

**DEPARTMENT OF MICROELECTRONICS**

<http://kme.elf.stuba.sk/kme/>

**Head of Department**

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**I. STAFF**

Professors	prof. Ing. Otto Csabay, DrSc., visiting professor of the Technical University in Vienna, prof. Ing. Daniel Donoval, DrSc., prof. Ing. Daniela Ďuračková, PhD., prof. Ing. Jaroslav Kováč, PhD., prof. Ing. Angelika Ottová, DrSc., prof. RNDr. Vladimír Tvarožek, PhD., prof. Ing. František Uherek, PhD.
Associate Professors	doc. Ing. Juraj Breza, PhD., doc. Ing. Ladislav Hulényi, PhD., doc. Ing. Peter Kordoš, DrSc., doc. Ing. Róbert Redhammer, PhD., doc. Ing. Viera Stropjaková, PhD., doc. Ing. Alexander Šatka, PhD., doc. Ing. Marian Veselý, PhD., doc. Ing. Milan Žiška, PhD.
Assistant Professors	Ing. Milan Kempný, Ing. Fedor Mika, PhD., Ing. Ľubica Stuchlíková, PhD., Ing. Martin Tomáška, PhD.
Senior Scientists	doc. Ing. Ladislav Harmatha, PhD., doc. Ing. Ján Janík, PhD., Ing. Ivan Hotový, PhD., Ing. Magdaléna Kadlečíková, PhD., doc. Ing. Rudolf Kinder, PhD., doc. Ing. Jozef Liday, PhD., Ing. Juraj Racko, PhD., doc. Ing. Rudolf Srnánek, PhD., Ing. Jaroslava Škriniarová, PhD., doc. Ing. Bedřich Weber, PhD.
Scientific Workers	Ing. Dalibor Búč, PhD., Ing. Ján Butaš, PhD., Ing. Loránt Peternai, PhD., Ing. Erik Vavrinský, PhD., Ing. Alexander Kromka, PhD.
Research Workers	RNDr. Alena Grmanová, Ing. Daniel Haško, Ing. Ján Jakabovič PhD., Ing. Ľubomír Jánoš, Ing. Michal Konfál, Ing. Ivan Novotný, PhD., RNDr. Vlastimil Řeháček, Ing. Oľga Valentová, Ing. Andrej Vincze, Ing. Peter Vogrinčič
Technical Staff	Božena Harmathová, Jozef Ivan, Jozef Král
PhD. Students	Ing. Peter Benko, Ing. Tibor Daniš, Ing. Soňa Flickyngerová, Ing. Martin Florovič, Ing. Aleš Chvála, Ing. Michal Klasovitý, Ing. Jaroslav Kováč, jr., Ing. Peter Kružlic, Ing. Pavol Kúdela, Ing. Milan Kytka, Ing. Libor Majer, Ing. Pavol Malošek, Ing. Marián Marton, Ing. Vladislav Nagy, Ing. Peter Pinteš, Ing. Pavol Písečný, Ing. Michaela Šimková, Ing. Milan Ťapajna, Ing. Peter Valent, Ing. Radovan Víglaský, Ing. Anna Vojačková, Ing. Marian Vojs, Ing. Andrej Vrbický,

**II. EQUIPMENT**

**II.1 Teaching and Research Laboratories**

- Laboratory of Thin Films I
- Laboratory of Thin Films II
- Laboratory of Semiconductor Structures
- Laboratory of Optoelectronics
- Laboratory of AES
- Laboratory of SIMS
- Laboratory of SAM and REM
- Laboratory of SEM

- Laboratory of Electronic Devices
- Laboratory of Electrophysical Measurements
- Laboratory of Computer Analysis
- Laboratory of Microelectronic Devices Diagnostics
- Laboratory of Material Electronics
- Laboratory of Electronic Devices
- Laboratory of Semiconductor Structures
- Laboratory of Sensor Systems and Microsystems
- Laboratory of Thin Film Sensors
- Laboratory of Vacuum Technique and Electronics
- Laboratory of Design IO
- Laboratory of Raman Spectroscopy
- Laboratory of Vacuum Technology I
- Laboratory of Vacuum Technology II
- Laboratory of Chemical Processes I
- Laboratory of Chemical Processes II
- Laboratory of Optoelectronic Device Technology
- Laboratory of Deposition Technology
- Laboratory of Plasma Processes
- Laboratory of Microwave Electronics
- Laboratory of Digital Signal Processing
- Laboratory of Optical Measurements
- Laboratory of Sensors and Lock Technique
- Laboratory of Microlithography
- Laboratory of Biochemical Sensors
- Laboratory of CIS
- Laboratory of Digital Circuits
- PC Laboratory for Design IO and Semiconductor Structures

## II.2 Special Measuring Instruments and Computers

- Semiconductor profile plotter (Bio-Rad)
- Computer aided system for I-V and C-V measurements and analysis in temperature range from 20 to 400 K, DLTS system 300 W Solar, QDLTS Time Domain Spectrometer
- Sputtering unit Perkin-Elmer Ultek/Randex 2400/8L
- Cathode sputter deposition system Z 550 SM (Leybold-Heraeus)
- Talystep S112 profilometer
- Vacuum system B55.3 Hochvakuum Dresden with magnetron sputtering sources
- Sputter etcher XNE-01 (Secon)
- Auger electron spectrometer (Varian)
- X-ray Photoelectron spectrometer (VG Microtech)
- Raman spectrometer (ISA-Jobin Yvon-Dilor-Horiba)
- Secondary ion mass spectrometer
- Microwave analyzer HP 8408 S
- Scanning electron microscope BS 300 for diagnostics of semiconductor structures (equipped with EBIC and EBIV modes)
- Ultrahigh vacuum scanning electron microscope and Auger microscope BS 350.
- TCAD Process and Device Modelling and Simulation Tools (ISE)
- Symbolic layout software design software CAMELEON
- HSPICE, CADENCE and SYNOPSIS design systems (through ROPRACTICE)
- XILINX and ALTERA development systems (vendors donation)
- workstations Sun Ultra 10, Sun Sparc, HP712
- Analog Devices and Motorola DSP systems

**III. TEACHING****III.1 Undergraduate Study (Bc.)**

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

Electronic Devices	(3rd sem., 3-2h)	O. Csabay, M. Žiška
Electronic Systems	(4th sem., 3-2h)	L. Hulényi, R. Redhammer
Physical Electronics of Solids I	(5th sem., 3-2h)	D. Donoval
Sensorics	(5th sem., 2-2h)	V. Tvarožek
Optoelectronics	(6th sem., 3-2h)	F. Uherek
Physical Electronics of Solids II	(6th sem., 3-1h)	M. Veselý
Technology of IC (TCAD)	(6th sem., 2-2h)	D. Donoval
Digital Circuits	(6th sem., 3-2h)	F. Míka
Integrated Circuit Structures	(7th sem., 3-2h)	O. Csabay, L. Harmatha
Semiconductor Lasers and Photodetectors	(7th sem., 2-2h)	J. Kováč
Methods of Material Analysis	(7th sem., 3-1h)	J. Breza
Basic Processes of Micromechanics	(7th sem., 2-2h)	I. Hotový
Quality Management	(7th sem., 2-2h)	L. Hulényi
Term Project I	(7th sem., 0-4h)	F. Uherek
Computer Aided Circuit Analysis	(8th sem., 3-2h)	M. Tomáška
Laser Technique	(8th sem., 2-2h)	F. Uherek
Programming IC	(8th sem., 2-2h)	J. Butáš
IC Design	(8th sem., 2-2h)	D. Ďuračková
Integrated Circuits	(8th sem., 2-3h)	D. Ďuračková
Surface Physics	(8th sem., 2-2h)	M. Veselý
Microsensors	(8th sem., 2-2h)	V. Tvarožek
Term Project II	(8th sem., 0-4h)	F. Uherek

**III.2 Graduate Study (Ing.)**

DSP Circuits	(1st sem., 3-2h)	A. Šatka
Nanoelectronics	(1st sem., 3-2h)	R. Redhammer
CAE of Electronic Devices	(1st sem., 3-2h)	D. Donoval
Optical Communication Systems	(1st sem., 3-2h)	F. Uherek
Microsystems Technology	(1st sem., 2-2h)	I. Hotový

Microwave Electronics	(1st sem., 3-2h)	M. Tomáška
Spectroscopies for Analysis of Surfaces and Thin Films	(1st sem., 3-2h)	J. Liday
Computer Aided IC Design	(1st sem., 3-2h)	V. Stopjaková
Vacuum Technique for Light Sources	(1st sem., 2-2h)	M. Veselý
Diploma Project I	(1st sem., 0-4h)	F. Uherek
Physics of Microsensors	(2nd sem., 3-2h)	V. Tvarožek
Superconductor Electronics	(2nd sem., 3-2h)	J. Breza
Diagnostics of Integrated Circuits and Systems	(2nd sem., 3-2h)	V. Stopjaková
Analog IC Design	(2nd sem., 3-2h)	D. Ďuračková
Integrated Optoelectronics	(2nd sem., 3-2h)	J. Kováč
Diploma Project II	(2nd sem., 0-4h)	F. Uherek
Diploma Project III	(3 <sup>rd</sup> sem., 0-8h)	F. Uherek

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

Electronic Devices	(3 <sup>rd</sup> sem., 4-2h)	L. Hulényi, M. Žiška
Safety in Electrical Engineering	(4 <sup>th</sup> sem., 1-0h)	M. Kempný
Sensorics	(5 <sup>th</sup> sem., 4-2h)	V. Tvarožek
Optoelectronics	(5 <sup>th</sup> sem., 4-2h)	F. Uherek, J. Kováč
Integrated Circuits	(5 <sup>th</sup> sem., 4-2h)	M. Žiška, L. Hulényi

### IV. RESEARCH PROJECTS

- Advanced Optoelectronic Structures and Devices Based on Compound A<sup>3</sup>B<sup>5</sup> and Organic Semiconductors for Information Technology. VEGA 1/0152/03, J. Kováč
- Investigation of Electrophysical and Technological Issues of MIS Structures with Ultra-thin Insulator Layers for a New Generation of Unipolar Device. VEGA 1/3091/06, L. Harmata
- Electrophysical Properties of Semiconductor Structures and Insulating Layers for a New Generation of Microelectronics Devices. VEGA 1/0169/03, O. Csabay
- Thin Film Biochemical Microsensors. VEGA 1/0168/03, V. Tvarožek
- Micromachined Metal Oxide Gas Microsensors. VEGA 1/0170/03, I. Hotový
- Carbon Nanotubes and Their Emission Properties. VEGA 1/2040/05, J. Janík
- Progressive Electrical and Optical Diagnostic Methods for Optimizing the Production of Semiconductor Devices for Modern Information Systems. VEGA 1/0154/03, R. Kinder
- Raman Spectroscopy of Materials and Their Interface, VEGA 1/0275/03, M. Kadlečíková
- Implementation of Neural Networks on a Chip and Their Use by Signal Processing in Bioapplications VEGA 1/2046/05, D. Ďuračková
- Novel Metallization Structures for Ohmic Contacts on p-GaN and Analysis of Their Properties by Spectroscopical Methods. VEGA 1/1054/04, J. Liday
- Preparation and Analysis of Advanced Microelectronic Structures and Devices Supported by Modelling and Simulations. VEGA 1/9042/02, D. Donoval

- Investigation of Physical and Electrical Properties of Nanocrystalline Diamond, VEGA VG-2061-Ves-Sk1, M. Veselý
- Innovation of Undergraduate and Graduate Educational Programme in Specialization Electronics with Focus on Progressive Micro-, Opto- and Nanoelectronic Technologies, KEGA 3/0053/02, O. Csabay
- Industrial Applications of Diamond and DLC Layers in Electrical and General Engineering, VTP 1002/2003 (2003-2005) R. Redhammer
- Gas Sensing Microsystem Based on GaAs Micromachined Structures. AV/1115/2004, I. Hotový
- Development of Methodology and Equipment for Unpenetrated Biomedicine Monitoring and Analysis of Physiological and Psychophysiological Processes. VTP 1013/2003, V. Stopjaková
- Reverse Engineering of Semiconductor Devices and Integrated Circuits. AV/805/02, A. Šatka
- Development and Application of Diagnostic Methods to Semiconductor Devices and Integrated Circuits Assessment. AV 4/0022/05, A. Šatka
- Development of High Frequency Characterization Methods for Advanced Electronic Devices. AV/806/2002, M. Tomáška
- Development and Optimization of Process Preparation of New Generation of High Speed Power Semiconductor Devices and Integrated Circuits in Submicron Technology, APVT- 20 – 013902, D. Donoval
- Thin Oxide Films for Advanced MOS Structures, APVT – 51 – 017004, Karol Fröhlich, L. Harmata
- Monolithic Integrated Gas Sensing Microsystem Based on GaAs Microstructures APVT-20-21004, I. Hotový
- Six-port Reflectometer Integration. AV/4/0017/05, M. Tomáška
- Development of New Superhard Materials Based on Carbon and Nitride Films with Special Emphasis on Diamond and Cubic Bor Nitride, APVT APV-344-Ves-Sk1, (2005-2007), M. Veselý

## **V. COOPERATION**

### **V.1 Cooperation in Slovakia**

- Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava
- Institute of Physics, Slovak Academy of Sciences, Bratislava
- Institute of Informatics, Slovak Academy of Sciences, Bratislava
- International Laser Centre Bratislava
- Research Institute for Welding, Bratislava
- ON Semiconductor (SEI) Piešťany
- Semikron Vrbové
- Applied Precision, Bratislava
- LOX Technologies, Piešťany
- First Welding Company, Bratislava
- University of Žilina

### **V.2 International Cooperation**

- Czech Technical University, Department of Microelectronics, Prague, Czech Republic
- Technical University of Brno, Department of Microelectronics, Czech Republic
- IMEC Leuven, Belgium
- Johannes Kepler Universität Linz, Austria
- Technical University Ilmenau, Germany

- Hungarian Academy of Sciences Budapest, Hungary
- Universität Leipzig, Fakultät für Physik und Geowissenschaften, Fakultät für Chemie und Mineralogie, Leipzig, Germany
- Institute of Semiconductor Physics, National Academy of Sciences, Kiev, Ukraine
- Michigan State University, Lansing, USA
- Technical University Vienna, Austria
- Technical University Munich, Germany
- Institute of Scientific Instruments, Czech Academy of Sciences, Brno, Czech Republic
- University of Athens, Department of Physics, Greece
- Regensburg University, Germany
- Institut für Schicht- und Ionen Technik Jülich, Germany
- On Semiconductor, Rožnov pod Radhoštěm, Czech Republic
- Harlingen Lanškroun, Czech Republic
- Faculty of Microsystem Electronics and Photonics, Wrocław University of Technology, Poland
- Institute for Solid State Physics, Technical University Graz, Graz, Austria
- Physikalisches Institut, Universität Würzburg, Germany
- Department of International Cooperation, DLR Cologne, Germany
- RAL Didcot UK, Surrey, Great Britain
- Imperial College, Department of Materials, London, UK
- Istituto per la Microelettronica ed i Microsistemi CNR, Lecce, Italy
- Umweltsensortechnik GmbH, Geschwenda, Germany
- City University of Hong Kong, Hong Kong, China
- Bournemouth University, Bournemouth, UK
- Technische Universität, Bergakademie Freiberg, Institut für Theoretische Physik, Freiberg, Germany
- National Hellenic Research Foundation, Theoretical and Physical Chemistry Institute, Athens, Greece
- Photeon Technologies GmbH, Bregenz, Austria

### V.3 International Scientific Projects

Projects within the 5<sup>th</sup> and 6<sup>th</sup> EC Framework program:

- IDEALIST34, IST-2-511355, " Partner Search Support for participants in IST Priority by European network of NCP for IST under the 6th Framework Program .  
Co-ordinators: B. Weber
- REASON, IST- IST-2000-30193 – Research and Training Action for System on Chip Design (2002-2005).  
Co-ordinators: Prof. Wieslaw Kuzmicz (WUT Warsaw, PL), local manager B. Weber, STU FEL, SK  
Co-operating countries: IMEC (BE), TUS (BG), BSU (BY), BSUIR (BY), TULC (CZ), TUI (DE), TTU (EE), UJF (FR), BUTE (HU), KTU (LT), RTU (LV), TUE (NL), WUT (PL), IET (PL), TUL (PL), PUB (RO), VSTU (RU), UoL (SI), II SAS (SK), LPU (UA), RAL (UK)
- EPIST, Enhanced Participation in IST Projects Related to e-health, IST-3-015920, B. Weber
- IST WORLD, Knowledge Base for IST Competencies, IST-3-015823, B. Weber
- MINOS-EURONET, IST-3-015704, Micro-Nano-Systems European Network, pursuing the integration of NMS and ACC in ERA, B. Weber
- EPISTEP, Enhanced Participation of SMEs in IST European Technology Platforms, INNOV-5-023295, B. Weber
- VGF GaP LED's, IST-2001-32793 - New Gallium Phosphide Grown by Vertical Gradient Freeze Method for Light Emitting Diodes (2002-2005).  
Project Co-ordinator: D. Starke (CiS Erfurt)

Project leader STU: J.Kováč (STU Bratislava)

Co-operating institutions: CiS Institut fuer Mikrosenzorik gGmbH, Erfurt, Germany;  
STU Bratislava; PHOSTEC Ltd. Žarnovica; Slovak Academy of Sciences Bratislava  
Universität Leipzig, ILC Bratislava

- Europractice IC Service to Academic Institutions or publicly funded Research Laboratories primarily engaged in University as activities from European Union member States, European countries eligible to participate in FP5 and other countries with close links to Europe (2003 - 2005).

Co-ordinators: Dr. John A. McLean, Software Service Manager and Dr. Carl Das, IC Service Manager

Europractice IC Service Consortium partners: CLRC (RAL), IMEC and FhG/IIS-A

STU Co-ordinator: M. Veselý

- ERA Pilot MiNa TSI – European Research Area Pilot Action on Micro/Nano Technology System Integration, 6RP/IST-3-015833, D.Donoval

Projects within ESF/PHARE:

- REJT, The Quality of Labor Market - Support to Training and Life-long Learning (1.9.2004 - 31.8.2005)  
Co-ordinator: M. Veselý
- NANOSYS - Research and education centre of nanotechnologies for integrated circuits systems applications development  
Co-ordinator: V. Stopjaková

Project within the Austrian and Slovak Scientific and Educational Co-operation:

- Optimized contacts for blue light emitting diodes (2004-2005).  
Co-ordinator: J. Liday (STU Bratislava)  
Co-operating institutions: STU Bratislava (J. Liday); Johannes Kepler University Linz (H. Sitter)
- 49s5 – Parylene Thin Film Preparation and Application in Electronic Devices (2005-2006).  
Co-ordinator: J. Kováč (STU Bratislava)  
Co-operating institutions: STU Bratislava (J. Kováč); Institute of Solid State Physics, Graz University of Technology ( R. Resel)

Projects within co-operation Slovakia- Austria

- "Progressive Materials for Nanotechnology", 49s9  
Co-ordinator: A. Prof B. Weber,(SK)  
Co-ordinator: : Dr. A. Bonanni,(AT)

Projects within the bilateral co-operation Slovakia-Czech Republic:

- Nucleation and Growth of Diamond Layers  
Project leaders: STU (J. Janik)

Projects within the bilateral co-operation Slovakia-Germany:

- New methods for characterization of semiconductor nanostructures  
DAAD project No. 9/ 2003 (2004-2005)  
Project leaders: STU (R. Srnanek)  
Co-operating institutions: Institut für Theoretische Physik, Technische Universität Bergakademie Freiberg (D) (G. Irmer)
- DAAD Novel Materials, Technologies and Methodologies of Their Assessment for Electronics and Sensorics (1998-2006).  
Co-operating institutions: STU Bratislava (J. Liday), TU Ilmenau (D) (Ch. Knedlik)
- PPP Program DAAD, Project FZ 10/2003 - Advanced materials and micro/nano structures for sensoric interfaces  
Co-operating institutions: STU Bratislava (V. Tvarožek), TU Ilmenau (D) (Ch. Knedlik)

- Program DAAD, Project 4/2004 - Novel surface modified thin films for gas microsensors on GaAs  
Co-ordinator: I. Hotový (STU Bratislava)

Project within the bilateral co-operation Slovakia-Poland:

- Advanced Semiconductor Heterostructures and Nanostructures Characterization and Processing for Optoelectronic Devices (2003-2005).  
Project leader STU: J. Kováč, R. Kinder  
Co-operating institution, Project leaders: Faculty of Microsystems Electronics and Photonics Wroclaw University of Technology (M. Tlaczala, B. Boratynski)

Project within the bilateral co-operation Slovakia-Italy:

- Micromachined metal oxide gas microsensors  
Co-ordinator: I. Hotový (STU Bratislava)

Projects within the bilateral co-operation Slovakia-Germany:

- Nucleation and Growth of Diamond Thin Films (2004-2005)  
Co-ordinator: J. Janík (STU Bratislava)  
Co-operating institution: Department of Optical Crystals, Academy of Sciences of the Czech Republic, Prague

Project within the bilateral co-operation Slovakia-Greece:

- Deposition of NiO thin films and optimization of their operation parameters for toxic gas sensing applications  
Co-ordinator: I. Hotový (STU Bratislava)

Project within the bilateral co-operation Slovakia-England:

- NiO-based thin films with Pt surface modification for gas detection (2004-2006).  
Co-ordinator: I. Hotový (STU Bratislava)  
Co-operating institutions: Imperial College, London, England (D. McPhail)

## **VI. THESES**

### **VI.1 Masters Theses**

Masters theses supervised at the Department of Automatic Control Systems. The names of supervisors are in brackets.

- [1] Bibko M.: Microprocessor controlled thin film deposition monitor (J. Jakabovič)
- [2] Bobula J.: Investigation of generation lifetime profiles in nitrogen doped czochralski-grown silicon (M. Ľapajna)
- [3] Bulejka D.: Design of temperature independent voltage „bandgap“ reference in CMOS technology (V. Stopjaková)
- [4] Dobrovič A.: Photonic crystal fibres (F. Uherek, I. Bugár, D. Lorenc)
- [5] Dragon P.: Design CMOS current conveyors higher generation and their application in analog IC for current processing (V. Stopjaková)
- [6] Ďugová A.: CNN neural network design on the chip (D. Ďuračková)
- [7] Flickyngerová S.: Application of microelectrodes in impedance diagnostics of blood (R. Víglašký, V. Tvarožek)
- [8] Fröhlich J.: Development of design rules generator for preventing technological defects in IC caused by thermal stress (V. Stopjaková, M. Sidiropulos)
- [9] Fuchsová J.: Pulsed laser deposition of MgO (J. Bruncko, F. Uherek)
- [10] Harnoš K.: Analysis, design and simulation power bipolar transistor with insulated gate - IGBT (L. Hulényi, J. Racko)



- [11] Hlinka B.: The investigation of the electrophysical properties of the semiconductor structures by deep level transient spectroscopy method (L. Stuchlíková)
- [12] Holič P.: Apparatus for preparation of nanotubes (J. Janík, T. Daniš)
- [13] Horniak P.: Design of 8-bit digital magnitude comparator in cadence environment (P. Tikovič)
- [14] Hrček Z. Growth and emission properties of vertically aligned carbon nanotubes (J. Janík, T. Daniš)
- [15] Ižák T.: Study of growth of carbon nanotubes by chemical vapor deposition method (R. Redhammer, T. Daniš)
- [16] Kadlec M.: Dynamic parameters characterization of semiconductor detectors (J. Kováč jr)
- [17] Kosiba B.: The study properties of the interface insulator-semiconductor MOS structure (L. Harmatha)
- [18] Košťany P.: Passivation of organic electroluminescence devices by parylene (J. Jakobovič)
- [19] Krcho P.: Analysis of electric and optic properties of semiconductor structures (F. Uherek, R. Srnánek)
- [20] Kubán M.: Pulsed laser deposition of LSMO (M. Michalka, F. Uherek)
- [21] Kukliš M.: The properties of nitrogen-doped silicon substrate studied by the capacitance techniques (L. Stuchlíková, L. Harmatha)
- [22] Kurc M.: Computer controlled workplace for materials laser micromachining (F. Uherek, M. Michalka, J. Bruncko)
- [23] Láska J.: The application of ar-ion and nd:yag lasers in laser microshaping (J. Bruncko, F. Uherek)
- [24] Letovanec M.: Analysis characteristics of semiconductor lasers (J. Kováč, F. Uherek)
- [25] Liška M.: The phase locked loop design in cadence environment (P. Tikovič)
- [26] Magda P.: Ultrasonic detectors in security technic (M. Kempný, V. Tvarožek)
- [27] Mokryš P. Automation of testing of semiconductor devices and integrated circuits (P. Gurnik)
- [28] Nigrovičová M.: Optical monitoring of blood sedimentation (R. Víglašký, V. Tvarožek)
- [29] Pinteš P.: Characterization of MIS structures with think isolation layers (L. Harmatha)
- [30] Podmaka M.: Use of intelligent CCTV systems in security surveillance (M. Kempný, V. Tvarožek)
- [31] Reháková A.: Diagnostics of human skin based on its optical characteristics (M. Kempný, V. Tvarožek)
- [32] Solár J.: Measurement and evaluation of electrical properties of power transistors (D. Donoval, A. Vrbický)
- [33] Štýbnar M.: Design of a rail-to-rail operational amplifier in CMOS technology (Z. Randlísek)
- [34] Tóth T.: The design of discrete amplitude modulator and its implementation in fpga (A. Šatka)
- [35] Vanko G.: Preparing and properties of AlGaIn/GaN HEMTs (T. Lalinský, L. Harmatha)
- [36] Vaňo P.: Thermal analysis and simulation of micromachined gas sensor structures (I. Hotový)
- [37] Vitek T.: Thin film ITO and diamond microelectrodes modified by mercury for electrochemical stripping analysis (V. Řeháček, I. Novotný)
- [38] Vydarený M.: Design of serial interface for microprocessor communication (R. Koleno)

## VI.2 Doctoral Theses

- [1] Bernát J.: Fabrication and characterisation of AlGaIn/GaN high electron mobility transistor for power applications (D. Donoval)
- [2] Jakobovič J.: Selected topics in technology and characterization of optoelectronic devices based on A3B5 heterostructures and organic semiconductors (J. Kováč)

- [3] Kulikov V.: Automated system for combinatorial synthesis and high-throughput characterization of polymeric sensor materials (D.Donoval)
- [4] Matay L.: Polyimid layers in microelectronics (J.Breza)
- [5] Novotný I.: Optimization sensitic interface of the sputtering thin films (V. Tvarožek)
- [6] Peternai L.: Investigations of GaN<sub>x</sub>P<sub>1-x</sub> and InGa(Al)P based active layers for light emitting diode structures directly grown on GaP substrate (J.Kováč)
- [7] Řeháček V.: Thin film microstructures for application in electrochemical sensors (V.Tvarožek)
- [8] Vavrinský E.: Thin film microelectrodes for electrochemical conductivity sensors applied in biomedical monitoring of stress (V.Tvarožek)

## **VII. OTHER ACTIVITIES**

- "Digital System Design Using VHDL" training courses mainly for SMEs held in Bratislava on 15 – 17 April and 14 – 16 June 2004, respectively organized by Department of Microelectronics, Faculty of Electrical Engineering and Information Technology, Slovak University of Technology in Bratislava in the frame of REASON IST project
- Courses "Electronic Circuit Simulation" and "Digital System Design" for secondary school teachers held in Bratislava on 6 -8 July 2004, organized by Department of Microelectronics, Faculty of Electrical Engineering and Information Technology, Slovak University of Technology in Bratislava in the frame of REASON IST project
- The 5<sup>th</sup> Electronic Circuit and Systems Conference, Bratislava, Slovakia on 8-9 September, 2005, organized by: Department of Microelectronics and Department of Physics, Faculty of Electrical Engineering and Information Technology, Slovak University of Technology Bratislava,
- Contractor of the Leonardo Pilot Project „Microteaching – modular teaching and learning offers for contemporary, needed and specific further education“, Microteaching (M. Veselý).
- Advisor to Higher Education Section of the Slovak Ministry of Education for International projects (M. Veselý).
- Head of Office for European Union Programs at FEI STU (M. Veselý).
- Coordinator and Contractor of the FP5 Project EUROPRACTICE, (M. Veselý).
- **Univerzit net** for Office for EU Programmes, (M. Veselý).
- Coordinator and Contractor of the Leonardo Student Mobility Project „Successful Way through the Training to the EU Market, SUWAM“, M. Veselý).
- Coordinator and Contractor of the Leonardo Student Mobility Project „Slovak University of Technology Students Vocational Training Placements in Europe, SUTSE“, M. Veselý).
- Contractor of the Leonardo Pilot Project „Information and Communication Technologies in Lifelong Learning“, ICOTEL (M. Veselý).
- Contractor of the Leonardo Pilot Project „Teaching and Learning in Virtual Learning Environments for Water Management“, WALTER (M. Veselý).

## **VIII. PUBLICATIONS**

### **VIII.1 Journals**

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