

FOREWORD

The Faculty of Chemical and Food Technology (FCHPT) is one of six 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 16 700 graduates (more than 3 600 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, Vinič a Víno (Wineyard and Wine).

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.

Any further details about the activities of the Faculty of Chemical Technology can be found in the Annual Report 2002.

March 2004

Prof. Dušan Bakoš, PhD, DSc
Dean

DEPARTMENT OF ANALYTICAL CHEMISTRY

Head of Department:

Prof. Jozef Lehotay, PhD, DSc

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Full Professors:

Dušan Bustín, PhD, DSc; Ján Krupčík, PhD, DSc; Ján Labuda (since 14.6.2003), PhD, DSc; Jozef Lehotay, PhD, DSc; Eva Matisová, PhD, DSc; Ján Mocák, PhD, DSc;

Associate Professors:

Ernest Beinrohr, PhD; Eva Benická, PhD; Eva Brandšteterová (till 17.10.2003), PhD; Miroslav Čakrt, PhD; Drahomír Oktavec, PhD; Miroslav Rievaj, PhD; Viktor Vrábek, PhD;

Assistant Professors :

Tatiana Buzinkaiová, PhD; Andrea Hercegová, PhD; Svetlana Hrouzková, PhD; Elena Korgová, PhD; Pavol Májek, PhD; Alena Manová, PhD; Pavol Tarapčík, PhD; Mária Vaníčková, PhD;

Research Fellows:

Miriám Bučková (till 31.8.2003), PhD; Adriana Ferancová, PhD; Katarína Hroboňová, PhD; Jarmila Laštincová (till 30.9.2003), PhD; Tatiana Rojkovičová; Jana Sádecká, PhD; Ivan Skačáni, PhD; Ivan Špánik, PhD; Peter Tomčík, PhD; Magdaléna Valachovičová;

PhD Students:

Branko Balla (till 15.11.2003); Eva Blahová; Milena Dömötöröová; Jana Ďungelová (till 8.10.2003); Andrea Fedurcová (since 1.10.2003); Gabriela Karasová; Michal Kirchner (since 1.10.2003); Peter Korytár (till 31.3.2003); Petra Kotianová; Janka Mydlová (since 1.10.2003); Milan Střelec (since 1.10.2003);

Technical staff:

Marta Benešová; Ľubica Zajacová; Jana Otrubová (till 28.2.2003); Juraj Žemlička

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of capillary gas chromatography
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 organic elemental analysis
Laboratory of fluorescence analysis
Laboratory of chemometry
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 for atomic spectroscopy
Laboratory of organic elemental analysis
Laboratory of fluorescence analysis
Laboratory of chemometry
Laboratory of bioanalytical chemistry

III. TEACHING

A. Undergraduate Study:

4. semester (Bc)	Analytical Chemistry I	2/2/0/0	Krupčík, Labuda
	Laboratory Practice AC I	0/0/0/4	Valachovičová, Hercegová
5. semester (Bc)	Analytical Chemistry II	2/2/0/0	Bustin, Čakrt
	Laboratory Practice AC II	0/0/0/4	Korgová
	Testing and Quality Control	1/1/0/0	Čakrt
6. semester (Bc)	Semester Project	0/0/0/4	Rojkovičová
1. semester (MSc)	Analytical Chemistry of Complex Inorganic Mixtures	2/0/0/0	Oktavec
	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
1. semester (MSc)	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
2. semester (MSc)	Analytical Separation of Compounds	2/0/1/0	Krupčík
	Trace Analysis and Microanalysis Methods	2/0/0/0	Beinrohr, Čakrt
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
3. semester (MSc)	Analytical Chemistry of Environment	2/0/0/0	Benická
4. semester (MSc)	Laboratory of Diploma Work	0/0/0/27	Rojkovičová

IV. CURRENT RESEARCH PROJECTS

A. VEGA Projekt No 1/9128/02 Development and Application of Direct Injection Assays for HPLC Analysis of Some Drugs and Toxic Compounds in Biological Samples (Eva Brandšteterová, Jozef Lehotay).

The aim of the project was the development and the application of new assays with the possibility of direct injection of biological samples into the HPLC system. SPE (Solid Phase Extraction) precolumn was integrated directly into the HPLC system what improves validation parameter values and minimizes the personal contact with biofluids. Automated HPLC procedures for the analysis of chosen drugs, natural and toxic compounds were compared with applied electromigration methods.

Project duration: from 01.01.2002 to 31.12.2004

B. VEGA Projekt No 1/9129/02 Elektroanalysis by means of in-elektrode coulometric titration and interdigitated array of microelectrodes. Optimization of stages of trace analysis (Dušan Bustin).

The project is oriented to the investigation of in-electrode coulometric titration in porous electrodes for calibrationless determination of trace concentrations of metals and some non-metals and to the application of elaborated procedures for automated process analysis. It also intends to contribute to employment of chronoamperometry with the segments of inter-digitated microelectrode arrays for the calibrationless analysis of electroactive species. Chronoamperograms are to be obtained under redox-cycling or isolated segment conditions. The multivariate statistical data analysis are to be used for authentication and classification of food products, environmental samples as well as for the software aided clinical diagnosis.

Project duration: from 01.01.2002 to 31.12.2004

C. Grant GAV 1/9127/02 Development of optimum methods for analyses of enantiomers of biologically active chiral substances by high performance liquid, supercritical fluid and gas chromatography (Ján Krupčík).

This project intends to contribute to development of methods for the direct analysis of enantiomers of selected biologically active chiral compounds by high performance liquid (HPLC), supercritical fluid (SFC) and gas (HRGC) chromatography. Following subparts shall be studied in this project: (i) Computer assisted optimum methods shall be developed for direct separations of enantiomers of selected biologically active chiral compounds by HPLC, SFC and GC methods using commercially available modified cyclodextrins (GC) and macrocyclic antibiotics (SFC and HPLC). (ii) Two columns in series and two dimensional HRGC and or HPLC shall be applied for the separation of enantiomers in complex mixtures. (iii) Computer assisted deconvolution of the peak clusters obtained separating the racemic mixtures shall be applied to determine the enantiomerization barrier of the thermally labile enantiomers by dynamic HPLC, SFC and GC. (iv) Principal component analysis and cluster analysis shall be used to classify the enantioselectivity of modified a-, b- and g-cyclodextrin used in HRGC.

Project duration: from 01.01.2002 to 31.12.2004

D. VEGA Project No 1/9126/02 Large Volume Injection in Conventional and Fast Capillary Gas Chromatography (Eva Matisová).

The aim of the project is the development of the large volume sample injection methods in combination with conventional, fast capillary gas chromatography and GC-MS for trace analysis of volatile and semi-volatile organic compounds in multicomponent model and real environmental samples. A part of the project is connected with the development of comprehensive gas chromatography (GCxGC) and its combination with the large volume sample injection for the analysis of multicomponent samples of trace analytes. A part of the project is devoted to the application of the gained knowledge to the trace and ultra-trace analysis of multicomponent mixtures of organic compounds in environmental matrices including the sample pre-treatment for the large volume sample injection.

Project duration: from 01.01.2002 to 31.12.2004

E. 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 31.01.2006

F. Aktion Oesterreich-Slowakei: "Chemometrical Classification of Food and Biologically Important Samples" (national coordinator: Ján Mocák).

Bilateral scientific project between (a) Technische Universitaet Graz, Austria, and (b) Slovak University of Technology, Bratislava, Slovakia.

Project duration: from 01.01.2003 to 30.11.2003

G. VEGA project 1/9253/02: Electrochemical DNA biosensors for the characterization of interactions of the bound DNA, the determination of traces of compounds binding to DNA as well as activators and inhibitors of damage to DNA (Ján Labuda)

New biosensors with a DNA layer of controlled properties attached to screen-printed carbon electrodes have been prepared. Host-guest interactions for dsDNA and small molecules of selected chiral drugs and risk chemicals have been characterized using several voltammetric techniques. DNA structural changes and deep degradation as a consequence of chemical reactions of reactive oxygen radical species as well as DNA protection by selected antioxidants such as flavonoids were investigated. New analytical procedures for the simple and fast determination of trace amounts of chiral drugs were developed. The DNA biosensors were tested as simple and single-use sensors for the determination of DNA damage as well as the evaluation of antioxidative capacity of plant extracts of food industry interest.

Project duration: from 01.01.2002 to 31.12.2004

H. Project 035/2001 (USA – SK) The HPLC Study of Enantioselective Separations Using Molecular Modelling and Artificial Neural Networks on Macrocyclic Antibiotic Chiral Selectors (Jozef Lehotay).

The objective of this research project is to create a comprehensive method capable of the prediction and optimization of enantioselective separations achieved by the vancomycin chiral selector, VM-CS, in HPLC, CEC and CE. This will be accomplished by: 1) development of QSERRs to describe the retention and enantioselective separations achieved in each chromatographic mode; 2) training ANN to select optimum format and conditions, i.e. to minimize k_1' and k_2' while optimizing k_2'/k_1' , using the independent variables identified by the QSERR studies. A key element in the optimal use of CSs is an understanding of the chiral recognition mechanisms responsible for the observed enantioselective separations. Thus, a second objective is the use of the QSERRs and stopped-flow kinetic studies to construct descriptions of the chiral recognition mechanisms operating in each mode and to correlate these results with molecular modelling studies. The aim of these studies is a better understanding of the fundamental processes involved in chiral recognition.

Project duration: from 01.07.2002 to 01.07.2005

V. CURRENT EDUCATION PROJECTS

A. CEEPUS PL-110 02/03: “Development and improvement of modern analytical methods for monitoring the environmental pollution and introduction of the quality systems and accreditation to routine analytical laboratories” (Ján Mocák).

Educational project enables exchange of students and teachers among the following partner universities: (a) The University of Mining and Metallurgy, Cracow, Poland, (b) Karl-Frenzens-University, Graz, Austria, (c) The University of Maribor, Maribor, Slovenia, (d) The University of Pardubice, Pardubice, Czech Republic, (e) Slovak University of Technology, Bratislava, Slovakia.

Project duration: from 01.09.2002 to 31.08.2003

B. CEEPUS PL-110 03/04: “Development and improvement of modern analytical methods for monitoring the environmental pollution and introduction of the quality systems and accreditation to routine analytical laboratories” (Ján Mocák).

Educational project enables exchange of students and teachers among the following partner universities: (a) The University of Mining and Metallurgy, Cracow, Poland, (b) Karl-Frenzens-University, Graz, Austria, (c) The University of Maribor, Maribor, Slovenia, (d) The University of Pardubice, Pardubice, Czech Republic, (e) Slovak University of Technology, Bratislava, Slovakia.

Project duration: from 01.09.2003 to 31.08.2004

C. CEEPUS PL-0130-03/05: 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 01.01.2003 to 31.12.2005

D. Bilateral project MŠ SR/DAAD No 5/2002, SRN: Investigation/detection of environmental risk species by DNA-based biosensors (Ján Labuda).

The topic of the project is an investigation of interactions of species of environmental interest with deoxyribonucleic acid (DNA). Toxic chemical species interact with living organism by various ways including association and follow-up structural and chemical changes of biological material. Toxic species can be accumulated by DNA and initiate subtle or deep damage to DNA. With respect to body aging and cancer processes, the changes of DNA due to its chemical interactions are of great interest. We aspect to investigate metalorganic and metalloid species as well as metal complexes with organic ligands which are able to intercalate into cavities between DNA bases pairs.

Project duration: from 01.01.2003 to 31.12.2004

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Faculty of Electrical Engineering and Information Technology (Microelect.) Bratislava	Interdigitated array of microelectrodes	Řeháček V., research fellows, Ilkovičova 3, 841 04 Bratislava	01.01.1994-
Central Agricultural Inspection and Testing, Bratislava	Field experiments for determination of residues of pesticides in fresh and processed products for baby food	Raučinová Ľuba, RNDr., Hanulova 9, 844 40 Bratislava	01.03.2002-31.12.2003
Pharmaceutical Faculty, Comenius University, Bratislava	Chiral Separation of some anaesthetics using HPLC method	Čižmárik Jozef, professor, Odbojárov 10, 832 32 Bratislava	01.01.1988-
Technický a skúšobný ústav stavebný, n.o., Bratislava	Development of a new method for determination of amonia	Zajíček Milan, Ing. CSc., Studená 3, 826 34 Bratislava	19.11.2003-31.12.2003
Bell/Novamann International, Bratislava	Development of HPLC method for determination of Atorvastatin Ca - chiral separation	Veverka, Ing. CSc., Továrenská 14, 815 71 Bratislava	04.12.2003-31.12.2003
Elektrokarbon, Topolčany	Chemical Analysis of Elements Si, B, Fe.	Štefke Ľubomír, Ing., research worker, Tovarnícka 412, 955 22 Topolčany	20.02.2003-30.03.2003
Biomin, Cífer	Chemical Analysis of Se and Sr in Eggs.	Kvaka Valdemar, PharmDr. CSc., director of concern, Ľ. Pavetišťa 1, 919 43 Cífer	20.02.2003-20.03.2003
Elektrokarbon, Topolčany	Chemical Analysis of Elements Si, B, Fe.	Štefke Ľubomír, Ing., research worker, Tovarnícka 412, 955 22 Topolčany	26.03.2003-09.06.2003
Elektrokarbon, Topolčany	Chemical Analysis of Elements Si, B, Fe.	Štefke Ľubomír, Ing., research worker, Tovarnícka 412, 955 22 Topolčany	27.03.2003-09.07.2003
Prvá správcovská spoločnosť, Bratislava	Chemical Analysis of S in Plaster.	Baratka, Ing., director of concern, Mlynské Nivy 61, 824 98 Bratislava	09.04.2003-20.05.2003
Istran, Bratislava	Preparation and Chemical Analysis of Solutions.	Beinrohová Mária, Ing., director of concern, Vigľašská 12, 851 06 Bratislava	02.09.2003-22.12.2003

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
UFZ Environmental Research Centre Leipzig, FRG	joint projekt	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, prof., Head of the Laboratory UNESCO Laboratory of Environmental Electrochemistry, Charles University, 128 43 Prague	01.01.2002-

Institute for Chemical Technologies and Analytics Vienna University of Technology, Austria	Analysis of volatile and semivolatle compounds in air	Puxbaum Hans, professor, Getreidemarkt 9/164/AC- Analytical Chemistry A-1060 Vienna, Austria	01.01.1997-31.12.2003
Department of Chemistry, Gilman Hall, Iowa State University, Ames, Iowa, USA	Chiral separation of optical active compounds by HPLC and HRGC	Armstrong Daniel Wain, professor, Iowa State University/Ames, National Laboratory, Gilman Hall, Ames, IA 50011 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-
School of Chemistry, Monash University, Melbourne, Australia	Electrochemistry. It started during the working stay in Melbourne in 1992-94.	Bond Alan, professor, head of Department, Clayton, Vic. 3800, Australia	01.02.1992 -
Department of Building Materials, University of Mining and Metallurgy, Cracow, Poland	Electroanalytical chemistry and chemometrics, common CEEPUS projects (exchange of students and teachers)	Bobrowski Andrzej, professor, Al. Mickiewiczza, PL-30-059 Cracow, Poland	01.09.2001 -
Department of Analytical Chemistry and Radiochemistry, Technical University, Graz, Austria	Food analysis, bilat. scient. project Austria-Slovakia 37s15 „Chemometrical Classification of Food and Biologically Important Samples"	Lankmayr Ernst, professor, vice-head of Department, Techniker str. 4, A-8010 Graz, Austria	01.03.2002 -
Department of Chemistry, Loughborough University, Loughborough, U.K.	Electrochemistry and sonoelectrochemistry of molecular and colloidal redox systems	Marken Frank, lecturer, Loughborough, Leicester-shire LE11 3TU, UK	01.07.2002-
Department of Analytical Chemistry, Masaryk University, Brno, Czech Republic	Chemometrics, food analysis, classification of food products	Havel Josef, head of Department, Kotlarska 2, 61137 Brno, Czech Republic	01.05.2002-

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Bustin Dušan	Chemical Papers Editorial Board	member	01.01.1991-
Bustin Dušan	Scientific Council of FCHPT	member	01.02.1990-
Krupčík Ján	Analytical Group of SCHR	chairmann	01.01.1992-
Labuda Ján	Academy Senate of FCHPT	member	01.03.2002-
Lehotay Jozef	Union of Slovak Scientific Society, Analytical Chemistry Groupe	chairmann	04.03.2001-
Lehotay Jozef	The Ministry of Education SR, Scientific Agency (VEGA)	member	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)	member	01.10.1998 -
Mocák Ján	Scientific journal "Laboratorna diagnostika" (Laboratory Diagnostics), Bratislava, Slovakia	member of advisory board	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-
Krupčík Jozef	European Commission Science, Research and Developments, expert for the evaluation of proposals, Brussel, Belgium	other	01.01.1999- 31.12.2003
Labuda Ján	Federation of European Chemical Societies and Professional Institutions, the Division of Analytical Chemistry (Delegate of SCHS)	other	06.09.1999-
Labuda Ján	Sensors, Editorial Board of the journal, Basel, Switzerland	member	01.01.2001-
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-
Mocák Ján	Versailles Project of Advanced Materials and Standards (VAMAS), Group of Statistics, BAM, Berlin, Germany	member	01.02.1995-

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Bobrowski, A.	University of Mining and Metallurgy, Cracow	Poland	March 2003 (10 days)
Pecková, K.	Faculty of Natural Science, Charles University, Prague	Czech Republic	May-June 2003 (1 month)
Kalcher, K.	University of Maribor, Maribor	Slovenia	April-May (11 days)
Ševčík, J.	Charles University, Prague	Czech Republic	May 2003 (1 days)
Mattusch, J.	University of Leipzig, Halle	Germany	July-August 2003 (10 days)
Kriváň, V.	University Ulm, Ulm	Germany	October 2003 (2 days)
Langmayr, E.	University of Graz, Graz	Austria	November 2003 (3 days)
Simoni, M.	University of Maribor, Maribor	Slovenia	November 2003 (19 days)
Pecková, K.	Faculty of Natural Science, Charles University, Prague	Czech Republic	November 2003 (5 days)

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

Name	Organisation / Institution / Conference	State	Date / Duration
Balla, B.	Masaryk University, Brno	Czech Republic	March 2003 (3 days)
Balla, B.	University of Maribor, Maribor	Slovenia	September-October 2003 (19 days)
Beinrohr, E.	Swiss Federal Institute for Environmental Science and Technology, Zurich	Switzerland	February 2003 (3 days)
Blahová, E., Rojkovičová, T.	5 th Balaton Symposium on High-Performance Separation Methods, Siofok	Hungary	September 2003 (3days)

Blahová, Karasová, G.	E., International conference Vitamins 2003, Pardubice	Czech Republic	September 2003 (3 days)
Bučková, M.	University of Rostock, Rostock	Germany	January-August 2003 (8 months)
Dömötörövá, M.	1st Int. conference Recent Advances in Food Analysis, Prague	Czech Republic	November 2003 (4 days)
Ferancová, A.	University of Rostock, Rostock	Germany	May-August 2003 (3 months)
Ferancová, A.	International conference Vitamins 2003, Pardubice	Czech Republic	September 2003 (3 days)
Hercegová, A.	Umweltforschungszentrum Leipzig-Halle	Germany	September-Oktober 2003 (18 days)
Hercegová, A.	1st Int. conference Recent Advances in Food Analysis, Prague	Czech Republic	November 2003 (4 days)
Hroboňová, Lehotay, Rojkovičová, T.	K., J., 32nd Conference Synthesis and Analysis of Drugs, V. Karlovice	Czech Republic	September 2003 (4 days)
Karasová, G.	Nicolas Copernicus University, Faculty of Chemistry, Toruń	Poland	November-December 2003 (33 days)
Korytár, P.	Netherlands Institute for Fisheries Research, IJmuiden	Netherlands	January-March 2003 (3 months)
Kotianová, P.	Technical University, Wien	Austria	January-December 2003 (12 months)
Krupčík, Lehotay, J. Krupčík, J.	J., 26th International Supposium on Capillary Chromatography&Electrophoresis, Las Vegas	USA	May 2003 (13 days)
Krupčík, J.	International Symposium Elsevier, Amsterdam	Netherlands	June 2003 (4 days)
Krupčík, J.	Maria Curie projects evaluation, Bruxelles	Belgium	September 2003 (6 days)
Krupčík, J.	Johanes Keppler University, Department of Analytical Chemistry, Gent	Belgium	October 2003 (5 days)
Krupčík, J.	Nicolas Copernicus University, Faculty of Chemistry, Toruń	Poland	October 2003 (5 days)
Labuda, J.	Charles University, Prague	Czech Republic	January 2003 (2 days)
Labuda, J.	Charles University, Prague	Czech Republic	April 2003 (2 days)
Labuda, J.	Environmental Research Centre, Leipzig	Germany	May 2003 (23 days)
Labuda, J.	International Symposium on Sensor Science, Paris	France	June 2003 (9 days)
Labuda, J.	University of Florence, Florence	Italy	October 2003 (6 days)
Labuda, J.	Charles University, Prague	Czech Republic	Czech Republic
Labuda, J.	Academy of Sciences, Warszawa	Poland	November 2003 (6 days)
Lehotay, J.	Farmaceutical Faculty, Brno	Czech Republic	April 2003 (1 days)
Lehotay, J.	Congressus Pharmaceuticus Hungaricus XII, Budapest	Hungary	May 2003 (5 days)
Lehotay, J.	Farmaceutical Faculty Charles University, H. Králové	Czech Republic	June 2003 (4 days)
Lehotay, J.	10th Beijing Conference and Exhibition on Instrumental Analysis, Peking	China	October 2003 (9 days)
Lehotay, J.	Nicolas Copernicus University, Faculty of Chemistry, Toruń	Poland	October 2003 (4 days)
Lehotay, J.	Johanes Keppler University, Department of Analytical Chemistry, Gent	Belgium	October 2003 (5 days)
Lehotay, J.	Farmaceutical Faculty Charles University, H. Králové	Czech Republic	November 2003 (4 days)
Manová, A.	Workshop Quality Assurance of Analytical Data, Komorní Lhůtka	Czech Republic	March 2003 (3 days)
Matisová, E.	Charles University, Prague	Czech Republic	April 2003 (4 days)
Matisová, E.	NATO meeting, Projekt No. SFP977983, Defense des Cultures crop protection Conference, Marseille	France	May 2003 (9 days)
Matisová, E.	Netherlands Institute of Fisheries, International Symposium A Century of Chromatography 1903-2003, Amsterdam	Netherlands	June 2003 (7 days)
Matisová, E.	ICP, Department of Food Chemistry and Analysis, Prague	Czech Republic	June 2003 (3 days)

Mocák, J.	University of Pardubice, Pardubice	Czech Republic	February 2003 (2 days)
Mocák, J.	University of Pardubice, Pardubice	Czech Republic	April 2003 (2 days)
Mocák, J.	Technische University of Graz, Graz, Conference YISAC 03, Benátky	Austria, Italy	June 2003 (16 days)
Mocák, J.	University of Mining and Metallurgy, Krakow	Poland	June-July 2003 (10 days)
Mocák, J.	University of Pardubice, Pardubice	Czech Republic	August-September 2003 (12 days)
Mocák, J.	Technische University of Graz, Graz	Austria	September 2003 (4 days)
Mocák, J.	International Conference - Conferentia Chemometrica 2003, Budapest	Hungary	October 2003 (3 days)
Mocák, J.	Austrian Eschange Office (OAD), Graz	Austria	November 2003 (3 days)
Mocák, J.	Masaryk University, Brno	Czech Republic	November 2003 (2 days)
Mocák, J.	Austrian Eschange Office (OAD), Graz	Austria	November 2003 (3 days)
Rojkovičová, T.	ACHEMA, Frankfurt	Germany	May 2003 (5 days)
Špánik, I.	Department of Chemistry, Texas A&M University, College Station	USA	January-July 2003 (6 months)
Tomčík, P.	Physical and Theoretical Chemistry Laboratory, Oxford University	England	January-December 2003 (12 months)

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Hlúbíková, S.	On-line coupling of electrochemical and photometric methods and their use for determination of toxic species in waters.	Beinrohr, E.
Kružlicová, D.	Evaluation of food antioxidants using DNA biosensor.	Labuda, J.
Kujovský, M.	Determination of trace concentrations of toxic species in waters by flow-through coulometric and chronopotentiometry.	Beinrohr, E.
Lachová, M.	The sample preparation and the HPLC analysis of natural fenolic antioxidants in plant materials.	Brandšteterová, E.
Nováková, K.	DNA based biosensor.	Vaničková, M.
Ondrušová, E.	Application of micelles in separation methods.	Sádecká, J.
Ruščáková, M.	DNA structures as building parts of the biosensors for the determination of drugs and food antioxidants.	Korgová, E.
Sloviaková, G.	The analysis of "live" and "dead" watter.	Buzinkaiová, T.
Škvarková, L.	New pesticides and their utilization in practise.	Hercegová, A.
Vančová, M.	The interaction study of chiral separation of some phenylcarbamic acid derivatives by HPLC method.	Lehotay, J.

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

Name	Title of Thesis	Supervisor
Bachratá, S.	Use of DNA biosensor at the determination of antioxidants.	Labuda, J.
Fabuřová, A.	The possibility of preparation of plant and food samples for HPLC analysis of antioxidants.	Brandšteterová, E.
Fedurcová, A.	Study of enthalpic and entropic contribution to chiral separation of some chiral derivatives of phenylcarbamic acid by HPLC method.	Lehotay, J.
Fričová, J.	Use of dual-column gas chromatography in analysis of selected constituents of food.	Benická, E.
Kirchner, M.	Analysis of pesticide residues with fast gas chromatography.	Matisová, E.
Mydlová, J.	Direct separation of enantiomers by capillary gas chromatography.	Krupčík, J.
Plevák, D.	In-Electrode Coulometric Titrations: Determination of some toxic species in waters.	Beinrohr, E.
Ponická, M.	Interaction and determination of drugs using DNA biosensor.	Vaničková, M.

Skubáková, M.	rod.	Methods for determination of dissolution profiles in the evaluation of pharmaceutical formulations.	Tarapčík, P.
Macúšová, M.		On-line connection electrochemical and photometric methods and its utilization for determination of harmful species in waters.	Manová, A.
Střelec, M.		Use of DTC chelates in extraction of metal ions.	Oktavec, D.
Szopková, M.		Isotachopheresis in micellar media.	Sádecká, J.
Tóthová, A.		New ways for the increasing of the electrochemical determination using DNA biosensor.	Ferancová, A.
Varga, M.		The comparison of the possibilities of various sample pretreatments for ITP analysis of drugs in body liquids.	Buzinkaiová, T.
Veľasová, G.			

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Balla, B.	Application of multidimensional data analysis to classification of biological materials, food products and natural substances.	Mocák, J.
Ďungelová, J.	Interaction study of enantiomeric separation of optically active compounds by HPLC.	Lehotay, J.

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

Name	Title of Thesis	Head of board
Labuda, J.	Chemically modified electrodes as modern chemical sensors and biosensors.	Bustin, D.

VIII. PUBLICATIONS

DEPARTMENT OF BIOCHEMICAL TECHNOLOGY

Head of Department:
Prof. Fedor Malík, PhD, DSc

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Full Professors:
Ján Šajbidor, PhD, DSc

Associate Professors:
Michal Rosenberg, PhD; Daniela Šmogrovičová, PhD; Ernest Šturdík, PhD; Katarína Dercová, PhD; Mária Šturdíková, PhD; Milan Čertík, PhD;

Assistant Professors :
Helena Hronská, PhD; Lucia Sláviková;

Research Fellows:
Ľudmila Krištofiková; Dušan Slugeň, PhD;

PhD Students:
Michal Brygin; Silvia Firáková; Katarína Furdíková; Katarína Kundříková; Martin Rebroš; Radoslav Selecký; Milan Valach; Igor Voštiar;

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 Ecological Biotechnology

B. Research laboratories:

Laboratory for the design of bioactive compounds
Laboratory for biotechnological production of organic acids and fine chemicals
Laboratory for study, isolation and transformation of microbial lipids
Laboratory of secondary metabolites
Laboratory of wine microbiology and oenology
Laboratory of bioengineering
Laboratory for solid-state fermentations
Laboratory for solid-state fermentations
Laboratory for microbial degradation of xenobiotics
Laboratory of brewing technology and ethanol production

III. TEACHING

A. Undergraduate Study:

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, Malík, Rosenberg, Šmogrovičová, Šturdík, Šturdíková

1. semester (MSc)	Enzymology and Enzyme Engineering	2/0/0	Augustín
	Laboratory in Enzymology and Enzyme Engineering	0/2/0	Sláviková
	Information Systems and Data Processing	1/1/0	Šmogrovičová, Dômény
	Food Biotechnology	2/0/1	Malík, Slugeň
1. semester (MSc)	Bioanalytical Methods	2/0/0	Šajbidor
	Laboratory in Bioanalytical Methods	0/0/2	Brygin, Čertík, Rebroš, 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, Křištofiková
2. semester (MSc)	Bioanalytical Methods	2/0/0	Šajbidor
	Laboratory in Bioanalytical Methods	0/0/2	Brygin, Čertík, Rebroš, Sláviková
	Bioengineering	0/2/0	Slugeň
	Pharmaceutical Biotechnologies	2/0/0	Šturdíková
2. semester (MSc)	Laboratory in Pharmaceutical Biotechnologies	0/0/1	Šturdíková, Firáková
	Molecular Biology and Genetics	2/0/0	Čertík
	Technical Microbiology	2/0/0	Šturdík
	Information Systems and Data Processing	1/1/0	Šmogrovičová, Dômény
2. semester (MSc)	Nutritional and Functional Properties of Food	2/0/0	Slugeň
	Terminal Work	0/0/5	Čertík, Dercová, Rosenberg, Šajbidor, Šmogrovičová, Šturdíková
	Special Praxis		
	Ecochemical Biotechnologies	2/0/0	Dercová
3. semester (MSc)	Laboratory in Ecochemical Biotechnologies	0/0/2	Dercová
	Malting and Brewing	2/0/0	Šmogrovičová
	Laboratory in Malting and Brewing	0/0/1	Šmogrovičová, Selecký
	Chemistry and Microbiology of Wine	2/0/0	Malík
3. semester (MSc)	Laboratory in Chemistry and Microbiology of Wine	0/0/1	Slugeň, Selecký
	Microbial Biomass and Distillery	2/0/0	Šmogrovičová, Augustín
	Laboratory in Microbial Biomass and Distillery	0/0/1	Šmogrovičová
	Biochemical and Genetic Regulations	2/0/0	Šturdík, Valach
3. semester (MSc)	Laboratory in Biochemical and Genetic Regulations	0/0/1	Valach, Brygin
	Genetic Manipulations	2/2/0	Čertík
	Special Laboratory Exercises	0/0/6	Čertík, Dercová, Křištofiková, Malík, Rosenberg, Šmogrovičová, Šturdíková, Valach
4. semester (MSc)	Diploma Work		Augustín, Čertík, Dercová, Dômény, Křištofiková, Rosenberg, Šmogrovičová, Šturdík, Šturdíková

IV._CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/9131/02 Application of microorganisms in food industry and agriculture - biotechnological aspects (Ján Šajbidor)

Osmotolerant *Saccharomyces cerevisiae* important for the production of Tokay type wines were characterised. Their metabolic activity in ethanol presence and high temperature was studied. Selected strains were immobilised on a new type of hydrogele and it was successfully tested in large-scale pilot experiments. *Alcaligenes xylosoxid* and *Pseudomonas stutzeri* useful bacteria for bioremediation technologies were tested. Valuable results were presented in papers deals with relationship between structure of xenobiotics and their biodegradability. Experiments with *Nocardia* species, the strain applicable in food industry as tartaric acid producer continued. Activity of fumarase in our producer *Dipodascus magnusii* - enzyme for malic acid production by fermentation of sugar medium - have been approximately ten times higher in comparison with earlier published data. We suppose application of this solution in industrial production of malic acid like as former mentioned result. New types of biosensors based on electrochemistry or microcalorimetry principles for monitoring of ethanol production from sucrose, glucose, lactose or biotransformation of glycerol to dihydroxyacetone was published in scientific journals. Individual part of our research is overproduction of secondary metabolites for food industry and pharmacy. New trends in fortification of cereals with essential fatty acids via solid-state fermentations (for human nutrition or animal feed) were published. Very interesting result were obtained during the study of lipogenesis regulation in filamentous fungi.

Project duration: from 01.01.2002 to 31.12.2004

B. VEGA Project No 1/0067/03 Immobilized technologies: Implementation of new immobilization techniques/technologies into plant fermentation and biotransformation and their industrial applications (Ernest Šturdík)

One of the main aims of the project has been to test the selected variety of hydrogels for cell immobilization by techniques of entrapment and encapsulation. These should be applied in fermentation technologies applicable in industrial praxis, mainly in production of ethanol from whey or starch hydrolysates or for production of low- or non-alcoholic beer. Yeast cells were used when immobilized in hydrogels (alginate, pectate, carrageenan) and tested in fermentation processes under batch, semi-continuous and continuous conditions regarding to study effect of immobilization on biological part as well as on transport and stability parameters. Electrochemical and microcalorimetric biosensors have been constructed and successfully applied to monitor the processes mainly of ethanol fermentation as well as on glycerol biotransformation.

Project duration: from 01.01.2003 to 31.12.2005

C. VEGA Project No 1/9130/02 Biotechnological aspects of classical and alternative fermented beverages production (Daniela Šmogrovičová)

The aim of the project is an improvement of classical beverages fermentation productivity - beer (bottom fermented and special), production of different categories of wine (still, petillant, sparcling and wines "under veil") and production of fermented beverages with lowered content of alcohol but the traditional character and taste. 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 yeast 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. Integration of up-to-date knowledge about yeast properties and metabolism should result into elucidation of ethanol tolerance mechanism, improvement of fermentation and production of alternative beverages.

Project duration: from 01.01.2002 to 31.12.2004

D. National project 2003 SP 27/Q28 0E 02/28 0E 02 Quality, safety and functionality of primary food resources (Milan Čertík)

The project is coordinated by Research Institute of Plant Production where some tasks of the project are carried out in our Faculty. Objectives of these tasks are focused on a) Enhancement of nutritional value of various types of cereals by polyunsaturated fatty acids, b) Evaluation and selection of primarily food resources and preparation of functional food with preventive-medical properties, c) Study of genotype dependence on lipid profile in oil seeds, d) Identification of essential fatty acids donors in cereals.

Project duration: from 22.10.2003 to 31.12.2005

E. National project 2003 SP 27/028 OE 01/028 OE 01 Quality, safety and functionality of primary food resources (Michal Rosenberg, Milan Čertík)

The project is coordinated by Research Institute of Food where one of the task is carried out in our Department. The task is aimed on preparation of conjugated linoleic acid (CLA) from microorganisms. The first step is focused on finding of an effective method for isolation and purification of CLA and on optimizing of suitable analytical method based on gas chromatography for determination CLA content in isolated lipids.

Project duration: from 1.5.2003 to 31.12.2005

V. CURRENT EDUCATION PROJECTS

A. CEEPUS H-158 Green Network in Central Europe (Daniela Šmogrovičová).

The network relies mainly on the institutional and personal contacts that were established in a previous CEEPUS network (H-0115). The main objective of this network was to emphasise and strengthen the ecological approach in university education in the fields of horticulture and food science. Continuing this activity in a considerably renewed and extended frame, the present collaboration program focuses on three connecting components of the quality of life: the safety, quality and health aspects of horticultural and food production, landscape ecology and meliorization as well as management of ecological conflicts with the tools of landscape architecture.

Project duration: from 01.09.2002 to 31.08.2005

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Allcop, Bratislava	Licence agreement	Štubňa Slavomír, director, Kopčianská 61, 851 01 Bratislava	01.01.2003 - 31.12.2003
Water Research Institute, Bratislava	Toxicity of chlorophenols	Tóthová Lívia, Nábr. arm. gen. L. Svobodu 5, 812 49 Bratislava	01.01.2000 - 31.12.2005
Soil Science and Conservation Research Institute	Sorption of pentachlorophenol on organomineral complex - zeolite and humic acids	Barančíková Gabriela, Rejmanova 1, 080 01 Prešov	01.01.2000 - 31.12.2005
Institute of Chemistry, Slovak Academy of Sciences, Bratislava	Development of biosensors	Gemeiner Peter, head of the research group, Dúbravská cesta 9, 842 38 Bratislava	01.01.2003 -
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 -
Institute of Chemistry, Slovak Academy of Sciences, Bratislava	Preparation and isolation of recombinant proteins	Šimúth Jozef, head of laboratory of gene engineering, Dúbravská cesta 9, 842 38 Bratislava	01.01. 2003 -
Research Institute of Plant Production, Piešťany	Quality, safety and functionality of primary food resources	Mišťina Timotej, director, Bratislavská cesta 122, 921 68 Piešťany	22.10.2003 – 31.12.2005
Research Institute of Food, Bratislava	Quality, safety and functionality of primary food resources	Kováč Milan, director, Priemyselná 4, 824 75 Bratislava	01.05.2003 -

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	Baláz Štefan, professor, Sudro Hall 108, Fargo, North Dakota, USA	01.01.1996 -
School of Biological Sciences, University of Porthsmouth, UK	SPMD – monitoring of POPS	Vrana Branislav, asistant professor, King Henry I. Street PO12DY, Portsmouth, Hampshire, UK	01.09.2003 - 01.09.2005
Institute of Soil, Water and Environmental Sciences, The Volcani Center A.R.O, Bet Dagan, Israel	Sequestration of persistent organic pollutants	Tandlich Roman, asistant professor, P.O.Box 6, Bet Dagan, 50250 Israel	01.10. 2002 - 30.09. 2003
Mega a.s., Stráž pod Rálskem, Czech Republic	Encapsulation of microorganisms to PVA Gel	Novák Luboš, director, Pod Vinicí 83 471 27 Sztráž pod Rálskem, Czech Republic	01.02.2003 - 19.12.2003
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 -

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Šajbidor Ján	Slovak Society for Agriculture, Forestry, Food and Veterinary Sciences	member	01.01.1987 -
Slugeň Dušan	Slovak Society for Agriculture, Forestry, Food and Veterinary Sciences	member	01.01.1987 -
Čertík Milan	Slovak Society for Agriculture, Forestry, Food and Veterinary Sciences	member	01.01.2001 -
Malík Fedor	Editorial boards of journal Vinič a víno.	president tmember	01.01.2001 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Šmogrovičová Daniela	Editorial boards of the journal Kvasný prumysl	member of advisory	01.01.1999 -
Šajbidor Ján	Joint Research Centre , EC Italy	member	4.12.2003 -
Malík Fedor	Editorial boards of the journal Kvasný prumysl	member of advisory	01.01.1985 -
Šmogrovičová Daniela	European Brewing Convention Brewing Science Group	member	01.12.1998 -
Malík Fedor	Editorial boards of journal Mitteilungen Klosterneuburg, Wien	member	01.01.2003 -
Čertík Milan	The American Oil Chemist's Society	member	01.01.1994
Čertík Milan	National Geographic Society	member	01.01.2002 -

Certík Milan	The European Federation of Biotechnology	member	24. 09. 2003 -
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E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Čepička, J.	University of Chemical Technology, Prague	Czech Republic	October 2003 (2 days)

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

Name	Organisation / Institution / Conference	State	Date / Duration
Malík, F.	International Wine Competition, Tsesolloniki	Greece	February 2003 (6 days)
Malík, F.	Vinalies International, Paris	France	February 2003 (8 days)
Malík, F.	Selection Mondial, Bruxelles	Belgium	April 2003 (4 days)
Malík, F.	Prix Zarcillo, Valladolid	Spain	May 2003 (6 days)
Malík, F.	Vino Ljubljana	Slovenia	June 2003 (5 days)
Malík, F.	Mundus Vini, Neustadt/Weinstr.	Germany	August 2003 (4 days)
Malík, F.	International Wine Competition, Csopak	Hungary	September 2003 (2 days)
Malík, F.	Embassy of Slovak Republic, Moscow	Russia	December 2003 (5 days)
Šajbidor, J.	University of Lisbon	Portugal	January 2003 (5 days)
Šajbidor, J.	University of Bologna	Italy	May 2003 (7 days)
Šajbidor, J.	University of Malta, Sliema	Malta	November 2003 (6 days)
Šmogrovičová, D.	European Brewery Convention Brewing Science Group, Dresden	Germany	September 2003 (3 days)
Šmogrovičová, D.	20 th Brewing and Malting Days, Frýdek-Místek	Czech Republic	October 2003 (3 days)
Voštiar, I.	Postdoc study stay. Linkoping Univeristy, Division of Biotechnology,	Sweden	2002 - 2003
Valach, M.	XII. Conference of young microbiologists, Brno	Czech Republic	June 2003 (2 days)
Rebroš, M.	XII. Conference of young microbiologists, Brno	Czech Republic	June 2003 (2days)
Brygin, M.	XII. Conference of young microbiologists, Brno	Czech Republic	June 2003 (2 days)
Rebroš, M.	Study state stay. Mega, a.s., Stráž pod Rálskem	Czech Republic	June 2003 (6 days)
Šmogrovičová, D.	CEEPUS H-158 Network coordination meeting, Budapest	Hungary	November 2003 (2 days)

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Angelovičová, M.	Regulation of microbial overproduction of biologically active polyunsaturated fatty acids in the regime of solid state fermentation.	Čertík, M.
Bieliková, S.	Fermentation systems for VHG beer production using immobilised yeast cells.	Šmogrovičová, D.
Czabany, T.	Gene characterization and expression of enzymes involved to biosynthesis of essential fatty acids.	Čertík, M.
Daniš, M.	Polyunsaturated fatty acids as endogenous bioregulators.	Čertík, M.
Diničová, Z.	Biotechnological aspects of apple-milk fermentation.	Malík, F.
Garajová, S.	Isolation of ethanol-tolerant yeast from wine I.	Malík, F.
Gdovin, M.	Production of lactic acid with immobilized cells <i>Bacillus coagulans</i> .	Rosenberg, M.
Gerová, M.	Natural sweeteners produced with osmophilic yeasts.	Křišťofíková, L.
Gracsová, M.	Isolation, analysis and application of phytosterols.	Čertík, M.
Kmecnová, K.	Biotechnological production of carotenoids and their applications.	Čertík, M.
Maruna, M.	Bioactive diterpenoids of actinomycetes.	Šturdíková, M.
Nádaský, P.	The influence of aldehydes on sensoric stability of beer.	Šmogrovičová, D.
Németh, R.	Quo vadis natural sweet wine?	Malík, F.
Oláhová, M.	Study of adaptation properties of microorganisms under stress conditions.	Čertík, M.
Paluch, M.	Production of ethanol with <i>Zymomonas mobilis</i> .	Rosenberg, M.
Santová, J.	Chlorinated phenols as possible stress factors for microbial cell.	Dercová, K.
Škokanová, M.	Biodegradation and toxicity of chlorophenols.	Dercová, K.
Strieženeč, V.	Isolation of ethanol-tolerant yeast from wine II.	Malík, F.
Žuffa, J.	Bioremediation of heavy metals contaminated soil and water.	Dercová, K.

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

Name	Title of Thesis	Supervisor
Balogh, P.	Microbial production and transformation of flavonoids.	Šturdíková, M.
Findová, M.	Microbial degradation of polycyclic aromatic hydrocarbons.	Dercová, K.
Firáková, S.	Relations structure-bioactivity of flavonoids.	Šturdík, E.
Guzmický, J.	The influence of non-alcoholic beer fermentation condition on its analytical parameters.	Dömény, Z.
Guži, R.	Preparation and biotechnological utilization of ethanol biosensor.	Šturdík, E.
Ivanová, M.	The beer stability in dependence of storage conditions.	Šmogrovičová, D.
Kačénová, D.	Production of erythritol by the and immobilized cells of osmophilic yeasts.	Křišťofíková, L.
Kundříková, K.	Immobilization of organic acid producers into PVA gel.	Rosenberg, M.
Matis, T.	Development of biosensor for monitoring of glycerol as biotechnological substrate.	Šturdík, E.
Nagyová, K.	Application of immobilized cells in continuous ethanol fermentation.	Šturdík, E.
Ráčková, H.	Regulation of biosynthesis of cytotoxic metabolite produced by actinomycete.	Šturdíková, M.
Rusnáková, A.	Preparation and characterisation of microbial enzyme inhibitor.	Šturdíková, M.
Selecký, R.	Optimisation of bioengineering fermentation parameters during production of non-alcoholic beer.	Dömény, Z.
Stankovská, M.	Bacterial biocoenosis of solid surfaces of water course.	Augustín, J.
Strhanová, K.	Effect of heavy metals on yeast strains producing carotenoids pigments.	Čertík, M.
Škrinárová, B.	Physiological regulation of gamma-linoleic acid production in the process of fungal solid state fermentations.	Čertík, M.
Vadrmová, R.	Production of ethanol by <i>Zymomonas mobilis</i> bacteria.	Rosenberg, M.
Vidová, M.	Continuous production of lactic acid.	Rosenberg, M.

C. Dissertations (PhD)

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

DEPARTMENT OF BIOCHEMISTRY AND MICROBIOLOGY

Head of Department:
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Full Professors:

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Assistant Professors :

Barbora Dudová; Karin Kaiserová, PhD.; Helena Paulíková, PhD.; Martin Šimkovič, PhD.; Andrea Šovčíková, PhD.;

Research Fellows:

Boris Lakatoš, PhD.

PhD Students:

Petra Dítteová; Roman Hudec, Martina Hunová, Michal Kaliňák; Silvia Letášiiová

Technical staff:

Eva Drobná-Secretary; Dagmar Adamíková; Gabriela Chytilová; Margita Kosárová; Ján Škvára; Eva Sameková

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:

1. semester (Bc)	Biology	2/0/0	Jantová, Šovčíková
	Laboratory Practices in Biology	0/0/1	Olejníková, Kaliňáková, Šovčíková, Letášiiová
3. semester (Bc)	Microbiology I	2/0/0	Hudecová
	Laboratory Practices in Microbiology I	0/0/2	Hudecová, Mikulášová, Olejníková, Kaliňáková
4. semester (Bc)	Biochemistry I	2/0/0	Varečka
	Laboratory Practices in Biochemistry I	0/0/2	Paulíková, Lakatoš, Hunová, Hudec, Kaliňák

5. semester (Bc)	Principles of Human Nutrition	2/0/0	Miko
6. semester (Bc)	Laboratory Project	0/0/4	Miko, Horáková, Varečka, Hudecová, Jantová, Mikulášová,
1. semester (MSc)	Biochemistry II	2/0/2	Varečka, Paulíková, Lakatoš, Hudec, Hunová,
	Microbiology II	2/0/2	Hudecová, Mikulášová, Kaliňáková, Olejníková
	Immunochemistry	2/1/2	Šovčíková, Hudec
	Laboratory project I	0/0/5	Miko, Horáková, Varečka, Hudecová, Jantová, Mikulášová
2. semester (MSc)	Molecular Biology and Genetics	2/1/0	Mikulášová, Paulíková, Čertík
	Applied Microbiology	2/0/0	Hudecová
	Bioenergetics	2/0/2	Miko
	Mechanisms of Action of Natural Compounds	2/0/2	Varečka, Lakatoš, Kaliňáková
2. semester (MSc)	Laboratory project II	0/0/5	Miko, Horáková, Varečka, Hudecová, Jantová, Mikulášová
3. semester (MSc)	Genetic Manipulations	2/2/0	Čertík
	Clinical Biochemistry	2/0/0	Chandoga
	Clinical Biochemistry-Laboratory Practices	0/0/2	Lakatoš, Šimkovič
	Cell cultures	2/0/2	Jantová
3. semester (MSc)	Laboratory project III	0/0/5	Miko, Horáková, 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, Horáková, Varečka, Hudecová, Jantová, Mikulášová

IV. CURRENT RESEARCH PROJECTS

A. VTP Project No 2/9012/21 Preparates for biological protection of plants on Trichoderma fungus basis (Ludovít Varečka)

The aim of the project is elaboration of effective technology/technologies for preparation of myceliar specimens of fungus Trichoderma suitable for biological protection of plants:

- by submerged cultivation of fungus on defined cultivation media (for specimens containing conidia, mycelia and eliciting enzymes)
- by surface cultivation on defined media respectively on waste substrates from food industry (conidia and mycelia).
- Proposal of Trichoderma specimens adaptation into the forms convenient for different kinds of application (conidia suspensions, granules, mixtures)

Project duration: from 1.1.2001 to 31.12.2003

B. VEGA Project No 1/0109/03 Transport processes in filamentous fungi and their adaptative mechanisms (Ludovít Varečka)

In the project devoted to study the transport processes in filamentous fungi several aspects of transport and physiology were studied.

In Trichoderma viride the process of chloride transport was studied by means of ³⁶Cl radionuclide. It was found

that chloride anions enter the vegetative mycelia in a saturatable, pH- and temperature-dependent manner with selectivity for chlorides and bromides. Further properties of transport suggest that chloride anions are transported by a specific and electrically silent transport protein. In *Penicillium simplicissimum* the process of citrate transport into the vegetative mycelia has been described and the conditions were found which led to the induction of novel citrate uptake system driven by protonmotive force. Its role in the citrate metabolism is being currently analysed.

Project duration: from 01.01.2003 to 31.12.2005

C. VEGA Project No 2/3188/23 Characterisation of basal transport of Ca²⁺ in non-excitabile cells (Ľudovít Varečka)

The main goal of the project is to prove or disprove the existence of the carrier in mediating the inward basal passive Ca²⁺ transport and to find out whether this process proceeds using an electrogenic or electroneutral mechanism. Further goals of the project is to find out information about factors which determine the magnitude of the basal Ca²⁺ influx, particularly, to find out whether it responds to the immediate conditions, or it is predetermined by (genetic) mechanisms.

Project duration: from 01.01.2003 to 31.12.2005

D. Bilateral Cooperation Austria-Slovakia - Membrane transport of organic acids in filamentous fungi (Ľudovít Varečka)

This project is a continuation and expansion of our previous collaboration, where we investigated citrate uptake in *P. simplicissimum*. Additionally, this project is carried out in collaboration with the Austrian Science Fund Project P 15491 ("Energetics of citrate transport through the plasma membrane of *Penicillium simplicissimum*. A study using plasma membrane vesicles").

The aims of this proposal are: 1.) To study the induction of high affinity uptake systems for pyruvate, citrate, 2-oxoglutarate and succinate in *Trichoderma viride*, *P. simplicissimum*, *Beauveria brongniartii* and *Aspergillus nidulans*.

2.) To improve and validate the measurement of the plasma membrane potential using di-S-C3(3) or di-S-C3(5) in *T. viride*, *P. simplicissimum*, *B. brongniartii* and *A. nidulans*.

3.) To measure the PMF using method above and a method to determine the proton gradient.

4.) To find out if the induction of these uptake systems is accompanied by a change in the proton motive force and by an increased expression on the plasma membrane H⁺-ATPase

Project duration: from 01.06.2003 to 31.5.2004

E. VEGA Project No 1/9247/02 New coordinating compounds of zinc, their preparation, study of physico-chemical properties and their biological activity (Daniela Hudecová)

The main goal of this project is the preparation of new coordinating compounds of zinc binding the molecules of ligands with predicted biological activity with emphasis on the study of their physico-chemical properties (spectroscopic and thermic properties, structure and stability in solutions) and their biological activity. In the frame of project is selected wide scale of complexes of zinc from the reason of their perspective using in the pharmacy, food and cosmetic industry.

Project duration: from 01.01.2002 to 31.12.2004

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, Vlárška 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, Vlárška 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 -
Institute of Chemistry, SAS, Bratislava	Preparates for biological protection of plants on Trichoderma fungus basis (Joint grant)	Dr. Vladimír Farkaš, Senior Research Scientist, Dúbravská cesta 9, 845 38 Bratislava	01.01.2001 -

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, Colnay, 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, Bmo	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 -

D. Membership in International Organisations and Societies

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Daussant, J	C.N.R.S., Meudon	France	November 2003 (5 days)

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

Name	Organisation / Institution / Conference	State	Date / Duration
Kaliňák, M	Universität Innsbruck, Innsbruck	Austria	December 2003 (20 days)
Lakatoš, B	Université Paris Sud XI, Orsay	France	May-July 2003 (60 days)

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Bajdichová, M	Reactivity of isothiocyanates and induction of apoptosis	Paulíková, H
Bartková, M	Current trends in genotoxicity testing of chemicals in in vitro conditions	Slameňová, D
Đitte, P	Demonstration of ageing in filamentous fungi during vegetative growth	Varečka, Ľ
Gbelcová, H	Selected industrial preparations influencing oxidative stress	Đuračková, Z
Malachovská, V	QSAR "Quantitative Structure-Activity Relationship" in practice	Kaliňáková, B

Marejková, M	Importance of integrons in the diffusion of resistance	Majtán, V
Melkusová, P	The role of vitamins with antioxidizing effect in cancer prevention	Horáková, K
Paulínyová, B	Changing concepts of dietary pulp: implications for carcinogenesis	Miko, M
Poláková, V	Analysis of DNA damage in chemically influenced mammalian cells as a genotoxicity marker	Slameňová, D
Potanková, V	Cytochrome c oxidase (complex IV) and mitochondrial pathology	Miko, M
Repický, A	Chinolones and their biological activity	Jantová, S
Samáková, I	Effect of selected biologically active compounds on causal organisms of some mycotic diseases	Hudecová, D
Suchánová, M	Effect of phenolic acids on induction of SOS response in Escherichia coli PQ-37	Mikulášová, M
Počarovská, M	Comparative study of photoinduced conidiation in filamentous fungi	Varečka, L'

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

Name	Title of Thesis	Supervisor
Bernovská, V	Biological activity of newly synthesized bioinorganic compounds with atom of zinc in the molecule.	Hudecová, D
Čomajová, M	Biomarkers of immunomodulatory effect of mineral fibers in exposed workers	Tulinská, J
Gocník, M	Effect of antibodies to HA2 glycoprotein of influenza virus on its replication	Varečková, E
Jančová, M	Study of genotoxic effects of natural compounds on microbial models	Mikulášová, M
Jarošová, M	Chemically induced cell differentiation and oxidizing stress	Paulíková, H
Józsová, M	Alternative methods of evaluation of toxicity of cosmetic compounds	Jantová, S
Letášiřová, S	Screening and mode of action of halogensalicylate copper (II) complexes with heterocycle N-donor ligands	Miko, M
Marčeková, Z	Study of causative factors of fusing and non-fusing behaviour of colonies of Trichoderma viride chlorpromazine-resistant mutants	Varečka, L'
Ondková, S	Induction of internaline B expression for specific detection of Listeria monocytogenes by ELISA method	Horáková, K
Pančuchárová, H	Biochemical and transport properties of the membrane prepared from human erythrocytes	Hudec, R
Scholzová, E	Indomethacine and his analogues in chemotherapy. Interactions with transport system of glutathione conjugates	Paulíková, H
Sládeček, J	Study of biochemical aspects of resistance of psychiatric patients on psychotherapeutics therapy	Lakatoš, B
Stojnev, T	Molecular and biological characterization of clinical isolates of Salmonella enterica serovar Enteritidis	Majtán, V
Strelková, S	Kinetic properties of the renal Na,K-ATPase in experimentally induced diabetes	Vrbjar, N
Tillinger, A	Genetic aspects of growth of vegetative colonies of filamentous fungi and conidia formation	Varečka, L'
Valkoviřová, E	The effect of mineral fibers and smoking on the immune system of the rats	Tulinská, J
Vlková, M	The effect of commercially manufactured disinfectant substances on Stenotrophomonas maltophilia	Majtán, V

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Kaiserová, K	Influx of Ca ²⁺ and resting membrane potential of cells	Varečka, L'

D. Dissertations (DSc)

Name	Title of Thesis	Head of board
Varečka, L'	Transport systems related with Ca ²⁺ homeostasis in non-excitabile cells	Biely, P

DEPARTMENT OF CERAMICS, GLASS AND CEMENT

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Miroslav Jamnický, PhD; Ján Majling, PhD (till 31.10.2003); Martin T.Palou, PhD (since 1.12.2003);

Assistant Professors :

Jozef Kákoš, PhD; Vladimír Kovár, PhD; Martin T.Palou, PhD (till 30.11.2003); Eva Smrčková, PhD;

Research Fellows:

Jana Kozánková; Ladislav Pach, PhD (till 31.8.2003); Štefan Svetík;

PhD Students:

Katarína Bodišová (since 1.10.2002); Martin Doval' (since 1.10.2003), Marian Rebroš (till 30.9.2003); Radovan Tóth (since 1.10.2001)

Technical staff:

Ludmila Illášová; Helena Jablonková (till 28.2.2003), Pavol Krutý; Mária Pelíšková; 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

III. TEACHING

A. Undergraduate Study:

6. semester (Bc)	Materials technology	2/0/0	Majling Jamnický, Kovár, Kozánková, Smrčková, Svetík
	Bachelor's thesis	0/0/4	
1. semester (MSc)	Inorganic chemistry III	2/2/0	Jamnický Lokaj, Smrčková Svetík, Kozánková
	Solid state physics	2/0/0	
	Raw materials and technical mineralogy	2/1/0	
	Specialised laboratory practices I	0/0/10	
2. semester (MSc)	High temperature processes	2/1/0	Kákoš, Kovár, Kozánková, Palou, Smrčková, Svetík Kovár Kákoš, Kovár Smrčková, Kovár, Palou, Jamnický, Kákoš
	Applied heat technique	2/1/0	
	Specialised laboratory practices II	0/0/8	

3. semester (MSc)	Factory praxis	two weeks	Jamnický, Smrčková
	Technology of spec. inorg. materials	2/0/0	Kákoš, Majling
	Inorganic binders technology	2/0/0	Palou
	Technology of ceramics	2/0/0	Smrčková
3. semester (MSc)	Technology of glass	2/0/0	Jamnický, Pach
	Specialised laboratory practices III	0/0/10	Jamnický, Palou, Smrčková, Kákoš, Pach
4. semester (MSc)	Master's thesis laboratory	0/0/27	Jamnický, Kákoš, Kovár, Majling, Pach, Palou, Smrčková

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/9141/02 Superionic conducting oxide glass and glass-crystal composite materials containig copper cations (Miroslav Jamnický)

Preparation of mixed-halide glasses in the systems $\text{CuI} - \text{CuBr} - \text{Cu}_2\text{O} - \text{P}_2\text{O}_5$ and $\text{CuI} - \text{CuBr} - \text{Cu}_2\text{O} - (\text{P}_2\text{O}_5 + \text{MoO}_3)$ with the same structure of the oxide network, the same content of dopping salts ($\text{CuI} + \text{CuBr}$) but with the variable content of cuprous halides (the study of "mixed anion effect"). Determination of the structure of main structural units in the systems under study and characterization of their thermal, electrical and acoustical properties. Determination of correlations among composition, structure of oxide glass network, acoustical and electrical properties of the glasses prepared under study.

Project duration: from 01.01.2002 to 31.12.2004

B. VEGA Project No 1/0245/03 Effect of seeding additives on the phase and microstructure involvement during hydration of sulfoaluminate cements (Ján Majling)

The hydration in a model of sulfoaluminate belite cement consisting of C_2S , $\text{C}_4\text{A}_3\text{S}$, CS , C minerals was deeply explored in the term of chemical reactions. A computational mean has been developed to define the trajectory exploration of the stable conode corresponding to ettringite and gehlenite hydrate. The result of computational method has showed that $\text{C}_2\text{S}-\text{C}_4\text{A}_3\text{S}-\text{CS}-\text{C}$ system can be divided into two fields $\text{C}_2\text{AS}-\text{C}_2\text{S}-\text{C}_4\text{A}_3\text{S}-\text{CS}$ and $\text{C}_2\text{S}-\text{C}_4\text{A}_3\text{S}-\text{CS}-\text{C}$ separated by a singular point of $\text{C}_2\text{S}-\text{C}_4\text{A}_3\text{S}-\text{CS}$. According to theoretical computation, hydration reactions in each field as well as in singular point have to lead to the formation of two stable crystallohydrates: gehlenite hydrate and ettringite.

Project duration: from 01.01.2003 to 31.12.2005

C. Institutional project of FCHFT SUT No 191/03 Preparation of Al_2O_3 ceramics from nanosize articles (Vladimír Kovár)

Stabilization of colloidal particles in suspension and thickness of solvation layers are important parameters for preparation of ceramics by colloidal processes. Effect of various additives on alpha Al_2O_3 ceramics preparation was investigated. Suspension were concentrated by pressure filtration and by isostatic membrane pressing. Further these technique of ceramics preparation will be examined.

Project duration: from 01.01.2003 to 31.12.2005

V. CURRENT EDUCATION PROJECTS

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Slovak University of Technology, Faculty of Electrical Engineering and Informati, Bra	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	The structure and properties of cuprous ion conducting glasses	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
AVANT, a.s., Lučenec (Engineering, investment and design)	Utilization of local raw materials for construction materials production	Molnár Alexander, director, Vajanského 2, 984 01 Lučenec
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
Johns Manville Skloplast, a.s., Trnava (Glass fibre producer)	Optimization of drainage ovens of glass melting aggregate	Kalinay Andrej, Strojársená 1, 917 99 Trnava
RONA, a.s., Lednické Rovne (Glass work)	Causes of defect formation and their identification in glassware	Šimurka Peter, vice-director, Schreiberova, 020 61 Lednické Rovne
Slovglass, a.s., Poltár (Crystal glass producer)	Review and process optimization in lead glass polishing and in neutralization station	Zán Ľubomír, director, 987 01 Poltár
Technické sklo, a.s., Bratislava (Technical Glass Work)	Preparation of glass-ceramic materials by controlled processes of nucleation and crystallization	Chocholoušek Jozef, head of testing laboratory, Agátová, 844 03 Bratislava
Východoslovenské stavebné hmoty, a.s., Turňa nad Bod(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 P2O5 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
TAZUS, a.s., Bratislava	Artificial dense stones, fly ashes	Zajiček Milan, director, Studená 3, 826 34 Bratislava
DATASYSTEM Laboratory, Bratislava	Thermal analysis evaluating optical transmittance, prospects and limitations	Kremničan Vladimír, director, Budovateľská 13, 821 08 Bratislava

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
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 Technology, Department of Chemistry, Materials and Forensic Science, Sydney, Australia	Light transmittance thermal analysis of hydroxyapatite xerogels	Ray Abhi S., professor, City campus, PO Box 123, Broadway, Sydney, 2007 Australia	
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 Manchester, Department of Chemistry, Manchester, UK	Synthetic opals made by the Langmuir-Blodgett method	Hodge Paul, Oxford road, Manchester, UK	
Enven eko-engineering a.s., Prague, Czech Republic	Evaluation of solid pollute substances (powders) and their separation in electrostatic precipitators during standard work of furnace	Ivičič Jan, head researcher, Počernická 96, 108 03 Praha 10, Czech Republic	

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Jamnický Miroslav	Slovak Silicate Society, Bratislava	member	
	Slovak Glass Society, Lednické Rovne	member of advisory board	01.01.1997 -
Palou Martin	Union of Glass Industry, Bratislava	member	
	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 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Pach Ladislav	American Ceramic Society, USA	member	01.01.1994 -

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Ivičič, J.	Enven eko-engineering a.s., Prague	Czech Republic	March 2003 (1 day)
Mendiburu, E.,	Mendex GmbH (International business organization), Berlin	Germany	April 2003 (1 day)
Falca, A.	Rovitex S.a.r.l., Crans-pres-Celigny	Switzerland	April 2003 (1 day)

Ivičič, J.	Enven eko-engineering a.s., Prague	Czech Republic	April 2003 (1 day)
Ivičič, J.	Enven eko-engineering a.s., Prague	Czech Republic	May 2003 (1 day)
Huang, J.-L.	Department of Materials Science and Engineering, National Cheung Kung University, Tainan	Taiwan Republic of China	September 2003 (1 day)
Thomas, P.	University of Technology, Faculty of Science, Department of Chemistry, Materials and Forensic Science, Sydney	Australia	October 2003 (1 day)
Havlica, J.	Technical university, Brno	Czech Republic	November 2003 (1 day)

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

Name	Organisation / Institution / Conference	State	Date / Duration
Palou, M.	11th Int. Congr. Chemistry of Cement (ICCC), Durban	South Africa	May 2003 (10 days)
Palou, M.	meeting of European Commission for Standardization, Budapest	Hungary	October 2003 (2 days)
Palou, M., Smrčková, E.	Thermal analysis in theory and practice (workshop), Brno	Czech Republic	November 2003 (3 days)
Tóth, R.	UNIDO International Centre for Science and High Technology, Trieste	Italy	one year

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Želinská, K.	Thermal dissociation of limestone and dolomite by DTA and TG analysis	Svetík, Š.
Krajčová, L.	Study of glassy microporous filters in the phase separated natriumborosilicate glass system with appropriate carriers	Kozánková, J.
Pavůčková, M.	Determination of P ₂ O ₅ content in Portland clinker fired with addition of meat-bone flour	Smrčková, E.
Zán, P.	Causes of defect formation and their identification in glassware	Jamnický, M.

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

Name	Title of Thesis	Supervisor
Andráš, A.	Review and process optimization in lead glass polishing and in neutralization station	Jamnický, M.
Dovál, M.	Study of phase equilibrium in four phase oxide system Na ₂ O-ZrO ₂ -P ₂ O ₅ -SiO ₂	Majling, J.
Čičmancová, L.	Effect of ettringite formation kinetics on its morphology	Palou, M.
Chnapková, J.	Effect of granulometry of sample on accuracy of its chemical composition determined by RFA	Kovár, V.
Kahalová, G.	Optimization of drainage ovens of glass melting aggregate	Kovár, V.
Kokavcová, K.	Preparing and properties of mixed-halide Cu ⁺ ionically conducted glasses	Jamnický, M.
Peško, M.	Study of effect of zeolite - ferrous sulphate mixture addition on contents of water soluble Cr(VI) in Portland cement	Smrčková, E.
Szolárd, I.	Effect of E-glass composition on its crystallization	Kákoš, J.
Šúlyová, M.	Determination of real phase composition of clinkers / cements	Smrčková, E.
Záhorcová, R.	Initial stage of boehmite gel sintering	Pach, L.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Holková, Z.	Preparation and properties of porous sol-gel materials on Al ₂ O ₃ base	Pach, L.
Chocholeoušek, J.	Preparation of glass-ceramic materials by controlled processes of nucleation and crystallization	Majling, J.

D. Dissertations (DSc)

E. Habilitation Theses

Name	Title of Thesis	Head of board
Palou, M.	Ettringite in sulphoaluminate belite cements, formation mechanisms and kinetics	Fellner, P.

F. Inauguration Theses

VII. PUBLICATIONS

DEPARTMENT OF CHEMICAL AND BIOCHEMICAL ENGINEERING

Head of Department:

Assoc. Prof. Ing. Ľudovít Jelemenský
52496743

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Full Professors:

Vladimír Bálež, PhD, DSc

Associate Professors:

Daniel Bobok, PhD; Ján Dojčanský, PhD; Graciová Elena, PhD; Jelemenský Ľudovít, PhD; Markoš Jozef, PhD; Mierka Otto, PhD; Polakovič Milan, PhD; Stopka Ján, PhD; Štefuca Vladimír, PhD

Assistant Professors :

Ačai Pavel, PhD; Bafnec Milan, PhD; Bafnecová Soňa, PhD; Havalda Ivan; Molnár Attila, PhD; Šefčík Jaroslav; Šefčíková Milica, PhD, Timár Pavel, PhD; Vajda Milan, PhD

Research Fellows:

Antošová Monika, Besedová Eva, PhD; Grznárová Gabriela; Hroncová Viera; Illeová Viera; Juma Mohammad, PhD; Marták Ján; Schlosser Štefan, PhD; Steltenpohl Pavol, PhD;

PhD Students:

Benčo Róbert; Blažej Michal; Holíková Kristína; Juraščík Martin; Kertesz Rudolf; Kiša Michal; Krajčiová Michaela; Malik Fedor; Mierka Oto; Platková Zdenka; Vandáková Marcela; Znad T. Hussein;

Technical staff:

Dobrovodská Mária; Herzán Ľubomír; Hinca Miloš; Luknár Karol; Ördögová Marta; Rizman Viliam;

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

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Material balances of technological processes	0/2/0	Šefčíková, Ačai, S.Bafnecová, Illeová, Polakovič,
			Štefuca, Timár, Vajda,
5. semester (Bc)	Chemical Engineering I Lectures, Exercises, Laboratory	2/3/1	Báleš, Jelemenský, Stopka Šefčík, Ačai, Antošová,
			Bafnecová, Besedová, Havalda Mierka, Šefčíková,
			Šefčík, Timár. Antošová, Bafnec

6. semester (Bc)	Chemical Engineering II Lectures, Exercises, Laboratory	2/3/3	Graczová, Polakovič, Štefuca Stopka, Ačai,
			Bafrncová, Besedová, Havalda, Mierka, Šefčík, Vajda, Antošová, Bařnec, Grznárová Juma
6. semester (Bc)	Engineering Thermodynamics, Lectures, Exercises	2/2/0	Mierka, Šefčíková, Timár
	Technological Projects	0/0/4	Timár, Markoš, Mierka, Besedová, Polakovič
1. semester (MSc)	Chemical Engineering Thermodynamics, Lectures, Exercises	2/2/0	Graczová, Steltenpohl
	Diffusional Separation Processes, Lectures, Exercises	2/2/0	Polakovič, Juma
	Hydrodyn. and Heat Transfer, Lectures, Exercises, Lab.	2/2/2	Stopka, Havalda
	Mass Transfer Theory	2/1/0	Bobok
1. semester (MSc)	Mathematical Methods in Chemical Engineering	0/0/3	Havalda
	Computer Chemical Engineering Calculations	0/0/3	Bafrncová, Molnár, Steltenpohl
	Fire Engineering	2/2/0	Jelemenský
2. semester (MSc)	Chemical Reaction Engineering I Lectures, Exercises, Laboratory	2/2/2	Markoš, Vajda
	Safety Engineering I	2/1/0	Jelemenský, Molnár
	Bioprocess Engineering I	2/0/1	Báleš, Polakovič
	Project of Equipment of Chemical and Food Technology (0/0/3	Ačai, Bařnec, Graczová, Markoš, Mierka, Molnár,
2. semester (MSc)	Advanced Laboratory of Chemical Engineering I	0/0/3	Graczová, Bobok, Juma, Stopka, Schlosser, Štefuca, Šefčík
	Selected Unit Operations	2/0/0	Bobok, Schlosser
	Explosion Prevention Lectures, Laboratory	2/0/2	Jelemenský, Molnár
	Process Systems Engineering	2/0/2	Markoš, Juma
	Biochemical Engineering Lectures	2/0/1	Polakovič
	Basic Safety Engineering	2/1/0	Jelemenský
3. semester (Bc)	Chemical Reaction Engineering II Lectures, Laboratory	2/0/1	Markoš
	Process Systems Engineering Lectures, Laboratory	1/0/2	Markoš, Juma
	Advanced Laboratory of Chemical Engineering II	0/0/6	Bařnec, Graczová, Markoš, Mierka, Polakovič,
	Cost Engineering of Industrials	0/2/0	Bařnec
3. semester (MSc)	Solid Particles in Technology and Environment	2/0/0	Timár
	Design Projects	0/0/2	Mierka
	Membrane Processes	1/0/1	Schlosser
	Safety Engineering II	2/1/0	Jelemenský
3. semester (MSc)	Laboratory of Process Plant Safety	0/0/3	Jelemenský, Holíková
	Laboratory of Safety Engineering	0/0/4	Graczová, Jelemenský, Mierka, Stopka, Štefuca, Timár
	Reaction Engineering II	2/0/0	Markoš
	Electrical Safety for Chemical Process Plants, Lecture, .Exercises	2/1/0	Perniš
	Safety Engineering	2/0/0	Jelemenský
4. semester (MSc)	Diploma Work	0/0/27	Bařnec, Bobok, Graczová, Jelemenský, Markoš, Mierka, Polakovič, Schlosser, Stopka, Timár, Vajda

IV. CURRENT RESEARCH PROJECTS

A. Institutional project 215/03 Modeling of nonstationary industrial production processes (Milan Bafrnec)

The aim of the project is the development of physical and mathematical models of industrial production processes, in which forming of materials, heat transfer and chemical reaction in solid phase occur. These processes are nonstationary and mainly proceed in equipment of rubber and plastic industries. For the achievement of the above mentioned goal, methods and computer programs for the solution of the models derived must be elaborated and further methods and apparatuses should be developed for the determination of quantities describing thermodynamic and heat-transfer properties of plastic materials, elastomers, and composite materials produced from them.

Project duration: from 1.1.2003 to 31.12.2005

B. VEGA Project No 1/0063/03, Pollutants separation from fluid mixtures (Daniel Bobok)

Measurement of adsorption equilibrium data of pollutants on carbon adsorbents. Investigation of the resistance against mass transfer in solid phase pores. Modeling of adsorption separation in a fixed bed of adsorbent. Experimental estimation of extraction properties of pure solvents, prediction and verification of properties of mixed solvents, particularly aimed at extraction of BTX aromatics. Modeling and calculation of emissions of volatile organic compounds released from waste-water treatment plants.

Project duration: from 01.01.2003 to 31.12.2005

C. Grant VEGA 1/0064/03, Mechanism of coal particle combustion in low oxygen concentration atmosphere (Jozef Markoš)

The project is devoted to the investigation of combustion of a single coal particle (representing the smallest unit of an industrial combustor) under conditions of low oxygen concentration and high concentration of carbon dioxide. The microstructure properties of the combusted particle will be investigated and the influence of its change during combustion on the mechanism and kinetics of the process will be studied. A mathematical model of the combusted particle, involving all partial processes inside the particle will be developed and compared with experimental data. Model parameters will be determined and optimal performance conditions will be proposed with the aim to minimize the emission of carbon monoxide.

Project duration: from 2003 to 2005

D. Grant VEGA 1/0066/03 Designing and optimisation of bubble column reactors (Vladimír Báleš)

The aim of the project is to study the use of mixed bubble column reactors (bubble columns, airlift reactors) for progressive food technologies. By monitoring fermentation process and transformation of glucose to gluconic acid at growth and non-growth conditions, the influence of biomass concentration on the hydrodynamic regime of the reactor and oxygen transfer through interfacial area will be studied. By developing a mathematical model for the non-steady state conditions involving reaction kinetics, gas hold up dynamics and oxygen transfer, the progress of bubble column reactors scale-up will be proposed.

Project duration: from 2003 to 2005

E. RP 5: PRISM: Grant G1RT – CT –2001 – 05029, Process industries safety management – thematic network on human factors (Ludovít Jelemenský)

www.prism-network.org

Project duration: from 2002 to 2004

F. VEGA 1/8112/01 Integrated system for the safety analysis of chemical process and loss prevention ((Ludovít Jelemenský)

The aim of the project is a further development of an integrated simulation program for safety analysis, which was developed by our research group within the framework of the foregoing project. An extension of the integrated program is suggested. This will be based on a detailed model of the process, which takes into account nonlinear dynamics and uncertainty. For the prediction of feasible disasters and problems occurring in a plant the attention should be focused on the assessment of causes and consequences of danger due to the existence of multiple steady states and unsteady failures following from nonlinear dynamics.

Project duration: from 2001 to 2003

G. Project APVT-99-005002, Complex treatment of Alfalfa as a sustainable energy source by combination of conventional and biotechnological approaches (Vladimír Štefuca)

Technology proposal for isolation and purification of substances obtained by lucerne biomass fractionation - Isolation methods for products of lucerne juice fermentation - Production of biofuels, lactic acid and biogas -Alternative lucerne exploitation.

Project duration: from 01.09.2002 to 31.08.2005

H. 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

I. Project VEGA 1/0065/2003, Kinetic and transport phenomena in enzyme technology (Milan Polakovič)

The project is aimed at the optimization of selected processes of enzyme technology when the investigation of these processes relies on the analysis of kinetic and transport phenomena, especially those of heat and mass transfer. There are three key thematic areas in this project: optimization of production of fructooligosaccharides, applications of flow calorimetry in the study of immobilized systems and the investigation of kinetics of enzyme reactions with macromolecular substrates.

Project duration: from 01.2003 to 12.2005

J. Eureka project E, 2497, Environ Biomac, Bioreactor for innovative mass bacteria culture (Milan Polakovič)

The objective of this project is to develop a new cultivation technique where the growth kinetics and metabolic behaviour of bacterial communities are under control. The microorganisms will be produced in order to produce a cost-effective aerobic biodegradation of target xenobiotics and organic pollutants.

Project duration: from 01. 2001 to 11. 2003

K. VEGA project No. 1/9136/02 Integrated reaction-separation systems with membranes, mechanism and modeling of mass transport and interactions in them (Štefan Schlosser)

Study of phenomena related to the formation and modeling of integrated systems with liquid, polymeric and ceramic membranes for biochemical or chemical reactions simultaneously carried out with separations. Development and testing of a new generation of solvents and liquid membranes on the basis of ionic liquids. Classical formulation of liquid membranes for the transport of organic acids and metals. Utilization of these solvents in pertraction and membrane based extraction. Study of microfiltration through polymeric hollow fiber membranes in submerged modules and ceramic membranes.

Project duration: from 01.01.2002 to 31. 12 2004

V. CURRENT EDUCATION PROJECTS

A. Leonardo da Vinci Pilot Project RO/00/B/F/PP141028 Eurocompetencies transfer in vocational guidance for young specialists in bioscience field (Vladimír Bálež)

Project duration: from 2001 to 2003

B. Slovak-Norwegian project : Norwegian Competences Transfer Into New Curricula of Environmental Engineering Education at the Slovak University of Technology in Bratislava (Vladimír Bálež)

Project duration: from 2003 to 2004

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, Terézie Vansovej 1054/45, 02032 Púchov	01.01.2003-10.12.2003
TOPVAR, a. s. Topoľčany	Decreasing of natural gas consumption for the muling process	REISEL Ján, Technical director, Krušovská 2092, 955 14 Topoľčany	01.02.2003 - 30.03.2003
BIOTIKA, a. s. Slovenská Ľupča	Solution for better cooling of fermentation broth	Krištofčák Jozef, director, 976 13 Slovenská Ľupča 566	01.02.2003 - 30.05.2003
ISTROCHEM, a. s. Bratislava	Optimization of energy consumption for sulfenax production	Jurkovič Karol, director, Nobelova 34, 836 05 Bratislava	01.06.2003 - 15.08.2003
Slovnaft, Vičie hrdlo, Bratislava, Slovakia	International project	Varga, P., Slovnaft, Vičie hrdlo, Bratislava, Slovakia	since 2001
Slovnaft VURUP, a.s., Vičie hrdlo, Bratislava, Slovakia	International project	Mičíková, A., Slovnaft VURUP, a.s., Vičie hrdlo, Bratislava, Slovakia	since 2001
NCHZ, a.s.	International project, engineering contract ZoD	Goga, V., NCHZ, a.s., Nováky	since 2001
Duslo, a.s.	International project	Orihel, J., Duslo, a.s., Sľa	since 2001
Kappa, a.s.	International project	Váčok, Kappa, a.s., Stúrovo	since 2001
Matador Púchov, a.s.	International project	Kvasnica, J., Matador Púchov, a.s., Púchov	since 2001
SCP, a.s.	International project	Říha, SCP, a.s., Ružomberok	since 2001
MŽP SR	www.prism-network.org	Kobzova, D., MŽP SR, Bratislava	
NCHZ, a.s.	Engineering project, ZoD	Čamaj, V., NCHZ, a.s., Nováky	continually
Liko Bratislava a.s.	Alfalfa phytomass exploitation	Minárik, M., director, Wolkrova 4, Bratislava	Since 01.09.2002
Liko Bratislava a.s.	Amaranthus exploitation in human food	Minárik, M., director, Wolkrova 4, Bratislava	Since 01.06.2003
Institute of Chemistry	Glycerol biosensor development	Gemeiner, P., Institute of chemistry, Dúbravská cesta 9, Bratislava	Since 1.2.2003
NCHZ, a.s.	Study on the application of biocatalysis in chemical industry	M. Polakovič, FChP, Radlinského 9, 812 37 Bratislava	11.2002-06.2003
Slovnaft VURUP, a.s., Vičie hrdlo, Bratislava, Slovakia	Engineering Contract, ZoD 114/2003 Review of the Newest Scientific Information about the Aromatics Extraction	Mikulec Jozef, director, Slovnaft VURUP, a.s., Vičie hrdlo, Bratislava, Slovakia	01.07.2003-31.10.2003
Technical University in Košice, Faculty BERG	research cooperation, PhD student	Š. Schlosser, SUT, 812 37 Bratislava, Radlinského 9 M. Búgel, TU Košice	2002-2004

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
ETH Zurich, CH		Morbidelli, Massimo, professor, ETH Zurich, CH	
ICPF AV ČR		Drahoš, Jirí, professor, ICPF AV ČR	
VŠCHT Praha, CR		Hanika, Jirí, professor, VŠCHT Praha, CR	

TU VŠB, Praha, CR		Wichterle, Kamil, professor, TU VŠB, Praha, CR	
EPSC, UK	International project	Turney, Rob, dr., EPSC, UK	
UCL London, UK		Bogle, David, professor, UCL London, UK	
University of Gent, B		Marin, Gui, University of Gent, B	
Polimi, Milano, I		Colombo, Simone, professor, Polimi, Milano, I	
CIBA, CH	Engineering contract, ZoD 40/2003	Krajnik, Paul, dr., CIBA, CH	
Federal Agricultural Research Center	FP5 project	Štefuca, V., SUT, 812 37 Bratislava, Radlinského 9	3 years
Institute National Polytechnique de Lorraine	cooperation in the study of adsorption for the removal of organic pollutants	Polakovič, M. SUT, 812 37 Bratislava, Radlinského 9	Since 1999
Technical University of Wroclaw	cooperation in the kinetics of starch enzyme action	Polakovic, M. SUT, 812 37 Bratislava, Radlinského 9	Since 1998
Ecole Polytechnique Fédérale de Lausanne	Eureka project	Polakovič, M. SUT, 812 37 Bratislava, Radlinského 9	2001-2003
ETH Zurich	scientific collaboration in the aggregation kinetics of milk proteins	Šefčíková, M., SUT, 812 37 Bratislava, Radlinského 9	Since 2000
Belair Bureau d'Etudes de l'Air, Lausanne	Eureka project	Polakovič, M., SUT, 812 37 Bratislava, Radlinského 9	2001-2003
Faculty of Sciences and Technology, Basque Country University, Bilbao, Spain	Research Project: Advanced Characterisation of Polyfunctional Catalysts	González Velasco J. R., professor, Basque Country University, Bilbao, Spain	01.07.2002-30.06.2003
CIBA Spezialitätenchemie Grenzach GmbH, Koechlinstrasse 1, D-79639 Grenzach - Vyhlen	Engineering Contract, ZoD 114/2003 Measurement of the Phase Diagram of a Binary System	Krajnik P., Global Head of Engineering, CIBA Spezialitätenchemie Grenzach GmbH	01.06.2003-15.07.2003
CIBA Spezialitätenchemie Grenzach GmbH, Koechlinstrasse 1, D-79639 Grenzach - Vyhlen	Engineering Contract, ZoD 47/2003 Estimation of Vapor-Liquid Equilibrium Data for Binary Systems	Krajnik P., Global Head of Engineering, CIBA Spezialitätenchemie Grenzach GmbH	15.10.2002-28.02.2003
VUT Brno, EVECO Brno, W. L. Gore	Workshop: New Modern Technology for Reliable Lowering of Dioxine and Furan Emissions from Refuse Incinerating Plants	Stehlík P., professor, VUT Brno, Czech Republic	10.12.2003
Technical University of Trondheim, Norway	Bilateral project	Báleš V., SUT, 812 37 Bratislava, Radlinského 9	Since 2003

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Bafnec Milan	Scientific Board of RRI	member	01.01.1997
Bobok Daniel	Slovak Society of Chemical Engineering	member	03.05.1995
Graczová Elena	Slovak Society of Chemical Engineering	member	03.05.1995
Bafnrcová Soňa	Slovak Society of Chemical Engineering	member	03.05.1995
Besedová Eva	Slovak Society of Chemical Engineering	member	03.05.1995
Steltenpohl Pavol	Slovak Society of Chemical Engineering	member	03.05.1995
Ordogová Marta	Slovak Society of Chemical Engineering	member	03.05.1995

Herzán Lubomír	Slovak Society of Chemical Engineering	member	03.05.1995
Bobok Daniel	Certificate Commission of STU Bratislava	member	15.03.2003
Timár Pavel	Slovak Society of Chemical Engineering	secretary	01.02.1995
Markoš Jozef	Slovak Society of Chemical Engineering (advisory board)	other	Since 2000
Jelemenský Ľudovít	Slovak Society of Chemical Engineering (advisory board)	other	Since 2000
Štefuca Vladimír	Slovak Society of Chemical Engineering	member	Since 2002
Vladimír Bálež	Slovak Society of Chemical Engineering	chairman	Since 2002
Milan Polakovič	Slovak Society of Chemical Engineering Executive Board	other	Since 2002
Milan Polakovič	Chemical Papers - editorial board	other	Since 1998
Báleš Vladimír	Vlákna a textil - editorial board	other	Since 2003
Steltenpohl Pavol	Programme Committee of the 30th International Conference of the Slovak Society of Chemical Engineering (May 2003, Tatranské Matliare)	member	26.-30.05.2003
Steltenpohl Pavol	Chemical Papers journal, Vol. 57(1) and 57(6)	other	26.-30.05.2003
Schlosser Stefan	Slovak Society of Chemical Engineering (council)	other	2001-2004

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 2002
Stopka Ján	Working party "Education" of EFCE	member	Since 2002
Milan Polakovič	Section on Applied Biocatalysis of European Federation of Biotechnology (scientific committee)	other	Since 2002
Vladimír Bálež	European Federation of Chemical Engineering (executive committee)	other	Since 2002
Steltenpohl Pavol	Committee for Dissertation of the European Theses at the Basque Country University, Bilbao, Spain	member	15.07.2003
Vladimír Bálež	WP Bioreactor Performance EFB	member	Since 1988
Štefan Schlosser	European Membrane Society	member	continually
Štefan Schlosser	Working party Membranes of EFCE (delegate)	other	
Štefan Schlosser	Congress CHISA, Praha (scientific committee)	other	continually
Štefan Schlosser	PERMEA 2003	chairman	2003
Štefan Schlosser	Euromembrane 2004, Hamburg (scientific committee)	other	2004
Štefan Schlosser	Water Environment-Membrane Technology, Seoul (scientific committee)	other	2004
Štefan Schlosser	Ars Separatoria Acta (editorial board of journal)	other	continually

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Turney R.	EPSC	UK	October, 3 days
Krajník, P.	CIBA	CH	October, 3 days
Embrey, D.	Human Reliability, Ltd.	UK	October, 3 days
Coterlin, R.	DNV	UK	October, 3 days
Web, P.	Basel Polyolefins, Ltd.	UK	October, 3 days
Labude, H., J.	Dupont	G	October, 3 days
Teixeira, J., A.	University of Minho	P	May, 2 days

Hanika, J.	VŠCHT, Praha	CR	December, 2 days
Bryjak, J.	Technical University of Wroclaw, Institute of Chemical Engineering	PI	July , 6 days
Howell, J.	University of Bath	UK	September, 3 days
Nystrom, M.	Lappeenranta University of Technology	F	September, 2 days
Ben Aim, R.	NSA	F	September, 2 days
Twardowski, Z.	Chemetics	Canada	September, 2 days
Bryjak, M.	Wroclaw University of Technology	PL	August, 2 days

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

Name	Organisation / Institution / Conference	State	Date / Duration
Markoš, J.	VŠCHT Praha,	CR	May, 2 days
Markoš, J.	4th European Congress of Chemical Engineering, Granada	E	September, 5 days
Jelemenský, L.	4th European Congress of Chemical Engineering, Granada	E	September, 5 days
Molnár, A.	4th European Congress of Chemical Engineering, Granada	E	September, 5 days
Blažej, M.	4th European Congress of Chemical Engineering, Granada	E	September, 5 days
Markoš, J.	50 th conference CHISA, Smí, Šumava	CR	October 4 days
Jelemenský, L.	50 th conference CHISA, Smí, Šumava	CR	October, 5 days
Molnár, A.	50 th conference CHISA, Smí, Šumava	CR	October, 5 days
Mierka, O., Jr.	50 th conference CHISA, Smí, Šumava	CR	October, 5 days
Krajčiová, M.	50 th conference CHISA, Smí, Šumava	CR	October, 5 days
Holíková, K.	50 th conference CHISA, Smí, Šumava	CR	October, 5 days
Blažej, M.	50 th conference CHISA, Smí, Šumava	CR	October, 5 days
Kiša, M.	50 th conference CHISA, Smí, Šumava	CR	October, 5 days
Blažej, M.	VII Polish Conference on Multiphase Flow, Gdańsk	PL	October, 5 days
Molnár, A.	University of Gent, Gent	B	August, 3 days
Jelemenský, L.	PRISM Seminar, Atheny	GR	September, 3 days
Jelemenský, L.	PRISM Seminar, Amsterdam	NL	June, 2 days
Jelemenský, L.	PRISM Seminar, Manchester	UK	February, 3days
Štefuca Vladimír	Federal Agricultural Research Center	G	March, 2 days
Štefuca Vladimír	Stuttgart, project meeting	G	September, 5 days
Polakovič Milan	Frankfurt, project meeting	G	May, 3 days
Polakovič Milan	EFB Section on Applied Biocatalysis meeting	CH	August, 2 days
Polakovič Milan	2nd Asian-European Symposium on Biorecognition in Downstream Processing	A	October, 1 day
Báleš Vladimír	Bioprocess Engineering, doctoral/postdoctoral level course	Kroatia	September, 1 week
Vandáková Marcela	Bioprocess Engineering, doctoral/postdoctoral level course	Kroatia	September, 1 week
Illeová Viera	ETH Zuerich	CH	December, 1 week
Sefčík Jaroslav	ETH Zuerich	CH	October, 1 week
Ačai Pavol	EPFL Lausanne	CH	November/1 week
Antošová Monika	2nd Asian-European Symposium on Biorecognition in Downstream Processing	A	October, 1 day
Šefčíková Milica	ETH Zuerich	CH	September, 2 weeks
Malík Fedor	Biotrans 2003	CR	June-July, 6 days
Malík Fedor	Bioprocess Engineering course	D	May-June, 7 days
Malík Fedor	Institute of Chemical Technology Prague	CR	November, 3 days
Vandáková Marcela	Institute of Chemical Technology Prague	CR	November, 3 days
Platková Zdenka	Institute of Chemical Engineering Prague	CR	November, 3 days
Steltenpohl Pavol	Department of Chemical Engineering, Faculty of Sciences and Technology, Basque Country University, Bilbao	E	01.07.2002-30.06.2003
Steltenpohl Pavol	Faculty of Sciences and Technology, Basque Country University, Bilbao	E	July, 7 days

Steltenpohl Pavol	Faculty of Sciences and Technology, Basque Country University, Bilbao	E	September 8 days
Bobok Daniel	50 th Conference CHISA 2003, Smí	CR	October, 4 days
Bafrcová Soňa	International Workshop Termodynamika 2003, Brejlov	CR	September, 2 days
Besedová Eva	International Workshop Termodynamika 2003, Brejlov	CR	September, 2 days
Graczová Elena	International Workshop Termodynamika 2003, Brejlov	CR	September, 2 days

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Koreňová, Z.	Calculation of adsorption heat for the system acetone – activated carbon	Besedová, E.
Kotora, M.	Modeling of a rectification column with chemical reaction	Markoš, J.
Lazor, M.	Optimization of a chemical reactor for parallel reactions	Markoš, J.
Martauz, R.	Dynamic simulation of a pipe reactor for complex reactions	Markoš, J.
Síkula, I.:	Hydraulic calculation of a sand filter	Timár, P.
Ťvrđík, P.	Analysis of the function of a triple-effect evaporator	Timár, P.
Tatárová, I.	The influence of random errors in equilibrium data on the design of adsorbers	Polakovič, M.

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

Name	Title of Thesis	Supervisor
Alexovič, M.	Mathematical modeling of release of dangerous substances into the atmosphere	Jelemenský, Ľ.
Both, L.	Chemical-engineering calculations of reaction and absorption parts of ClO ₂ production	Timár, P.
Bunganič, R.	Intensification of heat transfer in vulcanization presses	Bafnec, M.
Dudeková, M	Mathematical model of a reactor for nitric oxides production	Stopka, J.
Fáber, V.	Hydraulic calculations of complex pipeline systems	Stopka, J.
Calík, K.	Modeling of dense gas dispersion in the atmosphere	Stopka, J.
Juraščík, M.	Application of high-cell density airlift bioreactor to a continuous fermentation of cheese whey	Klein, J.
Korbel, M.	Kinetic properties of immobilized esterases	Štefuca, V.
Krajčiová, M.	Modeling of self-ignition of coal	Jelemenský, Ľ.
Kubaščíková, B.	Properties of extraction systems containing components of the mixed solvent DMF and EG	Graczová, E.
Máček, R.	Membrane extraction and reextraction of Zn from aqueous solutions in hollow fiber contactors	Vajda, M.
Malicher, M.	Energy audit of the enterprise Ryba, s.r.o., Radoma Holding	Mierka, O.
Platková, Z.	Production of fructosyltransferase in a laboratory batch reactor	Polakovič, M.
Sebeš, K.	Rate of adsorption of ethanol vapors from air on activated carbon particles	Bobok, D., Besedová, E.
Súttó, T.	Energy audit of the enterprise I.D.C. Holding a.s., Pečivárne Sereď	Mierka, O.
Šimo, M.	Membrane based pertraction and extraction of organic acids	Schlosser, Š.
Vrzalová, E.	Design of a safety control system for chemical industry	Jelemenský, Ľ.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Molnár, A.	Program tool for safety analysis of a chemical reactor	Markoš, J.

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

VIII. PUBLICATIONS

DEPARTMENT OF CHEMICAL PHYSICS

Head of Department:

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Full Professors:

Fedor Valach, PhD, DSc

Associate Professors:

Pavol Fedorko, PhD; Oľga Holá, PhD; Viliam Laurinc, PhD; Peter Lukáč, PhD; Teodor Obert, PhD (part-time)

Assistant Professors :

Július Annus; Ladislav Bušovský; Eva Griačová (part-time); Vladimír Lukeš, PhD; Tibor Pálszegi, PhD; Ľubomír Tancer; Miroslav Tokarčík, PhD; Daniela Žilinská

Research Fellows:

PhD Students:

Technical staff:

Anton Adamko; Marián Babnič; Zdenka Halaburková

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

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Seminar in Basic Physics	0/2/0	Bušovský, Fedorko, Holá, Lukáč, Tancer, Žilinská
2. semester (Bc)	Physics I	2/2/0	Bušovský, Holá, Laurinc, Lukáč, Lukeš, Tokarčík, Valach
	Physics Laboratory I.	0/0/2	Annus, Bušovský, Pálszegi, Tancer, Žilinská
3. semester (Bc)	Physics II.	2/2/0	Fedorko, Laurinc, Lukáč, Lukeš, Tokarčík, Valach
	Physics Laboratory II.	0/0/2	Annus, Bušovský, Pálszegi, Tancer, Žilinská
	Physics I.	2/2/0	Holá, Bušovský
1. semester (MSc)	Semestral project	0/0/4	Lukeš
	Modelling of the Molecular Properties	2/2/0	Laurinc, Lukeš
2. semester (MSc)	Statistical Thermodynamics	2/1/0	Laurinc, Lukeš

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/0056/03 Interaction geometry of transition element atom with ligands in coordination compounds and metalloproteins (Fedor Valach)

A new bond valence sum model of interactions between the metal atom of dn and fn electron configurations and ligands in the crystal structures of coordination compounds and metalloproteins. Development of structural theory which enables the prediction of transition metal surrounding geometry within the range of metal oxidation states. Deriving the rules for the occupation of the crystal sites by the transition element atoms in the certain oxidation states of metalloproteins. Development of new refinement and validation procedure for the crystal structures of metalloproteins. Crystal structure refinement of *Urtica dioica* agglutinin isolectin I with Zn⁺² ions. Prediction of murine monoclonal antibody 1696 complexation with transition metals.

Project duration: from 01.01.2003 to 31.12.2005

B. VEGA No 1/0055/03 Theoretical and experimental study of the electrical and optical properties of new pi-conjugated aromatic and heteroaromatic compounds as precursors for the preparation of oligomers and nanostructures (Viliam Laurinc)

Quantum-chemical study of the electronic structure and properties of benzenoid and heterocyclic compounds of furan, thiophene, pyrrole, imidazole and pyrazine derivatives with potential electro- and photoactive properties. Theoretical investigation of the basic relations between structure (conformations, effective conjugation length, effect of substituents) and microscopic quantities (dipole moments, polarizabilities, hyperpolarizabilities, HOMO-LUMO separation), and absorption and luminescence spectral characteristics. Measurements of the electrical conductivity of the prepared polymerised pi-conjugated structures. Study of the stability of the prepared compounds under gamma-irradiation (source ⁶⁰Co)

Project duration: from 01.01.2003 to 31.12.2005

V. CURRENT EDUCATION PROJECTS

A. KEGA Project No 3/108003 Interactive Multimedial Project for Teaching of Physics at Technical Universities in Slovak Republic (Viliam Laurinc, Oľga Holá)

Development of teaching methods on physics lectures at technical university, particularly at the Faculty of Chemical and Food Technology of SUT.

Project duration: from 01.01.2003 to 31.12.2005

B. Institutional Project No. 302/03 The creation of new didactic methods in teaching of physics with applications in e-learning and distance learning (Oľga Holá)

The cooperation at the creation of the multimedia textbook of physics.

Project duration: from 01.01.2003 to 31.12.2005

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.Szöcs, 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	Dr. R.Grobelny	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-
Institute of Macromolecular Chemistry, Academy of Sciences, Prague, Czech Republic	Conducting polymers	Dr. J.Stejskal	2003-
Max-Planck Institut für Festkörperphysik, Stuttgart, Germany	Carbon nanotubes	Dr. S.Roth	2000-

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Holá Oľga	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 Oľga	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
Lukáč Peter	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	International Society for Theoretical Chemical Physics, Erlangen, Germany	member	1990
Laurinc Viliam	International Society for Theoretical Chemical Physics, Erlangen, Germany	member	1990
Fedorko Pavol	European Physical Society	member	1994
Valach Fedor	European Physical Society	member	1994
Holá Oľga	European Physical Society	member	1994

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Grobelny, R.	Institut of Chemistry, University of Wroclaw	Poland	August 2003 (5 days)

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

Name	Organisation / Institution / Conference	State	Date / Duration
Fedorko, P.	Departement de Recherche Fondamentale sur la Matiere Condensee, Commissariat a l'Energie Atomique, Grenoble	France	Febr-May 2003 (90 days)

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

C. Dissertations (PhD)

D. Dissertations (DSc)

E. Habilitation Theses

Name	Title of Thesis	Head of board
Lukeš, V.	The application of diagramatic many body theories for the study of weak intermolecular interactions	Kvasnička, V.

F. Inauguration Theses

DEPARTMENT OF CHEMICAL TECHNOLOGY OF WOOD, PULP AND PAPER

Head of Department:
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Assistant Professors :
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Research Fellows:
Igor Šurina, PhD; Radovan Tiňo; Milan Vrška, PhD

PhD Students:
Michal Jablonský; Gabriela Szeiffová, Martina Cedzová

Technical staff:
Valeria Töröková, Pavol Vančo

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Chemical Treatment of Wood
Laboratory of Pulping 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

III. TEACHING

A. Undergraduate Study:

6. semester (Bc)	Semestral Project	0/4	members of department
	Paper and Printing	2/2	Krkoška, Panák
1. semester (MSc)	Physics of Polymers and Paper	2/2	Krištofič, Šutý, Cifra
	Natural Polymers	2/1	Lužáková
	Chemistry and Analysis of Wood	2	Katuščák, Vizárová
	Pulping Technology	3/1	Vrška, Šutý
1. semester (MSc)	Laboratory I.	8	Vizárová
	Environmental Management in Pulp and Paper Industry	2	Vizárová, Katuščák
2. semester (MSc)	Paper Machines	2/2	Čerňanský
	Engineering of Pulp Production	1/1	Vrška
	Paper Technology I.	3/0	Krkoška, Gigac, Šutý

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

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/0061/03 Study of the oxidation in chemical processing of wood through new methods of separation and analysis (Svetozár Katuščák).

The elimination of chlorine in bleaching processes and its substitution by hydrogen peroxide, various peroxidic compounds in combination with oxygen, ozone and alkali extraction were studied. The most perspective oxidation agents studied in this project next to oxygen, ozone and hydrogen peroxide are peroxomonosulfuric acid and peracetic acid. Very good results for delignification efficiency, brightness and strength properties of pulp were obtained with combination two stage oxygen delignification and next ozone stage. The reaction products were identified by electroforetic analysis, HPLC and FTIR methods.

Project duration: from 01. 01. 2003 to 31. 12. 2005

B. VEGA Project No 1/8100/01 Interactions of nonprocess components under pulping conditions (Vlasta Lužáková).

An analytical procedure convenient for the isolation, fractionation and identification of wood extractive lipophilics as a significant pitch formation precursor in pulping and papermaking has been developed. The solvent extractions, SPE as well as GC-MS have been employed for this purpose. The procedure enables to follow interactions of the lipophilics and pitch control agents in pulp fibre suspensions. An original set of the three pitch formation precursors originated from wood has been formulated. The twelve dominant domestic woods pulped in Slovakia have been analysed from this aspect. The knowledge obtained enables the technological pitch problem decreasing by exclusion of problematic woods from industrial treatment or by convenient mixture of treated woods.

Project duration: from 01. 01. 2001 to 31. 12. 2003

C. VEGA Project No 2/3161/23 Methodology of preparation of new cyclodextrin derivatives with ion-exchanging groups (Igor Šurina).

New derivatives of β -cyclodextrin are prepared by selective introduction of ion-exchanging groups. The point of the project was the preparation of mono-derivatives through tosylation, subsequently modified with quaternary ammonium group. From the epoxy-compound amino-derivative are prepared and quaternized. The prepared mono-derivatives with specifically bonded quaternary ammonium groups are modified with carboxymethyl groups. The derivatives are tested as stationary phases for gas chromatography.

Project duration: from 01. 01. 2003 to 31. 12. 2005

D. APVT Project No 99-007302 Coated ink jet papers (Štefan Šutý).

The project is realized in cooperation with Pulp and Paper Research Institute in Bratislava. Project research is focused on coated ink jet papers, which as a new generation of paper industry specialties with excellent properties are characterised by high added value. The impact of the physicochemical and structural properties on the interaction between ink and coating are studied. Laboratory research of surface finish and coating of base paper will be done by means of laboratory size press, coater and supercalender. The methods on the coating base paper properties evaluation, coating composition and its components as well as ink jet paper quality will be worked out.

Project duration: from 01. 07. 2002 to 30. 06. 2005

E. Project of ME SR No 2003 SP 260280C03 Production of new pulp and paper products from wood of lower quality - Effect of fibrous web structure and fibre properties on transfer and qualitative parameters of paper (Štefan Šutý).

The project is realized in cooperation with Pulp and Paper Research Institute in Bratislava. The research in this project is focused on the description of transfer and quality parameters of the paper and board using the physical and mechanical characterization of fibres and structural elements of fibre web. The transfer parameters are initial strength and dewatering of wet paper web. The structure of fibre web will be described by anisotropy of paper, orientation of the fibres, internal strength of the paper, its porosity, distribution of the pores and formations of the paper. The covalence and bending stiffness together with structural components will be used for the prediction of tensile parameters of the materials for corrugated boards. It is being assumed using of research results in development of graphic papers with high ratio of hardwood pulp, magazine papers e.t.c.

Project duration: from 01. 07. 2003 to 31. 12. 2005

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

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 31.10. 2005

V. CURRENT EDUCATION PROJECTS

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Neusiedler SCP a.s. Ružomberok	Lipophilic wood extractives, anionic trash and pitch particles and their interaction with controll additives.	Ján Tomčík, head of CELPAP Division, Neusiedler SCP a.s. Bystrická cesta 13, 03417 Ružomberok	01. 06. 1998 -
Faculty of Natural Science, Comenius University, Bratislava	Determination of by-products of oxidation processes	Kaniansky Dušan, Prof., Mlynská dolina, 842 15 Bratislava	01.01.2003 -
Neusiedler SCP a.s. Ružomberok	Specialized education "Basic course From Wood to Paper"	Jakubík Peter, manager, Bystrická cesta 13, 034 17 Ružomberok	01. 03. - 30. 06. 2003
Neusiedler SCP a.s. Ružomberok	Specialized education "Basic course From Wood to Paper"	Jakubík Peter, manager, Bystrická cesta 13, 034 17 Ružomberok	01. 12. 2003 - 30. 06. 2004
Institute of Chemistry of Slovak Academy of Sciences, Bratislava	GC - MS analysis of derivatives of cyclodextrin	Šimkovic Ivan, project manager, Dúbravská cesta 9, 845 38 Bratislava	01. 01. 2003 -
Slovak National Library, Martin	Preservation of archived books and documents	Bukovský Vladimír, manager, SNK Martin	5.5.2002-
Pulp and Paper Research Institute, Bratislava	Coated ink-jet papers	Boháček Štefan, president of board, VÚPC Bratislava, Lamačská 3	1.7.2002-
Slovak National Archives, Bratislava	Preservation of archived books and documents, education.	Hanus Jozef, manager, SNA Bratislava	permanently
Pulp and Paper Research Institute, Bratislava	Surface modification of LC materials and evaluation of VOC emissions	Boháček Štefan, president of board, VÚPC Bratislava, Lamačská 3	01.01.2003-31.12.2003

Technical University, Zvolen	Education	Sedliačik Ján, TU Zvolen	permanently
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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	
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	1989 -

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 - for laboratory of PPRI Bratislava	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	
Krkoška Pavel	Slovak Chemical Society	member	1979
Katuščák Svetozár	Wood Research , editorial board	member	

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
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 -

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Baudin, G.	Ecole Française de Papeterie et des Industries Graphiques, Grenoble	France	September 2003 (3 days)
Roux, J. C.	Ecole Française de Papeterie et des Industries Graphiques, Grenoble	France	September 2003 (3 days)
Chaussy, D.	Ecole Française de Papeterie et des Industries Graphiques, Grenoble	France	September 2003 (3 days)
Alinec, B.	McGill University, Montréal, Québec	Canada	September 2003 (3 days)
Pikulik, I.	PAPRICAN	Canada	September 2003 (3 days)
Milichovský, M.	University Pardubice	Czech Republic	September 2003 (3 days)

Milichovský, M	University Pardubice	Czech Republic	May 2003 (1 day)
Paris, J.	École Polytechnique Montréal, Quebec	Canada	September 2003 (3 days)
Bednar, F.	École Polytechnique Montréal, Quebec	Canada	September 2003 (3 days)
Konvička, S.	Biocel, Paskov	Czech Republic	April 2003 (1 day)
Cinciala, J.	Biocel, Paskov	Czech Republic	April 2003 (1 day)
Kotátko, Z.	Biocel, Paskov	Czech Republic	April 2003 (1 day)

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

Name	Organisation / Institution / Conference	State	Date / Duration
Tiňo, R.	Safe consortium, Brusel	Belgia	November 2003 (3 days)
Tiňo, R.	Conference: Papír – tisk - obaly, Čejkovice	Czech Republic	November 2003 (2 days)
Krkoška, P.	Conference: Papír – tisk - obaly, Čejkovice	Czech Republic	November 2003 (2 days)
Šutý, Š.	Conference: Papír – tisk - obaly, Čejkovice	Czech Republic	November 2003 (2 days)
Šutý, Š.	Meeting APPI, Prague	Czech Republic	September 2003 (1 day)
Krkoška, P.	Conference of Restorers and Historians, Prag	Czech Republic	October 2003 (4 days)
Vizárová, K.	Conference of Restorers and Historians, Prag	Czech Republic	October 2003 (4 days)
Tiňo, R.	Conference: Metso Paper Visegrad, Visegrad	Hungary	April 2003 (2 days)
Katuščík, S.	Meeting BIOMAT, Espoo	Finnland	January 2003 (2 days)
Vrška, M.	Exposition EMBAX PRINT, Brno	Czech Republic	May 2003 (1 day)
Jablonský, M.	Exposition EMBAX PRINT, Brno	Czech Republic	May 2003 (1 day)
Szeiffová, G.	Exposition EMBAX PRINT, Brno	Czech Republic	May 2003 (1 day)
Tiňo, R.	Exposition EMBAX PRINT, Brno	Czech Republic	May 2003 (1 day)
Barteková, A.	Exposition EMBAX PRINT, Brno	Czech Republic	May 2003 (1 day)
Šutý, Š.	Exposition EMBAX PRINT, Brno	Czech Republic	May 2003 (1 day)
Szeiffová, G.	Presentation of faculty on International Students Seminary, Lille	France	April 2003 (5 days)

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
ČULAKOVÁ, L.	Determination of fibers age composition in recycled pulp suspension.	Krkoška, P.
KIRSCHNEROVÁ, S.	Paper recycling.	Vizárová, K.
VALACHOVÁ, V.	Additives for oxygen delignification. Study of possible increase of oxygen delignification.	Vrška, M.
PAUČINOVÁ, A.	Impact of non-process compounds on the oxygen delignification.	Vrška, M.
ČÍBIKOVÁ, H.	Document and image quality optical properties evaluation of lignocellulosic materials.	Katuščík, S.
REPOVÁ, M.	Image analysis utilization in lignocellulosic materials evaluation.	Tiňo, R.

BREJČÁKOVÁ, E.	Fire control and novel methods of fire control evaluation for wood materials.	Katuščák, S.
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B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Bohúňová, Z.	Effect of polymers addition on paper properties.	Mišovec, P.
Boldišová, A.	Effect of recycling on mechanical and optical paper properties.	Mišovec, P.
Cedzová, M.	Influence of light prehistory on paper properties during accelerated ageing.	Vizárová, K.
Csáky, T.	Environmental aspects of pulp bleaching.	Vrška, M.
Kalmárová, G.	Extractives of willow (<i>Salix viminalis</i>).	Šurina, I.
Marková, D.	Reduction of VOC emissions from cellulose composites.	Katuščák, S.
Pekarovič, P.	Environmental friendly bleaching of hardwood kraft pulp.	Vrška, M.
Pleteniková, M.	Archives documents preservation by application of laminating foil.	Vizárová, K.
Strežo, P.	Ink-jet papers printing quality and coating properties.	Sutý, Š.
Vilčuková, Z.	Paper acidity determination.	Krkoška, P.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Barteková, A.		Katuščák, S.
Jablonský, M.		Katuščák, S.
Szeifová, G.		Katuščák, S.
Gigac, J.		

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

DEPARTMENT OF ENVIRONMENTAL SCIENCES

Head of Department:

Doc. Ing. Gabriel Čík, PhD.

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Full Professors:

Vasil Koprda, PhD, DSc.; Milan Piatrik, PhD

Associate Professors:

Marta Čerňáková, PhD; Gabriel Čík, PhD; Ján Derco, PhD; Pavel Dillinger, PhD (till Sept. 2003); Miloslav Drtil, PhD; Margita Harangozó, PhD; Josef Prousek, PhD

Research Fellows:

Igor Bodík, PhD; Mária Földesová; Miroslav Hutňan, PhD

PhD Students:

Eva Gašpariková; Marek Horňák; Lucia Mitaľová (since 01.10.2002); Andrea Bujnová; Katarína Svetková; Soňa Priesolová; Milada Hubinová (till 01.10.2003); Peter Chnapko; Angelika Kassai; Ladislav Maro; Marek Rybár; Katarína Srdošová; Jana Vanečková-Plchová; Monika Karacsoniová; Rastislav Kuffa (till 4.10. 2003), Jana Marová (since 1.10. 1998), Ľubomír Gajdoš (since 1.10. 2002), Angelika Kassai (since 01.10.2003), Juraj Farkas (since 1.10. 2003)

Technical staff:

Eleonóra Homáčková; 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)			
2. semester (Bc)			
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	Čerňáková
	Atmospheric and Water Chemistry	2/2/0	Prousek, Bodík
	Hydrology, Meteorology and Pedology	2/0/0	Čerňáková
	Nuclear Chemistry and Technology	2/0/0	Koprda
1. semester (MSc)	Laboratory Practice I.	0/0/8	Harangozó, Bodík, Foldesová
2. semester (MSc)	Air Protection Technology	2/0/0	Čík, Prousek
	Radioecology	2/0/0	Harangozó, Dillinger
	Wastewater Engineering	2/2/0	Derco, Drtíl
	Laboratory Practice II.	0/0/8	Derco, Dillinger, Čík
3. semester (MSc)	Risk Properties of Substances	2/0/0	Prousek, Čerňáková
	Elimination and Utilization of Wastes	2/0/0	Piatrík, Koprda
	Environmental Technological Project	2/1/0	Drtíl, Derco
	Environmental Impact Assessment	2/0/0	Piatrík, Koprda
3. semester (MSc)	Laboratory Practice III.	0/0/10	Drtíl, 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
3. semester (MSc)	Air Protection Technology and Air Treatment	2/1/0	Čík, Prousek
4. semester (MSc)	Diploma Work	0/0/30	all members of the staff

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No. 2/2049/22 Penetration of Xenobiotics across Skin (Katarína Bauerová, UEF SAV Bratislava); Department part: Penetration of Xenobiotics across Skin (Vasil Koprda, Margita Harangozó, Zoltán Kassai, Andrea Bujnová)

Evaluation of kinetics of transdermal permeation of ionic species and effects of physico-chemical factors on this process were studied. Using some radionuclides of corrosion and fission products, namely ^{137}Cs , and ^{60}Co ions, the effect of valency and the concentration of ions on permeation velocity across the intact, and splitted skin of biologic animal models were studied. Using radioactively labeled substances the effects of solvent type (Transcutol) and structural type of chemical penetration enhancers (Azone), on barrier function of skin was investigated. The permeation across the skin of new drugs (onchomycotics Terbinafine and some oxygen scavengers were studied. The new biological models of 5 and/or 9 days rat skin were studied and snake shed skin was used for standardisation of transdermal permeation membrane. Effect of Cs^+ and Co^{2+} concentration on their permeation rate through different skin models was evaluated. A row of experiments were aimed to reveal the transmembrane behaviour of radionuclide $^{137}\text{Cs}^+$ and $^{60}\text{Co}^{2+}$ across the different artificial skin substitutes constructed in the FCHFT.

Project duration: from 1.1.2000 to 31.12.2004

B. Part of the VEGA project No. 1/8909/01Syntheses directed towards novel structural well defined pi-conjugated heterocyclic compounds and their oligomers (Gabriel Čík, Milada Hubinová)

Poly(3-dodecylthiophene), with different amounts of head-to-head configuration defects, was characterized by UV-VIS, H-NMR, photoluminescence, and Raman spectra. The heat-induced conformational sample changes were studied by EPR. For the study of these changes, a spin-probe technique was used. From the EPR spin-probe spectra rotational correlation times and order parameters were calculated.

Degradation of 4-chlorophenol by reactive oxygen species was studied, the latter being generated by photo-assisted reactions of thiophene oligomers, synthesized in channels of the Na-ZSM-5 zeolite. The photoreaction was carried out in an aqueous suspension of photocatalyst, irradiated with visible light. The spin-trapping method was used to detect the

generated OH radicals. The main products of the photodecomposition of 4-chlorophenol were found to be phenol, hydroquinone and maleic acid.

Project duration: from 01.01.2001 to 31.01.2003

C. Project in cooperation with the Ministry of Environment of the Slovak Republic, No. 527/2003/II. Remediation technologies of PCB. (Gabriel Čík)

Remediation technologies of PCB

Project duration: from 01.12.2003 to 15.06.2004

D. Institutional Project No. 155/03 The Study of Sorption and Immobilisation of Radionuclides from Nuclear Power Plant Cycle by Natural Adsorbers (Pavel Dillinger, Mária Földesová, Margita Harangozó, Oľga Holá, Peter Lukáč, Milan Piatrik)

The determination of sorption capacity of natural and chemically modified natural zeolites towards some cations was studied by static radioexchange method, AAS method, liquid scintillation counting method (LSC) and gamma spectroscopy. It was studied the sorption of Sr(II), Pm(III) and Cs and Co from mixture of radionuclides. Radionuclides Sr-90, Pm-147, Cs-137 and Co-60 were used as radiotracers. The structure, sorption and desorption properties of natural and chemically modified zeolites and the new types of natural and chemically modified sorbents - alginite, diatomite, preclinal HMS were studied. The influence of individual cations and their chemical forms, pH, temperature and competitive cations (K, Ca, Fe) on the sorption and desorption was studied as well. The sorption and desorption characteristics of these materials were compared with syntetic zeolite -Zeolon. We demonstrated that the sorption capacity of natural and chemically modified sorbents depends not only on these materials but also on the chemical properties of studied solutions (chemical spetation), higher temperature and pH above 7. The time dependence of permeation of 147-Pm(III) from aqueous solution was established by the animal skin model and the age dependence of Pm permeation through the skin was examined. The skin from 5-day-old rats was found to represent the optimum animal model to study trasepidermal permeation of ions. The skin from 9-day-old rats was selected to study transfollicular permeation of ions. Radon and its short-lived decay products have been simultaneously monitored at the height 1,5m above the ground during various periods of a year. It was analysed an influence of meteorogical conditions on activity concentrations of Rn-222. The use of wet oxydation catalysis in industry was studied. The derivates of difenylamine in waste waters were degraded by wet catalytic oxidation.

Project duration: from 01.01.2001 to 31.12.2003

E. Institutional FCHFT STU Project No: 139/03: Advanced methods for water, wastewater, sludge and organic wastes treatment (Ján Derco)

The aim of the project is the research and evaluation of progressive methods of water treatment, wastewater treatment, sludge treatment and disposal, organic wastes treatment and water quality controll. Research has been focused on selected physical-chemical and biological processes.

Project duration: from 01.01.2003 to 31.12.2003

V. CURRENT EDUCATION PROJECTS

A. Project. No 2032040 Norwergian Competencies Transfer into New Curricula of Environmental Engineering Education at the Slovak University of Technology in Bratislava, Slovak-Norwergian bilateral cooperation. (Gabriel Čík)

The main objective of the project is to take advantage of Norwergian long time experience in the field of Environmental Engineering curricula. Effort will be focused on utilization of this through partnership assistance in the process of introduction of the above subject into curricula of the 3-degree university education (bachelor, engineer and PhD) at the Faculty of Chemical and Food Technology of the Slovak University of Technology in Bratislava.

Project duration: from 01.07.2003 to 30.06.2006

B. OSF Projekt G/236/02/61300 Water Technology and Water Resources Protection (Ján Derco)

The aim of the project is to prepare Internet Distance Education Program on Water Technology and Water Resources Protection. An online version of this course is being prepared as a part of continuing education for professionals in the

field.

Project duration: from **02.07.2002** to **30.06.2004**

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Slovak Office of Standards, Metrol. and Test., Cyclotron Center of the SR, Bratislava	Applied radiation chemistry, production of positron radiopharmaceuticals	Ružička J., vicedirector; Kassai Z., Dept. of positron emitters, Štefanovičova 3, 810 05 Bratislava	01.02.2000 -
Slovak Academy of Science, Bratislava	Possibility of zeolite use in wastewater	Sládek, P., director, Dúbravská cesta 9, Bratislava	01.11.2003 - 31.12.2003
IPRES Engineering, s.r.o.	Possibility of zeolite use in wastewater	Šurka, F., president, Dúbravská cesta 9, Bratislava	01.05.2003 - 31.12.2003
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 -
Stredoslovenská vodárenská spoločnosť a.s., Banská Bystrica	ISPA Tender evaluation - technical assistance, Reconstruction of wastewater treatment plant Zvolen	Hluchý Marián, director, Partizánska 5, 974 00 Banská Bystrica	05.11.2003 - 21.11.2003
Stredoslovenská vodárenská spoločnosť a.s., OZ Lučenec	Evaluation of wastewater treatment plant Poltár and proposal of reconstruction	Hoffmann Jozef, director, Komenského 4, 984 53 Lučenec	08.10.2003 - 31.12.2003
Sebex, spol. s r.o., Košice	Anaerobic Stabilization Of Sludge From Municipal Wastewater Treatment By Electrocoagulation. Contract No 122/2003	Ing. Peter Smolnický, director, Letná 14, 040 01 Košice	21.07.2003 - 30.10.2003
Dep. of Nuclear Physics, Faculty of Mathematic and Physics, Com. Univ., Bratislava	Determination of Rn-222 and its decay products in the atmosphere	Holý Karol, head of depart., Mlynská dolina, 824 15 Bratislava	01.01.1995 -
Dep. of Nuclear Chemistry, Faculty of Natural Sci., Com. Univ., Bratislava	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 -
OSF Foundation	IDEP Program - Grant G/236/02/61300	Katarína Pišútová-Gerber, Nadácia otvorenej spoločnosti - OSF, Bašťová 5, 811 03 Bratislava	02.07.2002 - 30.06.2004
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 - 31.12.2004
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	01.01.1997 -
Institute of Chemical Technology, Prague, Czech Republic	Water and wastewater technology, sludge treatment,	Jeníček, P., department head, VŠCHT, Technická 6, Prague, Czech Republic	01.01.1993 -
ISMAL-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	15. 02.2003- 30.09.2003
CSIR Bio/CHEMTEK Johannesburg, South Africa	Workshop for the Sixth Framework Programme	Dr. Jozef Dudáš, CSIR Bio/CHEMTEK, Modderfontain 1645, Johannesburg, South Africa	15.01.2003 - 30.01.2003
Medway Sciences Univ. of Greenwich	Transdermal penetration of pharmacologically active substances	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 -
Čík Gabriel	Slovak Chemical Society	member	01.01.1991
Drtíl Miloslav	Association of Wastewater Treatment Experts of the Slovak Republic	president	13.05.1999 -
Hutňan Miroslav	Association of Wastewater Treatment Experts of the Slovak Republic	member	13.05.1999 -
Derco Ján	Association of Wastewater Treatment Experts of the Slovak Republic	member of advisory board	13.05.1999 -
Gašpariková Eva	Association of Wastewater Treatment Experts of the Slovak Republic	member	13.05.1999 -
Horňák Marek	Association of Wastewater Treatment Experts of the Slovak Republic	member	13.05.1999 -

Hutňan Miroslav	Slovak Society of Chemical Engineering	member	30.04.1995 -
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 -
Derco Ján	Slovak Society of Chemical Engineering	member	29.09.1995 -
Prousek Josef	Slovak Chemical Society	member	01.01.1979 -
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 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Bodík Igor	International Water Association	member	01.01.1990 -
Derco Ján	International Water Association	member	01.01.1994 -
Čík Gabriel	European Photochemical Association, Mulheim, Germany	member	01.01.1992
Drtil Miloslav	Association of Wastewater Treatment Experts of the Czech republic	member of advisory	01.01.1994 -
Derco Ján	Association of Wastewater Treatment Experts in Czech Republic	member	01.05.1997 -
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 -
Prousek Josef	Czech Chemical Society	member	01.05.1979 -
Prousek Josef	European Photochemical Association	member	01.01.1986 -
Koprda Vasil	FECs Division for Chemistry and Environment -delegate for Slovakia	member of advisory	01.04.2002 -

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Wanner,J.	Institute of Chemical Technology, Prague	Czech Republic	November 2003 (1 day)
Dohányos,M.	Institute of Chemical Technology, Prague	Czech Republic	June 2003 (1 day)
Matoušek,J.	Masaryk University, Brno	Czech Republic	May 2003 (1 day)
Mašek,I.	Faculty of Chemistry, TU Brno	Czech Republic	June 2003 (1 day)
Žáček,L.	Faculty of Chemistry, TU Brno	Czech Republic	June 2003 (1 day)

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

Name	Organisation / Institution / Conference	State	Date / Duration
Bodík,I.	5th International Conference Wastewater 2003, Olomouc, Association of wastewater treatment experts of the Czech Republic	Czech Republic	May 2003 (3 days)
Gašpariková,E.	5th International Conference Wastewater 2003, Olomouc, Association of wastewater treatment experts of the Czech Republic	Czech Republic	May 2003 (3 days)
Derco,J.	5th International Conference Wastewater 2003, Olomouc, Association of wastewater treatment experts of the Czech Republic	Czech Republic	May 2003 (3 days)

Hornák,M.	5th International Conference Wastewater 2003, Olomouc, Association of wastewater treatment experts of the Czech Republic	Czech Republic	May 2003 (3 days)
Mitařová,L.	5th International Conference Wastewater 2003, Olomouc, Association of wastewater treatment experts of the Czech Republic	Czech Republic	May 2003 (3 days)
Čík,G.	NTNU - Norwegian University of Science and Technology, Trondheim	Norway	October 2003 (4 days)
Drtil,M.	5th International Conference Wastewater 2003, Olomouc, Association of wastewater treatment experts of the Czech Republic	Czech Republic	May 2003 (3 days)
Hutňan,M.	Institute of Chemical Technology, Prague	Czech Republic	June 2003 (2 days)
Hutňan,M.	Biogas Station, Mettmach	Austria	March 2003 (1 day)
Hutňan,M.	K&H Kinetic, a.s., Klatovy	Czech Republic	April 2003 (2 days)
Derco,J.	Municipality of Maribor, Environmental protection agency	Slovenia	October 2003 (2 days)
Derco,J.	CSIR Bio/CHEMTEK, Modderfontain 1645, Johannesburg	South Africa	January 2003 (15 days)
Koprda,V.	Workshop Persistent Toxic Substances Contamination in European Region, Brno	Czech Republic	November 2003 (3 days)

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Jakubčová,Z.	Snake shed - an appropriate model of Stratum Corneum for study of permeation of substances across the skin	Koprda,V.
Kovarovičová,L.	Apoptosis of the bacterial cells	Čerňáková,M.
Michalíková,M.	Persistent organic pollutants in environment	Čík,G.
Cehulová,Z.	Permeation of radio toxicological substances across the skin	Koprda,V.
Petheřová,T.	Zero-valent iron utilisation for the colour wastewater treatment	Prousek,J.
Lukáčová,L.	Ozonation of hexametylenetetramine	Derco,J.
Kapusta,S.	Anaerobic degradation of domestic wastewater	Bodík,I.
Mišeková,E.	Environmental impact assessments of technological processes	Piatřík,M.
Sebestyénová,M.	Analyse of the rests from solid wastes combustion	Harangozó,M.
Gergelyová,P.	Chemically modified zeolites - material of future?	Földesová,M.

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

Name	Title of Thesis	Supervisor
Hudáková,M.	Measurement of radionuclide activities in human body using whole-body counter	Koprda,V., Fulop,M.
Kaprál'ová,J.	Study of physico-chemical properties of pentasil-type zeolite doped with Fe(III)	Čík,G.
Cicmanová,K.	Anaerobic Treatment of Corn and Corn Silage	Hutňan,M.
Sojčáková,I.	Influence of Organic Pollution on Dissolved Oxygen Concentration in Carousel Activations	Hutňan,M.
Pišová,P.	Study of the assurance method for drinking water quality in its treatment and distribution	Piatřík,M.
Tvrdoňová, M.	The conditions of Pm sorption with natural sorbents	Földesová, M.
Paholek,E.	The influence of pH and competitive elements on Pm sorption	Dillinger,P.
Kvapilová,L.	The anaerobic-aerobic treatment method combination for domestic wastewater treatment	Bodík,I.
Tresová,Z.	Domestic wastewater treatment plants	Bodík,I.
Bettembuková,A.	Ecotoxicological Influence of heavy metal chloride on Sinapis Alba	Fargašová,A.
Dovičovičová,L.	Toxicological influences of K ₂ Cr ₂ O ₇ on Sinapis Alba and Daphnia	Fargašová,A.
Bubniaková,V.	The estimation of nature radioactivity in natural waters	Harangozó,M.
Czafíková,R.	The selection of suitable method for uranium estimation in waters	Harangozó,M.
Mikolášková,D.	Impact assessment of matters on bacterial growth in water	Piatřík,M.
Gavařová,S.	Utilisation of ozone for transformation of biologically resistant organics	Derco,J.

Brindzová,Z.	Utilization of zero-valent iron for the degradation of selected water pollutants by Photo-Fenton reaction	Prousek,J.
Marková,L.	Utilization of zero-valent iron for the degradation of selected water pollutants by the Fenton reaction	Prousek,J.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Želinská,J.	Contribution to study of anthropogenic impacts on polychrome layers of artifacts	Harangozó,M.
Halász,L.	Katalytic wet oxidation	Piatrik,M., Bodík,I.
Kuffa,R.	Heavy metals in biological treatment of wastewaters and sludges	Derco,J.
Popovičová,A.	Adsorption of benzene and trichloroethylene on chosen carbon sorbent	Čík,G.

D. Dissertations (DSc)

Name	Title of Thesis	Head of board
Vaňura,P.	The Separation Methods for Isolation and Speciation of Radionuclides	Koprda,V.

E. Habilitation Theses

Name	Title of Thesis	Head of board
Hutňan,M.	Utilization of Anaerobic Processes in Technology of Wastewater and Waste Treatment	Koprda,V.
Bodík,I.	The Selected Aspects of Processes of Biologic Removal of Nitrogen from Waste Waters	Koprda,V.

F. Inauguration Theses

DEPARTMENT OF FIBRES AND TEXTILE CHEMISTRY

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Full Professors:

Eberhard Borsig, DrSc., Anton Marcincin, PhD.

Associate Professors:

Michal Krištofič, PhD., Anna Murárová, PhD.

Assistant Professors :

Jaroslav Legéň, PhD., Anna Ujhelyiová, PhD.

Research Fellows:

Eva Bolhová, Ľubica Fleischmannová, Marcela Hricová,

PhD Students:

Martina Jurenková, Natália Karabcová, Eva Kormendyová, Zita Mlynarčíková, Andrej Rusnák

Technical staff:

Agnesa Chlebáková, Jarmila Nemčeková, Albína Pokorná, Edita Štábelová

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 Poly -
stat PS-1, Alambeta)
Laboratory for Thermomechanical Properties (TMA-50 M and TA)
Laboratory for Mechanical Properties (Instron, model 1112)
Laboratory of Rheolo-
gical Properties (Dynamic viscoelastomer model Rheo.200, capillary rheometer,
extrusiomer GOTTFERT 20 mm)
Laboratory for Structural Properties (Microscope Olympus model BHT, SALS)
Laboratory for Exhaust Dyeing Process and its Evaluation (Ahiba, Pretema)
Laboratory for Spinning of Fibres (extruders 16 and 30 mm resp.)

III. TEACHING

A. Undergraduate Study:

5. semester (Bc)			
	Macromolecular Chemistry	(2-0 h)	Borsig
6. semester (Bc)	Technology of Materials	(2-0 h)	Marcincin
	Bachelor Project	(0-0-4 h)	
1. semester (MSc)	Macromolecular Chemistry II	(2-1 h)	Borsig
	Physics of Polymers and Paper	(2-2 h)	Krištofič

	Fibre Science and Technology	(2-2 h)	Marcinčin, Legéň
	Laboratory of Fibre Science and Technology	(0-0-8)	Krištofič, Karabcová
1. semester (MSc)	Structure of Fibrous Materials	(1-1 h)	Krištofič, Ujhelyiová
	Special and Modified Fibres	(0-2 h)	Marcinčin, Krištofič, Murárová, Ujhelyiová
2. semester (MSc)	Colorants and Textile Auxiliaries	(2-0 h)	Murárová, Ujhelyiová
	Technical Textiles	(2-0 h)	Krištofič, Borsig
	Principles of Textile Engineering	(2-0 h)	Ujhelyiová, Murárová
	Laboratory of Textile Engineering	(0-0-8 h)	Legéň, Mlynarčíková
2. semester (MSc)	Physiology and Comfort of Textiles	(0-2 h)	Murárová, Hricová
3. semester (MSc)	Textile Chemistry and Technology	(2-2 h)	Ujhelyiová, Bolhová
	Technology of Polymeric Films	(2-0 h)	Marcinčin, Krištofič
	Laboratory of Textile Chemistry and Technology	(0-0-10 h)	Ujhelyiová, Bolhová
	Fibre and Textile Testing	(2-0 h)	Legéň, Murárová
4. semester (MSc)	Diploma Thesis	(0-0-27 h)	

IV. CURRENT RESEARCH PROJECTS

A. Dispersion of organic pigments in synthetic polymers with particle size close to nano-scale

VEGA 1/8106/01

Project duration: from 2001 to 2003

B. Nanocomposite fibres based on synthetic polymers

APVT 20-010102

Project duration: from 01.09.2002 to 31.08.2005

C. Polymer composite fibres

VEGA 1/9147/02

Project duration: from 2002 to 2004

V. CURRENT EDUCATION PROJECTS

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Fibrochem, a.s., Svit	common papers	A. Marcincin	2003
VUCHV, a.s., Svit	contract 150/2003 contract 161/2003 scientific project 30300/K1/03	A. Marcincin	2003
VUTCH-Chemitex, spol. s r.o. Zilina	preparation of CEC conference	A. Marcincin	2003
Matador, a.s., division M-VTR-VUG, Puchov	contract 2/2003	A. Marcincin	2003
SH a.s., Senica	preparation of int. project Biocelsol	A. Marcincin	2003
TnUAD FPT Puchov	common papers	A. Murarova	2003
Quiltex a.s., Liptovský Mikuláš	contract 76/2003	A. Murarova	2003
Polymer Institut of SAV	common papers	E. Borsig	2003

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Institut of Chem. Fibres, Lodz, PL	preparation of CEC conference	A. Marcincin	2003
AUTEX, Gent, Belgium	preparation of AUTEX conference	A. Marcincin	2003
University of Zagreb	preparation of ITC&DC conference	A. Marcincin	2003
University of Maribor	preparation and realisation of 3. CEC conference, Sept. 10. -12. Slovenia	A. Marcincin	2003
TU Liberec	preparation of TEXSCI conference 16. - 18. June and ITSAPT project	A. Marcincin	2003
Institut fur Makromolekulare Chemie, A. Ludwigs Univ. Freiburg, BRD	common papers	E. Borsig	2003

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
A. Marcincin	Council of Ministry of Education, SR, program:	member	
	Development of young employees and PhD. student personalities	member	
	VUTCH-Chemitex, spol. s r.o., Zilina, Managing Council of Certification	member	
	VEGA Committee	member	
	Editor-in-Chief of journal Vlakna a textil	member	
E. Borsig	Slovak Society of Industrial Chemistry, section Chemical Fibres	member	
	Common branch council for awarding of DSc in 14-05-9 Macromolecular Chemistry	chairmann	
	Common branch council for awarding of PhD in 14-05-9 Macromolecular Chemistry	chairmann	
	Slovak Chemical Society, section Polymers	member	
	Advisory Board SAV for Chemical Sciences	member	
A. Murarova	Slovak Society of Industrial Chemistry Board and its Executive Committee	member of advisory board	
	and its section Chemical Fibres	chairmann	
	Slovak Chemical Society, section Polymers	member	
	Co-editor of journal Vlakna a textil	member	
	Editorial Board of journal Vlakna a textil	member	
A. Ujhelyiova	Slovak Chemical Society, section Polymers	member	
	Slovak Society of Industrial Chemistry	member	
M. Kristofic	Executive Editor of journal Vlakna a textil	member	
	Slovak Society of Industrial Chemistry	member	
	Slovak Chemical Society, section Polymers	member	
	Editorial Board of journal Vlakna a textil	member	
J. Legen	Slovak Society of Industrial Chemistry	member	
	Slovak Chemical Society, section Polymers	member	
M. Hricova	Slovak Society of Industrial Chemistry	member	

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
A. Marcincin	Association of Universities for Textiles, Gent, Belgium	member	
	AUTEX Research Journal, Gent, Lodz, B, PL	member of advisory	
	Central European Conferences Committee	member	
	Scientific Council, TU Liberec, Faculty of Textiles	member	

		member	
		member	
E. Borsig	General Assembly of National Representatives of European Polymer Federation, Eindhoven, Netherlands	member	
	Editorial Board of Journal of Macromolecular Chemistry Pure and Applied Chemistry, USA	member	
	Editorial Board of Chemické listy, Prague, Czech Rep.	member	
	Committee for Awarding of DSc for scientific branches 14-05-9 Macromolecular Chemistry, Prague, CZ	member	
	Committee for Awarding of DSc for scientific branches 28-03-9 Technology of Macromolecular Compounds, Prague, CZ	member	

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
J. Militky	TU Liberec	Czech Rep.	13.11.2003/1 day
Fridrichova	TU Liberec	Czech Rep.	01.09-05.09.2003/5 days
Dvorakova	TU Liberec	Czech Rep.	01.09-05.09.2003/5 days
J. Wiener	TU Liberec	Czech Rep.	26.5.-30.5.2003/5days
M. Prasil	TU Liberec	Czech Rep.	26.5.-30.5.2003/5days

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

Name	Organisation / Institution / Conference	State	Date / Duration
E. Borsig	Institut für Makromol. Chemie, A.-Ludwigs Univ., Freiburg	BRD	26.-29.02./1 month
A. Marcincin	TU Liberec	CZ	21.-22.01./2days
M. Kristofic	IWCH Lodz	PL	16.-18.03./3 days
A. Marcincin	Inst. für Makromol. Chemie, A.-Ludwigs Univ.	BRD	29.03.-06.04./9 days
A. Marcincin	Textextil Frankfurt am Main	BRD	07.-10.04./4 days
A. Ujhelyiova	Textextil Frankfurt am Main	BRD	07.-10.04./4 days
A. Murarova	Textextil Frankfurt am Main	BRD	07.-10.04./4 days
J. Legen	Textextil Frankfurt am Main	BRD	07.-10.04./4 days
M. Kristofic	Textextil Frankfurt am Main	BRD	07.-10.04./4 days
A. Marcincin	TU Liberec	CZ	22.-24.04./3 days
E. Bolhova	INOTEX, Dvur Kralove	CZ	13.-15.05./3 days
M. Jurenkova	INOTEX, Dvur Kralove	CZ	13.-15.05./3 days
Fleischmannova	TU Liberec	CZ	09.-18.06./10 days
A. Ujhelyiova	TU Liberec	CZ	16.-18.06./3days
J. Legen	TU Liberec	CZ	16.-18.06./3days
N. Karabcova	TU Liberec	CZ	16.-18.06./3days
M. Jurenkova	TU Liberec	CZ	09.-18.06./10 days
E. Bolhova	TU Liberec	CZ	15.06-04.07./20 days
E. Kormendyova	TU Liberec	CZ	15.06.-22.06./8 days
E. Borsig	European Polymer Federation, Stockholm	S	21.-27.06./7 days
A. Ujhelyiova	TU Lodz	PL	23.-28.06./6 days
M. Kristofic	TU Lodz	PL	23.-28.06./6 days
E. Borsig	Polytech. Wroclawska, PL, Univ. Dresden, BRD	PL, BRD	23.09.-03.10./9 days
A. Marcincin	TU Liberec	CZ	29.-31.10./3 days
A. Marcincin	Univ. of Maribor, (Portorose)	Slovenia	09.-12.09./4 days
A. Murarova	Univ. of Maribor, (Portorose)	Slovenia	09.-12.09./4 days
M. Kristofic	Univ. of Maribor, (Portorose)	Slovenia	09.-12.09./4 days

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
A. Andrejkova	Dyeing of Wool by New Processes	A. Ujhelyiova
A. Augustinova	New Trends in Research and Development of Polyamide Fibres	E. Borsig
Z. Strecka	Polypropylene Fibres Dyed from Bath	E. Bolhova
I. Vassova	Structure and Properties of Synthetic Fibres Modified by Nanoparticles	A. Ujhelyiova

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

Name	Title of Thesis	Supervisor
M. Girmanova	Influence of Macromorphological Structure of Textiles on their Biophysical Properties	A. Murarova
J. Kukulova	Kinetics of Dyeing of the Modified Polypropylene Fibres	A. Ujhelyiova
Z. Martiskova	Concentrated Dispersions for Pigmentation of Polyester Fibres	A. Marcincin
A. Rusnak	Polymer Blends on the Base of Polyesters as Additives for Modification of Fibres	A. Marcincin
R. Radovcic	Chemical and Physical Modification of PA 6 Fibres with Better End-use Properties	M. Kristofic
J. Cerna	Influence of Compatibilizer on Properties of Nanocomposite Fibres	E. Borsig

C. Dissertations (PhD)

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

VIII. PUBLICATIONS

DEPARTMENT OF GRAPHIC ARTS TECHNOLOGY AND APPLIED PHOTOCHEMISTRY

Head of Department:
Assoc. Prof. Michal Čeppan, PhD

Telephone: +421252495276
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Associate Professors:
Michal Čeppan, PhD; Milan Mikula, PhD; Ján Panák, PhD;

Assistant Professors :
Vladimír Dvonka; Bohuslava Havlínová, PhD; Viera Jančovičová, PhD;

Research Fellows:
Zuzana Jakubíková; Juraj Kindermay, PhD; Milena Reháková, PhD;

PhD Students:
František Belányi (till 30. 11. 2003); Erika Hrehorová; Ivana Lörinczová; Branislav Prosnan (since 1. 10. 2003);

Technical staff:
Mária Bardúnová; Martin Kovalčík (till 11. 11. 2003);

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 Print, Graphic Arts	2/2	Krkoška, Panák
	Term Project	0/4	Mikula and other members of academic staff
1. semester (MSc)	Colloids Systems and Interfaces	2/1/0	Bakoš, Mikula, Reháková
	Polymer and Paper Physics	0/2/0	Jančovičová
	Photochemistry and Photography I.	2/1/0	Čeppan, Reháková
	Surface and Thin Film Technology	2/0/0	Mikula
1. semester (MSc)	Advanced Laboratory Course I.	0/0/9	Havlínová, Jančovičová, Mikula, Reháková
	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
2. semester (MSc)	Text and Image Processing	1/1/0	Čeppan, Dvonka
3. semester (MSc)	Printing Technology II.	2/0/0	Panák
	Repronics	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

IV. CURRENT RESEARCH PROJECTS

A. 5 Framework Program of European Commission: High Productivity and Low Cost for the Encapsulation of Thin Film Solar Cells (NAS-HIPROLOCO) (M. Mikula).

Development of new, material saving, energy saving, automated and cost effective encapsulation systems and processes for thin film solar cells.

Structural analysis of multilayer system based on polymer foil substrate and inorganic and polymeric layers. The quality of interfaces and their role in adhesion and long term stability of the system.

The study of the barrier properties against the permeation of oxygen and water vapour, the permeation mechanism water through inorganic and organic barrier layers. Aging of the barrier properties. Detailed physical and chemical analysis of the high barrier layer system.

Project duration: from 01. 09. 2002 to 31. 08. 2004

B. VEGA project No 1/9146/02 Preparation and modification of thin surface layer properties of image-generating structures and their substrates (M. Mikula).

New type of atmospheric surface discharge treatment of polymer foil substrates considering printability, metalization, lamination, adhesion, mechanical and optical properties of this system in comparison with still-in-use barrier discharge ("corona").

New polymers and copolymers preparation by means of photoinitiated polymerization in thin layers with wanted physical and chemical properties. New information about photochemical reactions of selected photopolymer systems. Photochemical modification of water-soluble based polymers layers, changing their hydrophilic, optical and permeation properties with reference to the imaging technology.

Project duration: from 01. 01. 2002 to 31. 12. 2004

C. VEGA project No 2/1119/21 (SAV) Study of optical, structural and electric properties of amorphous (a-Si:H, a-SiGe:H) semiconductors after their interactions with plasma particles and/or ion beams (E. Pinčík, SAV, M. Mikula, STU).

Experimental and theoretical study. Optical absorption properties of semiconductor layers with different defects in bandgap. Thin dielectric blocking layers of SiO₂, Si₃N₄ and interfaces, their properties towards the effective solar cell production on the base of amorphous silicon

Project duration: from 01. 01. 2001 to 31. 12. 2003

D. 5th FrameWork programme of EU: Thematic Network /EVK4-CT-2002-20010 Transitional Metals in Paper (MIP), (M. 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

E. Vega project No 1/9145/02 Properties of Materials, Constituents and Structures of Printed Images on Polymeric Substrates (M. Čeppan).

Development and implementation of the methods of imaging photometry and image analysis of printed images structures on polymeric. Development of method for accelerated light ageing of paper, printing inks, and prints using metal-halogen and fluorescent lamps. Construction of laboratory system for accelerated light ageing using metal-halogen and fluorescent lamps, its basic characterization and calibration. Evaluation of methods and mechanism of printing inks conservation against ageing and attaining new knowledge about relation between various types of paper and inks during ageing of graphic structures on polymeric substrates. Study of influence of fountain solution composition and amount of emulsified fountain solution on rheological properties of offset printing inks. Explaining the influence of printing inks on the emulsions printing ink – fountain solution

Project duration: from 01. 01. 2002 to 01. 12. 2004

V. CURRENT EDUCATION PROJECTS

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Purgina	Investigation and evaluation of printing colouring for different printing technologies	Krchňavý Rastislav, technologist, Pri Šajbách 1, 831 06 Bratislava	01. 10. 2003 -
Slovak National Archives	Study of ageing of printed 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 (VEGA project) Study of barrier layers (EC project)	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 -

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Departement de Photochimie Generale, Université de Haute Alsace, Mulhouse, France	UV curing reaction of waterbased clearcoats	Decker Christian, professor, 3 rue Alfred Wemer, Mulhouse Cedex, France	01. 09. 2002 -
Fraunhofer Institute process Engineering and Packaging (IVV), Freising, Germany	Research of barrier layers on flexible foils (EC project)	Noller Klaus, dr., Fraunhofer Inst. IVV, 853 54 Freising	01. 09. 2002 -
Fraunhofer Institute for Silicate Research, Wurzburg, Germany	Properties of Ormocer lacquer layers (EC project)	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, vice-dean, Purkyňova 118, 612 00 Brno	01. 09. 2001 -
Printing House Model Opava, Opava, Czech Republic	Investigation and quality evaluation of offset printing	Matýsek Jiří, Těšínska 101, 74601 Opava, Czech Republic	01. 04. 2002 - 31. 01. 2003

State Central Archives in Prague, Czech Republic	Longlasting measurements of nonaged and aged papers	Durovič Michal, head of department, Archivní 4, 149 01 Praha 4 - Chodovec	01. 01. 2001 -
X-Rite Pardubice, Czech Republic	Hue colour ink computer formulation	Černý Jan, S. K. Neumanna 1316, 53207 Pardubice	01. 09. 2002 - 30. 06. 2003

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 -
Havlínová Bohuslava	Slovak Union for Industrial Chemistry	member	1980 -
Jančovičová Viera	Slovak Union for Industrial Chemistry	member	1999 -
Kindernay Juraj	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
Kaplanová, M.	University of Pardubice, Pardubice	Czech Republic	January 2003 (1 day)
Pekař, M.	Brno University of Technology, Brno	Czech republic	January 2003 (1 day)
Lapčík, L.	Tomas Bata University, Zlín	Czech Republic	January 2003 (1 day)
Lapčík, L.	Tomas Bata University, Zlín	Czech Republic	June 2003 (2 days)
Veselý, M.	Brno University of Technology, Brno	Czech Republic	June 2003 (2 days)
Holická, H.	University of Pardubice, Pardubice	Czech Republic	September 2003 (4 days)

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

Name	Organisation / Institution / Conference	State	Date / Duration
Jakubíková, Z.	Brno University of Technology, Brno	Czech Republic	February 2003 (3 days)
Čeppan, M., Reháková, M.	Model Obaly, a.s. Opava,	Czech Republic	February (1 day)

Mikula, M.	Fraunhofer Institute Process Engineering and Packaging, Freising	Germany	February (2 days)
Čeppan, M., Belányi, F., Dvonka, V., Havlínová, B., Hrehorová, E., Jakubíková, Z., Jančovičová, V.,	Seminar Print Media, Heidelberg	Germany	March (5 days)
Kindernay, J., kovačič, M., Lörinczová, I., Reháková, M.	Seminar Print Media, Heidelberg	Germany	March (5 days)
Havlínová, B.	State Central Archives, Prague	Czech Republic	March (4 days)
Jančovičová, V.	Brno University of Technology	Czech Republic	April (3 days)
Čeppan, M., Mikula, M.	Isovolta AG, Werndorf	Austria	April (2 days)
Jančovičová, V.	X-Rite, Pardubice	Czech Republic	May (1 day)
Čeppan, M., Belányi, F., Dvonka, V., Jakubíková, Z., Jančovičová, V., Kindernay, J., Mikula, M.,	22th International fair EMBAX	Czech Republic	May (1 day)
Panáč, J., Reháková, M.	22th International fair EMBAX	Czech Republic	May (1 day)
Hrehorová, E.	22th International fair EMBAX	Czech Republic	May (2 days)
Čeppan, M.	TNO Industrial Technology and the University of Northumbria, Amsterdam, New Casteke	Holland, UK	May (3 days)
Čeppan, M.	University of Pardubice, Pardubice	Czech Republic	Jun (3 days)
Čeppan, M.	Brno University of Technology	Czech republic	June (3 days)
Čeppan, M., Belányi, F., Dvonka, V., Havlínová, B., Jakubíková, Z., Jančovičová, V., Mikula M.,	6 th Seminar of Graphic Arts, Pardubice	Czech republic	September (3 days)
Panáč, J.	6th Seminar of Graphic Arts, Pardubice	Czech republic	September (3 days)
Čeppan, M.	12 th Seminar of Restorers and Historians, Prague	Czech republic	October (2 days)
Reháková, M.	12th Seminar of Restorers and Historians, Prague	Czech republic	October (4 days)
Čeppan, M., Mikula, M.	Centre for solar energy and hydrogen resear Baden Wuttenberg, Stuttgart	Germany	October (3 days)

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Čepcová, K.	Modulation transfer function measurement of printed flexible foils	Dvonka, V.
Grachová, L.	Study of thin polymer film properties on paper substrate	Reháková, M.
Hodál, M.	Influence of radiation intensity and layer thickness on UV varnish curing	Jančovičová, V.
Hoferíková, A.	Study of light stability of aryl-methane dyes in solution	Jančovičová, V.
Iždinská, Z.	Characterization of modern writing tools using UV VIS spectroscopy	Jančovičová, V.
Košová, J.	Influence of external factors on stability of digital printing	Reháková, M.
Múková, J.	Study of accelerated light ageing of flexographic inks on board LENETA	Havlínová, B.
Perašinová, L.	Monitoring of water, pastel and oil colours stability influenced by germicide	Havlínová, B.

Polončanová, P.	Study of printing quality according to evaluated parameters	Dvonka, V.
Popovičová, H.	Study of acrylate UV varnish polymerization	Jančovičová, V.
Rehák, P.	Study of photoinitiated polymerization of acrylates	Blažková, A.
Subrtová, M.	Study of paper gloss angle dependence according to its smoothness	Mikula, M.
Trnovec, B.	Study of relation of gloss angle dependence on paper surface	Mikula, M.
Uherová, A.	Study of ink-jet and laser prints stability effected by accelerated wet aging	Havlíňová, B.
Voltemarová, V.	Experimental evaluation of colour management system	Čeppan, M.

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

Name	Title of Thesis	Supervisor
Černáková, H.	Study of accelerated ageing of prints	Reháková, M.
Debnárová, Z.	Damping and quality of offset printing	Panák, J.
Fialkovič, J.	Study of historical documents ageing processes - corrosion of iron-gall inks	Čeppan, M.
Horáčíková, K.	Study of surface and adhesion properties of PP foils treated by barrier discharge	Mikula, M.
Hricková, J.	Rheoviscosity of offset printing inks	Panák, J.
Janatová, Z.	Study of ink-jet and laser colour prints stability	Havlíňová, B.
Moricová, P.	Photochemically initiated polymerization of urethane-acrylates	Jančovičová, V.
Mrláková, I.	Preparation and photochemical modification of polymeric layers based on water-soluble polymer derivatives	Jančovičová, V.
Paulínyová, Z.	Options of hue colour ink computer formulation with respect to printed substrate variability	Jančovičová, V.
Prosnan, B.	Study of SiO _x layer properties on polymeric substrate	Mikula, M.
Studnička, M.	Study of printing stability of packages	Čeppan, M.
Ščambová, I.	Image quality in ink-jet printing	Čeppan, M.
Švorcová, L.	Investigation of modification of modern printing matters after ageing	Havlíňová, B.
Tomášová, D.	Factors of printed flexible foils colour stability	Mikula, M.
Vyšná, M.	Influence of variable parameters on offset printing stability	Reháková, M.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Kindernay, J.	Studying and controlling methods of UV photopolymeric composition curing	Mikula, M.

D. Dissertations (DSc)

E. Habilitation Theses

Name	Title of Thesis	Head of board
Panák, J.	Rheology study of offset inks and damping in offset printing	Marcinčin, A.

VIII. PUBLICATIONS

DEPARTMENT OF INFORMATION ENGINEERING AND PROCESS CONTROL

Head of Department:
Dr. Miroslav Fikar, PhD
421252496469

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Full Professors:
Ján Mikleš, PhD, DSc;

Associate Professors:
Monika Bakošová, PhD; Ján Danko, PhD; Ján Dvoran, PhD; Miroslav Fikar, PhD; Alojz Mészáros, PhD;

Assistant Professors :
Ľuboš Čirka; František Jelenčiak; Mária Karšaiová, PhD; Magdaléna Ondrovičová; Anna Vasičkaninová;

PhD Students:
Karol Calík; Lukáš Dermíšek; Tomáš Hirmajer; Ľubomír Šperka;

Technical staff:
Eva Fuseková; 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)

III. TEACHING

A. Undergraduate Study:

2. semester (Bc)	Informatics	1/0/2	Ondrovičová, Šperka, Vasičkaninová
5. semester (Bc)	Computer Based Data Processing	0/0/2	Jelenčiak, Ondrovičová, Vasičkaninová
6. semester (Bc)	Automatic Control Fundamentals	2/0/0	Bakošová, Fikar
	Laboratory Exercises of Automatic Control Fundamentals	0/0/2	Bakošová, Danko, Fikar, Jelenčiak, Karšaiová, Mészáros,
	Laboratory Exercises of Automatic Control Fundamentals	0/0/2	Ondrovičová, Vasičkaninová

	Bachelor projects	0/0/4	Bakošová, Čirka, Danko, Dvoran, Fikar, Jelenčíak,
6. semester (Bc)	Bachelor projects	0/0/4	Mikleš, Ondrovičová, Vasičkaninová
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
1. semester (MSc)	Computer Programs	1/0/2	Fikar
	Laboratory Projects	0/0/8	Bakošová, Čirka, Karšaiová, Šperka, Vasičkaninová
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	Čirka, Mikleš
	Experimental Identification	2/0/0	Fikar
2. semester (MSc)	Laboratory Project II	0/0/6	Čirka, Danko, Dvoran, Mészáros
	Modelling and Control of Polymerisation Processes	2/0/2	Dvoran, Jelenčíak
	Process Dynamics	2/0/0	Bakošová
	Laboratory Exercises of Process Dynamics	0/0/1	Bakošová
3. semester (MSc)	Control Theory II	2/0/0	Mikleš
	Laboratory Exercises of Control Theory II	0/0/2	Čirka
	Intelligent Control Systems	2/0/0	Dvoran
	Semestral Project	0/0/10	Čirka, Dvoran, Karšaiová, Mikleš, Ondrovičová
3. semester (MSc)	CAD systems	2/0/0	Karšaiová
	Industrial Applications of Process Control	2/0/0	Mikleš, Ondrovičová
	Control of Technological Processes	1/0/2	Bakošová, Čirka, Vasičkaninová
4. semester (MSc)	Diploma Theses	0/0/27	Bakošová, Čirka, Fikar, Karšaiová, Mészáros,
	Diploma Theses	0/0/27	Ondrovičová

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/8108/01 Adaptive and Intelligent Control Strategies for Processes of Chemical/Biochemical Technology (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 technology. The main goal is to make further progress in the field of artificial neural network (ANN) based identification and control. New adaptive, predictive and robust control structures are designed and tested by both, computer simulations and laboratory control experiments. An original adaptive tuning of discrete PID controller is proposed. Control strategy based on adaptive lambda-tracking policy is also proposed for linear systems with higher relative degree as well as with varying sampling rate for systems with discretely measured outputs. The new methods introduced are tested on computer control of laboratory distillation column and laboratory biochemical reactor. Results achieved will be offered for industrial application in collaboration with the ProCS Ltd. company.

Project duration: from 01.01.2001 to 31.12.2003

B. VEGA Project No 1/0135/03 Development of optimal and supervisory control methods for mass transfer processes (Miroslav Fikar)

The project deals with development of modern control methods and focuses into mass transfer processes: chemical reactors, distillation columns, waste-water treatment plants, and other processes of chemical and food technologies. Involves static and dynamic methods, two level control where supervision and dynamic optimisation will be investigated at the higher level and feedback control at the lower level. Developed algorithms, controllers, and control structures will be tested by simulations and in laboratory conditions.

Project duration: from 01.01.2003 to 31.12.2005

C. Project of Slovak – Czech Scientific Cooperation No 112/189 Advanced Control Methods for Processes of Chemical and Food Technologies (Ján Mikleš)

The aim of the project is to develop new methods of adaptive, robust and intelligent control and to implement obtained control algorithms for processes of chemical and food technologies.

Project duration: from 01.01.2002 to 31.12.2003

V. CURRENT EDUCATION PROJECTS

A. Leonardo da Vinci Project No. RO/00/B/F/PP141028 Eurocompetencies Transfer in Vocational Guidance for Young Specialists in Bioscience Field (Alojz Mészáros)

The aim of the project is organising of training courses in various biochemical and biotechnological branches for students, graduate students, young scientists and young specialists from praxes.

Project duration: from 01.11.2000 to 01.11.2003

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
ProCS, Ltd., Šaľa	Processing of graphical displays for RS Centum CS 3000.	Bartošovič Štefan, director, Dolná 16, Šaľa	01.10.2003 -
Department of Automatic Control Systems, FEEI STU, Bratislava	Robust control, control of real processes.	Veselý Vojtech, professor, Ilkovičova 3, Bratislava	01.01.2001 -
Department of Automation and Measurement, FME STU, Bratislava	Automatic control, predictive control.	Rohal-Ilkiv Boris, associate professor, Nám. Slobody 17, Bratislava	01.01.2000 -
Siemens, Inc., Bratislava	Industrial control systems.	Pätoprstý Radomír, Siemens, Bratislava	01.01.2001 -

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 - 31.12.2003
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 -
Control Engineering Laboratory, FEIS, Ruhr University, Bochum, Germany	Closed-loop identification, predictive control.	Unbehauen H., 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, robust control.	Dostál Petr, professor, Nám. T. G. Masaryka 275, Zlín, Czech Republic	01.01.1998 -
Institut für Verfahrenstechnik, Brennstoff- und Umwelttechnik, TU Wien, Austria	Optimisation of combustion processes.	Hofbauer Hermann, professor, Getreidemarkt 7, Austria	01.01.1999 - 30.06.2003
Department of Chemical Engineering, TU Budapest, Hungary	Modelling of chemical processes,	Mizsey Peter, Műlgetem 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 -
Bakošová Monika	Slovak Society of Industrial Chemistry	member	01.01.1983 -
Čirka 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 -
Jelenčíak František	Slovak Society of Industrial Chemistry	member	01.01.2000 -
Dermíšek Lukáš	Slovak Society of Industrial Chemistry	member	01.01.2003 -
Šperka Ľubomír	Slovak Society of Industrial Chemistry	member	01.01.2003 -
Mikleš Ján	Scientific Grant Agency VEGA MŠSR a SAV - Comission for Elektrotechnics and Informatics	member	30.04.2002 -
Mikleš Ján	Commission for defence of dissertations (DSc) at science 28-30-9 Chemical Engineering and Process Control	member	01.11.1998 -
Mikleš Ján	Commission for defence 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	member	01.01.1998 -
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 -

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 -
Mikleš Ján	Slovak Society for Cybernetics and Informatics	member	01.01.1992 -
Mészáros Alojz	Slovak Society for Cybernetics and Informatics	member	01.01.1992 -
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 -

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Taufer, I.	Faculty of Chemical Technology, University of Pardubice, Pardubice	Czech Republic	June 2003 (7 days)
Dostál, P.	Institute of Information Technologies, Tomas Bata University, Zlín	Czech Republic	June 2003 (1 day)
Taufer, I.	Faculty of Chemical Technology, University of Pardubice, Pardubice	Czech Republic	October 2003 (3 days)
Taufer, I.	Faculty of Chemical Technology, University of Pardubice, Pardubice	Czech Republic	November 2003 (4 days)
Taufer, I.	Faculty of Chemical Technology, University of Pardubice, Pardubice	Czech Republic	December 2003 (3 days)
Latifi, M. A.	LSGC-CNRS, Ecole Nationale Supérieure des Industries Chimiques (ENSIC), Nancy	France	June 2003 (5 days)

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

Name	Organisation / Institution / Conference	State	Date / Duration
Mikleš, J.	11th Mediterranean Conference on Control and Automation. Rhodes.	Greece	June 2003 (7 days)
Mészáros, A.	11th Mediterranean Conference on Control and Automation. Rhodes.	Greece	June 2003 (7 days)
Fikar, M.	European Control Conference 2003. Cambridge.	Great Britain	September 2003 (6 days)
Bakošová, M.	Institute of Information Technologies, Tomas Bata University, Zlín	Czech Republic	June 2003 (2 days)
Bakošová, M.	Faculty of Chemical Technology, University of Pardubice, Pardubice	Czech Republic	September 2003 (1 day)
Bakošová, M.	Conference Principia Cybernetica'03, Liberec	Czech Republic	September 2003 (3 days)
Dvoran, J.	Faculty of Chemical Technology, University of Pardubice, Pardubice	Czech Republic	September 2003 (1 day)
Dvoran, J.	Conference Principia Cybernetica'03, Liberec	Czech Republic	September 2003 (3 days)

Mészáros, A.	Department of Chemical Engineering, University of Technology and Economy, Budapest	Hungary	August 2003 (2 days)
Mészáros, A.	Universität von Hohenheim, Stuttgart	Germany	September 2003 (6 days)
Mészáros, A.	University of Trondheim, Trondheim	Norway	October 2003 (5 days)
Fikar, M.	Faculty of Electrical Engineering, Czech Technical University, Prague	Czech Republic	September 2003 (1 day)
Mikleš, J.	Faculty of Electrical Engineering, Czech Technical University, Prague	Czech Republic	September 2003 (1 day)
Bakošová, M.	Institute of Information Technologies, Tomas Bata University, Zlín	Czech Republic	October 2003 (1 day)
Fikar, M.	Institute of Information Technologies, Tomas Bata University, Zlín	Czech Republic	October 2003 (1 day)
Fikar, M.	Faculty of Chemical Technology, University of Pardubice, Pardubice	Czech Republic	November 2003 (2 days)
Čírka, L.	Faculty of Chemical Technology, University of Pardubice, Pardubice	Czech Republic	November 2003 (2 days)

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Borkovič, P.	Robust control of a time-delay system.	Vasičkaninová, A.
Burian, P.	Control design for a concentration system.	Vasičkaninová, A.
Cebuša, M.	Design of an adaptive lambda-tracker for control of a distillation column.	Bakošová, M.
Hudec, P.	Development of a publication information systems for the department.	Čírka, L.
Palacka, O.	Computer control of a laboratory distillation column.	Bakošová, M.
Pastoreková, L.	Control of pressure tanks.	Danko, J.
Prček, T.	Design of an adaptive lambda-tracker for control of a chemical reactor.	Bakošová, M.
Rybářová, K.	Testing of an optimisation method in MATLAB.	Dvoran, J.
Škultéty, M.	Identification of physical parameters of a chemical reactor.	Ondrovičová, M.
Valo, R.	New methods for PID controllers tuning for control of chemical technological processes.	Bakošová, M.
Závacká, J.	Internet processing of measured data using MATLAB.	Čírka, L.
Klačko, M.	Internet simulation of dynamic systems using MATLAB.	Čírka, L.

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

Name	Title of Thesis	Supervisor
Čáran, M.	Using of control system SIMATIC for control of a distillation column.	Ondrovičová, M.
Čokinová, A.	Mathematical model of a process of mixture homogenisation.	Bakošová, M.
Hirmajer, T.	Design of a library information system for the DEEPC.	Fikar, M.
Chalupová, K.	Control design for a distillation column for separation of methanol-water mixture.	Ondrovičová, M.
Jančovič, P.	Design of an information system for the PROCESS CONTROL conference.	Čírka, L.
Kostendová, M.	Application of adaptive lambda-tracking method for control of technological processes.	Bakošová, M.
Murínová, M.	Design of a control structure for a technological process.	Karšaiová, M.
Oláh, A.	Methodology design for an application of visualisation systems.	Mészáros, A.
Smetana, S.	Hybrid modelling of a biotechnological process.	Mészáros, A.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Čírka, L.	Adaptive LQ control. Youla-Kučera parametrisation of controllers and process models.	Mikleš, J.
Rusnák, A.	Intelligent control of biotechnological processes,	Mészáros, A.

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

VIII. PUBLICATIONS

DEPARTMENT OF INORGANIC CHEMISTRY

Head of Department:
Prof. Milan Melník, DSc.
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Full Professors:

Roman Boča, PhD, DSc; Marian Koman, PhD, DSc; Milan Melník, PhD, DSc; Gregor Ondrejovič, PhD, DSc; Jozef Šima, PhD, DSc;

Associate Professors:

Michal Dunaj-Jurčo, PhD; Adela Kotočová, PhD; Anna Mašlejová, PhD; Iveta Ondrejovičová, PhD; Peter Segľa, PhD; Dušan Valigura, PhD;

Assistant Professors :

Mário Izakovič, PhD; Vladimír Jorík, PhD; Ľubov Macášková, PhD; Blažena Papánková, PhD; Anton Sirota, PhD; Miroslav Tatarko, PhD;

Research Fellows:

Ľubor Dlháň, PhD; Dušan Mikloš, PhD; Milan Ružička;

PhD Students:

Radovan Herchel (since 1.10.2002); Radoslava Ivaniková (since 1.10.2002); Jana Jašková (since 1.10.2002); Marcela Múdra (since 1.10.2002); Petra Stachová (since 1.10.2002); Katarína Šintalová (since 1.10.2002); Jozef Švorec (since 1.10.2002);

Technical staff:

Viera Blažová, Andrea Bočová, Marta Danková, Valéria Habudová, Leonard Kováč, Helena Križanová, Silvia Markusová, Marta Polláková, Marta Sprušanská, Klára Valúchová

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

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Inorganic Chemistry I	3/2/0	Boča, Šima, Kotočová, Ondrejovičová, Valigura
	Inorganic Chemistry I (Laboratory)	0/0/3	
2. semester (Bc)	Inorganic Chemistry II	2/2/0	Melník, Ondrejovič, Koman, Segľa

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

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/9252/02 Magnetoactive Coordination Compounds (Roman Boča).

A rational design of the zero-field splitting parameter in metal complexes lies at the centre of focus. An extensive series of the Ni(II) complexes with a variable coordination sphere (unidentate, bidentate and polydentate ligands) has been synthesized and the recorded magnetic response (the temperature variation of the isothermal magnetic susceptibility and the field dependence of the magnetization) has been analyzed by the developed software. At this stage the sign and magnitude of the zero-field splitting parameter (the axial magnetic anisotropy parameter) can be predicted. New program that handles the complete space spanning by the crystal-field multiplets and Zeeman levels has been outlined. At present the project concentrates to the understanding of the magnetic anisotropy in binuclear complexes. See: Chem. Phys. Lett. 373 (2003) 402-410.

Project duration: from 01. 01. 2002 to 31. 12. 2004

B. DAAD Project No 6/2002 New Crystal, Molecular, Electronic and Magnetic Structures with Functional Properties (Roman Boča).

Molecule-based magnets containing Ni(II) and Co(II) centers have been synthesized and their magnetism was studied extensively by the contemporary battle of the magneto-chemical-physical hardware. See: Inorg. Chem. 42 (2003) 6965-6967.

Project duration: from 01. 01. 2003 to 31. 12. 2004

C. MVTS Project No NEM/Slov/DAAD/CH New Magnetic Materials (Roman Boča).

Spin crossover phenomenon was studied by six experimental techniques: magnetic susceptibility measurement, variable-temperature powder diffraction, variable-temperature EXAFS measurements, variable-temperature Moessbauer spectroscopy, variable-temperature infrared spectroscopy and the differential scanning calorimetry. New theoretical

insight into the cooperativeness in the solid state has been proposed based upon the concept of the chemical hardness. See: Chem. Phys. 293 (2003) 375-395.

Project duration: from 01. 01. 2002 to 31. 12. 2004

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

Multinuclear coordination compounds of iron(III) with cyanide bridges were synthesized where several close-lying electronic states could be stabilized. The effect of the magnetic field to the induced stabilization is investigated. See: Solid State Phenom. 90 (2003) 147-152.

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

E. APVT Project No 20-009902 Low-Dimensional Magnetic Materials (Roman Boča).

Molecular (0D) and chain (1D) coordination compounds were synthesized and their magnetic properties recorded and analyzed. See: Inorg. Chem. 42 (2003) 5801-5803.

Project duration: from 01. 08. 2002 to 31. 12. 2004

F. Grant No 1/9251/02 Preparation and study of novel non-steroid coordination antiflogistics and antituberculosics (Milan Melník).

Synthesis of novel coordination compounds disposing properties of coordination chemotherapeutics which can be applied in human and veterinary medicine represents one of the most perspective fields of bioinorganic chemistry. The synthesis and study of novel nonsteroid coordination antiflogistics and antituberculosics are consistent with these properties. Thus, a search for new types of chemotherapeutics is a great challenge for bioinorganic chemistry. The biocomplexes of copper and iron with various ligands, namely with derivatives of nicotine, salicylic and propionic acids as well as with fenamates are the object of our study in connection with the search for coordination antiflogistics. The biocomplexes of copper and magnesium with other group of ligands, namely derivatives of 4-oxoquinolate are considered to have properties of the potential antituberculosics are also the object of our study.

A specific theoretical and experimental procedure characterising the construction of coordination polymers was elaborated. Crystal structure determination of some copper and magnesium complexes contributed to the optimisation of favourable conditions for reactions of ligands forming new compounds in the coordination sphere.

The basic factors influencing the relation between the wavelength of irradiation and the photoredox efficiency of iron complexes were formulated. It was found that by photolysis of copper complexes generated hydroxyl radical in solutions participates in photodegradation of some pollutants. The results can be applied to improve ecology.

Project duration: from 01. 01. 2002 to 31. 12. 2004

V. CURRENT EDUCATION PROJECTS

A. Project No 301/02 Picking out of talented students and their motivation in new conditions of social development with respect to the needs of the Faculty of Chemical and Food Technology of the Slovak Technical University (Anton Sirota).

A special questionnaire has been elaborated for research of students' motivation in their choice to study chemistry and their evaluation of the study organisation and the level at the Faculty of Chemical and Food Technology.

The questionnaire has been applied to a sample of 178 students of the first course of the Faculty. Their responses have been evaluated and the results obtained are prepared for publishing in a special journal. The results have been compared with those obtained with a similar questionnaire in 1984. The results show that evaluation of students in 2003 differ in many significant aspects from those obtained in the year 1984. It will probably be necessary to adapt the pedagogical process at the Faculty as well as methods how to gain students for study of chemistry to a new situation in the secondary schools education as well as in social life.

The similar questionnaire has been elaborated and adapted to the needs of the Faculty of Sciences of the Comenius University in Bratislava. It is supposed to be applied in 2004.

The members of the research team organised a special seminar for secondary school teachers in August 2003 with the aim to enhance the quality of chemistry teaching at the schools. Two members of the research team presented their lectures at the seminar.

Two members of the research team are chairman and vice-chairman in the club Socrates. The club activates such activities which are in favour of selected talented students of the Faculty.

Some members of the research team were involved in a preparation of the national team of the best four secondary school pupils who attended the 35th International Chemistry Olympiad in Greece and were awarded with 2 silver and 2 bronze medals.

The members of the research team published 18 papers in journals (in Slovak), presented three lectures at the conferences and two of them published a text book for secondary school pupils on nomenclature of inorganic substances.

Project duration: from 01. 01. 2002 to 31. 12. 2004

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-Gutenberg-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	2004 - 2005
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	vice-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 -
Moncoř 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	vice-president	01. 01. 1992 -
Koman Marian	Czech and Slovak Association for Crystal Growth	member	01. 02. 1994 -
Moncoř 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 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
Fuess, H.	Materials Science, Darmstadt University of Technology, Darmstadt	Germany	March 2003 (6 days)
Svoboda, I.	Materials Science, Darmstadt University of Technology, Darmstadt	Germany	June 2003 (8 days)

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

Name	Organisation / Institution / Conference	State	Date / Duration
Jorík, V.	Institute of Macromolecular Chemistry, Prague	Czech Republic	February 2003 (1 day)
Boča, R.	Institute of Chemistry, University of Wrocław, Wrocław	Poland	February 2003 (10 days)
Ružička, M.	Institute of Physics, Czech Academy of Sciences, Prague	Czech Republic	March 2003 (2 days)
Melník, M.	Department of Chemistry, University of Helsinki, Helsinki	Finland	April 2003 (6 days)
Šima, J.	Vienna University of Technology, Vienna	Austria	April 2003 (1 day)
Boča, R.	Materials Science, Darmstadt University of Technology, Darmstadt	Germany	May 2003 (14 days)
Herchel, R.	Materials Science, Darmstadt University of Technology, Darmstadt	Germany	June 2003 (22 days)
Boča, R.	Materials Science, Darmstadt University of Technology, Darmstadt	Germany	June 2003 (22 days)
Papánková, B.	Materials Science, Darmstadt University of Technology, Darmstadt	Germany	June 2003 (14 days)
Mašlejová, A.	Materials Science, Darmstadt University of Technology, Darmstadt	Germany	July 2003 (12 days)
Sirota, A.	National and Kapodistrian University, Athens	Greece	July 2003 (10 days)
Mašlejová, A.	ICM 2003 - International Conference on Magnetism, Roma	Italy	July 2003 (8 days)
Boča, R.	ICM 2003 - International Conference on Magnetism, Roma	Italy	July 2003 (8 days)
Dlháň, L.	ICM 2003 - International Conference on Magnetism, Roma	Italy	July 2003 (8 days)
Herchel, R.	Materials Science, Darmstadt University of Technology, Darmstadt	Germany	August 2003 (21 days)
Dlháň, L.	Materials Science, Darmstadt University of Technology, Darmstadt	Germany	August 2003 (21 days)
Boča, R.	Johannes-Gutenberg-University, Mainz	Germany	August 2003 (8 days)
Jorík, V.	Structure Solution from Powder Diffraction Data, Stará Lesná	Slovakia	September 2003 (6 days)
Šima, J.	Institute of Chemistry, Hungarian Academy of Sciences, Budapest	Hungary	October 2003 (1 day)
Melník, M.	Institute of Chemistry, Hungarian Academy of Sciences, Budapest	Hungary	October 2003 (1 day)
Boča, R.	Vienna University of Technology, Vienna	Austria	November 2003 (1 day)
Sirota, A.	Christian-Albrechts-University, Kiel	Germany	December 2003 (4 days)

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Půčeková, Z.	Methyl- and methoxy-salicylatocopper(II) complexes with some biologically active ligands.	Valigura, D.
Šipoš, R.	Study of equilibria of iron(III) complexes with some kojic acid derivatives.	Izakovič, M.
Vasková, Z.	Properties of 4-nitrobenzoatocopper(II) complexes with ligands showing biological activity.	Valigura, D.

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

Name	Title of Thesis	Supervisor
Horváthová, L.	Photoredox properties of iron(III) complexes with azidoligands.	Šima, J.

Ivaníková, R.	Preparation and characterisation of carboxylatonickel(II) complexes with imidazole derivatives.	Mašlejová, A.
Jašková, J.	Preparation and physical-chemical properties of copper(II) and cobalt(II) complexes with pyridinecarboxylic acids.	Segfa, P.
Mařhová, M.	Spin transitions in iron complexes.	Boča, R.
Šintalová, K.	Synthesis and study of physical properties of carboxylate-based coordination compounds.	Papánková, B.

C. Dissertations (PhD)

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

VII. PUBLICATIONS

DEPARTMENT OF INORGANIC TECHNOLOGY

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Associate Professors:
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Assistant Professors :
.Anna Žúžiová, PhD.

Research Fellows:
Peter Adamčík; Vladimír Danielik, PhD; Vladimír Khandl; Matilda Zemanová, PhD.

PhD Students:
Marta Ambrová; Michaela Benová; Zuzana Gáliková; Jana Jurišová; Michaela Nemčeková.

Technical staff:
Viliam Cauner; Daniela Dančová; František Kollár.

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, Valtýni
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
2. semester (MSc)	Chemical Reaction Engineering	2/2/0	Valtýni, Híveš
	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	Valtýni, Danielik
	Laboratories III.	0/0/10	Danielik, Fellner, Gabčová, Híveš, Chovancová, Valtýni,
4. semester (MSc)	Diploma work	0/0/27	Danielik, Fellner, Gabčová, Híveš, Chovancová, Valtýni,

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/9425/02 Preparation and Properties of Composite and Alloy Layers on Metal Substrates (Marta Chovancová)

Corrosion resistance of teflon sealed anodized aluminium was investigated by standard test and impedance spectroscopy. PTFE dip coating on anodized aluminium belongs to the new way of material preparation. Sealing quality and compactness of the prepared materials is the best one for PTFE sealing after anodic oxidation in the phosphoric acid electrolyte.

The combined two steps sealing method of anodic oxide coatings on aluminium has been designed. This sealing method is able to substitute classical hydrothermal sealing.

The preparation of electrochemical composite coatings with nickel matrix and Si dispersion particles has been studied. The influence of electrode position on the silicon content in the coatings has been tested. The participation of solid Cu and Al_2O_3 powder particles in the transfer of charge through the heterogeneous system consisting of an electrolyte and both conducting and non-conducting powder particles was studied by means of EIS.

The corrosion resistance and mechanical properties of Ni – W alloy coatings electrodeposited from the water solutions has been investigated by the standard tests and anodic polarisation curves.

Basic physical and chemical features of insulation layers of pipeline materials were verified by the laboratory tests. The samples were exposed to QUV-tester in order to define the influence of UV radiation on degradation of insulation materials. Insulation features were assessed on the base of cathodic polarisation curves. The test of endurance against the loss of cohesion was evaluated according to the standard.

Corrosion under stress of steel pipe samples in modelled environment of sand and clay has been laboratory tested. For each soil, there were performed four variants of steel sample exposition. The influence of cathode protection on corrosion of monitored steel samples is discussed.

Project duration: from **January 2002** to **December 2004**

B. VEGA Project No 1/9426/02 Thermodynamics and kinetics of the chemical and electrochemical reactions in the electrolyte at the phase boundary aluminium- melt (Pavel Fellner)

Impurities are introduced to the electrolyte for aluminium smelting with raw materials or they originate from the reactions of construction materials of the electrolytic cells and/or electrodes with the electrolyte.

They are responsible for contamination of aluminium, but they can also participate in the reactions responsible for the decrease of current efficiency or they can escape from the cell and to pollute environment. Importance of research of impurities will be stressed when the inert anodes (which are now tested in an industrial trial) are introduced.

Aim of the project is investigation of the reactions of aluminium dissolved in cryolite-based melts with impurities like sulphates using electrochemical methods (linear and cyclic voltametry, chronopotentiometry, impedance methods). There is no generally accepted theory explaining behavior of impurities in the aluminium electrolyte and they role in decreasing of current efficiency. Aim of the project is to supply experimental data for a new theory of the back reactions of dissolved aluminium.

The electrolyte will consist of the molten system NaF - AlF_3 . We will start to investigate the reactions in molten NaF at the temperature of 1000 °C. The addition of AlF_3 will make it possible to decrease the temperature to the range of 700 – 750 °C.

In the second stage (1.5 years from beginning of the project) we plan to investigate behavior of the impurities originating from dissolution (corrosion) of the inert anodes.

The proposed project is demanding because of high reactivity of aluminium dissolved in the melt at the temperatures of 750 – 1050 °C. Investigation of fast electrochemical reactions requires suitable experimental technique. The proposed research team is skilled enough for the work with molten salts. We have the electrochemical analyzer Autolab which is suitable for the electrochemical measurements in molten salts.

Project duration: from **January 2002** to **December 2004**

C. E 02.02.01 Concept of twosteps transmutation (Pavel Fellner)

Phase equilibria and electrochemical properties of the lanthanide and actinide fluorides, literature review and experimental measurements

Project duration: from October 2003 to December 2006

V. CURRENT EDUCATION PROJECTS

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Boge Slovakia, a.s. Trnava	The analysis of anodic layer	Ing. Karol Mečár	14.1. - 31.7.2003
Thermosolar Žiar, s.r.o.			3.2. - 31.10.2003
SHMÚ	Balance of green house emissions	Ing. Janka Szemesova	16.6. - 31.10.2003

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Soil and Water Ltd. Finland			7.11.2002 - 30.4.2003
NTNU Trondheim, Norway	Sulphur in cryolitic melt	Prof. Jomar Thonstad	January - December 2003

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
M. Chovancová	Slovak Society for Surface Treatment and Technology	other	from 1995
M. Chovancová	Slovak Chemical Society	member	from 1987
M. Chovancová	Slovak Cleaner Production Centre	member	from 1993
M. Chovancová	Union of Slovak Scientific and Technological Societies	member	from 1972
J. Híveš	Slovak Society for Surface Treatment and Technology	member	from 1987
J. Híveš	Slovak Chemical Society	member	from 2000
J. Híveš	Union of Slovak Scientific and Technological Societies	member	from 1987
A. Žúžiová	Slovak Chemical Society	member	from 1993
A. Žúžiová	Union of Slovak Scientific and Technological Societies	member	from 1972
J. Gabčová	Slovak Chemical Society	member	from 1972
J. Gabčová	Union of Slovak Scientific and Technological Societies	member	from 1972
J. Valtýni	Union of Slovak Scientific and Technological Societies	member	from 1972

V. Khandl	Union of Slovak Scientific and Technological Societies	member	from 1972
V. Danielik	Slovak Chemical Society	member	from 1992
M. Zemanová	Slovak Chemical Society	member	from 1992
M. Zemanová	Slovak Society for Surface Treatment and Technology	member	from 1995
P. Fellner	Slovak Chemical Society	member	from 1972
P. Fellner	Union of Slovak Scientific and Technological Societies	member	from 1972
P. Fellner	Slovak Society for Surface Treatment and Technology	member	from 1995
P. Fellner	Scientific Board of UACH SAV	member	2003
P. Fellner	Editorial Board of Chemical Papers	member	2003
P. Fellner	Scientific Board of Faculty of Technology of University of Trenčín	member	2003

D. Membership in International Organisations and Societies

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

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Prof. J. Thonstad	NTNU, Trondheim	Norway	March 2003 (3 days)
Prof. J. Thonstad	NTNU, Trondheim	Norway	September 2003 (3 days)
Prof. J. Thonstad	NTNU, Trondheim	Norway	November 2003 (4 days)
Dr. C. Bessada + 2 PhD Students	CNRS, Orleans	France	November 2003 (1 day)
Dr. D. Schröterová	VŠCHT, Prague	Czech Republic	June 2003 (1 day)
Prof. V. Sharma	Florida Institute, Melbourne	USA	May 2003 (1 day)
Prof. V. Sharma	Florida Institute, Melbourne	USA	November 2003 (1 day)
Dr. K. Bouzek	VŠCHT, Prague	Czech Republic	May 2003 (1 day)
Dr. K. Bouzek	VŠCHT, Prague	Czech Republic	November 2003 (1 day)

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

Name	Organisation / Institution / Conference	State	Date / Duration
P. Fellner	Symposium on Ionic Liquids	France	June 2003 (4 days)
P. Fellner	VŠCHT, Prague	Czech Republic	June 2003 (1 day)
M. Zemanová	BRD FZ Karlsruhe	Germany	October - December 2003 (3 month)
M. Ambrová	NTNU, Trondheim	Norway	April – June 2003 (3 months)
M. Chovancová	AKI	Czech Republic	October 2003 (3 days)
M. Chovancová	Progresívni a netradiční technológie povrchových úprav	Czech Republic	November 2003 (2 days)
Z. Gáliková	Progresívni a netradiční technológie povrchových úprav	Czech Republic	November 2003 (2 days)

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Báchor, M.	Composite coatings I.	Zemanová, M.
Cech, J.	Thermal analysis	Gabčová, J.
Kamenár, J.	Combined sealing of anodically oxidized aluminium	Chovancová, M.
Kováč, L.	Trends in the Treatment of Spent Nuclear Fuels	Fellner, P.
Mikulášová, M.	Preparation of Ni(II) complexes	Adamčík, P.
Obžerová, L.	Magnesium ammonia sulphates as N-S-Mg Fertilizers	Žúžiová, A.
Onderčín, M.	Protection of pipelines in gas industry	Híveš, J.
Pentrák, M.	Emissions of greenhouse gases in ZSNP Žiar	Danielík, V.
Podzimek, F.	Differential thermal analysis	Gabčová, J.

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

Name	Title of Thesis	Supervisor
Benová, M.	Electrical conductivity of suspenses	Híveš, J.
Ivanová, Z.	Phase diagram of the system KF - K ₂ TaF ₇ - Ta ₂ O ₅	Boča, M.
Jurišová, J.	Methods of utilization of Slovak dolomites	Fellner, P.
Makovíniová, D.	Deposition of Ni-W Alloy Coatings from Aqueous Electrolytes. Quality of coatings	Chovancová, M.
Nemčeková, M.	Reactions of sulphur compounds in aluminium electrolytic cell	Gabčová, J.
Pachingerová, D.	Characterization of pigmented anodically oxidized coatings	Zemanová, M.
Tóthová, M.	Phase equilibria in the system NaF - KF - AlF ₃	Danielík, V.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Korenko, M.	Relationship between the content of sodium in aluminium and cathodic overvoltage during electrolysis and solubility of some sulphides in cryolite-base	Fellner, P.

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

VII. PUBLICATIONS

DEPARTMENT OF LANGUAGES

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Technical staff:

Katarína Vépyová;

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

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

IV. CURRENT RESEARCH PROJECTS

V. CURRENT EDUCATION PROJECTS

A. Pedagogical project No 304/03 Aspects of Teaching Foreign Languages for Specific Purposes at the University of Technology (Veronika Polóniová)

Aims of the project are : to realise teaching of foreign languages in distant form of study; to prepare innovative material suitable for on-line study of foreign languages at FCHPT; to teach basics of ESP and GSP for the needs of profession.

Project duration: from 01.01.2003 to 31.12.2005

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
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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 -
IASTE Bratislava	Oral interviews with applicants for mobility abroad	Oreská Alžbeta, head of Language Department, FCHPT STU, Radlinského 9, 812 37 Bratislava	01.01.2001 -
Specialist departments of FCHPT STU, Bratislava	Language section of the annual "Students' Scientific and Research Activity" competition - advisers Zálupský Peter, Štefuca Vladimír	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	1. 9. 2003 -
Language Centre, Rectorate of STU, Bratislava	Language courses: ZoD 1/2003, ZoD 94/2003	Kuželová Viera, head of Language Centre STU, Laurinská 14, 810 00 Bratislava	01.01.1994 -
Publishing House "Príroda", Bratislava	Review of a series of textbooks of English language	Horáková Magdaléna, assistant professor, FCHPT STU	01.09.2003 - 31.12.2003

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
CASAJC, Bratislava	Slovak and Czech Association of Language Centres in Higher Education-preparing materials for Portfolio and Unicert	Oreská Alžbeta, head of Language Department, FCHPT STU, Radlinského 9, 812 37 Bratislava	01.02.2003 -
Leonardo da Vinci Community	EU Vocational Action Programme - practical placements for Slovak University students 2 (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 -
CERCLES/CA SAJC, Slovak Republic	European Confederation of Language Centres in Higher Education(Horáková, Kachničová, Oreská, Polóniová, Štefanovičová)	member	11.02.2003 -

E. Visitors from abroad

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

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

C. Dissertations (PhD)

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

DEPARTMENT OF MANAGEMENT

Head of Department:

Assoc. Prof. Dušan Baran, PhD.

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E-mail: dusan.baran@stuba.sk

Associate Professors:

Agáta Ďurkovičová, PhD.; Pavel Herzka, PhD.; Marta Šostroneková, PhD.; Dušan Špirko, PhD.

Assistant Professors :

Štefan György, PhD.; Milan Majerník PhD.; Martin Jozefček, Jana Kajanová, Martina Kuperová; Jana Plchová; Monika Zatrochová.

Technical staff:

Martin Mikloš, Katarína Macušková.

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Computerized Technique

III. TEACHING

A. Undergraduate Study:

1. semester (Bc)	Economics	(2-0 h)	Majerník
2. semester (Bc)	Fundamentals of Environmental Philosophy	(2-0 h)	Špirko
5. semester (Bc)	Fundamentals of Manag. of Chem.andFood-Proc.Enterprises	(2-2 h)	Šostroneková
5. semester (Bc)	Marketing	(2-2 h)	Špirko, Ďurkovičová
6. semester (Bc)	Introduction to Law	(2-0 h)	György
	Semester Project	(0-4 h)	Baran
	Accounting	(2-2 h)	Šostroneková
1. semester (MSc)	Corporate Economics	(2-2 h)	Herzka
	Operations Research	(3-2 h)	Kuperová
	Strategic Management	(3-2 h)	Herzka, Jozefček
	Calculations and Prices	(2-2 h)	Plchová, Kajanová
2. semester (MSc)	Capital Market and Corporation Finances	(2-0 h)	Baran
	Marketing	(2-0 h)	Špirko, Ďurkovičová
	Decision-Making in Business	(2-3 h)	Herzka
	Human Resource Management	(2-2 h)	Herzka
2. semester (MSc)	Production Management	(2-3 h)	Kuperová
3. semester (MSc)	Financial Management	(3-2 h)	Baran, Zatrochová
	Analysis of Business Economics	(3-2 h)	Baran
	Logistics	(2-2 h)	Kuperová
	Fundamentals of Mercantile and Financial Law	(2-0 h)	György
3. semester (MSc)	International Marketing	(2-2 h)	Špirko, Ďurkovičová
	Annual Project	(0-4 h)	Baran

IV. CURRENT RESEARCH PROJECTS

A. Project A-162/2003

Application of modern management methods in chemical and food-processing enterprises.

Leader of the project: Dušan Baran.

Project participants: Agáta Ďurkovičová, Pavel Herzka, Marta Šostroneková, Dušan Špirko, Štefan György, Martina Kuperová, Milan Majerník, Jana Plchová, Martin Jozefček, Jana Kajanová, Martina Svítková, Monika Zatrochová, Martin Mikloš, Katarína Macušková.

Parts of the project:

A. Environmental management in conditions of the chemical and food-processing enterprises.

(Leader of the part A: Dušan Špirko. Participants: Štefan György, Ing. Jana Plchová.)

B. Financial management of chemical and food-processing enterprises in Slovakia.

(Leader of the part B: Dušan Baran. Participants: Martina Kuperová, Milan Majerník, Martina Svítková, Monika Zatrochová, Katarína Macušková.)

C. Modern trends in the management of a firm.

(Leader of the part C: Pavel Herzka. Participants: Agáta Ďurkovičová, Marta Šostroneková, Martin Jozefček, Jana Kajanová, Martin Mikloš.)

Project duration: from 1 January 2003 to 31 December 2005

V. CURRENT EDUCATION PROJECTS

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
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. Ján Olekšák	
Matej Bel University, Faculty of Economics, Banská Bystrica	Pedagogic cooperation	Assoc. Prof. Jaroslav Ďaďo Prof. Ľubica Lesáková Assoc. Prof. Marková Assoc. Prof. František Lipták	
University of Economy, Bratislava	Pedagogic cooperation	Assoc. Prof. Šubertová Prof. Július Alexy Assoc. Prof. Alena Chodasová	
University of Žilina, Faculty of Economics, Transport and Communication	Pedagogic cooperation	Prof. Štefan Cisko Assoc. Prof. Štefan Hittmar Assoc. Prof. Jozef Strišš Assoc. Prof. Szilágyi	

Slovak University of Technology, Faculty of Materials Science and Technology, Trnava	Pedagogic cooperation	Prof. Jozef Sáblik Assoc. Prof. Alexander Štrbka Assoc. Prof. Peter Šakál Assoc. Prof. Miloš Čambal	
Slovak University of Technology, Faculty of Mechanical Engineering	Pedagogic cooperation	Assoc. Prof. Štepka Prof. Dita Hekelová	
Slovak University of Technology, Faculty of Civil Engineering	Pedagogic cooperation	Prof. Koloman Ivanička Assoc. Prof. Mária Zúbková Prof. Trávník	
Alexander Dubček University, Faculty of Social-Economic Relations, Trenčín	Pedagogic cooperation	Prof. Baránik Assoc. Prof. Sergej Vojtovič	
Comenius University Bratislava, Faculty of Management	Pedagogic cooperation	Assoc. Prof. Ľubica Bajžíková Assoc. Prof. Cibáková	

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
BORSOD CHEM Moravian Chemical Plants, Ostrava Czech Republic	Material-technical and pedagogic cooperation	Ing. Alexander Pálffy, general manager	
University of Economics, Faculty of Business Administration, Prague, Czech Republic	Pedagogic cooperation	Prof. Eduard Stehlík	
Institute of Chemical Technology, Faculty of Chemical Engineering, Prague, Czech Republic	Pedagogic cooperation	Prof. Ivan Gros Assoc. Prof. Stanislava Grosová	
Karol Adamiecki University of Economics in Katowice, Faculty of Management, Poland	Pedagogic cooperation	Prof. Kornelia Karcz Prof. Žofia Kedzior	
University of Economics in Krakow, Faculty of Management, Poland	Pedagogic cooperation	Prof. Jan W. Wiktor Prof. Jerzy Altkom	
Vilnius University, Faculty of Humanities in Kaunas, Lithuania	Pedagogic cooperation	Assoc. Prof. Jogaila Mačerinskas	
Masaryk University Brno, Faculty of Economics and Administration, Czech Republic	Pedagogic cooperation	Prof. Blažek Dr. Viliam Záthurecký	
Lvov Polytechnic National University, Institute of Economics and Management, Ukraine	Pedagogic cooperation	Assoc. Prof. Natalia Čuchraj	
Kiev National Economic University, Ukraine	Pedagogic cooperation	I.L. Reshetnikova	

University of Pardubice, Faculty of Chemical Technology, Czech Republic	Pedagogic cooperation	Assoc. Prof. Hana Lošťáková	
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VIII. PUBLICATIONS

DEPARTMENT OF MATHEMATICS

Head of Department:
Doc. Štefan Varga, PhD

Telephone: +421252495177
Fax: +421252495177
E-mail: varga@stuba.sk

Full Professors:

Vladimír Kvasnička, PhD, DSc

Associate Professors:

Vladimír Baláž, PhD; Anna Kolesárová, PhD; Jiří Pospíchal, PhD; Michal Šabo, PhD; Štefan Varga, PhD

Assistant Professors :

Jozef Antoni, PhD; Július Bánki, PhD; Štefan Boor, MSc; Ivan Garaj, PhD; Viera Grusková, PhD; Eva Hainzlová, MSc; Vladimír Haluška, PhD; Ľubomíra Horanská, PhD; Milan Jasem, PhD;

PhD Students:

Štefan Babinec, Ing., Jozef Babjak, Ing., Peter Sarkoci, 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	3/3/0	Baláž, Grusková, Jasem, Kolesárová, Šabo
	Calculus I (external study)	2/2/0	Kvasnička
	Basics of Computer Science	1/0/2	Antoni, Bánki, Boor, Heinzlová, Pospíchal
2. semester (Bc)	Calculus II	4/4/0	Baláž, Grusková, Jasem, Kolesárová, Šabo
5. semester (Bc)	Calculus III	2/0/2	Antoni, Garaj, Varga
1. semester (MSc)	Discrete mathematics	2/1/0	Kolesárová
	Programming and algorithms	2/0/1	Pospíchal
	Numerical mathematics	2/0/1	Šabo
	Computer architecture	2/0/1	Antoni
1. semester (MSc)	Laboratory of specialization	2/0/1	Boor, Sarkoci
2. semester (MSc)	Artificial intelligence in chemistry	2/0/1	Kvasnička

	Statistics	2/0/1	Varga, Šabo
	Laboratory of specialization II	0/0/6	Sarkoci
3. semester (MSc)	Database systems	2/0/1	Antoni
	Laboratory of specialization	0/0/10	Babinec, Babjak, Bánki, Heinzlová, Pospíchal
2. semester (MSc)	Evolutionary algorithms (FMFI UK)	2/0/0	Pospíchal
	Evolutionary algorithms (FEI STU)	2/2/0	Kvasnička
1. semester (Bc)	Basics of Computer Science (FSEV UK)	2/1/0	Kvasnička, Pospíchal

IV. CURRENT RESEARCH PROJECTS

A. Mathematical vague information processing and its applications

VEGA GRANT No. 1/0085/03. (Anna Kolesárová)

Quantification of uncertainty related to vagueness of studied objects. Extension of the theory of aggregation operators, new constructions methods for aggregation operators, in particular, construction of stable aggregation operators, clarifying their structure and uniqueness. Ordinal aggregation operators for aggregation of data of qualitative nature. The study of possible applications of different types of aggregation operators in inference process in fuzzy logic and construction of new operators for this purpose. Fuzzy preference modelling and decision making. Mixed fuzzy-stochastic models.

Project duration: from (01/01/2003 to 31/12/2005

B. COST ACTION 274/2 : Theory and Applications of Relational Structures as Knowledge Instruments (TARSKI)

EU-Project (Kolesárová Anna)

The main objective of the Action COST 274 is to advance the understanding and use of relational structures in applicable object domains. The researchers of FCHFT STU are involved in the working group WG3 for the development of non-invasive scaling methods for the prediction of relational data and comparing, and possibly, integrating, a nominal scaling approach with numerical methods such as fuzzy relations, etc. The aim is also the improvement of methods and procedures for gaining information from everyday relational situations such as, e.g., preference models.

Project duration: from 06/2001 to 05/2005

C. Computational simulations with multiagent systems

VEGA GRANT No. 1/8107/01 (Jiří Pospíchal)

The goal of the project is a study of multiagent systems using evolutionary algorithms and neural networks in order to observe a possible emergence of a coordinated communication, cooperation and social structures. For a study of emergence of a coordinated communication the agents are endowed with a cognitive organ, which is represented by a simple recurrent neural network. An agent has its randomly chosen internal state and with its cognitive organ it will code it and send as a message to another agent. This agent will decode the received message by its cognitive organ to an internal state representation. Emergence of cooperation and development of social structures between agents is studied by a prisoners dilemma game. Each agent of a population is represented by a strategy (coded by a binary vector), which will determine its interaction with other agents. Evolution of strategies is simulated by simple evolutionary algorithms. The evolutionary stability of emerging strategies is studied in detail.

Project duration: from 01/01/2001 to 31/12/2003

D. Artificial chemistry and molecular evolution

VEGA GRANT No. 1/0062/03 (Vladimír Kvasnička)

Biotic and abiotic molecular systems with kinetics determined by Eigen's replicator system are studied by methods of

artificial chemistry. Molecules are represented by strings of tokens over a finite alphabet. These molecules are capable of a physical process called "folding" (an analogy with biomacromolecules RNA). Each molecule is evaluated by a fitness on the basis of its particular folding. Molecules are placed in a chemical-reaction system, where they take part in a reproduction process (with probabilities proportional to their fitness) consisting in a simple copying accompanied by mutations. Such a simple reaction system corresponds to biomacromolecular systems that are capable of Darwinian evolution on molecular level. A goal of evolution specified in this way is an emergency of strings with required folding (required phenotype or a goal phenotype). The present in-silico approach offers a conceptual and notional machinery for a deeper theoretical interpretation and description of molecular Darwinian evolution.

Project duration: from 01/01/2003 to 31/12/2005

V. CURRENT EDUCATION PROJECTS

A. Mathematics on-line: An internet course

KEGA GRANT No. 3/100603 (Dobráková Jana/ Kolesárová Anna)

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 31/12/2005

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
FSEV UK	Project of development of Cognitive Science	Ing. E. Gál, CSc.	1.9.2002-
FMFI UK	Project of development of Cognitive Science	Doc. PhDr. J. Šefrānek, CSc., Doc. PhDr. J. Rybár, CSc.	1.9.1999-
FEI TU Košice	Organization of a conference about Computational Intelligence	Prof. Ing. P. Sinčák, CSc.	1.1.2003- 17.5.2003
SjF STU Bratislava	New trends in teaching mathematics	RNDr. V. Záhonová, PhD., Mgr. M. Kováčová, PhD., Doc. J. Dobráková	1.1.2003- 31.12.2005
FEI STU	New trends in teaching mathematics	RNDr. Ľ. Marko, PhD.	1.1.2003- 31.12.2003

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
FFP UO, Opava	Organization of a seminar on Artificial Life and Cognition	Prof. RNDr. J. Kelemen, DrSc.	1.5.2000-
University of Alcalá de Henares, Madrid	COST TARSKI cooperation	Prof. Tomasa Calvo, Enriqueta Muel	2002-2005
J. Kepler University, Linz	CEEPUS cooperation	Prof. E.P. Klement	2003-2004

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Kvasnička Vladimír	Slovak Academic Society	member	zakladajúci člen, 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-
Jasem Milan	Slovak Society for Mathematicians and Physicists	member	1978-
Varga Štefan	Slovak Society for Mathematicians and Physicists	member	1968-

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Kvasnička Vladimír	MATCH Communications in Mathematical Chemistry	member of advisory	1.1.1998-
Kvasnička Vladimír	Neural Network World	member of advisory	1.1.2001-
Kvasnička Vladimír	Croatica Chimica Acta	member of advisory	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-
Pospíchal Jiří	EURO Working group on fuzzy sets (EUROFUSE) (http://allserv.rug.ac.be/~bdebaets/members.html#SlovakRepublic)	member	1999-

E. Visitors from abroad

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

Name	Organisation / Institution / Conference	State	Date / Duration
Kvasnička Vladimír	Santa-Fe seminar on Evolutionary theory	Czech Republic	10.6.2003/3 days

Pospíchal Jiří	Conference Mendel 2003	Czech Republic	4.6.2003-6.6.2003
Šabo Michal	Conference Cost Action 274 TARSKI	Belgium	3.12-6.12.2003
Kolesárová Anna	Conference Principles of Fuzzy Preference Modelling and Decision Making	Belgium	30.11-2.12.2003
Kolesárová Anna	Conference COST Action 274 TARSKI	Belgium	3.12.2003-6.12.2003
Kolesárová Anna	Conference EUSFLAT' 2003	Germany	10.-12.9.2003
Kolesárová Anna	Cracow Technical University	Poland	9.6.2003-23.6.2003
Šabo Michal	Conference EUSFLAT' 2003	Germany	10.-12.9.2003

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Gall, M.	Cooperation in strategies of a spacially distributed game with and without memory	Pospíchal, J.
Hisira, M.	Application of a system of nonlinear equations in chemistry	Baláž, V.
Kubovičová, D.	Evolution of cooperation in a spacially distributed game	Pospíchal, J.
Mišiaková, S.	Prediction of properties of chemical compounds by neural networks	Pospíchal, J.

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

C. Dissertations (PhD)

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

DEPARTMENT OF MILK, FATS AND FOOD HYGIENE

Head of Department:
Assoc.Prof. Štefan Schmidt, PhD

Telephone: ++421-2-52495260
Fax: ++421-2-52493198

I. STAFF

Associate Professors:

Jozef Augustín, PhD; Vladimír Frank, PhD; Jarmila Hojerová, PhD; Vladimír Palo, PhD; Ľubomír Valík, PhD

Assistant Professors:

Mária Greifová, PhD; Vladimír Mastihuba, PhD; Stanislav Sekretár, PhD; Jaroslav Zemanovič, PhD;

Research Fellows:

Bernadette Hozová, PhD; Ľudovít Kuniak, PhD; Vlasta Kuklišová;

PhD students:

Martina Hrčková; Denisa Lauková; Iveta Kukurová; Terézia Machalcová; Ivana Niklová; Helena Kandárová;

Technical Staff:

Vilma Grmanová; Anna Horvátová; Edita Kovačičová; Eva Nováková; Margita Piatriková;

II. TEACHING AND RESEARCH LABORATORIES

Laboratory of Milk Chemistry and Technology
Laboratory of Fat Chemistry and Technology
Laboratory of Food Microbiology
Laboratory of Cosmetology
Laboratory of Applied Biotechnology

III. TEACHING

A.

Undergraduate Study

1st semester (autumn)

Laboratory Practice Biology (0-1 h) Augustín

5th semester (autumn)

Fundamentals of Hygiene and Sanitation (1-1 h) Hojerová

6th semester (spring)

Cosmetic and Household Chemistry (1-1 h) Hojerová
Packaging and Packaging Materials (1-1 h) Sekretár
Fats Chemistry and oleochemistry (1-1 h) Schmidt, Sekretár
Semestral Project (0-4 h) all Department Staff

7th semester (spring)

Dairy Chemistry and Technology I. (2-0 h) Greifová
Laboratory Practice Dairy Chemistry and Technology I. (0-3 h) Greifová, Mastihuba
Laboratory Practice Special Food Analysis (2-2 h) Augustín, Hojerová, Sekretár
Food Microbiology (2-0 h) Valík
Laboratory Practice Food Microbiology (0-4 h) Valík, Frank, Hozová
Food Unit Operations (2-2 h) Schmidt
Special Practice Food Unit Operations (0-2 h) Schmidt
Semestral Project (0-4 h) all Department Staff

8th semester (spring)

Laboratory Practice Dairy Chemistry and Technology (0-3 h) Greifová, Mastihuba
Fats, Detergents and Cosmetics (4-0 h) Schmidt, Sekretár, Hojerová, Zemanovič
Laboratory Practice Fats, Detergents and Cosmetics (0-3 h) Schmidt, Sekretár, Hojerová, Zemanovič
Microbiology of Milk, Fats and Cosmetics (2-0 h) Valík
Laboratory Practice Microbiology of Milk, Fats and Cosmetics (0-2 h) Valík, Kuklišová

9th semester (autumn)

Special Food Microbiology (2-0 h) Valík

Laboratory Practice Special Food Microbiology	(0-2 h)	Valík
Food Ecohygiene	(2-0 h)	Frank
Laboratory Practice Food Ecohygiene	(0-2 h)	Augustín
Special Dairy and Fat Technologies	(2-0 h)	Schmidt, Mastihuba
Laboratory exercise Special Dairy and Fat Technologies	(0-4 h)	Schmidt, Greifová, Sekretár, Mastihuba
Side effluents in Food Industry	(2-0 h)	Augustín
Laboratory Practice Side Effluents in Food Industry	(0-2 h)	Augustín
10th semester (spring)		
Diploma Project	(0-27 h)	all Department Staff

B. PhD Study

IV. CURRENT RESEARCH PROJECTS

A. Rapid, specific detection of *Listeria monocytogenes* by antibody-based techniques and on line sensor technology; development of improved control of food safety for industry and the consumer (Katarína Horáková)

Food as a vehicle of infection for *Listeria monocytogenes* was not recognised until 1980s. Prior to this the disease, which can cause central nervous system infection and septicemia, was either from an unknown source or was known to be transmitted direct from an animal reservoir or via hospital cross-infection. At particular risk are compromised individuals such as pregnant women and those with underlying disease. The overall objective of the project is to develop rapid, specific test methods for the detection of *Listeria* in foods, with the aim of introducing appropriate quality control into food production processes of the CCE partners. The method will be used both to assess the quality of raw material and the final food product, including where possible on line sensor technology. Partial objectives: to raise novel antibodies; optimise the laboratory technology; validation of the method; to introduce the method for routine detection; to disseminate the results.

Improving of the functional and biological values of foods and cosmetic products.

B. Stabilisation of foods containing fats by application of new types of natural antioxidants (Stefan Schmidt)

Minimisation of the *trans*-isomers fatty acids' formation during the partial hydrogenation of vegetable oils. Optimisation of the conditions during the transesterification of triacylglycerols as alternative to the hydrogenation. Development of the predictive microbiology by the using of computer's technique and the mathematical simulation of the relations between micro-organisms and foods. Investigation of the response of micro-organisms to the factors of the external and internal background with the aim to minimise their growth or reproduction. Increasing of the functional and biological properties of foods by the enzymatic hydrolysis of the proteins. Application of the stabilisers to the improvement of the stability of the physical and chemical properties of the cosmetic and food products at the required microbiological safety.

C. Improvement of nutrition and sensory quality of foods via optimising of physico-chemical and biological factors (Vladimír Frank)

The project analyses factors, which affect the selected technically relevant microorganisms, i.e. those microbes causing fermentation, spoiling and/or health risks of foods. Application of isolation and separation methods for determination of volatile compounds in investigated foods and sensory profiling of flavour alterations initiated by chemical and microbial changes of food are under intensive search as well. Other branch of project deals with improvement of technical properties of fats via randomization process, which concurrently saves the biological value of fat products considering, that essential fatty acids content remains unchanged after the process.

V. COOPERATION

A. Cooperation in Slovakia

Central Laboratory Milex - Progres, a.s., Bratislava
Dairy Plant Levice
De Miclén, a.s, Levice
Dimenzia, s.r.o., Kežmarok
Institute of Dairy Research, Žilina

Institute of Human Nutrition, Bratislava
Institute of Preventive and Clinical Medicine, Bratislava
Millex, Nové Mesto nad Váhom
National Institute of Public Health, Bratislava
Nuclear Powerplant Jaslovské Bohunice
Palma - Henkel, a.s., Nové Mesto nad Váhom
Palma - Tumys, a.s., Bratislava
PHARMASUN, Bratislava
Rajo, a.s. Bratislava
Ress, s.r.o., Senica
Slovak Academy of Sciences, Institute of Chemistry, Bratislava
Slovak Academy of Sciences, Institute of Molecular Biology, Bratislava
Slovak Academy of Sciences, Institute of Pharmacology, Bratislava

B. International Cooperation:

Aluso sro, Prague, Czech Republic
- Development of cosmetic products
BBSRC Institute of Food Research, Norwich, Great Britain
- Development of improved control of food safety for industry
- Support for database of predictive microbiology.
BRDC (Biotechnology Research and Development Corporation) Peoria, IL, USA
- Enzymatic modification of natural polymers
Dublin City University, Biomedical and Environmental Sensor Technology Centre, Dublin, Ireland
- Development of improved control of food safety for industry
Institute of Chemical Technology, Department of Biochemistry and Microbiology, Prague, Czech Republic
- Development of improved control of food safety for industry
Institute of Chemical Technology, Department of Dairy and Fat Technology, Prague, Czech Republic
- Education of dairy and fat technology
- Natural antioxidants
Johnson Matthey, Prague, Czech Republic & Johnson Matthey, Royston, UK
- Toxicity and antimicrobial efficacy study of cosmetic preservatives
Gimex, sro, Zlín, Czech Republic
- Toxicity and antimicrobial efficacy study of cosmetic preservatives
Gimex, sro, Zlín, Czech Republic
- Household Chemistry
Milcom-Dairy Research Institute, Prague
- Development of improved control of food safety for industry
NCAUR (National Center for Agricultural Utilization Research), ARS, USDA, Peoria, IL, USA
- Enzymatic modification of natural polymers
Technical University Vienna, Department of Biotechnology, Austria
- Proteolytic Enzymes of *Brevibacterium linens*
Food and Agriculture Organization of the United Nations (FAO)
- Consultations on food microbiology

C. Membership in Domestic Organizations and Societies:

Commission for Technical Standards no 79 (Cosmetics) of Slovak Institute for Technical Standards (J. Hojerová)
Slovak Society of Cosmetology (J. Hojerová)
Editorial board of Bulletin of Food Research (Š. Schmidt)
Expert of the Slovak National Accreditation Service – Technical Commission TVA-L4 (B. Hozová)
Incheba, Joint Stock Company - Technical Committee for Cosmetics (J. Hojerová)
Members of Committee of the Slovak Chemical Society (Š. Schmidt)
Member of Committee of the Food Section SCHS (B. Hozová, Š. Schmidt, J. Zemanovič)
Slovak Academy of Agriculture (V. Palo)
Science - Technical Society (B. Hozová)
Slovak Chemical Society (V. Frank, M. Greifová, Ľ. Kuniak, V. Mastihuba, I. Niklová, V. Palo)
Slovak National Committee of International Dairy Federation (V. Palo)
Slovak Gold – Technical Committee for Cosmetics and Household Products (J. Hojerová)
Slovak Society of Agricultural, Food and Forestry Science (J. Augustín, V. Palo)

D. Membership in International Organizations and Societies

Federation of European Chemical Societies, Division of Food Chemistry (Schmidt)
Editorial board of European Journal of Lipid Science and Technology (Š. Schmidt)
Czechoslovak Microbiology Society (J. Augustín, M. Greifová, B. Hozová, Ľ. Valík)

Austrian Chemical Society, Austria (J. Zemanovič)
International Federation Society of Cosmetic Chemists (IFSCC), USA (J. Hojerová)

E. Tempus Programme:

F. International Scientific Programmes:

Copernicus project PL 979012 "Rapid, specific detection of *Listeria monocytogenes* by antibody-based techniques and on-line sensor technology".

G. Visitors from Abroad:

Dr. József Baranyi	Institute of Food Research, UK (1 day)
Prof. Vladimír Filip	University of Chemical Technology, Prague (3 days)
Ludmila Karamonová MSc.	Institute of Chemical Technology, Prague, Czech Republic (4 weeks)
Dr. Petr Roubal	Milcom-Dairy Research Institute, Prague (2 weeks)
Prof. Karl Bayer	University of Agriculture, Vienna, Austria (1 day)
Mgr. Marek Szoltysik	University of Agriculture, Wroclaw, Poland (1 day)

Visits of Staff Members and PhD Students to Foreign Institutions:

Mária Greifová	Institute of Chemical Technology, Prague, Czech Republic (2 weeks)
Jarmila Hojerová	Herbacos – Bofarma sro, Pardubice, Czech Republic (3 days)
Helena Kandárová	National Institute of Public Health, Prague, Czech Republic (2 days)
Vladimír Mastihuba	Institute of Chemical Technology, Prague, Czech Republic (1 weeks)
Ľubomír Valík, Denisa Lauková	University of Chemical Technology, Prague (2 days)
Ľubomír Valík	National Nutrition Centre, Vilnius, Lithuania (2 weeks)

VI. THESES AND DISSERTATIONS

A. Graduate Theses (MS Degree) for state examinations after five years of study (supervisors are written in brackets):

Boráková – Králíková Miroslava	Effect of prooxidative factors on quality of vegetable oils (Š. Schmidt)
Garajová Elena	Use of hydrolases in derivatisation of saccharides (V. Mastihuba)
Halabuková Adriana	Dynamics of microbiological properties of <i>Agaricus bisporus</i> (V. Frank)
Hartiníková Henrieta	Use of rosemary in stabilisation of fats (S. Sekretár)
Husárová Lenka	Hydrophobic modifications of proteins (V. Mastihuba)
Kandárová Helena	Actual problems in evaluation of stability of UV filters in cosmetics (J. Hojerová)
Kohútová Monika	Validation of analytical methods for detection of UV filters in cosmetics (J. Hojerová)
Kuzmová Daniela	Study of growth dynamics of selected contaminants in raw milk and dairy products in region of Eastern Slovakia (J. Augustín)
Laššová Lenka	Analysis of growth of yeasts depending on control of media pH temperature (Ľ. Valík)
Melišová Denisa	Effect of external conditions on the growth and production of amines by <i>Enterococcus faecium</i> (M. Greifová)
Michalovičová Zuzana	Microbiological control of yoghurt production (Ľ. Valík)
Mrózová Zuzana	Dairy related decarboxylases – assay and employment (V. Mastihuba)
Rusňáková Monika	Proteolysis of food proteins by selected proteases (M. Hrčková)
Šutariková Katarína	Chemical and microbial indicators of quality of bryndza

Švaňová Ľubica	cheese (M. Greifová) Production of polygalacturonidase by microorganisms (<i>Candida boidinii</i> and <i>Cryptococcus laurentii</i>) in physiological and stress conditions (J. Augustín)
Turicová – Zajíčková Renáta	Relation of hygienic and sensoric quality of croissants to external (sorbic acid) and internal (aw) conditions of storage (B. Hozová).
Vrbovská Lucia	Characterisation of extracts from evening primrose according to their antioxidant activity (I. Niklová)
Zajacová Lucia	Effect of additives on the oxidation stability of fats during their microwave (S. Sekretár)
Žemberová Jaroslava	Microbiological properties of selected frozen foods (V. Frank)

B. Dissertations (PhD):

C. Dissertations (DSc):

D. Habilitation Theses:

VII. PUBLICATIONS

DEPARTMENT OF ORGANIC CHEMISTRY

Head of Department:

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Full Professors:

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

Associate Professors:

Dušan Berkeš, PhD; Ľubomír Floch, PhD; Viktor Milata, PhD; František Považanec, PhD; Štefan Stankovský, PhD; Katarína Špírková, PhD; Ladislav Štibrányi, PhD;

Assistant Professors :

Mária Bobošíková, PhD; Eva Jedlovská, PhD; Anna Koreňová, PhD; Angelika Lásiková PhD; Peter Szolcsányi PhD; Peter Šafař, PhD; Jarmila Štetinová, PhD;

Research Fellows:

Matej Babjak; Iva Blanáriková-Hlobilová, PhD; Daniel Végh, PhD, DSc; Peter Zálupský, PhD; Jozefína Žúžiová, PhD;

PhD Students:

Barbora Baumlová (since 1. 10. 2003); Petra Černuchová; Branislav Dugovič; Róbert Fischer; Eva Hýrošová (since 1. 10. 2003); Mária Gardiánová; Katarína Hmčáriková; Pavol Jakubec; Peter Kapitán; Peter Kooš (since 1. 10. 2003); Zita Puterová (since 1. 10. 2003);

Technical staff:

Miroslava Caňová; Eva Kaisová; Mária Nemcová; Antón Pavlíček; Stanislav Tomek; Iva Viskupičová; Andrea Volentičová; Kvetta Wiesingerová;

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:

3. semester (Bc)	Organic Chemistry	2/2/0	Marchalín, Gracza
	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
5. semester (Bc)	Chemical Information	1/1/0	Uher
6. semester (Bc)	Chemical Specialities	2/2/0	Mravec, Štibrányi

	Semestral Project	0/0/4	Fišera, Gracza, Marchalín, Štibrányi, Végh
1. semester (MSc)	Organometallic Compounds	1/1/0	Gracza
	Mechanisms of Organic Reactions I	3/1/0	Fišera
	Bioorganic Chemistry	2/0/0	Uher
	Laboratory Project I	0/0/10	Šafař
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	Berkeš Fišera, Považanec, Stankovský, Šafař
3. semester (MSc)	Mechanisms of Organic Reactions II	1/1/0	Marchalín
	Applied Organic Synthesis	1/1/0	Považanec
	Chemistry of Heterocyclic Compounds	2/0/0	Stankovský
	Chemistry of Natural Substances and Drugs	2/0/0	Berkeš
3. semester (MSc)	Laboratory Project	0/0/10	Berkeš, Fišera, Považanec, Stankovský, Šafař
4. semester (MSc)	Diploma Seminar		Považanec
	Diploma Thesis Project		Fišera, Gracza, Jedlovská, Marchalín, Považanec, Špírk

IV. CURRENT RESEARCH PROJECTS

A. VEGA project No 1/0057/2003 The Application of Stereoselective Cycloaddition, Cyclization and Oxycarbonylation Reactions in the Total Syntheses of Natural Products and Its Analogues (Lubor Fišera)

The syntheses of natural products and their analogues, especially polyhydroxylated derivatives of pyrrolidines, piperidines, pyrrolizidines and indolizidines via asymmetric palladium(II)-catalyzed oxy-/amino-/amidocarbonylation of unsaturated polyols and/or aminopolyols and 1,3-dipolar cycloaddition of nitrones. The study of the effect of substituent/Lewis acids to influence diastereoselectivity of nitrone cycloaddition reactions. Modeling and synthesis of chiral palladium(II)-complexes for kinetic resolution of racemic mixtures in Pd(II)-catalyzed cyclization and carbonylation reactions of unsaturated polyols and aminopolyols. The application of these reactions as a key step in the total asymmetric synthesis.

Project duration: from 01.01.2003 to 31.12.2005

B. APVT project No 20-010702 Synthesis of optically pure buildings blocks for syntheses of biologically active natural compounds and their analogues as potential chemotherapeutics (Tibor Gracza)

Development and optimization of new synthetic ways - chiral pool approaches - in the syntheses of optically pure alkenitols derived from cheap and commercially available monosaccharides in laboratory grams and multigrams scale. Study of chemo-, regio- and stereoselectivity of palladium(II)-catalyzed oxy-/amino-/amidocarbonylation and cyclization of unsaturated polyols and aminopolyols. Evolution of asymmetric version of the transformations using chiral palladium(II)-complexes. The study of stereoselectivity of 1,3-dipolar cycloaddition of nitrile oxides and nitrones with chiral alkenes. The study of the effect of substituent/Lewis acids to influence the diastereoselectivity of the cycloadditions. The new type of cross-coupling reaction with contributing neighbouring group and finding of the reaction conditions for kinetic resolution of racemic polyols and aminopolyols.

Project duration: from 01.10.2002 to 30.09.2005

C. VEGA project No 1/9249/02 Stereoselective syntheses, reactivity and properties of hydroxylated indolizidines and substituted indolizines (Štefan Marchalín)

Basic research in the chemistry of heterocyclic compounds, in organic synthesis aiming at elucidation of structure of products and of reaction mechanisms, as well as at search for novel synthetic procedures. The objective of this project is

to develop new general synthetic methodologies for the synthesis of diastereo- and enantiopure polyhydroxyindolizidines, dihydroindolizines and tricyclic heterocycles with 1,4-dihydropyridine ring. The project is divided in two parts. All parts of project are synergistically connected and leverage each other. The first part explores new synthetic approach for the synthesis of chiral polyhydroxylated indolizidines starting from enantiopure tetrahydrohetero[f]indolizinediones. The second part is based on our previous research in the chemistry of 1,4-dihydropyridines and is focused in the utilization of easily obtainable 2-formyl-1,4-dihydropyridines for the preparation of new chiral dihydroindolizines and tricyclic heterocycles containing 1,4-dihydropyridine ring by means of diastereoselective intramolecular cyclization reactions.

Project duration: from 01.01.2002 to 31.12.2004

D. VEGA project No 1/0058/03 Benzazines and Their Condensed Analogues; Preparation, Properties and Utilisation (Štefan Stankovský)

The objective of the proposed research project lies in preparation of novel condensed aromatic heterocycles – derivatives of benzazines mainly of the quinazoline and quinoline type fused with another ring containing O, S, N as heteroatoms. Special attention will be paid to use of non-traditional precursors leading to desired skeletons carrying desired functionality, or such that allow to preserve the original skeleton and introduce desired substituents. Such modifications are expected to streamline structures of target compounds to achieve significant bioactivity, mainly antimicrobial, antifungal and cytostatic. Structural and spectral characteristics of novel compounds will be studied, including the x-ray analysis and study of supramolecular parameters by computational methods.

Project duration: from 01.01.2003 to 31.12.2005

E. 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, α - and β -pyrone series a modeling of their biological activity. Study of controlled di- and trimerization of the prepared α -conjugated heterocyclic compounds aiming at preparation of molecular and supramolecular functional units and nano-structures. Modeling of supramolecular structures and potential α -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

F. VEGA project No 1/9250/02 Crystallization-induced dynamic resolution in the synthesis of enantiomerically pure amino acids and their derivatives (Dušan Berkeš)

Conjugated addition of chiral amino derivatives on electron-deficient unsaturated carboxylic acids followed by crystallization-induced dynamic resolution of primary adducts as key steps in a methodology of asymmetric transformation leading to pure enantiomers. Also stereoselective transformations of prepared adducts, synthesis of optically pure hydroxyamino- and diaminocarboxylic acids.

Project duration: from 01.01.2002 to 31.12.2004

G. VEGA project No 1/9254/02 Preparation, properties and reactivity of the nitrogen heterocycles with fused ring containing O, S, Se or N atoms (Viktor Milata)

The preparation of new aromatic polyazaheterocycles on the basis of quinoline, quinazoline and benzoazoles with other fused aromatic or saturated heterocycle containing O, S, Se or N, is the subject of this proposed project. In the first period of this project the greatest attention will be aimed at the preparation of new precursors of the mentioned heterocycles. In the next part these precursors of nitroquinazolines, nitrobenzimidazoles, nitroselenodiazoles, imidoylhalogenides, cyanoacetamides, quinazolones and their thioanalogues will be used for the synthesis of the target compounds in the cyclization and cyclocondensation reactions. Derivatization of the newly synthesized heterocycles by incorporation of saccharide or other hydrophilic component, an increased solubility of compounds in water and thus better biological application will be pursued. Attention will be given to physico-chemical and spectral parameters, e.g. X-Ray analysis and supramolecular chemistry will be confronted with calculated models.

Project duration: from 01.01.2002 to 31.12.2004

V. CURRENT EDUCATION PROJECTS

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Slovakofarma, Hlohovec	Research and teaching	Gattnar Ondřej, director, Nitrianska 100, 920 27 Hlohovec	01.01.1970-01.07.2003
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.	Hirsch Ján, director, Dubravská cesta 9, 841 04 Bratislava 4	01.01.1970
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.	IKlínovský Ján, director, Matice slovenskej 10, 971 01 Prievidza	01.01.2000-
Institute of Preventive Medicines, Bratislava	The synthesis of heterocyclic compounds.	Sedlák Ján, Dr., Vlárská 1, 833 91 Bratislava 37	01.01.2000-
National Center of Onkology, Bratislava	The synthesis of heterocyclic compounds.	Chalupa Ivan, Dr, Vlárská 7, 831 01 Bratislava 37	01.01.2000-
Georganics, Bratislava	The synthesis of heterocyclic compounds.	Ďuriš 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 Hlohovec a.s.,	Research and teaching	Jaroslav Chyliik, 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, 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 Siegmur, 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 für 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 Hoenggerberg, HCI H315 CH-8093, Zürich, Switzerland	01.01.1990-
Institute of Organic Chemistry, TU Wroclaw, Poland	The synthesis of heterocyclic compounds	Mlochowski Jacek, professor, Technical University of Wroclaw, 50-370 Wroclaw, Poland	01.01.1986-
Institute of Organic Chemistry, Univ. Debrecen, Hungary	The synthesis of heterocyclic compounds	Levai Albert, professor, H-4010 Debrecen, P.O.Box 20, Hungary	01.01.1995-
Institute of Organic Chemistry, U Warsaw, Poland	The synthesis of heterocyclic compounds	Cyranski, M. K., professor, 02 093 Warsaw, Poland	01.01.1996-
Institute of Organic Chemistry, AU Krakow, Poland	The synthesis of heterocyclic compounds	Tomasik Piotr, professor, Mickiewicz Ave. 21 31 120 Krakow, Poland	01.01.1975-
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-
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 Kigdom	The synthesis of heterocyclic compounds	Ramsden Christopher, professor, Keele, Staffordshire ST55BG, United Kigdom	1980

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	Scientific Grant Agency	chairmann	2000
Fišera Ľubor	Chemical Papers	member	1994
		member	
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
Hlobilová Iva	Slovak Chemical Society	member	1997
Jedlovská Eva	Slovak Chemical Society	member	2003
Koreňová Anna	Slovak Chemical Society	member	1983
Milata Viktor	Slovak Chemical Society	member of advisory board	1977
Považanec František	Slovak Chemical Society	member	1983
Štankovský Štefan	Slovak Chemical Society	member	1971
Šafař Peter	Slovak Chemical Society	member	2000
Špírková Katarína	Slovak Chemical Society	member	1983
Štetinová Jarmila	Slovak Chemical Society	member	1973
Uher Michal	Slovak Chemical Society	member	1965
Végh Daniel	Slovak Chemical Society	member	1972
Zúžiová Jozefína	Slovak Chemical Society	member	1989
Černuchová Petra	Slovak Chemical Society	member	2001
Gardianová Mária	Slovak Chemical Society	member	2002
Hrnčáriková Katarína	Slovak Chemical Society	member	2002
Lasíková Angelika	Slovak Chemical Society	member	1996
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
Hlobilová Iva	Slovak Society of Industrial Chemistry	member	1998
Jedlovská Eva	Slovak Society of Industrial Chemistry	member	1993
Koreňová Anna	Slovak Society of Industrial Chemistry	member	1995
Milata Viktor	Slovak Society of Industrial Chemistry	member	1993
Považanec František	Slovak Society of Industrial Chemistry	member	1995
Štankovský Štefan	Slovak Society of Industrial Chemistry	member	1995
Šafař Peter	Slovak Society of Industrial Chemistry	member	1998
Špírková Katarína	Slovak Society of Industrial Chemistry	member	1993
Štetinová Jarmila	Slovak Society of Industrial Chemistry	member	1993
Uher Michal	Slovak Society of Industrial Chemistry	member	1995
Végh Daniel	Slovak Society of Industrial Chemistry	member	1993
Zúžiová Jozefína	Slovak Society of Industrial Chemistry	member	1995
Černuchová Petra	Slovak Society of Industrial Chemistry	member	2002
Gardianová Mária	Slovak Society of Industrial Chemistry	member	2003
Hrnčáriková Katarína	Slovak Society of Industrial Chemistry	member	2001

Lasiková Angelika	Slovak Society of Industrial Chemistry	member	1996
Marchalín Štefan	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
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
Fišera Ľubor	Eur. J. Org. Chem.	member	2002

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Walter, H.	SYNGENTA Basel	Switzerland	April 2003 (1 day)
Spitzner, D.	Univ. Stuttgart	Germany	May 2003 (2 days)
Bach, T.	T. Univ, München	Germany	May 2003 (1 day)
Sauter, F.	T. Univ, München	Austria	May 2003 (1 day)
Radulič, V.	Univ. Beograd	Serbia and Montenegro	March-May 2003 (90 days)
Demanze, S.	IUT Orsay, Univ. Paris-Sud	France	May-June 2003 (60 days)
Le Liepvre, M.	IUT Orsay, Univ. Paris-Sud	France	May-June 2003 (60 days)
Vera, F.	IUT Orsay, Univ. Paris-Sud	France	May-June 2003 (60 days)
Ernst, B.	Univ. Basel	Switzerland	November 2003 (1 day)
Kos, A.	MDL	Germany	November 2003 (1 day)

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

Name	Organisation / Institution / Conference	State	Date / Duration
Babjak, M.	10th BDSHC, Vienna	Austria	September 2003 (4 days)
Berkeš, D.	10th BDSHC, Vienna	Austria	September 2003 (4 days)
Berkeš, D.	Univ. Le Havre	France	March 2003 (7 days)

Černuchová, P.	10th BDSHC, Vienna	Austria	September 2003 (4 days)
Černuchová, P.	Univ. Paris-Sud, Orsay	France	2003 (180 days)
Dugovič, B.	10th BDSHC, Vienna	Austria	September 2003 (4 days)
Fišera, L.	10th BDSHC, Vienna, T. Univ. Vienna	Austria	September 2003 (4+6 days)
Fišera, L.	Univ. Dallas, Denton, Gainesville,	USA	March 2003 (14 days)
Fišera, L.	FU Berlin	Germany	November 2003 (14 days)
Gracza, T.	10th BDSHC, Vienna, T. Univ. Vienna	Austria	September 2003 (4+2 days)
Hrnčáriková, K.	10th BDSHC, Vienna	Austria	September 2003 (4 days)
Hrnčáriková, K.	Univ. Stuttgart	Germany	2003 (35 days)
Jedlovská, E.	10th BDSHC, Vienna	Austria	September 2003 (4 days)
Kapitán, P.	T. Univ. Vienna	Austria	2003 (270 days)
Lásiková, A.	Univ.	France	2003 (365 days)
Hlobilová, I.	FU Berlin	Germany	2003 (365 days)
Marchalín, Š.	Univ. Le Havre, Univ. Strasbourg,	France	March 2003 (14 days)
Marchalín, Š.	10th BDSHC, Vienna	Austria	September 2003 (4 days)
Milata, V.	10th BDSHC, Vienna, T. Univ. Vienna	Austria	September 2003 (4+11 days)
Stankovský, Š.	10th BDSHC, Vienna	Austria	September 2003 (4 days)
Špírková, K.	10th BDSHC, Vienna	Austria	September 2003 (4 days)
Štetinová, J.	10th BDSHC, Vienna	Austria	September 2003 (4 days)
Uher, M.	Univ. Krakow, Univ. Lublin	Poland	September 2003 (10 days)
Végh, D.	10th BDSHC, Vienna	Austria	September 2003 (4 days)
Végh, D.	Univ. Mosonmagyaróvár	Hungary	2003 (15 days)
Zálupský, P.	10th BDSHC, Vienna	Austria	September 2003 (4 days)

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Baleja, J.	The influence of Lewis acids on the stereoselectivity of 1,3-dipolar cycloadditions of nitrones with electronrich alkenes	Fišera, L.
Andicsová, A.	Synthesis of potential angiotensin II receptor antagonists.	Végh, D.
Solčán, T.	Synthetic utilization of pentafluorobenzaldehyde for preparation of biologically active compounds and novel materials.	Végh, D.
Rehák, J.	Pd(II)-Catalysed alkoxy-carbonylations of unsaturated aminopolyols	Gracza, T.
Kubizna, P.	PdCl ₂ /CuX ₂ - catalysed halocyclizations of unsaturated aminopolyols	Gracza, T.

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

Name	Title of Thesis	Supervisor
Adamenko, I.	Study of quinazoline ring linearly annelation.	Špírková, K.
Balážová, K.	Synthesis and reaction of 2-amino-4-phenylbutanoic acid.	Považanec, F.
Csusz, B.	Enantioselective synthesis of jatrofam and its epimer.	Fišera, L.
Hýrošová, E.	Stereoselective synthesis of isoxazolidinyl spironucleosides.	Fišera, L.
Koňš, P.	Asymmetric Pd(II)catalysed oxycarbonylations of unsaturated polyols.	Gracza, T.
Obranec, M.	Stereoselectivity of chiral nitron cycloadditions.	Fišera, L.
Šilhár, P.	Preparation 2-aryl-3-methylidene tetrahydrofurans and their use in synthesis of spiroheterocyclic compounds.	Jedlovská, E.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Kadlečíková, K.	Synthesis of the novel benzo- and heteroanalogues of the hydroxylated indolizidine alkaloids.	Marchalín, Š.
Kakalík, I.	Synthesis of new inhibitors of biosynthesis of cholesterol	Fišera, L'
Kolarovič, A.	Crystallization – Induced Asymmetric Transformation in the Synthesis of Amino Acids	Považanec, F.

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

VII. PUBLICATIONS

DEPARTMENT OF ORGANIC TECHNOLOGY

Head of Department:
Assoc. Prof. Alexander Kaszonyi, PhD

Telephone: +421252495242
Fax: +421252493198
E-mail: alexander.kaszonyi@stuba.sk

Full Professors:
Milan Hronec, PhD., DSc., Dusan Mravec, PhD.

Associate Professors:
Alexander Kaszonyi, PhD., Jan Vojtko, PhD.

Assistant Professors :
Dana Gašparovicová

Research Fellows:
Michal Báhidský, Zuzana Cvengrošová, PhD., Blažej Horváth, Magdaléna Štolcová, PhD.

PhD Students:
Erik Juhás, Katarína Klepáčová, Miroslav Mrzula, Zuzana Vallušová

Technical staff:
Eva Šuleková, Gabriel Mikeš, Jozef Tánczos, 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:

4. semester (Bc)	Organic Technology and Petrochemistry	(3-1 h)	Hronec, Kaszonyi
6. semester (Bc)	Fine Chemicals	(2-2 h)	Mravec
6. semester (Bc)	Semestral project	(0-4 h)	Cvengrošová, Gašparovičová, Hronec, Kaszonyi, Králik, Mravec, Štolcová
1. semester (MSc)	Chemical-Engineering Thermodynamics	(0-2 h)	Vojtko
	Catalysis	(2-0 h)	Hronec
	Engineering Calculations on a Computer	(1-2 h)	Kaszonyi
	Processes of Organic Technology	(2-1 h)	Králik
1. semester (MSc)	Laboratory Practise I	(0-8 h)	Báhidský, Cvengrošová, Gašparovičová, Horváth,

			Hronec, Juhás, Kaszonyi, Mravec, Štolcová
2. semester (MSc)	Kinetics and Reactors	(0-2 h)	Kaszonyi
	Process Design	(2-1 h)	Hronec, Králik
	Technology and Monomers and Polymers	(2-0 h)	Vojtko
	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, Hronec, Gašparovičová, Kaszonyi, 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, Hronec, Kaszonyi, Gašparovičová, Mravec, Štolcová
4. semester (MSc)	Seminar to Masters Theses	(0-3 h)	Cvengrošová, Hronec, Kaszonyi, Králik, Mravec, Štolcová
4. semester (MSc)	Catalysis (PhD)	(2 h)	Hronec

IV. CURRENT RESEARCH PROJECTS

A. Ecofriendly options for the production of nitrogen compounds and their precursors (Milan Hronec)

A simultaneous hydrogenation of nitro group and hydrogenation of chlorine in chloroanilines was studied over palladium catalysts on resins and inorganic materials. Beta zeolites with defined acid strength and the type of Broensted and Lewis sites were prepared and tested for condensation of aniline to diphenylamine. Metal phosphates were discovered as selective catalyst for gas-phase oxidation of benzene to phenol. In the progress is the research of partial oxidation of methane to formaldehyde, selective oxidation of cyclohexylamine to cyclohexanone oxime, oxidation of propylene to propylene oxide and synthesis of pyridine from ethanol, formaldehyde and ammonia.

Project duration: from **january 2002** to **december 2004**

B. Zeolites as catalysts for fine chemicals intermediates (Dusan Mravec, Martin Bajus)

Tert-butylation of toluene: Preparation of shape-selective zeolite catalysts for alkylation of toluene by deactivation of outer surface of basic zeolites. Study of tert-butylation of toluene in the liquid phase over basic and modified zeolite catalysts (H-MOR and H-BEA).

Etherification of glycerol: Study of reaction conditions for oxygenates to fuels preparation by etherification of glycerol with tert-butanol, isobutylene and C4 –fraction over different acid catalysts.

Project duration: from **january 2003** to **december 2004**

V. CURRENT EDUCATION PROJECTS

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	
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		Kaszonyi, Hronec	from 1990
VUCHT, Bratislava		Hronec	from 1990
CHEMZA, a. s., Strážske		Vojtko	from 2003
CarCode, Bratislava		Kaszonyi	from 2001
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	1992
Universita di Padova, Italy	ad hoc projects on polymer supported catalysts, characterisation	Kralik, Hronec	1991
Italian National Centre of research, Padova - Legnaro, Italy	ad hoc project on preparation of organic supports for catalysts	Kralik, Hronec	1993
CNRS, Lyon, France	Oxidation of organic materials	Hronec, Horvath	2002

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Hronec M.	SAIV (Slovak Academy of Engineering Sciences)	chairmann	2001
Hronec M.	SSPCH (Slovak Society for Industrial Chemistry)	chairmann	1990
Hronec M., Kaszonyi A., Mravec D.	SCHS (Slovak chemical Society)	member	1990
Hronec M.	Editorial Board of Journal: Petroleum and Coal	member	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	1992
Hronec M.	Member of the European Academy of Sciences and Arts	member	1995

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Červený L.	VŠCHT Praha	Czech Republic	6. 6. 2003
Sugi Y.	Faculty of Engineering, Gifu University	Japan	28. - 29. 8. 2003
Corain B., Centomo P., Canton P., Prati L.	University of Padova	Italy	5. - 7. 10. 2003

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

Name	Organisation / Institution / Conference	State	Date / Duration
Hronec M.	VŠCHT Praha	ČZ	28. - 29. 1. 2003
Horváth B.	6. Int. symposium on catalysis applied to fine chemical, Delft	Netherlands	6. - 10. 4. 2003
Hronec M.	ŠZS VŠCHT Praha	ČZ	2. - 3. 6. 2003
Hronec M., Kaszonyi A., Štolcová M., Báhidský M.	EuropaCat IV., Innsbruck	Austria	31. 8. - 4. 9. 2003
Hronec M., Báhidský M., Vallušová Z.	Symposium on catalysis, Praha	ČZ	2. - 4. 11. 2003
Hronec M.	VR, Praha	ČZ	10. - 11. 11. 2003
Horváth B.	IRC - CNRS Lyon	France	3. 7. 2003 - 2. 1. 2004
Hronec M.	VŠCHT, Pardubice	ČZ	27. - 28. 11. 2003

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Krejčová Barbora	Toluén - výroba a použitie Toluene - production and utilization	Cvengrošová Zuzana
Rovenský Peter	Cyklohexán, jeho získavanie a využitie Cyclohexane - production	Cvengrošová Zuzana
Bieliková Lenka	Výroba kyseliny benzoovej Benzoic acid production	Hronec Milan
Kerekeš Ladislav	Zeolitové katalyzátory, príprava a použitie Zeolite catalysts, preparation and application	Hronec Milan
Pavlík Juraj	Ekologické technológie výroby dusíkatých zlúčenín Nitrogen compounds production by ecological processes	Hronec Milan
Ondrejkoivič Matúš	Nitrácia toluénu Toluene nitration	Hronec Milan
Csányi Marián	Výroba a použitie difenylaminu Manufacture and utilization of diphenylamine	Kaszonyi Alexander
Foltín Tomáš	Výroba a využitie dusíkatých antioxidantov Manufacture and utilization of N containing antioxidants	Kaszonyi Alexander
Sulačeková Jana	Príprava a použitie cyklohexanónoxímu Preparation and utilization of cyclohexanone oxime	Kaszonyi Alexander
Bartoš Kristián	Výroba a využitie fenolu Manufacture and utilization of phenol	Štolcová Magdaléna

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

Name	Title of Thesis	Supervisor
Đuračková Andrea	Preparation of precursors for substituted aromatic amines	Štolcová M.
Foldesová Zuzana	Synthesis of pyridine from ethanol, formaldehyde and ammonia	Cvengrošová Z.
Holecová Miroslava	A comparison of the activity and selectivity of Pd-Cu catalysts supported on polymer and inorganic support in the process of the catalytic liquid phase	Králik M.
Klepáčová Katarína	Ďtherification of glycerol	Mravec D.
Kucharovičová Sona	The effect of the support on the catalytic hydrogenation of chloronitrobenzene	Králik M.

Mrzula Miroslav	Catalytic condensation of 2-mercaptobenzothiazole with alkylamines	Stolcová M.
Múčková Katarína	Alkylation of toluene over zeolite catalysts	Mravec D.
Olejník Pavol	Gas phase epoxidation of propylene	Hronec M.
Páleš Michal	The synthesis of carbazole from diphenylamine	Cvengrošová Z.
Šimo Peter	Amination of benzene by ammonia	Kaszonyi A.
Šmidt Michal	Oxidation of cyclohexylamine in vapor phase	Kaszonyi A.

C. Dissertations (PhD)

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

VII. PUBLICATIONS

DEPARTMENT OF PETROLEUM TECHNOLOGY AND PETROCHEMISTRY

Head of Department:

Assoc. Prof. Pavol Daučík, PhD
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Full Professors:

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Associate Professors:

Pavol Daučík, PhD; Pavol Hudec, PhD; Agáta Smiešková, PhD; Zdenek Židek, PhD;

Assistant Professors :

Elena Hájeková, PhD;

Research Fellows:

Jozef Ambro; Beata Liptáková;

PhD Students:

Jana Danišková; Marek Ladický; Peter Michalica; Andrej Nociar;

Technical staff:

Marcela Hadvinová; Stanislava Kováčová; Dagmar Machatová; Marta Olleová;

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 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 Rheology of Lubricants
Laboratory of Infra-Red Spectroscopy
Laboratory of Natural Gas Conversion

III. TEACHING

A. Undergraduate Study:

4. semester (Bc)	Organic Technology and Petrochemistry	3/1/0	Bajus, Smiešková, Liptáková

1. semester (MSc)	Catalysis	0/1/0	Hudec
	Analysis of Petroleum Products	2/0/0	Daučík
	Technology of Crude Oil	3/0/0	Židek, Smiešková
	Combustion Processes	1/2/0	Smiešková
1. semester (MSc)	Refinery and Petrochemical Plants	1/2/0	Daučík
	Laboratory exercise 1	0/0/8	Daučík, Liptáková
2. semester (MSc)	Alternative Fuels	2/0/0	Bajus
	Catalytic and Thermal Processes in Crude Oil Treatment	3/0/0	Židek
	Tribology	2/0/0	Hájeková
	Kinetic and Reactors	0/2/0	Hudec
2. semester (MSc)	Laboratory exercise II	0/8/0	Hudec
3. semester (MSc)	Petrochemistry	3/0/0	Bajus
	Gas Industry	2/0/0	Hudec
	Laboratory exercise III	0/0/10	Hudec

IV. CURRENT RESEARCH PROJECTS

A. VEGA project No 1/9143/02 Catalytic and Thermic Conversion of Hydrocarbons from Crude oil and Natural gas to Petrochemicals (Martin Bajus)

The subject of the scientific project is the study of kinetics and mechanism of catalytic and thermal conversions of hydrocarbons from crude oil, natural gas and polymers with the orientation on copyrolysis of primary naphtha with polyethylene, polypropylene, polystyrene, polyvinyl chloride to desired petrochemicals.

During the first period of the project we studied:

- A. solubility of polymers (PE, PP, PVC, PST, PET) in aromatic diluent (xylenes) and in primary naphtha
- B. pyrolysis of individual polymers (PE, PP, PVC, PST, PET) in batch reactor
- C. thermal decomposition of PE, PP and PS in the system PYRO-GC-MS
- D. copyrolysis of primary naphtha with polyethylene, polypropylene, polystyrene, polyvinyl chloride in flow tubular reactor

Project duration: from 01. 01. 2002 to 31. 12. 2004

B. VEGA project No 1/9144/02 The Modern Trends in Petroleum Treatment and in Petrochemistry (Pavol Hudec)

The study of physical, physico-chemical and catalytic processes leading to the conversion of petroleum fractions, individual hydrocarbons or natural gas to prepare components of modern and perspective reformulated fuels corresponding to the strict ecologic and economic requirements. Examined topics join to the production of motor fuels in refinery-petrochemical complex Slovnaft on the base of hydrocracking of heavy residues. Solved is influence of the composition on light and oxidizing stability and low-temperature properties of motor fuels. In work, the possibilities of the improving the quality of the products by the modification of classical hydrorefining catalyst by modified Y-type zeolites and by mesoporous molecular sieves of M41S type, and the modification of fluid catalytic cracking catalyst by ZSM-5 zeolite additives will be studied, in direct connection with the composition of industrial feeds in these processes.

Project duration: from 01. 01. 2002 to 31. 12. 2004

V. CURRENT EDUCATION PROJECTS

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
CHEMZA, j. s. co., Strážske	The way of utilization HALS product	Foltín Jozef, director, Priemyselná 720, 07222 Strážske	15. 03. 2003 - 30. 11. 2003
PETROCHEMA, j. s. co., Dubová	Technical support at higher exploitation of destilates	Šuráb Jozef, director, 976 97 Nemecká	15. 3. 2003 - 30. 11. 2003
TRANSPETROL, j. s. co., Bratislava	Evaluation of standart methods of quolity of cruide oil and waste water	Polák Peter, technical director, Šumavská 98, 821 08 Bratislava	9. 6. 2003 - 15. 11. 2003
VÚRUP, j. s. co., Bratislava	Determination of polycyclic aromatics in oils	Mikulec Jozef, director, Vičie hrdlo, 824 12 Brstislava	1. 10. 2002 - 30. 6. 2003
DRON - Sklady, ltd. co.	Recyclation of polymeric wastes	Hóka Csaba, director, Gazdovský rad 1587, 931 01 Šamorín	01. 12. 2003 -

B. International Cooperation

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Ambro Jozef	Slovak Society of industrial Chemistry	member	
Bajus Martin	Slovak Society of industrial Chemistry	member	
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	
Liptáková Beata	Slovak Society of industrial Chemistry	member	01. 01. 2001
Michalica Peter	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. 4. 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

D. Membership in International Organisations and Societies

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Zanzotto, L.	Faculty of Engineering, University of Calgary, Calgary	Canada	13. 03. 2003 - 18. 03. 2003

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

Name	Organisation / Institution / Conference	State	Date / Duration
Bajus, M.	The Univeristy of Calgary, Calgary	Canada	01. 08. 2003 - 22. 09. 2003
Hájeková, E.	International Conference „CARBON 2003“, Oviedo	Spain	05. 07. 2003 - 11. 07. 2003
Hudec, P.	XXXV. Symposium on Catalysis, Praha	Czech Republic	03. 11. 2003 - 05. 11. 2003
Hudec, P.	Feza Committee Meeting, Praha	Czech Republic	08. 11. 2003
Hudec, P.	Europacat - VI, Insbruck	Austria	31. 08. 2003 - 04. 09. 2003
Liptáková, B.	XXXV. Symposium on Catalysis, Praha	Czech Republic	03. 11. 2003 - 05. 11. 2003
Michalica, P.	The Univeristy of Calgary, Calgary	Canada	28. 09. 2003 - 22. 12. 2003
Michalica, P.	X. Zeolite Forum, Tuczno	Poland	21. 09. 2003 - 26. 09. 2003
Nociar, A.	X. Zeolite Forum, Tuczno	Poland	21. 09. 2003 - 26. 09. 2003
Nociar, A.	XXXV. Symposium on Catalysis, Praha	Czech Republic	03. 11. 2003 - 05. 11. 2003
Smiešková, A.	XXXV. Symposium on Catalysis, Praha	Czech Republic	03. 11. 2003 - 05. 11. 2003
Smiešková, A.	X. Zeolite Forum, Tuczno	Poland	21. 09. 2003 - 26. 09. 2003

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Bartík, M.	Determination of water in crude oil fraction	Daučík, P.
Bartková, A.	Study of acid properties of zeolites	Smiešková, A.
Bokšanský, V.	Dehydrogenation of lowmolecular weight hydrocarbons in membrane reactor	Ladický, M.
Mlynková, B.	The way of recycling of waste polymers by copyrolysis	Hájeková, E.
Porkertová, G.	Extraction of nitrogen compounds from GO-RHC by metal complexes	Smiešková, A.
Sándor, M.	Preparation and characterization of catalysts for methane aromatization	Liptáková, B.

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

Name	Title of Thesis	Supervisor
Benkovský, L.	Regeneration of waste oils.	Daučík, P.
Danišková, J.	Coke formation during copyrolysis of polyethylene with straight run of naphta.	Hájeková, E.
Hochholczer, E.	Study of the acid properties of zeolites by TPD of ammonia.	Smiešková, A.
Kondášová, I.	Copyrolysis of polyethylene with straight run of naphta.	Bajus, M.
Nemčovská, J.	Investigation of aditive efects on diesel fuel properties.	Daučík, P.
Tóth, R.	Aditivation FCC catalysts by ZSM-5 zeolites.	Hudec, P.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Danišková, J.	Pyrolysis of polymeric wastes.	Bajus, M.
Ladický, M.	Dehydrogenation of low molecular alkanes.	Bajus, M.
Michalica, P.	Study of conversion of nitrogen compounds in petroleum faction.	Smiešková, A.
Nociar, A.	Alkylolation of aromatics by linear alkanes.	Hudec, P.

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

VIII. PUBLICATIONS

DEPARTMENT OF PHYSICAL CHEMISTRY

Head of Department:

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Full Professors:

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Associate Professors:

†Jozef Antalík, PhD; Tomáš Bleha, PhD, DSc; Martin Breza, PhD; Vlasta Brezová, PhD, DSc; Ján Cvengroš, PhD, DSc; Anton Gatíal, PhD; Pavel Kovařík, PhD; Jozef Kožíšek, PhD; Milan Mazúr, PhD; Jiří Polavka, PhD; Peter Rapta, PhD; Ján Reguli, PhD; Marián Valko, PhD.

Assistant Professors :

Vladimír Adamčík, PhD; Dana Dvoranová; Erik Klein, PhD; Róbert Klement, PhD; Jozef Polakovič, PhD; Ľubomír Zalibera, PhD

Research Fellows:

Andrea Kleinová

PhD Students:

Ingrid Bažányiová; Zuzana Cibulková; Marek Fronc; Teodora Kocsisová; Júlia Pigošová, Martin Polovka; Pavol Skubák.

Technical staff:

Imrich Csonka, Elena Fabíková, Alžbeta Chochulová, Hana Janošková, Marta Lintnerová, Štefan Miksai, Jarmila Paligová, Milan Štefanko, 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 Molecular Distillation and Alternative Diesel Fuels

III. TEACHING

A. Undergraduate Study:

3. semester (Bc)	Physical Chemistry I	(3-2 h)	S. Biskupič, A. Gatíal
	Physical Chemistry II	(3-2 h)	P. Rapta
	Laboratory Practice in Physical Chemistry I	(0-3 h)	J. Reguli
4. semester (Bc)	Physical Chemistry II	(3-2 h)	S. Biskupič, P. Kovařík, A. Gatíal
	Laboratory Practice in Physical Chemistry II	(0-3 h)	J. Reguli
5. semester (Bc)	Physical Fundamentals of Spectroscopic Methods	(2-2 h)	A. Staško, V. Brezová

6. semester (Bc)	Biophysical Chemistry I	(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)	J. Antalík
1. semester (MSc)	Statistical Treatment and Evaluation of Exp. Data	(2-0 h)	M. Breza
	Group Theory and Symmetry	(2-0 h)	M. Breza, V. Kvasnička
	Special Laboratory Practice I	(0-8 h)	P. Rapta
2. semester (MSc)	Chemical Physics II	(2-1 h)	S. Biskupič
	Solid State Physics	(2-0 h)	M. Breza
	Biophysical Chemistry II	(2-0 h)	M. Valko
	Special Laboratory Practice II.	(0-6 h)	P. Rapta
2. semester (MSc)	Traineeship		
	Excursion		
3. semester (MSc)	Molecular Spectroscopy	(2-1 h)	A. Staško
	Chemical Physics III	(2-0 h)	A. Gašal
	Physical Chemistry of Macromolecules	(2-0 h)	T. Bleha
	Special Laboratory Practice III	(0-10 h)	P. Rapta

IV. CURRENT RESEARCH PROJECTS

A. DEVELOPMENT AND APPLICATION OF COMPUTATIONAL METHODS TO THE STUDY OF ELECTRONIC STRUCTURE OF MOLECULAR SYSTEMS (Stanislav Biskupič)

Within this research project, new theoretical treatments based on quantum-chemical principles are developed and then - with other accessible techniques - used to obtain exact and detailed information on the structure and dynamics of selected molecular systems. Many-body perturbation and CC formalism of interaction energy evaluation (higher order contributions) has been elaborated and applied to some van der Waals complexes that are important for chemical reactions in upper shells of the Earth atmosphere. Systematic study of the factors causing unusual electronic structure of selected compounds with interesting physico-chemical properties has been oriented to oligothiophenes, cyclophosphazenes, transition metal complexes in unusual oxidation states and blue proteins model compounds. Vibration spectra of new push-pull olephines (as model compounds of pharmacotherapeutics) have been calculated and interpreted.

Project duration: from 2003 to 2005

B. SPECTROSCOPICAL ANALYSIS OF STRUCTURE AND REACTIVITY OF FREE RADICALS AND TRANSITION METAL COMPLEXES IN CHEMICAL, BIOLOGICAL AND PHOTOCHEMICAL SYSTEMS (Vlasta Brezová)

Research project is focused on the investigation of structure and reactivity of radical intermediates and metal complexes in the chemical, electrochemical, photochemical, and biological systems with the predominant application of spectroscopic methods (EPR, UV/VIS/NIR spectroscopy) and electrochemical techniques (voltammetry). The investigation is oriented especially on the synthesis and physicochemical characterization of new organic materials for LEDs (Light Emitting Devices) systems, and on the study of magnetic, redox and spectroscopic properties of metal complexes. The primary radical intermediates of the photoinduced electron transfer in heterogeneous titanium dioxide systems, as well as reactive species produced upon the photoexcitation of drugs are investigated. Additionally, the attention is paid to research of antioxidant properties of foods and beverages (tea, wine, beer) with the main aim to select foods with the positive health effect. Concerning the experimental methods, the systematical development of combined spectroelectrochemical and spectrophotocatalytic techniques continued, as well as further analysis of experimental error sources in quantitative EPR spectroscopy is performed.

Project duration: from 01/2003 to 12/2005

C. MATERIALS – physico-chemical methods of their study (Peter Šimon)

The method for the evaluation of kinetic parameters of induction periods has been elaborated. The method enables to estimate the length of nonisothermal induction periods in the processes such as rubber curing, oxidation in condensed phase, freezing of undercooled liquids, oxidation stability of drugs and foods, etc. The method is expected to be applied in the quality management and risk assessment in technological processes.

Theory of model-free isoconversional kinetics is developed and a new incremental isoconversional method has been elaborated. The method enables modeling the processes without deeper insight into their mechanism.

Degradation and stabilisation of PVC is studied both experimentally and theoretically. The attention is paid to the non-hazardous stabiliser mixtures based on tocoferyl acetate.

Project duration: from 2003 to 2005

D. ELECTRON STRUCTURE AND PROPERTIES OF MATERIALS IN SOLID PHASE (Jozef Kožíšek)

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. In the experimental area the present possibilities of measurements on the synchrotron equipments in the Europe (Hamburg, Grenoble) are utilized, as well as our collaboration with TU-Darmstadt. The composition of investigators of this project was selected in such way that involves both theoretical (quantum-mechanical) as well as available experimental methods (X-ray analysis, EPR spectroscopy, DSC measurements). So it will be possible to produce the complex results including many aspects of the studied systems. We focus our attention on the study of electronic structure and properties of the model systems of blue proteins. For this purpose we have synthesized monocrystals of the compounds [Cu(bite)(BF₄)] and [Cu(bite)(BF₄)₂] which very well reproduce the active centre of these interesting biological catalysers. The electron density of compounds with various characteristic types of coordination sphere are studied experimentally and results are correlated with the physico-chemical properties of these and similar compounds. These measurements will be correlated also with ab-initio quantum-chemical calculations in solid state.

Another object of experimental study is the electron density of stereospecific catalyzers on the base of Ni complexes with Schiff bases, which are reaction centers for the asymmetric synthesis of various aminoacids and their analogs.

Project duration: from 2002 to 2004

E. Research and development of biogenic ecological fuels and lubricants from domestic renewable resources (Ján Cvengroš)

The research project is focused on the research, development, production and application of esters of higher fatty acids as ecological fuels for diesel engines based on the renewable domestic raw materials with complex utilisation of the by-products. The main results in 2003 are as follows:

1. Oxidation of methyl esters based on rapeseed oil and methyl esters based on frying oils used as the alternative diesel fuels, unstabilized and stabilized by some antioxidants has been studied by differential thermal analysis/thermogravimetry (DTA/TG) under non-isothermal conditions for various heating rates and by Rancimat test under isothermal conditions. Low oxidation stability of the undistilled methyl esters was stated. The induction period increased expressively by the addition of low quantities of selected antioxidants. Especially high stabilising effect was reached for pyrogallol. The results obtained by the both methods are compared and the differences are accounted for by the oxygen diffusion within the samples. The DTA/TG method is suitable for the evaluation of the oxidation stability of the studied esters.
2. The importance of the alternative fuels based on the biomass as reliable domestic and renewable resource is great. The environmental, energetic and economical effects connected with the production and the utilization of biofuels in the transportation were evaluated. The analysis of the biofuels taxation in the tax system of Slovakia was carried out.
3. Glycerol is a valuable by-product used in the production of methyl esters. Its production can positively influence economical balance of the production of methyl esters. The method of refinement of glycerol in vacuum evaporator with wiped film was tested and the parameters of the distilled glycerol were stated. Distilled glycerol meets the requirements of the industrial glycerol according to the standard.

Project duration: from 2002 to 2005

F. Evaporation performance and separation efficiency at molecular distillation (Ján Cvengroš)

The research project is focused on the theory of molecular distillation, the development of the short-path evaporators with wiped film and on the applications of molecular distillation. The main results in 2003 are as follows:

1. In the model study, selected parameters with the effect on the distillation output and composition of outlet streams from the molecular evaporator were investigated in the laminar and turbulent regimes in the film, depending on the evaporator's liquid load and temperature. In the case of a turbulent film a higher portion of a feed is evaporated at a lower content of the more volatile component in the distillate. There are only small differences in the separation efficiency at both studied regimes. Re-evaporation from the condenser has a small effect on the separation efficiency. The decrease of the separation efficiency is greater in the case of splashing. The qualitative agreement between experimental results and results from the model shows that the model describes well the phenomena that occur within the distillation space of the molecular evaporator.
2. The study of the film wiping with the wiping element having profiled surface shows that there are three different liquid flow regimes on the evaporating cylinder. The conditions for the formation of these regimes and their consequences are discussed. Optimum conditions for distillation can be reached at increased retention of liquid on the evaporator. The increased residence time is a positive factor, which makes efficient evaporation at a lower evaporating temperature.
3. Some technically interesting applications of molecular evaporators were developed (regeneration of used mineral oil, final treatment of methyl esters as alternative diesel fuels, purification of the phytosterols from vegetable oils and others).

Project duration: from 2000 to 2003

G. Thermooxidation and photooxidation processes in chemical and biological systems and their influence on the quality of life (Stanislav Biskupič)

The project is oriented towards spectroscopic (EPR, UV/VIS) and thermoanalytical (DSC) characterization of the processes occurring in thermal and photooxidative degradation of food, drugs and newly synthesized pharmaceutical precursors. A great attention is paid to spectroscopic study of antioxidative properties of foods with the aim of selecting the group of beneficial functional food and to monitor and improve their quality. Elaboration of time-saving procedures for the determination of stability of food and drugs (DSC, EPR). Study of photoinitiated radical transformations of drugs, interpretation of the results by quantum-chemical calculations with the aim of elucidating the mechanisms of their effects and targeted improvement of their quality.

Project duration: from 06/2002 to 06/2005

H. The role of trace metals and light in camptothecin – serum albumin interactions (NMR and EPR studies) (M. Valko)

The anticancer drug camptothecin (CPT) is a plant alkaloid that has recently gained approval for clinical trials as a treatment of gastric, rectum, and bladder tumors. The drug exists in two forms, a lactone form which is biologically active and a carboxylate form which is not. It has been shown that in the presence of human serum albumin (HSA) the drug converts to the biologically inactive form and therefore the liposomal stabilization of the lactone form of the drug is of primary importance. In this connection the high resolution NMR study is planned to elucidate the stabilization of the lactone form of the drug and the nature of the binding mode with HSA. It is generally believed that camptothecin activity occurs through a free radical mechanism. We also believe, that the role of trace metals is in particular important. Our preliminary results show that upon irradiation (365 nm light) copper(II)-CPT complex generates free radicals which may cause DNA damage to cancer cells. The aim of the proposed project is to further investigate a radical mechanism of the action of the drug.

Project duration: from 2002 to 2004

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
LikoSpol Bratislava	scientific	P.Šimon	2003
Research Inst. Food	scientific	P.Šimon	2003
BEL/Novaman	scientific, industrial	P.Šimon	2003
Res.Inst.Chem. Technology	scientific	P.Šimon	2003
Slovak Academy of Science	scientific	A.Staško	2003
DETOX Banská Bystrica	scientific, industrial	J.Cvengroš	2003
VULM Modra	scientific, industrial	J.Cvengroš	2003
Q-CHEM Bratislava	scientific, industrial	J.Cvengroš	2003
Bel/Novamann Bratislava	scientific	J.Cvengroš	2003
Kovostroj Lučenec	scientific, industrial	J.Cvengroš	2003
Ekoiil Bratislava	scientific, industrial	J.Cvengroš	2003
Lubocons Stupava	scientific	J.Cvengroš	2003
DAMT-MDT Martin	scientific, industrial	J.Cvengroš	2003
Slovnaft VURUP Bratislava	scientific	J.Cvengroš	2003
TU Žilina	scientific	J.Cvengroš	2003
JAV-AKC Vičany	scientific	J.Cvengroš	2003

B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
DIAS UMIST, Manchester, UK (F.Kvasnik)	scientific	P.Šimon	2003

University of Technology, Sydney, Australia (A.Ray, P.Thomas)	scientific	P.Šimon	2003
Faculty of Chemistry, Technical University, Brno, Czech Republic (L.Omelka)	scientific	P.Šimon	2003
LUKAS Research, Prague, Czech Republic (R.Lukáš, L.Kalvoda)	scientific	P.Šimon	2003
Materialwissenschaft, TU Darmstadt, Germany (Prof. Hartmut Fuess)	scientific	J. Kožíšek	2003
State University of New York, Buffalo, USA (Prof. Philip Coppens)	scientific	J. Kožíšek	2003
Technologic Institute of Morelia, Mexico (Dr. Jesús García Díaz)	scientific	J. Kožíšek	2003
Technische Universität Munchen (prof. Nuyken)	scientific	A.Staško	2003
Liverpool John Moores University (Dr. Morris)	scientific	M. Valko	2003
Roosevelt University, Chicago (Prof. Telser)	scientific	M. Valko	2003
TCT Vidče, Czech Republic	industrial	J. Cvengroš	2003
Energoinvestment Zlín, Czech Republic	scientific	J. Cvengroš	2003
Ciba Grenzach, Germany	scientific	J. Cvengroš	2003

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
P.Šimon	Slovak Chemical Society	other	2003
A.Staško	Slovak Chemical Society	member	2003
J. Cvengroš	Slovak Chemical Society	member	2003
J. Cvengroš	Slovak Society of Chemical Engineers	member	2003
J. Reguli	Slovak Commission for Chemistry Olympiad	member	1999-

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
P.Šimon	International Congress on Thermal Analysis and Calorimetry (ICTAC)	other	2003
A.Staško	American Chemical Society	member	2003
S. Biskupič	International Society for Theoretical Chemical Physics (Germany)	member	2003
S. Biskupič	International ESR Society (USA)	member	2003
J. Kožíšek	International Union of Crystallography, IUCr	member	2003
J. Kožíšek	European Crystallographic Committee, EEC	member	2003
J. Cvengroš	American Oil Chemist's Society	member	2003

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Dr. K. Brudíková	Brno University of Technology	Czech Republic	January 28-30/3 days
Dr. K. Brudíková	Brno University of Technology	Czech Republic	May 12-13/2 days
Dr. K. Brudíková	Brno University of Technology	Czech Republic	June 1-6/6 days
Prof. L. Omelka	Brno University of Technology	Czech Republic	Apr 14-15/2 days
Prof. Hartmut Fuess	Materialwissenschaft, TU Darmstadt	Germany	3 days
Prof. Dylan Jayatilaka	University of Western Australia, Nedlands	Australia	2 days
Prof. Joshua Telser	Roosevelt University	USA	7 days

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

Name	Organisation / Institution / Conference	State	Date / Duration
S. Biskupič	CESTC Nové Hradky	Czech Republic	September 25-28 4 days
M. Breza	CESTC Nové Hradky	Czech Republic	September 25-28 4 days
M. Ilčin	CESTC Nové Hradky	Czech Republic	September 25-28 4 days
J. Reguli	Ostrava University, Int. Conf. on Chemistry Teachers Education, Rožnov pod Radhoštěm	Czech Republic	May 20-22 3 days
E. Klein	Rice University, Houston	USA	6 months
P. Šimon	PIRA, Leatherhead	UK	May 7-11, 5 days
J. Polavka	Lublin, 55. Congress of Polish Chem. Soc.	Poland	September 14-18, 5 days
P. Šimon	Hungarian Acad. Sci., Budapest	Hungary	October 18-21, 4 days
J. Kožíšek	Cuarto Congreso Nacional, Morelia	Mexico	November, 14 days
J. Kožíšek	Charge Density Meeting, Sandbjerg	Denmark	June, 5 days
J. Kožíšek	DESY – Hamburg	Germany	8 + 5 days
J. Kožíšek	TU-Darmstadt	Germany	3 + 5 + 5 days
M. Fronc	TU-Darmstadt	Germany	5 + 5 days
M. Fronc	DESY – Hamburg	Germany	8 + 5 days
P. Skubák	Faculty of Mathematics and Natural Sciences, Leiden	Netherlands	2 months
A. Staško	TU Darmstadt	Germany	15.5. -15.6.2003
S. Biskupič	TU Darmstadt	Germany	3 days

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Zuzana Belaňová	Optical properties and thermostability of indeno-fluorantenes – innovative materials for optoelectronics	Peter Rapta
Silvia Galková	Isolation of phytosterols from plant oils	Ján Cvengroš
Katarína Genčanská	Investigation of vibronic interaction in the transition metals complexes	Martin Breza
Martin Gróf	Investigation of conformation analysis of push-pull compounds by means of infrared and Raman spectroscopy and quantum chemical calculations	Anton Gatjal
Martin Hudák	Analytical shape of potential hypersurfaces	Stanislav Biskupič
Lucia Kurucová	Induction periods of polyisoprene oxidation	Peter Šimon
Jozef Malo	Lubricants based on chemically modified fat acids	Ján Cvengroš,

Helena Švajdlenková	EPR investigation of reactive intermediate formation in the irradiated titanium dioxide suspensions	Vlasta Brezová
Michal Zalibera	The influence of stress factors on the formation of antioxidants and radical scavengers in microorganisms investigated by EPR and UV-Vis spectroscopy	Peter Rapta

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

Name	Title of Thesis	Supervisor
Zuzana Cibulková	Termooxidation stability of polymer materials	Peter Simon
Jana Hajasová	Properties of chemically modified fat acids and their esters	Ján Cvengroš
Teodora Kocsisová	Isolation of phytosterols from deodorization condensates	Ján Cvengroš
Júlia Pigošová	EPR study of photochemical reactions of arylmethane dyes	Vlasta Brezová
Martin Vida	Conformation analysis and interpretation of vibration spectra of cyclopropylaminomethylene-propanedinitrile and 1-cyclopropylaminoethylidene-propanedi	Anton Gatiaľ

C. Dissertations (PhD)

D. Dissertations (DSc)

E. Habilitation Theses

F. Inauguration Theses

VIII. PUBLICATIONS

DEPARTMENT OF PHYSICAL EDUCATION

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Technical Staff:

Gabriela Boršányiová

II. TEACHING AND RESEARCH LABORATORIES:

Gym 14x21 m – ground /volleybal, basketball, football/

Two Body Building rooms 15x5 m and 10x5 m

III. TEACHING:

Aerobic	(2 h)	D. Sochorová
Kalanethics	(2 h)	D. Sochorová
Harmonic gymnastics	(2 h)	D. Sochorová
Healing gymnastic	(2 h)	D. Sochorová
Athletic sport	(2 h)	V. Lendel
Basketball	(2 h)	P. Bartok
Football	(2 h)	P. Bartok
Handball	(2 h)	M. Bobřík
Body building	(6 h)	M. Bobřík, P. Bartok, V. Lendel, J. Moravcová
Swimming	(2 h)	J. Fehér, I. Turčáni
Canoeing and kayak	(4 h)	M. Bobřík
Volleyball	(2 h)	J. Moravcová
Winter sports camp /skiing/		M. Bobřík, J. Fehér
Summer sports camp /		M. Bobřík, J. Fehér

IV. RESEARCH PROJECT:

State of Physical and Motor Development of Undergraduates of FCHFT STU in Bratislava (Viliam Lendel)

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.

VI. PUBLICATIONS:

DEPARTMENT OF PLASTICS AND RUBBER

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Associate Professors:

Ivan Hudec, PhD; Viera Chrástová, PhD; Gabriela Kyselá, PhD; Eugen Špirk, PhD;

Assistant Professors :

Pavol Alexy, PhD;

Research Fellows:

Viera Khunová, PhD (Senior Research Fellow); Ľudmila Černáková, PhD;

PhD Students:

Silvia Hanzelová (since 1.10.2003); Michal Jaššo (since 1. 10. 2002); Zuzana Kramárová (since 1.10.2003); Miroslav Kršiak (until 30.9.2003); Henrich Krump (until 16.9.2003); Lenka Kukulíková (since 1. 10. 2001); Eva Simigová (since 1.10.2003); Barbora Šimková (since 1. 10. 2002)

Technical staff:

Mária Dočolomanská; Viera Godályová; Mária Pekarovičová; Anna Tatarková

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Polymer Synthesis
Laboratory of Polymer Solutions
Laboratory of Polymer Processing
Laboratory of Polymer Testing

B. Research laboratories:

Laboratory of Polymer Synthesis
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

III. TEACHING

A. Undergraduate Study:

5. semester (Bc)	Macromolecular Chemistry	2/0/0	Chrástová
	Corrosion and Material Surface Treatment	2/0/2	Chovancová, Špirk
6. semester (Bc)	Technology of Materials	2/0/0	Hudec, Marcinčin, Majling

	Semestral Project	0/4/0	
	Production, Properties and Processing of Plastics	2/0/0	Hudec (for students of Faculty of Architecture)
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
1. semester (MSc)	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
2. semester (MSc)	Laboratory from Production of Polymers	0/0/8	Alexy, Kyselá
3. semester (MSc)	Polymer Processing	3/1/0	Špírk
	Polymer Blends and Composites	2/0/0	Khunová
	Polymer Recycling and Waste Disposal	2/0/0	Hudec, Khunová, Špírk
	Polymer Testing	0/2/0	Alexy
3. semester (MSc)	Laboratory from Processing of Polymers	0/0/10	Alexy, Hudec
4. semester (MSc)	Diploma work	0/0/27	
1. semester (MSc)			
1. semester (Bc)			

IV. CURRENT RESEARCH PROJECTS

A. VEGA Project No 1/0059/03, Study of Structure and Properties of Crosslinked Polymers (Gabriela Kyselá).

The project is focused on the curing of polymers and copolymers during their preparation in the presence of multifunctional monomers and using the suitable post-polymerization reactions, too. The curing of elastomers is interesting in the application of non-harmful sulfur curing systems, based on the phosphoric accelerators and their combinations with thiazoles, respectively. The experiments are predominantly oriented on the researching of the optimal composition of accelerate systems, as well as, on the connection of the network structure of crosslinked materials and their age resistance and the level of the retaining of original physical-mechanical properties, too. Also, the crosslinking reactions are studied in the course of two stage seeded semi-continuous starved emulsion polymerization of styrene and butylacrylate in the presence of N-methylol acrylamide. Partially crosslinked latexes with core-shell particles are used for formulation of ecological paints. The influence of polymerization strategy and crosslinking reaction on the film - forming properties of modified dispersions are investigated..

Project duration: from 01.01.2003 to 31.12.2005

B. VEGA Project No 1/0283/03, New Types Blends and Composites Materials Containing Biodegradable Polymers and Fillers (Ivan Hudec).

The project is aimed on the investigation of polymer blends and composite materials based on biodegradable polymers and particulate fillers. The main research and experimental efforts are focused on chemical and physical modification of thermoplastic, elastomeric and crosslinked multi-phase polymer materials by changing morphological structure and interphase interactions on polymer/polymer and polymer/filler interface. The selection of the polymer matrix and modification methods are oriented on the new achievements which enables to reveal relations between composition, structure and properties of studied multiphase polymer blends and composites.

Project duration: from 01. 01. 2003 to 31. 12. 2005

C. GER Project No 17/2001, Modification of Reinforcing Materials for Rubber Articles (Ivan Hudec).

Development of new technologies and procedures for surface modification of materials for rubber articles, using applications of plasma-chemical methods. Preparation of new types of biodegradable textile reinforcing materials based on polyvinylalcohol, their chemical and physical modification with the aim to obtain advantageous physical-mechanical properties and required adhesion to rubber. Preparation of new rubber blends for warp applications in combination with textile and steel cords, including the application of new and advanced types of elastomers.

Project duration: from 01.01.2002 to 30.11.2004

D. WHEYPOL - Project No GRD 2-2000-30385, Dairy Industry Waste as Source for Sustainable Polymeric Material Production (Dušan Bakoš).

The aim of the European project is the preparation of biodegradable polyhydroxybutylene from whey (waste from milk industry) by biotechnological way. The cooperation of STU in this project is focused on investigation of blending PHB with other biodegradable polymers (e.g. polyethylene oxide), and investigation of various modes of compatibilization, as well as investigating the possibility of blending PHB with thermoplastic starch. Determination of ultimate properties of prepared blends with PHB matrix is aimed especially to improved toughness of the material.

Project duration: from 01.12.2001 to 30.11.2004

E. 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 2005

V. CURRENT EDUCATION PROJECTS

A. SOCRATES - ERASMUS (Eugen Špirk)

Bilateral Agreement for the Academic Year 2001/2006, SOCRATES Program, section for higher education ERASMUS, Between Slovak Technical University Bratislava - Martin Luther University Halle-Wittenberg

Project duration: from 2001 to 2006

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
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Rubber Research Institute Matador, a.s., Púchov	Surface modification of reinforcing materials for tire construction by plasma		
Rubber Research Institute Matador, a.s. Púchov	Modification of traction properties of tires		
Research Institute of Processing and Application of Plastics, VUSAPL a.s., Nitra	New types of fillers and reinforcing materials for plastics		
LEONI Slovakia, Ltd., Trenčianska Teplá - Dobrá	PVC blends for cables		
VIPOTEST, Ltd., Partizánske	Rheology of rubbers and rubber mixtures		
PLASTIKA, a.s., Nitra	Technological centrum for processing of plastics		

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	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
Clinica Puerta de Hierro, Cirugia Exoerimental, Madrin, Spain	Chemical modification and biocompatibility, testing of collagen membranes.	Herrero Eduardo, doctor, Hospital Puerto de Hierro, Madrid, Spain	since 1996
Institute of Macromoleculare Chemistry, Academy of Science of the Czech Republic, Prague, Czech Rep.	Polymer nanocomposites	Kelnar Ivan, senior research fellow, Academy of Science, Prague, 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 biomaterials, polymer processing.	Reis Rui, professor, University of Minho, Guimarães, 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
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C. Membership in Domestic Organizations and Societies

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Bakoš Dušan	European Biomaterial Society	member	1995 -
Špirk Eugen	Plasty a kaučuk	member	1990

E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Ducháček, V.	Institute of Chemical Technology, Faculty of Chemical Technology, Department of Polymers, Prague	Czech Republic	October 2003 (2 days)
Epacher, E.	Research Laboratory of Materials and Environmental Chemistry, Chemical Research Center, Hungarian Academy of Sciences, Budapest	Hungary	October 2003 (2 days)
Pukánszky, B.	Research Laboratory of Material and Environmental Chemistry, Chemical Research Center, Hungarian Academy of Sciences, Budapest	Hungary	October 2003 (2 days)
Radusch, H. J.	Institute of Material Science Martin-Luther University Halle-Wittenberg, Halle	Germany	October 2003 (3 days)
Roda, J.	Institute of Chemical Technology, Faculty of Chemical Technology, Department of Polymers, Prague	Czech Republic	October 2003 (2 days)
Roslaniec, Z.	Institute of Materials Science and Engineering, Technical University, Szczecin	Poland	October 2003 (3 days)
Rzymski, W. M.	Institute of Polymers, Technical University, Łódź	Poland	October 2003 (3 days)
Šimoník, J.	Faculty of Technology, Tomas Bata University, Zlín	Czech Republic	October 2003 (2 days)
Szostak, M.	Institute of Materials Technology, Poznań University of Technology, Poznań	Poland	October 2003 (3 days)
Sperber, V. E.	University of Kassel	Germany	October 2003 (3 days)
Wei, Zhong	Department of Macromolecular Science, Fudan University, Shanghai	China	November - December 2003 (14 days)
Illisch, S.	Institute of Material Science, Martin-Luther University Halle-Wittenberg, Halle	Germany	October 2003 (3 days)
Betchev, Ch.	Department of Physics, University of Chemical Technology and Metallurgy, Sofia	Bulgaria	October 2003 (3 days)

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

Name	Organisation / Institution / Conference	State	Date / Duration
Khunova, V.	Manchester Metropolitan University, Manchester, Socrates Exchange Teachers Mobility	UK	June 2003 (10 days)
Khunova, V.	International Workshop on Processing and Characterisation of Nanomaterials, Warsaw	Poland	October 2003(5 days)
Khunova, V.	International Conference NANO 03, Brno	Czech Republic	October 2003 (3 days)
Khunova, V.	DSM Scientific Meeting "Functional Coatings", Vaalsbroek	Holland	December 2003 (3 days)

Hudec, I., Alexy, P.	4 th International Symposium on "Materials from Renewable Resources", Erfurt	Germany	September 2003 (4days)
Hudec, I., Krump, H.	International Conference ELASTOMERS 2003, Science for Industry, Poltusk	Poland	June 2003 (4 days)
Černáková, L.	International Conference XXVI ICPIG, Greifswald University, Greifswald	Germany	July 2003 (6 days)
Šimková, B.	International Conference PLASTKO 2003, Tomas Bata University, Zlín	Czech Republic	June 2003 (3 days)
Alexy, P., Krump, H., Špírk, E.	International Conference Deformation and Fracture of Polymers, Martin Luther University Halle -Wittenberg, Merseburg	Germany	June 2003 (5 days)
Hudec, I., Jaššo, M.	International Conference Deformation and Fracture of Polymers, Martin Luther University Halle -Wittenberg, Merseburg	Germany	June 2003 (4 days)

VII. THESES AND DISSERTATIONS

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

Name	Title of Thesis	Supervisor
Amir, I.	The surface plasma-chemical treatment of steel reinforcing materials for tire construction	Jaššo, M.
Bariaková, L.	The study of enzymatic degradation of membranes from biopolymers	Kukolíková, L.
Galandová, J.	The study of transport properties of complex membrane from biopolymers	Bakoš, D.
Nahálková, A.	The influence of fillers on the stability of polyvinyl alcohol	Alexy, P.
Szabová, R.	The plasma chemical treatment of woven textiles for tire construction	Krump, H.

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

Name	Title of Thesis	Supervisor
Hanzelová, S.	Study of polyvinyl alcohol degradation	Alexy, P.
Hronkovič, J.	The influence of poly-cis- isoprene modification on the properties of its blends and vulcanisates	Kyselá, G.
Chlebcová, M.	The rheological properties of rubber blends	Špírk, E.
Keratová, V.	Modification and properties of biodegradable polymer blends	Chodák, I.
Mulinková, K.	The influence of crosslinking on the properties of modified poly styrene/poly(butyl acrylate) dispersions	Chrátová, V.
Olejníčková, K.	The modification of traction properties of treads for sports tires	Špírk, E.
Ondrušová, P.	The influence of modification on the properties of nanocomposites	Khunová, V.
Rumanovská, L.	The study of properties of polyvinyl alcohol fibres modified with collagene hydrolyzate	Alexy, P.
Šimigová, E.	Magnetic composites for intelligent tires	Hudec, I.
Srnečková, Z.	The grafting of acrylic acid onto polypropylene	Černáková, L.
Števiar, M.	The influence of surface treatment of reinforcing materials on their adhesion to rubber	Hudec, I.
Víghová, A.	The study of complexation of biopolymers for advancement of resortable matrix	Bakoš, D.

C. Dissertations (PhD)

Name	Title of Thesis	Supervisor
Hanzelová, S.	Structure and properties of complex biomaterials for tissue engineering	Bakoš, D.
Jaššo, M.	Influence of plasma treatment on the properties of reinforcing materials for tire construction	Hudec, I.
Kramárová, Z.	Utilisation of biopolymers as fillers in rubber blends	Špírk, E.
Kršiak, M.	Utilisation of collagen hydrolysate in polymer blends	Bakoš, D.
Krump, H.	Surface treatment of reinforcing materials for tire construction	Hudec, I.
Kukolíková, L.	Biomaterials based on polyelectrolyte complexes focused on chitosan and glycosamino-glycanes	Bakoš, D.
Šimigová, E.	High - loaded composite materials with magnetic active filler	Hudec, I.

Šimková, B.	The study of processing properties of polyvinyl alcohol blends	Bakoš, D.
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D. Dissertations (DSc)

E. Habilitation Theses

Name	Title of Thesis	Head of board
Khunova, V.	Modification of composite materials based on polyolefines and particulate inorganic fillers	Bakoš, D.

F. Inauguration Theses

FACULTY ADMINISTRATION SERVICES

1. DEAN`S OFFICE

Registrar of Faculty

Žúbor Vladimír, PhD

Secretary

Ledecká Anna

Economic Department

Rečlová Aurélie, Nováková Gabriela, Gézeová Agnesa, Rajnáková Jarmila, Levická Gabriela, Tanczerová Mária, Košťanová Alžbeta, Kúdelová Mária, Čaplová Alena

Pedagogical Department

Kusý Pavol, PhD, Borovská Anna, Danášová Eva, Poničanová Viera, Schwarzová Anna, Zajacová Soňa

Office of PhD Study

Šupejová Iveta

Office of Scientific Research

Kutešová Mária

Department of Employees` Affairs

Kršáková Viera, Bajusová Mária, Púčíková Daniela, Macušková Jarmila, Kajanová Kamila, Kapucová Klára

Office of Foreign Cooperation

Lovrantová Miroslava

Office of Tempus and Copernicus Projects

Burešová Valéria

2. MAINTENANCE DEPARTMENT

Performance Manager: Sabol Vladimír

3. COMPUTER CENTRE

Supervisor: Zahradník Tibor

4. LIBRARY

Supervisor: Kosíková Veronika

5. CAFETERIA

Supervisor: Kuchariková Agáta