn, In the Third International Symposium on Feedstock Karlsruhe, Germany, September 25 – 29., Universitätsverlag Karlsruhe 2005, pp. 51-55, 2005, 2006 nebolo zaradené v roku 2005.
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- [14] Horňáček, Michal, Hudec, Pavol, Smiešková, Agáta, Bartková, Alena: Alkylation of benzene with long-chain alpha olefins over Y-zeolite and mordenite. Possibility of catalysts regeneration.. Editor(s): Waclaw Makowski, In Materiały XIII Forum zeolitowego Polanczyk, 10-15 september 2006, pp. 205-210, 2006.
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- [16] Hudec, P., Smiešková, A., Bartková, A., Horňáček, M.: Influence of modification and properties of ZSM-5 zeolites on addition of FCC-catalysts. Editor(s): Daniel Bratský, In 7th International Symposium Motor Fuels 2006 PROCEEDINGS, pp. 130-137, 2006.
- [17] Hudec, Pavol, Nociar, Andrej, Horňáček, Michal, Smiešková, Agáta, Jakubík, Tibor, Bartková, Alena: Microporous solid acids as active and selective catalysts for alkylation of aromatics in liquid phase. In 17th International Congress of Chemical Engineering, 27-31 August 2006, Prague, CR, pp. 5 pp, 2006.
- [18] Hudec, Pavol, Smiešková, Agáta: Standard isotherms for t-plot method measured for SiO₂, Al₂O₃ and Al₂O₃-SiO₂ nonporous solids. In 17th International Congress of Chemical Engineering, 27-31 August 2006, Prague, CR, pp. 1 pg, 2006.

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- [22] Kostáb, Gabriel, Mravec, Dušan, Bajus, Martin, Janotka, I.: Shape-selective tert butylation of toluene. In 42nd International Petroleum Conference, Bratislava, 11-12 October 2005, 2006 nebolo zaradené v roku 2005.
- [23] Mlynková, Božena, Hájeková, Elena, Taranda, Richard, Bajus, Martin, Špodová, Lenka, Hóka, Csaba: Copyrolysis of naphta with polyalkene cracking products; The influence of polyalkene mixtures composition on product distribution. In 17th International Symposium on Analytical and Applied Pyrolysis, May 21-26, 2006, Budapest, Hungary, vol. P95, pp. 189, 2006.
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- [27] Soják, Ladislav, Kubinec, Róbert, Jurdáková, Helena, Hájeková, Elena, Bajus, Martin: High resolution gas chromatographic – mass spectrometric analysis of waste polyethylene and polypropylene thermal degradation products. In 42 nd International Petroleum Conference, October 11 – 12, 2005, Bratislava, Slovak Republic, vol. Pr 09, pp. 1-17, 2005, 2006 nebolo zaradené v roku 2005.
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DEPARTMENT OF PHYSICAL CHEMISTRY

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Technical staff:

Imrich Csonka, Elena Fabíková, Alžbeta Chochulová, Štefan Miksai, Milan Štefunko, Mária Šuleková.

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory for the Basic Course of Physical Chemistry
Laboratory for the Advanced Course of Physical Chemistry
Laboratory of Electronics
Laboratory of UV-VIS and IR Spectroscopy
Computational Laboratory

B. Research laboratories:

Laboratory of Thermal Analysis and Calorimetry
Laboratory of EPR Spectroscopy
Laboratory of IR spectroscopy
Laboratory of X-ray analysis
Laboratory of Molecular Distillation and Alternative Diesel Fuels

III. TEACHING

A. Undergraduate Study:

3. semester (Bc)	Physical Chemistry I	(3-2 h)	V. Brezová
	Physical Chemistry I	(2-2 h)	S. Biskupič, A. Gatíal, M. Mazúr, D. Dvoranová, E. Klein
	Physical Chemistry II	(3-2 h)	P. Rapta
	Laboratory Practice in Physical Chemistry I	(0-3 h)	E. Klein
	Laboratory Practice in Physical Chemistry I	(0-2 h)	E. Klein
	Physical and Colloid Chemistry	(2-2 h)	P. Šimon
4. semester (Bc)	Physical Chemistry II	(3-2 h)	S. Biskupič, A. Gatíal, P. Kovařík, M. Mazúr
	Laboratory Practice in Physical Chemistry II	(0-3 h)	E. Klein
5. semester (Bc)	Physical Fundamentals of Spectroscopic Methods	(2-2 h)	A. Staško, V. Brezová
6. semester (Bc)	Biophysical Chemistry	(2-2 h)	M. Valko

1. semester (MSc)	Chemical Physics I	(2-1 h)	M. Breza
	Thermodynamics	(2-1 h)	P. Šimon
	Kinetics and Catalysis	(2-1 h)	P. Kovařík
	Colloid Chemistry	(2-0 h)	T. Bleha
	Statistical Treatment and Evaluation of Exp. Data	(2-0 h)	E. Klein
2. semester (MSc)	Group Theory and Symmetry	(2-0 h)	M. Breza, V. Kvasnička
	Special Laboratory Practice I	(0-8 h)	P. Rapta
	Chemical Physics II	(2-1 h)	S. Biskupič
	Biophysical Chemistry	(2-0 h)	M. Valko
3. semester (MSc)	Special Laboratory Practise II	(0-6 h)	P. Rapta
	Traineeship, Excursion		
	Molecular Spectroscopy	(2-1 h)	A. Staško
	Chemical Physics III	(2-0 h)	A. Gaňal
	Solid State Physics	(2-0 h)	M. Breza
4. semester (MSc)	Special Laboratory Practice III	(0-10 h)	P. Rapta
	Diploma Thesis	(0-30 h)	

IV. CURRENT RESEARCH PROJECTS

DEVELOPMENT AND APPLICATION OF COMPUTATIONAL METHODS TO THE STUDY OF ELECTRONIC STRUCTURE OF MOLECULAR SYSTEMS (Stanislav Biskupič)

Quantum-chemical study of electron structure of transition metal and similar atoms complexes (such as catalysts based on Cu, Ni, Ru etc., Pb complexes, phosphazenes).

Vibration and NMR spectroscopy and X-ray experimental study of the structure of some new-synthesized push-pull olefins as model compounds for the synthesis of new heterocyclic biologically active materials (or with possible biological activity).

Program implementation of the methods for calculation of the vibrational-rotational states of the van der Waals complexes for analytically formulated potential energy hypersurfaces. Program modification of the expressions in the framework of the symmetry adapted perturbation theory (SAPT) for the effective evaluation of the 4th order contributions to the dispersion energy for mutual interaction of the open- and closed-shell systems within the UHF method.

Implementation of the present software products for extraction of the so called experimental wave function (correctly said : the experimental distribution of the electron density) from X-ray data (the implementation of the object oriented package TONTO).

Project duration: from 2006 to 2008

SPECTROSCOPICAL ANALYSIS OF STRUCTURE AND REACTIVITY OF RADICALS AND TRANSITION METAL COMPLEXES IN CHEMICAL, BIOLOGICAL AND PHOTOCHEMICAL SYSTEMS (Vlasta Brezová)

The aims of the project are the investigations of the structure and reactivity of radical intermediates and metal complexes in the chemical, electrochemical, photochemical, and biological systems applying spectroscopic methods (EPR, UV/Vis/NIR spectroscopy) and electrochemical techniques (voltammetry). The research is oriented especially on the physicochemical characterization of organic materials with specific properties, e.g. conducting polymers, as well as on the study of magnetic, redox and spectroscopic properties of transition metal complexes. The photochemical investigations are focused on the primary radical intermediates generated upon photoexcitation of organic compounds in heterogeneous titanium dioxide systems, as well as in homogeneous solutions using spin trapping technique. A further systematical development of combined spectroelectrochemical and spectrophotocatalytic methods, as well as an improving of experimental techniques and the analysis of error sources in quantitative EPR spectroscopy will be carried out.

Project duration: from 01/2006 to 12/2008

MATERIALS – physico-chemical methods of their study (Peter Šimon)

The project is aimed at the development of methods of materials study and their use for processes exhibiting the induction period, e.g. thermooxidative processes and phase transitions. Non-stabilized and stabilized polymers and other materials belong to the main objects of the study. From the measurement of residual thermooxidative

stability, the equivalency between accelerated ageing tests and natural ageing of materials is determined. The method will be applied for the life-time prediction of materials under extreme conditions, i. e. in automotive industry and nuclear power plants. Experimental results will be interpreted using theoretical models involving kinetics, thermodynamics and statistical thermodynamics of processes with the implementation of modern mathematical approach, such as the fractal theory and neural networks.

Project duration: from 2006 to 2008

ELECTRON STRUCTURE AND PROPERTIES OF MATERIALS IN SOLID PHASE (Jozef Kožišek)

The ambition of the solved project is the integrated study of the selected systems in solid state with possible applications in understanding the mechanisms of enzymatic reactions in biological systems, developing new materials (spin cross-over systems), or catalysts for asymmetric synthesis. Project benefits from just developed laboratory for studying electronic structure (GEMINI R diffractometer, 16-processor cluster), running EU project in HASYLAB/DESY (synchrotron radiation), as well as the possibility to make data collection on neutron sources (Garching, Grenoble).

Project duration: from 2005 to 2007

Liquid fuels based on vegetable oils and animal fats for transport and energetics (Ján Cvengroš)

Project is focused on the study of non-traditional utilization of natural triacylglycerols (TAG) as liquid fuels for transport and energetics, hydrogenation cracking of TAG, utilization of mixtures naphta and ethanol and/or TAG as diesel fuels, energetic utilization of glycerol. The targets of the project are as follows:

- Study of natural TAG hydrogenation cracking and hydro-isomerisation, complex analysis of products and their blends with fossil fuel, process optimization, documentation for application.
- TAG or TAG + bio-ethanol blend as a fuel for non-adapted / adapted diesel fuel, laboratory and bench engine tests neat / additived TAG / TAG + bio-ethanol, TAG treatment, optimization of treatment. Blended fuel TAG + fossil fuels for diesel engines.
- Laboratory and engine tests of blends fossil fuel + bio-components (ethanol, ethanol + FAME), their parameters, additived for improvements of the parameters of mixed fuel.
- Energetic utilization of GP or partly refined G, direct combustion of highly pre-heated GP or G by spraying through nozzles in combustion chamber, combustion of GP/G as blended fuel with fossil component or methanol.

Project duration: from 2006 to 2009

Basic characteristics of horizontal evaporator with wiped film (Ján Cvengroš)

Model study of evaporation, distillation and film flow in horizontal evaporator with wiped film. Basic characteristics of horizontal evaporator whit controlled residence time of liquid on evaporation surface. The influence of selected design parameters (wiper, evaporation surface) and operational parameters (feed rate, viscosity, peripheral speed of wiper, pressure, temperature, evaporation degree) on the evaporator performance.

Project duration: from 2004 to 2006

Antioxidant and prooxidant properties of carotenoids - EPR study (Marian Valko)

Carotenoids are pigments that are found in plants and microorganisms and may prevent or inhibit certain types of cancer, atherosclerosis, age-related muscular degeneration, and other diseases. The protective role of carotenoids is related to their antioxidant ability to efficiently scavenge free radicals. The main objective of this project is to perform a comparative study of antioxidant efficiency of several carotenoids to scavenge oxygen free radicals in solution. However, recent epidemiological studies have surprisingly demonstrated that some carotenoids can also exhibit prooxidant properties. In this connection we plan to investigate the most important factors, such as concentration, role of trace metals (Cu^{2+} , Fe^{2+}), isomerism and oxygen partial pressure ($p\text{O}_2$), which affect a switch between antioxidant and prooxidant behaviour of carotenoids using EPR spectroscopy. In particular the role of cis-trans isomerism within the conjugated chain, which recent biochemical experiments suggest might have a very significant effect on activity, has received little attention.

Project duration: from 2005 to 2007

I. SUSTAINPACK - Innovation and Sustainable Development in the Fibre Based Packaging

Value Chain (Peter Šimon)

FP6 EU project aimed to mobilising the European scientific expertise in the packaging value chain to establish the European forest industry cluster as the dominant player in the packaging area within a decade. It will be implemented through the Sustainpack project which is intended to make real breakthroughs in fibre based packaging.

The overall objective of the RTD activities is to develop and implement a Sustainable Packaging Tool Platform based on renewable resources, giving innovative properties to packaging, thereby offering new value added packaging options for packaging users and for consumers. The Tool Platform comprises New Innovative Material Properties and New Innovative Process Developments to transform these materials into new packaging solutions.

Project duration: from 2004 to 2008

Anti-aging at the Molecular Level: Antioxidants in Slovak and Austrian Wines (Vlasta Brezová)

Bilateral Slovakia-Austria project focused on development and application of experimental spectroscopic techniques (EPR, UV/vis and FTIR) for the quantitative determination of wines antioxidant capacity. Analysis of Slovak and Austrian wines antioxidant properties and selection of effective antioxidants in wines with the beneficial effects on human health.

Project duration: from 2006 to 2007

AvH Joint research project Dresden/Bratislava 3Fokoop DEU/1063827

The main idea of the project is the study of the novel aromatic and heteroaromatic compounds with extended π -conjugation with respect to the injection of charge, the structure of charged states and their equilibrium. This can be studied by in situ spectroelectrochemical techniques which enable detailed kinetic and structural studies of charged states of extended π -systems. Additionally follow-up reactions after electron transfer on organic molecules such as dimerisation, diradical and charge transfer complex formation and the building of clusters is the subject of the research plan. The proposed research project is based on know-how and experiences of the project partners in the physico-chemical measurements, theoretical modelling and synthesis of the systems with high π -extension. Organic structures like furan, thiophene, pyrrole, imidazole, pyrazine and fullerene derivatives suitable for opto-electronic devices and newly synthesized in Bratislava and Dresden, will be studied both in solutions and as solid films using cyclic voltammetry, optical absorption (UV-Vis-NIR) and ESR spectroscopy in order to estimate their charge states, optical properties and stability.

Project duration: from 2006 to 2009.

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Research Inst. Food	scientific	P.Šimon	2006
BEL/Novaman	scientific, industrial	P.Šimon	2006
Res.Inst.Chem. Technology	scientific	P.Šimon	2006
St. Cyril and Methodius University, Trnava	scientific	A. Gatjal	2006
VULM, Modra	scientific, industrial	J. Cvengroš	2006
CMS, Bratislava	scientific, industrial	J. Cvengroš	2006
UK, Bratislava	scientific, industrial	J. Cvengroš	2006
Biorafinéria, Martin	scientific, industrial	J. Cvengroš	2006
VÚRUP, Bratislava	scientific, industrial	J. Cvengroš	2006

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
LTNW, Manchester, UK (F.Kvasnik)	scientific	P.Šimon	2006
University of Technology, Sydney, Australia (A.Ray, P.Thomas)	scientific	P.Šimon	2006

Faculty of Chemistry, Technical University, Brno, Czech Republic (L.Omelka)	scientific	P.Šimon	2006
STFI-Packforsk, Stockholm, Sweden (Dr. K. Johansson)	scientific	P.Šimon	2006
PIRA, Leatherhead, UK (Dr. M. Sturges)	scientific	P.Šimon	2006
ITENE, Valencia, Spain (Dr. S. Aucejo)	scientific	P.Šimon	2006
DTI, Roskilde, Denmark (Dr. S. Østergaard)	scientific	P.Šimon	2006
Liverpool John Moores University, UK (Prof. M. Cronin)	scientific	M. Valko	2006
Roosevelt University, Chicago, USA (Prof. J. Telser)	scientific	M. Valko	2006
Bremen University (Prof. D. Leibfritz)	scientific	M. Valko	2006
Institut für physikalische und theoretische Chemie Technische Universität Graz	scientific	V. Brezová	2006
IFW Dresden, Germany	scientific	P. Rapta	2006
University of Western Australia, Perth (D. Jayatilaka)	scientific	S. Biskupič	2006
University Stuttgart, Germany (W. Kaim)	scientific	M. Breza	2006
University of Vienna, Austria (L. Benco)	scientific	M. Breza	2006
NORA Lovech, Bulgaria	scientific	J. Cvengroš	2006

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
P.Šimon	Slovak Chemical Society	other	2006
S. Biskupič	Slovak Chemical Society	other	2006
J. Cvengros	Slovak Chemical Society	member	2006
J. Cvengros	Slovak Society of Chemical Engineering	member	2006

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
P.Šimon	International Congress on Thermal Analysis and Calorimetry (ICTAC)	member	2006
S. Biskupič	International Society for Theoretical Chemical Physics, Germany	member	2006
S. Biskupič	International ESR Society, USA	member	2006
S. Biskupič	American Chemical Society, USA	member	2006
J. Cvengros	American Oil Chemist's Society	member	2006

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Abhi Ray	University of Technology, Sydney	Australia	August 26-September 5 11 days
Jean-Pierre Guerbois	University of Technology, Sydney	Australia	August 26-September 4 10 days
Sören Østergaard	Dannish Technological Institute, Roskilde	Denmark	August 22-23 2 days
Joshua Telser	Roosevelt Univesity	USA	Januar 12-21 10days
Mark Cronin	Liverpool John Moores University	UK	September 17-22 6 days
Mark Hewitt	Liverpool John Moores University	UK	September 12-22 11 days
Lothar Dunsch	IFW Dresden	Germany	November 21-22 2 days
L. Benco	University Vienna	Austria	March-September 5 days
Pavlina Ivanova Ivanchovska	NORA Lovech	Bulgaria	September 19-20 2 days
Ivanka Mincheva Lukanova	NORA Lovech	Bulgaria	September 19-20 2 days

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
P. Šimon	SustainPack Conference - Barcelona	Spain	December 2-7 6 days
P. Šimon	EFPG - Grenoble	France	May 8-11 4 days
P. Šimon	VTT - Espoo	Finland	February 7-10 4 days
P. Šimon	ESTAC 9 Conference - Cracow	Poland	August 27- September 1 6 days
P. Šimon	PIRA - Dorking	UK	April 25-27 3 days
P. Šimon	MODEST 2006 Conference – San Sebastian	Spain	September 7-17 11 days
P. Šimon	University of Technology - Sydney	Australia	March 17 – April 11 26 days
P. Šimon	ITENE - Valencia	Spain	November 6-10 5 days
D. Dvoranová	TU Graz	Austria	October 15, 2005 – April 30, 2006
M. Valko	Liverpool John Moores University	UK	August 23-26 4 days
M. Valko	Liverpool John Moores University	UK	November 15-18 4 days
V. Brezová	Environmental Applications of Advanced Oxidation Processes	Chania, Crete	September 7-9 4 days
V. Brezová	4 th European Meeting on Chemistry and Solar Chemistry and Photocatalysis: Environmental Applications	Las Palmas de Gran Canaria, Spain	November 8-10 4 days
A. Staško	Vitamins 2006 (Health Ingredients Metabolism Analysis), 6 th International Conference	Pardubice, Czech Republic	September 10-13 4 days
D. Dvoranová	Central European Conference on Photochemistry	Bad Hofgastein, Austria	March 5-9 5 days
L. Csefalvayová	7 th European Commission Conference on Cultural Heritage Research	Prague, Czech Republic	May 31-June 3 4 days
V. Brezová, L. Csefalvayová	XIII th Seminar of Restorers and Historians	Třeboň, Czech Republic	October 3-6 4 days
P. Rapta	International Bunsen Discussion Meeting: „Modern electrochemistry of new materials“	Rathen, Germany	November 2-4 4 days
P. Rapta	ELACH7	Waldheim, Germany	September 17-20 4 days
M. Zalibera	IFW	Dresden, Germany	April 1-June 30 3 months
A. Vargová	IFW	Dresden, Germany	October 15- December 15 2 months
P. Rapta	IFW	Dresden, Germany	June 19-August 18 2 months
S. Biskupič	CESTC2006, Zakopane	Poland	September 24-27, 4 days
M. Breza	University Stuttgart	Germany	July 17-August 12, 4 weeks
M. Breza	University Vienna	Austria	November - December, 4 days
M. Breza	ECDM IV., Brandenburg on the Havel	Germany	January 26-29, 4 days
M. Breza	CESTC2006, Zakopane	Poland	September 24-27, 4 days
M. Gall	MSSC2006, Torino	Italy	September 3-8, 6 days

A. Gatial	XXVIII EUCMOS, Istanbul	Turkey	September 3-9, 7 days
M. Gróf	Measurement and Interpretation of Vibrational Spectra. Winter School, Prague	Czech Republic	January 22-February 4, 2 weeks
M. Gróf	Winter School of Computational Chemistry, Juelich	Germany	February 13-23, 11 days
M. Hudák	University of Western Australia, Perth	Australia	December 4, 2006 – March 4, 2007, 3 months
K. Matuszná	CESTC2006, Zakopane	Poland	September 24-27, 4 days
K. Matuszná	University Vienna	Austria	March-November, 10 days
J. Polovková	XXVIII EUCMOS, Istanbul	Turkey	September 3-9, 7 days
J. Cvengroš	Conference Aprochem/Odpadové fórum 2006, Milovy	Czech Republic	April 24-26 3 days

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Gašparovič Lukáš	X-ray Structure Analysis of Substituted Benzene Sulfoamides	Jozef Kožíšek
Gocian Jozef	EPR Study of Photochemical Reactions of Citronellol	Dana Dvoranová
Heřman František	Study of Antioxidants Effect on the Stability of Polymers	Erik Klein
Husáriková Lucia	Uncertainties in Quantum Chemistry	Stanislav Biskupič
Ulčák Michal	Molecular Distillation - Literature Survey 1995 - 2005	Ján Cvengroš
Danišová Angelika	Reactions of Cereal Extracts with Radicals (EPR and UV-Vis Studies)	Peter Rapta

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Bučinský Lukáš	Calculation of Energy Hypersurfaces with Inclusion of Relativistic Effects	Stanislav Biskupič
Čapová Aneta	Radical Scavenging and Antioxidant Properties of Extracts from Bioproducts in Dependence on Their Composition	Peter Rapta
Jakubová Agáta	The Study of Fungal Metabolism Using NMR Spectroscopy	Tibor Liptaj
Juhášová Helena	Conformational Analysis and Interpretation of Vibrational Spectra of Methyl-2-cyano-3-aminoacrylate and Its N-methyl Derivatives	Anton Gatial
Kačmarská Kristína	In Vivo NMR Studies of Metabolic Alterations Accompanying the Pathogenesis of Various Diseases in Rodent Models	Tibor Liptaj
Šalitroš Ivan	Iron and Nickel Complexes with Schiff Bases and Their Magnetic Properties	Roman Boča
Švaňová Katarína	Antioxidant and Radical-scavenging Properties of Carotenoids Investigated by EPR	Vlasta Brezová
Vargová Andrea	Redox Reactions of Pyrrolylbenzenes (in Situ EPR/UV-VIS Spectro-electrochemistry)	Peter Rapta

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Zuzana Cibulková	<i>Study of thermooxidative stability of materials by DSC</i>	Peter Šimon

VIII. PUBLICATIONS

Article in journal

- [1] Breza, M.: Model studies of SOCl₂ adsorption on carbon nanotubes. *J. Mol. Struct. (THEOCHEM)* 767, 159-163 (2006), vol. 767, pp. 159-163, 2006.
- [2] Breza, M.: On SOCl₂ hydrolysis at carbon nanotubes. *Chem. Phys.*, vol. 330, pp. 224-230, 2006.
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- [1] Kocsisová, T.: Fyzikálno-chemické vlastnosti oleochemických produktov, ich syntéza a aplikácia. Dizertačná práca.. FCHPT STU, 2006. (Supervisor: doc. Ján Cvengroš)

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Gabriela Borsányiová

II. TEACHING AND RESEARCH LABORATORIES

Gym 14x21 m – ground /volleybal, basketball, football/

Two Body Building rooms 15x5 m and 10x5 m

Two Table Tennis rooms

III. TEACHING

Aerobic	(2 h)	A. Koláriková, L. Vedralová
Kalanethics	(2 h)	A. Koláriková, L. Vedralová
Harmonic gymnastics	(2 h)	A. Koláriková, L. Vedralová
Healing gymnastic	(2 h)	A. Koláriková
Athletic sport	(2 h)	Ľ. Benko
Basketball	(2 h)	P. Bartok
Football	(2 h)	P. Bartok
Handball	(2 h)	M. Bobřík, M. Križan
Body building	(6 h)	M. Bobřík, P. Bartok, M. Križan, Ľ. Benko,
Swimming	(2 h)	L. Vedralová, Ľ. Benko, A. Koláriková
Canoeing and kayak	(4 h)	M. Bobřík
Volleyball	(2 h)	Ľ. Benko
Winter sports camp /skiing/		M. Bobřík, A. Koláriková
Summer sports camp /		M. Bobřík, Ľ. Benko
Floorball	(4)	Ľ. Benko, M. Križan

IV. RESEARCH PROJECT

State of Physical and Motor Development of Undergraduates of FCHFT STU in Bratislava (Miroslav Bobřík, Ľuboš Benko).

Swimming Ability of University Student in Slovakia (Lucia Vedralová).

The intensity of movement load during the aquarobic of university student (Lucia Vedralová).

Health weakened Students and their Adaptation on Physical Program in the Conditions of Integrated Physical Education at STU (Koláriková Andrea).

Creation of the Criteria for Intensity Assessment of Match and training Load in Sport Games (Križan Martin).

V. COOPERATION IN SLOVAKIA

Faculty Physical Education and Sport of the Comenius University, Bratislava;

Research Institute of Physical Culture, Bratislava;

Institute of History, Slovak Academy of Sciences, Bratislava.

VIII. PUBLICATIONS

Book

- [1] Bobřík, M.: Nemecká menšina na Slovensku a jej telovýchovné a športové aktivity v rokoch 1918 – 1945, vydavateľstvo STU Bratislava, Monografia, 13,929 AH, 155+27obrázokov pages, 2006.

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DEPARTMENT OF PLASTICS AND RUBBER

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I. STAFF

Full Professors:

Dušan Bakoš, DSc;

Associate Professors:

Pavol Alexy, PhD; Ivan Hudec, PhD; Viera Chrástová, PhD; Gabriela Kyselá, PhD; Eugen Špirk, PhD;

Research Fellows:

Viera Khunová, PhD (Senior Research Fellow); Ľudmila Černáková, PhD; Michal Jaško, PhD.

PhD Students:

Peter Bugaj (since 1.10.2004); Denisa Bellušová (since 1.10.2004); Jozef Feranc (since 1.10.2004); Silvia Hanzelová (until 30.9.2006); Daniela Klimová (since 1.10.2005); Zuzana Kramárová (until 30.9.2006); Pavol Lukáč (since 1.10.2004); Anna Naháľková (since 1.10.2005); Eva Simigová (until 30.9.2006); Ján Široký (since 1.10.2005); Katarína Štechová (since 1.10.2006 - external); Lucia Vodná (since 1.10.2004); Amir Ihssan (since 1.10.2006); Mlynský Tomáš (since 1.10.2006); Szabová Renáta (since 1.10.2006); Vašková Ida (since 1.10.2006).

Technical staff:

Viera Godályová, Mária Pekarovičová, Anna Tatarková, Emil Tvarožek

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Polymer Synthesis
Laboratory of Polymer Processing
Laboratory of Polymer Testing
Polymer Processing Centre

B. Research laboratories:

Laboratory of Polymer Solutions
Laboratory of Polymer Modification
Laboratory of Thermal Analysis
Laboratory of Polymer Rheology
Laboratory of Electron Microscopy
Laboratory of Polymer Processing and Estimation of its Properties
Laboratory of Biomaterials
Laboratory of Plasma Technology

III. TEACHING

A. Undergraduate Study: Chemical Technology

5. semester (Bc)	Macromolecular Chemistry	2/0/0	Chrástová
	Corrosion and Material Surface Treatment	2/0/2	Chovancová, Hudec
6. semester (Bc)	Technology of Materials	2/0/0	Hudec, Marcincin, Majling
	Semestral Project	0/4/0	
	Production, Properties and Processing of Plastics	2/0/0	Hudec (for students of Faculty of Architecture)
	Program: Polymeric Materials		
1. semester (MSc)	Polymer Physics	2/2/0	Chodák
	Colloids and Interfaces	2/1/0	Bakoš, Reháková
	Macromolecular Chemistry II.	2/1/0	Chrástová
	Production and Processing of Plastics	3/0/0	Hudec

	Production and Processing of Rubber	3/2/0	Kyselá
	Laboratory from Macromolecular Chemistry	0/0/8	Černáková
2. semester (MSc)	Additives for Plastics	2/0/0	Hudec
	Methods of Polymer Characterisation	2/0/0	Černáková
	Biotechnological Polymers	2/0/0	Bakoš
	Design of Experiments	1/1/0	Alexy
	Laboratory from Production of Polymers	0/0/8	Alexy, Kyselá
3. semester (MSc)	Polymer Processing	3/1/0	Špirk
	Polymer Blends and Composites	2/0/0	Khunová
	Polymer Recycling and Waste Disposal	2/0/0	Hudec, Khunová, Špirk
	Polymer Testing	0/2/0	Alexy
	Laboratory from Processing of Polymers	0/0/10	Alexy, Hudec
4. semester (MSc)	Diploma work	0/0/27	

B. Undergraduate Study: Technology of Polymer Materials

1.semester (Bc)	Seminar - Project I.	0/1/0	Bakoš
	Fundamentals of Polymer Processing	2/0/0	Hudec
2.semester (Bc)	Macromolecular Chemistry	2/0/0	Chrástová
	Seminar – ProjectII.	0/4/0	Bakoš

C. Undergraduate Study: Plastics in Mechanical engineering and Technologies Of PLastics PROCESSING

2.semester (Bc)	Annual Project	0/3/0	Bakoš
3.semester (Bc)	Macromolecular Chemistry	2/0/0	Chrástová
	Production and Processing of Plastics	3/1/0	Hudec
	Polymer Testing	0/2/3	Alexy
	Analytical Chemistry of Plastics I	2/1/0	Černáková
4.semester (Bc)	Analytical Chemistry of Plastic II	0/0/3	Černáková
	Polymer Physics	2/2/0	Chodák
	Injection molding, extrusion and blow molding	2/2/0	Špirk
	Annual Project	0/4/0	Hudec
5.semester (Bc)	Corrosion and Material Surface Treatment	2/0/2	Chovancová, Hudec
	Additives for polymers	2/0/0	Hudec
	Laboratory from Processing of Polymers	0/0/5	Alexy

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project N° 1/2110/05, Polymer nanocomposites based on polyolefines, carbon nanotubes and layered silicate (Viera Khunová)

The project is aimed to develop advanced polymer nanocomposite materials with high barrier properties and electrical conductivity based on polyolefines, carbon nanotubes and layered silicates. Development of clay surface modification technologies in order to maximise interphase interactions and performance of composites. Determination of filler/modifier and modifier/polymer interphases. Exploration of the role of interfacial modification on the structure and physico-mechanical properties of composites. Optimisation of reactive processing conditions to achieve the highest degree of filler dispersion and exfoliation. Explanation of the knowledges related to the multifunctional influence of physical and chemical characteristics of filler and modifier, as well as reactive processing conditions on the structure and end-use properties of studied materials. Identification of filler surface modification rate by application of competitive effective compounds.

Project duration: from 01. 01. 2005 to 31. 12. 2007

B. Project No 2-3-5 CHN, New Biomaterials Based on Chitosan Complexes (Dušan Bakoš).

Target of the project is complexation of natural polymers to set-up a new tissue-engineered multi-functional composite products that are successful in three-dimensional tissue regeneration as being biologically active,

biodegradable, heterogenous, anisotropic structures. The research activity will be based on highly innovative technological processes and biopolymers (chitosan, hyaluronan and starch). Special nano-technologies for natural polysaccharide-based polymers will be used to optimise the materials morphological development and consequent mechanical and degradation behaviour and to tailor their in vivo performances.

Project duration: from 2002 to 2006

C. SUSTAINPACK, Integrated Project 6FP, Sustainable development in the innovative fibre based packaging value chain (Dušan Bakoš)

Objective of the Project is to improve the competitiveness of fibre-based packaging through the development and application of nanotechnologies in order to reduce supply chain costs or add functionality. Participating in two subprojects: SP1 – Fibre based packaging value chain and SP3 – Fibre based composite packaging.

Project duration: from 2004 to 2007

D. Project of ME SR No 661/2003 Preservation, Stabilization and Conservation of Traditional Information Supports in the Slovak Republic (Dušan Bakoš)

Objective of the State Program Project is live prolonging of endangered paper documents in libraries and archives in SR, as well as assorting of books according to historical and technological criteria with livesaving of documents. In the experimental part of the project, the study is focused on an experimental evaluation of new technologies and objective comparing known and new technologies with the development of experimental base for research and education in the field of book and documents preservation.

Project duration: from 2003 to 2006

E. Project of APVT Grant Agency APVT-099-035004, Fibrous and Textile Surface Nanostructural Modification (Ivan Hudec)

The aim of project is study of surface modification of fibrous and textile materials by atmospheric plasma in various gases grafting of monomers or nano-scale layers on textile surface after activation by plasma.

Project duration: from 2005 to 2007

F. Project of APVT Grant Agency APVT-099-013704, Polymer materials with higher utility properties (Ivan Hudec)

The aim of project is study of interactions between structure and properties of heterogeneous polymer systems, especially degree of pigments dispergation in polymer matrix on dependence of processing conditions.

Project duration: from 2005 to 2006

Project of APVT Grant Agency APVV-099-038805, Application of the Method of the Design of Experiments (DoE) and Mathematic-Statistical Procedures in the Formulation of the Recipes of Rubber Compounds (Pavol Alexy)

The aim of project is creation of optimizing system for rubber blends formulation based on application of DoE methodology output.

Project duration: from 2006 to 2008

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Rubber Research Institute Matador, a.s., Púchov	Surface modification of rubber and textile reinforcing materials by plasma	Hudec	2006

Rubber Research Institute Matador, a.s. Púchov	Possibilities of modification of traction properties of sports tyres	Hudec	2006
Rubber Research Institute Matador, a.s., Púchov	Dynamical properties of textile reinforcing materials and its composites with rubber for tyre construction	Hudec	2006
VIPOTEST, Ltd., Púchov	Rheology of rubbers and rubber mixtures	Špirk	2006
Rubber Research Institute Matador, a.s. Púchov	New types of fillers and reinforcing materials for rubber blends	Alexy	2006
VUCHT, Bratislava	Modification of particulate polymer composites by reactive modifiers	Khunová	2006
VUJE a.s. Trnava	Thermoanalytical properties of crosslinked polyethylene	Hudec	2006

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Martin Luther University of Halle-Wittenberg, Institute of Materials Science, Halle, Germany	Modification of reinforcing materials for rubber articles, New types of fillers for rubber blends	Radusch Hans-Joachim, professor, Gesauer Str., Halle-Wittenberg, D-06099 Halle(Saale), Germany	since 2002
Technical University of Szczecin, Institute of Material Engineering, Szczecin, Poland	Chemical and physical modification of polymers	Tartakowski Zenon, professor, al. Piastow č. 19, Szczecin, Poland	since 1996
Academia Rolniczna, Krakow, Poland	Biopolymers	Tomasik Piotr, professor Krakow, Poland	since 2005
Institute of Macromoleculare Chemistry, Academy of Science of the Czech Republic, Prague, Czech Rep.	Polymer nanocomposites	Kelnar Ivan, senior research fellow, Academy of Science, Praque, Czech Republic	since 2001
International Clinic for Neo-Organs, Roma, Italy	Biomaterials development	Letič Gavrilovič Anka, professor, International Clinic for Neo-Organs, Roma, Italy	since 1999
The Manchester Metropolitan University, Faculty of Science and Engineering, Manchester, UK	Reactive processing of particulate polymer composites	Liau C.M., senior research fellow, Chester str., Manchester M1 5GD, UK	since 1996
University of Minho, Department of Polymer Engineering, Guimarães, Portugal	Development of composites, polymer processing	Antonio Cunha, professor, University of Minho, Guimaraes, Portugal	since 1999
University of Pisa, Department of Chemistry and Industrial Chemistry, Pisa, Italy	Biodegradable polymers	Chiellini Emo, professor, Via Risorgimento 35, 56126 Pisa, Italy	since 1999
Department of Macromolecular Science, Fudan University, Shanghai, China	New biomaterials based on chitosan complexes	Wei Zhong, associate professor, 220 Handan Road, Shanghai 200433, P.R. China	since 2002
Institute of Materials Technology, Poznań University of Technology, Poznań, Poland	Testing of adhesion properties of reinforcing materials to rubber	Szostak Marek, associate professor, ul. Piotrowo 3, 61-138 Poznań, Poland	since 2001
German Rubber Research Institute, Hannover, Germany	Composite materials based on rubber matrix and magnetic fillers	Robert H.Schuster, professor, Eupener Str.33, D-305 19 Hannover	Since 2006

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Bakoš Dušan	European Biomaterial Society	member	since 1995
Alexy Pavol	Polymer Processing Society	member	2005 - 2006
Hudec Ivan	IRCO	member	since 2005

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Wei Zhong	Fudan University	China	April 2006 (10 days)
Robert H. Schuster	DIK Hannover	Germany	February 2006 (2 days)
Andreas Wildberger	DIK Hannover	Germany	July 2006 (5 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Feranc, J.	Plast 2006 Milan	Italy	February 2006 (4 days)
Bellušová D.	Plast 2006 Milan	Italy	February 2006 (4 days)
Bugaj P.	Plast 2006 Milan	Italy	February 2006 (4 days)
Lukáč P.	Plast 2006 Milan	Italy	February 2006 (4 days)
Černáková, L.	9 th TAPPI Advanced Coating Fundamentals Symposium, Turku	Finland	February (3 days)
Bakoš, D.	Sun Microsystem, New York	USA	February 2006 (1 week)
Bakoš, D.	1 st Chinese-European Symposium on Biomaterials in Regenerative Medicine, Shuzhou City	China	March-April 2006 (3 week)
Bakoš, D.	PIRA Sustainpack I., London	Great Britain	April 2006 (1 week)
Nahálková, A.	Junior Scientist Conference, Wien	Austria	April 2006 (3 days)
Kramárová, Z.	Junior Scientist Conference, Wien	Austria	April 2006 (3 days)
Urogiová E.	Junior Scientist Conference, Wien	Austria	April 2006 (3 days)
Klimová, D.	Junior scientist conference 2006, Vienna	Austria	April 2006 (3 day)
Kunovská, K.	Junior scientist conference 2006, Vienna	Austria	April 2006 (3 day)
Hudec I.	International Rubber Conference 2006, Lyon	France	May 2006 (5days)
Khunová, V.	VIII. Annual Strategy and Technology Conference for the PET Packaging Industry, PETnology Europe 2006, Munich	Germany	May 2006 (3 days)
Khunová, V.	Socrates-Erasmus teachers mobility, University of Minho, CaCampus de Azurém, Guimaraes	Portugal	June 2006 (10 days)
Alexy P.	Funktionale Fullstoffe, DIK Hannover	Germany	June 2006 (3 days)
Hudec I.	Funktionale Fullstoffe, DIK Hannover	Germany	June 2006 (3 days)
Nahálková, A.	Workshop, Zlín	Czech Rep.	Jun 2006 (2 days)
Khunová, V.	2 nd International Symposium on "Nanostructured and Functional Polymer-based Materials and Nanocomposites" (NANOFUN-POLY), Lyon	France	June 2006 (4 days)
Bakoš, D.	TERMEC 2006, Int. Conference, Vancouver	Canada	July 2006 (5 days)
Kramárová, Z.	German Rubber Conference, Nürnberg	Germany	July 2006 (4 days)
Široký J.	German Rubber Conference, Nürnberg	Germany	July 2006 (4 days)

Urogiová E.	German Rubber Conference, Nürnberg	Germany	July 2006 (4 days)
Bellušová D.	German Rubber Conference, Nürnberg	Germany	July 2006 (4 days)
Feranc. J.	German Rubber Conference, Nürnberg	Germany	July 2006 (4days)
Bakoš, D.	European Conference on Biomaterials, Nantes	France	September 2006 (4 days)
Bubeníková,S.	European Conference on Biomaterials, Nantes	France	September 2006 (4 days)
Vodná, L.	European Conference on Biomaterials, Nantes	France	September 2006 (4 days)
Alexy P.	Polymerwerkstoffe 2006, Halle	Germany	September 2003 (4 days)
Kramárová Z.	Polymerwerkstoffe 2006, Halle	Germany	September 2006 (4 days)
Hudec I.	Polymerwerkstoffe 2006, Halle	Germany	September 2006 (4 days)
Urogiová E.	Polymerwerkstoffe 2006, Halle	Germany	September 2006 (4 days)
Hudec I.	Polymery 2006, Třešť u Jihlavy	Czech Republik	September 2006 (3 days)
Bakoš D.	Polymery 2006, Třešť u Jihlavy	Czech Republik	September 2006 (3 days)
Nahálková, A.	Junior Euromat Laussane	Switzerland	September 2006 (7 days)
Široký J.	Junior Euromat Laussane	Switzerland	September 2006 (7 days)
Khunová, V.	PET, The European PET Conference, Barcelona	Spain	October 2006 (4 days)
Khunová, V.	5 th Central European Conference Plastics Recycling and Recovery, Wroclaw	Poland	October 2006 (3 days)
Černáková, L.	3 rd Int. Textile Clothing & Design Conference	Croatia	October (4 days)
Hudec I.	7 th Fall Rubber Colloquium, DIK Hannover	Germany	November (5 days)
Bellušová D.	7 th Fall Rubber Colloquium, DIK Hannover	Germany	November (5 days)

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Pavlík, T.	Influence of modification on barrier properties of polymer nanocomposites	Khunová,V.
Dušová , A.	The effect of maleated polypropylene on the properties of polymer nanocomposites	Khunová,V.
Krkoška , P.	Biodegradable polymer blends with materials from renewable resources	Alexy P.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title o Thesis	Supervisor
Amir, I.	Plasma-chemical treatment of materials for rubber Industry	Hudec, I.
Gregorová,K.	Surface modification of textile materials	Černáková,L. Jaššo, M.
Mlynský, T.	Biocompatible films based on polysaccharides with better mechanical properties	Bakoš, D.
Plachý, J.	Study of interaction in systems filler-rubber	Alexy, P.
Strempeková,V.	Utilisation of non-conventional materials for multicomponent fillers in rubber blends	Alexy, P.
Szabová,R.	Elastomeric magnetic composites	Kyselá, G.
Vašková, I.	Biodegradable composites	Alexy, P.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Urogiova, E.	Composite materials with magnetic fillers for tyre construction	Hudec, I.
Ackermann, E.	Intumescent firestopping material for plastic pipes	Hudec, I.
Šuriová, V.	Surface plasm-chemical modification of reinforcing materials for tyre construction	Hudec, I.
Bubenikova S.	Structure and properties of the complex biomaterial for tissue engineering	Bakoš, D.
Kramárová, Z.	Utilisation of natural polymers as fillers in rubber blends	Špírk, E.

VIII. PUBLICATIONS

Article in journal

- [1] Bakoš, Dušan: Biokompozitné materiály pre stavebníctvo. Eurostav, pp. 28-30, 2006.
- [2] Bellušová, Denisa, Kyselá, Gabriela, Urogiová, Eva, Hudec, Ivan: Analysis of network structure in elastomeric magnetic composites. International Conference Magnetic Measurements 06 The Book of Abstracts, pp. Appendix -3, 2006.
- [3] Bellušová, Denisa, Kyselá, Gabriela, Urogiová, Eva, Hudec, Ivan, Dosoudil, Rastislav: Analysis of network structure in elastomeric magnetic composites. Journal of Electrical Engineering 57 8/S 155-158, 2006.
- [4] Bialopiotrowicz, Tomasz, Janczuk, Bronislav, Fiedorowicz, Maciej, Khachatryan, Gohar, Tomasik, Piotr, Bakoš, Dušan: Hyaluronan-lecithin foils and their properties. Materials Chemistry and Physics, vol. 95, pp. 99-104, 2006.
- [5] Hudec, Ivan, Jaššo, Michal, Krump, Henrich, Černák, Mirko, Šuriová, Viera: Plasma Treatment and Plasma Polymerization of Textile Reinforcing Materials. e- Journal of Soft Materials 2 25-30, 2006.
- [6] Hudec, Ivan, Jaššo, Michal, Krump, Henrich, Černák, Mirko, Šuriová, Viera: Plasma treatment and polymerization on the surface of textile reinforcing materials. Nippon Gomu Kyokaishi 79 158-159, 2006.
- [7] Jaššo, Michal, Hudec, Ivan, Alexy, Pavol, Kováčik, Dušan, Krump, Henrich: Grafting of maleic acid on the polyester fibres initiated by plasma at atmospheric pressure. International Journal of Adhesion&Adhesives 26 274-284, 2006.
- [8] Kramarova, Zuzana, Alexy, Pavol, Chodak, Ivan, Špírk, Eugen, Hudec, Ivan, Kosikova, Bozena, Gregorova, Adriana, Feranc, Jozef, Bugaj, Peter: Biopolymers as fillers for rubber blends. Polymers for advanced technology, 2006.
- [9] Krump, Henrich, Hudec, Ivan, Jaššo, Michal, Dayss, Evelyn, Luyt, Aron: Physical-morphological and chemical changes leading to an increase in adhesion between plasma treated polyester fibres and rubber matrix. Applied Surface Science 252 4264-4278, 2006.
- [10] Krump, Henrich, Luyt, Aron, Hudec, Ivan: Effect of different modified clays on the thermal and physical properties of polypropylene-montmorillonite nanocomposites. Materials Letters 60 2877-2880, 2006.
- [11] Kukolíková, Lenka, Bakoš, Dušan, Alexy, Pavol, Zhong, Wei: Optimization of the properties of chitosan lactate/hyaluronan film. Appl. Polymer Sci., no. 2, vol. 100, pp. 1413-1419, 2006.
- [12] Kyselá, Gabriela, Alexy, Pavol, Bielik, Igor, Cehláriková, Alica: Sulfur Curing of Natural Rubber in Presence of Zinc Di-n-Butylthiophosphate and 2-Mercaptobenzothiazole Combinations. Kautschuk Gummi Kunststoffe, vol. 59, pp. 236 - 241, 2006.
- [13] Lokaj, Ján, Hudec, Ivan, Brejka, Ondrej: Materiály z plastov pre automobilový priemysel, analýza možných porúch a nehomogenít. Strojárstvo, 2006.
- [14] Olah, Vladimír, Sláma, Jozef, Hudec, Ivan, Štofka, Marián, Široký, Peter: Application of ferrite-rubbers as sensors. Journal of Electrical Engineering 57 12/S 147-150, 2006.
- [15] Olah, Vladimír, Sláma, Jozef, Hudec, Ivan, Štofka, Marián, Široký, Peter: Application of ferrite-rubbers as sensors. International Conference Magnetic Measurements 06 The Book of Abstracts, pp. 80-81, 2006.
- [16] Urogiová, Eva, Hudec, Ivan, Bellušová, Denisa: Magnetic and Mechanical Properties of Strontium Ferrite-Rubber Composites. Kautschuk Gummi Kunststoffe 59 224-228, 2006.
- [17] Urogiová, Eva, Hudec, Ivan, Bellušová, Denisa, Šuri, Petr: Structure and properties of rubber blends with ferromagnetic fillers. Polymers for Advanced Technology 17, 2006

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- [1] Alexy, Pavol, Kramarova, Zuzana, Špírk, Eugen, Duracka, Miroslav, Hudec, Ivan, Feranc, Jozef, Suri, Peter, Karvas, Anton: Study of interaction in rubber blends filled with silica in combination with biopolymer filler. In Polymerwerkstoffe 2006, 2006.
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- [3] Bakoš, Dušan: Experiences of new EU member states in the field of sustainable plastics: role of their collaboration with East European, Balcan and NIS countries. In Book of Abstracts ICS-UNIDO Workshop on „Sustainable Plastics, EDPs and the Use of Renewable Feedstocks“, Belgrade, Serbia, June 28-30, 2006, 2006.
- [4] Bakoš, Dušan, Bubeniková, Silvia, Vodná, Lucia, Lacík, Igor: Biomaterial based on natural polymers. In IV. Československo-

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- [5] Bakoš, Dušan, Koller, Jan, Bubeníková, Silvia, Vodná, Lucia: Biomateriály pre tkanivové inžinierstvo pre regeneráciu kožných rán. In Zborník 11. Medziodborovej slovensko-českej toxikologickej konferencie "Slovenská a česká toxikológia v EU", Trenčianske Teplice - Kúpeľná dvorana, 5. - 7.6.2006, pp. 18-19, 2006.
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 - [9] Bellušová, Denisa, Urogiová, Eva, Kyselá, Gabriela, Hudec, Ivan: Study of the Influence of Magnetic Fillers on Properties of Elastomeric Composites. In Kautschuk- Herbst- Kolloquium 2006 Tagungsband, pp. 269-270, 2006.
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