

DEPARTMENT OF MEASUREMENT
<http://kmer.elf.stuba.sk/slovensky/index.html>

Head of Department

Prof. Ing. Viktor Smieško, PhD.

Tel/Fax: ++421-2-654 29 600

e-mail: viktor.smiesko@stuba.sk

I. STAFF

Professors	Prof. Ing. Viktor Smieško, PhD., Prof. Ing. Július Bajcsy, PhD., professor emeritus
Associate Professors	Doc. Ing. Karol Kováč, PhD., Doc. Ing. Peter Kukuča, PhD., Doc. Ing. Rudolf Ravas, PhD., Doc. Ing. Livia Syrová, PhD.
Assistant Professors	Ing. Oľga Čičáková, Ing. Eva Králiková, Ing. Iveta Ondrášová, PhD., Ing. Vít Setnička, PhD.
Senior Scientists	Ing. Mikuláš Bittera, Mgr. Ján Grman, Ing. Jozef Hallon, Ing. Anton Krammer, Ing. Peter Poljovka, PhD., Ing. Imrich Szolik, Ing. Rudolf Zubaľ
Technical Staff	Ružena Nagyová (secretary), Oto Aufricht
PhD. Students	Ing. Roman Bielik

II. EQUIPMENT

II.1 Teaching and Research Laboratories

- Automated Instrumentation Laboratory
- Electromagnetic Compatibility (EMC) Laboratory with a 4,5 x 4,5 x 8 m Semianechoic Shielded Chamber
- Precise Measurements Laboratory
- Visual System Laboratory

II.2 Special Measuring Instruments and Computers

- Calibrator DATRON 4700,
- Digitizing Oscilloscopes up to 500 MHz 2 GS/s,
- VXI System (VX 4236 Digital Multimeter, VX 5520 VXI SLOT O Resource Manager, VX 1500 VXI D-Size Mainframe - 13 Slot, VX 4223 Counter/Timer),
- HP 84100A EMC Design Development System (HP 8591A Spectrum Analyzer and HP 11945A Close Field Probe Set),
- Agilent E7405A 26GHz EMC Analyzer,
- R&S Measuring Receivers 9 kHz - 1000 MHz (ESVP, ESH3, ESHS10 and ESVS10),
- Measuring Antenna Set (BiConLog, Log. periodic, Biconical, Active Rod and Active Loop Antennas),- Line Interference Simulator Set - Schaffner NSG 200,
- Schaffner BEST 96 - Burst, Surge and Power Drop-out Simulator,
- EM TEST VCS 500 Combination Wave Generator,
- Haefely PEFT - Electric Fast Transients/Burst Generator with EM 101 Coupling Clamp,
- Haefely PESD 1600 - Electrostatic Discharge Simulator,
- Rohde and Schwarz Signal Generator SMH (100 kHz ... 2000 MHz),
- Agilent E8257D PSG Analog Signal Generator 20 GHz,
- RF Power Amplifier 50 W 20 – 1000 MHz,
- Programmable AC Power Supply Chroma 61503 1500 VA Low Distortion,
- EMC Measurement Software.

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

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

Introduction to Engineering and Technical Documentation	(1st sem., 2-2h)	R. Ravas
Measurement of Electrical and Nonelectrical Quantities	(4th sem., 3-3h)	V. Smieško
Measuring Information Systems	(5th sem., 3-2h)	L. Syrová
Measurement	(5th sem., 2-3h)	P. Kukuča
Measurement of Electrical Quantities	(6th sem., 2-2h)	L. Syrová
Measurement in Power Engineering	(5th sem., 2-2h)	V. Setnička
Computer Control of Experiments	(6th sem., 2-2h)	V. Smieško
Automated Instrumentation	(7th sem., 2-3h)	V. Smieško
Microprocessor Engineering	(8th sem., 3-2h)	R. Ravas
Metrology and Testing	(8th sem., 2-2h)	P. Kukuča
Technical Diagnostics	(8th sem., 3-2h)	V. Setnička
Fundamentals of Visual Systems	(8th sem., 2-2h)	R. Ravas
Measuring Technology	(3rd sem., 2-3h)	V. Smieško

III.2 Graduate Study (Ing.)

Electromagnetic Compatibility	(1st sem., 3-2h)	K. Kováč
Theoretical Fundamentals of Technical Diagnostics	(1st sem., 3-2h)	K. Kováč
Visual Systems	(1st sem., 3-2h)	R. Ravas
Telemetry and Information Transmission	(1st sem., 3-2h)	P. Kukuča
Theory of Measuring Systems	(2nd sem., 3-2h)	R. Ravas
Digital Signal Processing	(2nd sem., 2-3h)	K. Kováč
Distributed Measuring Systems	(1st sem., 2-3h)	V. Smieško
Digital Image Processing	(1st sem., 3-2h)	R. Ravas
Diagnostic Systems	(1st sem., 3-2h)	K. Kováč

III.3 Distance Study

Measurement of Electrical and Nonelectrical Quantities	(4th sem.)	J. Bajcsy, V. Smieško
Introduction to Measurement	(4th sem.)	L. Syrová
Measuring Information Systems	(7th sem.)	L. Syrová

III.4 Undergraduate Study for Foreign Students (in English Language)

Electrical Measurement	(3rd sem., 3-3h)	V. Smieško
Electronic Measurement	(4th sem., 3-3h)	P. Kukuča
Microprocessor Systems	(7th sem., 3h)	K. Kováč

III.5 Graduate Study (Ing.) for Foreign Students (in English Language)

Electromagnetic Interference and Compatibility	(1st sem., 3-3h)	K. Kováč
--	------------------	----------

IV. RESEARCH PROJECTS

- Electromagnetic Compatibility of Electronic Systems. VEGA, 1/0160/03, V. Smieško
- Modern Methods of Diagnostics. VEGA, 1/0159/03, R. Ravas
- Multimedial Educational Materials for Bachelor Studies. KEGA 3/0057/02, co-workers: J. Bajcsy, R. Ravas, L. Syrová
- Evaluation Procedures of Electromagnetic Compatibility of Large Systems, VTP 2002-2005, V. Smieško
- Support of Research and Development Infrastructure from the Point of View of Electromagnetic Compatibility Requirements. State Research and Development Program, 338/2003, 2003 - 2010, K. Kováč
- LEONARDO da VINCI- ICoTel, No: SK /02/B/F/PP/-142261, Education Project, V. Smieško

V. COOPERATION**V.1 Cooperation in Slovakia**

- Institute of Measurement Science, Slovak Academy of Sciences, Bratislava
- Slovak Institute of Metrology, Bratislava
- Nuclear Power Plants Research Institute, Trnava
- Department of Theoretical Electrical Engineering and Electrical Measurement, FEI TU Košice
- Slovak Institute of Technical Standardization, Bratislava
- Office for Standardization, Metrology and Testing of Slovak Republic, Bratislava
- National Security Authority, Bratislava
- Slovak Power Plants, Bratislava
- University of Žilina, Žilina
- Faculty of Mechatronics, Trenčín University, Trenčín
- Volkswagen Slovakia, a.s., Bratislava
- Slovenská elektrizačná a prenosová sústava, a.s., Bratislava, (Slovak Electric Transmission System Inc.)
- Západoslovenská energetika, a.s., Bratislava
- Stredoslovenská energetika, a.s., Žilina
- Východoslovenská energetika, a.s., Košice

V.2 International Cooperation

- Department of Measurement, Czech Technical University, Prague, Czech Republic
- Katholieke Hogeschool Brugge - Oostende, Oostende, Belgium
- University of York, York, England
- European Organization for Nuclear Research CERN, Geneva, Switzerland
- Institute of Logistics and Warehousing (ILIM), Poznań, Poland

V.3 Membership in International Organizations and Societies

- V. Smieško: The European Academy of Sciences and Arts
- V. Smieško: IEEE - The Institute of Electrical and Electronics Engineers
- V. Smieško: IEE - The Institution of Electrical Engineers, Fellow
- V. Smieško: The International Information Academy
- P. Kukuča: IEE - The Institution of Electrical Engineers
- V. Smieško: URSI – Scientific Commission for Electromagnetic Noise and Interference

V.4 International Scientific Projects

Project within EC 5th Framework Programme:

- FOR-EMC - Forum of Laboratories Implementing EU Electromagnetic Compatibility Directive. 5RP-GROWTH Project, GTC1-2002-73008

Co-ordinator: K. Sieczkarek, ILIM Poznań, (PL), STU Co-ordinator: K. Kováč

Co-operating countries: CZ, DK, ES, FR, GR, HU, IT, LI, NL, NO, PL, RO, SK, SL, SW, UK.

- JPD BA Goal 3-2004-SORO-4, MERTECH, ESF, 2005-2008

V.5 Contracts

- K. Kováč, V. Smieško, J. Hallon, I. Szolik: Software Development for the Equipment Intended for the Zonal Space Measurement and for the Measurement of Shielded Chamber Attenuation. Contract with National Security Authority, Bratislava
- K. Kováč, V. Smieško, J. Hallon, M. Bittera: Optical RS232 Interface with Low Radiation. Contract with National Security Authority, Bratislava
- K. Kováč, V. Smieško, J. Hallon, I. Szolik, M. Bittera: Low Level Emission Measurements. Contract with National Security Authority, Bratislava
- R. Ravas, L. Syrová: Development of SW Modules for CAD System of SW GTS System and Related Components for Implementation and Operation by Internet. Contract with ASP, a.s., Prague
- V. Smieško et al.: Safety Rules for Servicing and Operation on Electrical Installation of Transfer and Distribution System. Contract with Elektrovod Holding, a.s., Bratislava, ZSE, a.s., Bratislava, SSE, a.s., Žilina, VSE, a.s., Košice, SEPS, a.s., Bratislava
- V. Smieško et al.: Safety Rules for Servicing and Operation on Electrical Installation of Power Plants. Contract with SE, a.s., Bratislava, Martiniská teplárenská, a.s., Martin, Tepláreň Košice, a.s., Košice, Zvolenská teplárenská, a. s., Zvolen, Paroplynový cyklus, a.s., Bratislava

VI. THESES

VI.1 Masters Theses

Masters theses supervised at the Department of Measurement. The names of supervisors are in brackets.

- [1] Doležaj M.: 3-D Vision Using Stereopsis. (R. Ravas)
- [2] Haris G.: Spectral Analysis of Signals. (O. Čičáková)
- [3] Heller L.: Logic Analyzer. (O. Čičáková)
- [4] Jánoška P.: Identification of Images of Polymeric Foils Described by the Statistical Methods. (L. Syrová)
- [5] Katona O.: Automated Measurement of Magnetic Field in Magnetic – Defectoscopy. (R. Zubaľ)
- [6] Kálmán P.: Design of Automated Workstation Used for Calibration of an Analog Measuring Instrument. (O. Čičáková)
- [7] Kuzma M.: Evaluation of EMC Properties of PLC Communication Systems. (K. Kováč)

- [8] Lengyel L.: Possibilities of Recurrent Neural Network in the Field of Data Analysis in the Defectoscopy of Tubes of Steam Generator. (J. Grman)
- [9] Munitor F.: 3-D Reconstruction by Stereopsis. (R. Ravas)
- [10] Nováková M.: Shape Reconstruction of Solids. (L. Syrová)
- [11] Práznovský L.: Computer Based Automation&Measurement – CBAM. (E. Králiková)
- [12] Štefanička P.: Efficiency Measurement Using Multimeter HP 3440A. (O. Čičáková)
- [13] Ulrich R.: Pattern Matching Application in Defectoscopy. (J. Grman)
- [14] Varga F.: Identification of Images of Polymeric Foils Described by the Frequency Methods. (L. Syrová)
- [15] Varga P.: The Use of Wavelet Transform for Image Processing. (R. Ravas)

VII. OTHER ACTIVITIES

- Member of Scientific Council of the Slovak Academy of Sciences (V. Smieško)
 - Vice-chairman of Scientific Council for Electronics of the Slovak Academy of Sciences (V. Smieško)
 - Member of Scientific Council of Institute of Measurement Science in Slovak Academy of Sciences (V. Smieško)
 - Vice-chairman of the Council of Universities of Slovak Republic (V. Smieško)
 - Chairman of Scientific and Technology Council of the Council of Universities of Slovak Republic (V. Smieško)
 - Membership in the Slovak Electrotechnical Committee (P. Kukuča)
 - Membership in the Scientific Council of the Slovak Institute of Metrology (P. Kukuča)
 - Membership in the Slovak National Technical Committees (K. Kováč, P. Kukuča)
 - Membership in the Technical Subcommittees of IMEKO (TC1 - J.Bajcsy)
 - Participation in the Program Committees of Conferences:
 - 5th International Conference supported by IMEKO TC-7 MEASUREMENT 2005 (V. Smieško)
 - Electrical Engineering and Information Technology 2005, Trenčín (V. Smieško)
 - International Conference Applied Electronics 2005, Plzeň (P. Kukuča)
 - Membership in the Editorial Boards of Journals:
 - Journal of Electrical Engineering (J. Bajcsy, V. Smieško)
 - AT&P Journal (V. Smieško)
 - EE - Journal of Electrical and Power Engineering (V. Smieško, P. Kukuča)
 - Metrology and Testing (P. Kukuča)
 - Measurement Science Review – on-line edition (V. Smieško)
 - Acta Electrotechnica et Informatica (V. Smieško)
 - Auditor of Slovak National Accreditation Service (J. Bajcsy, K. Kováč)
- Courses for Practical Engineers:
- EMC for Electronic Equipment Designers, June 2005

VIII. PUBLICATIONS

VIII.1 Journals

- [1] BIELIK, R., HALLON, J.: Program System for Controlling EMC Measurements and Collecting Measured Data. In: Measurement Science Review. - Vol.5, Sect.3 (2005) - pp. 78-81. (in English)
- [2] GRMAN, J., RAVAS, R., SYROVÁ, L.: Contribution to Localization Algorithm in the Defectoscopy of Steam Generator Tubes by Eddy-Currents. In: Measurement Science Review. - Vol.5, Sect.3 (2005) - pp. 74-77. (in English)

- [3] KOVÁČ, K.: Electromagnetic Compatibility for Electronic Equipment Designers. In: EE - časopis pre elektrotechniku a energetiku. - Vol.11, No.1 (2005) - pp. 25. (in Slovak)
- [4] POLJOVKA, P., KAMON, M.: Evaluation of Capability of Cable Production Process. In: EE - časopis pre elektrotechniku a energetiku. - Vol.11, Special Issue (2005) - pp. 141-143. (in Slovak)
- [5] RAVAS, R., MUNITOR, F.: Software for the Scanning and Processing of Images of a Couple and Colour CCD Cameras. In: EE - časopis pre elektrotechniku a energetiku. - Vol.11, Special Issue (2005) - pp. 40-42. (in Slovak)
- [6] SMIEŠKO, V., KUKUČA, P.: Measurement - A Challenge to Knowledge Economy. In: EE - časopis pre elektrotechniku a energetiku. - Vol.11, No.1 (2005) - pp. 5-6. (in Slovak)
- [7] SMIEŠKO, V., KUKUČA, P.: Task of Measurement within the Economy Restructuralisation. In: Metrológia a skúšobníctvo. - Vol.10, No.1 (2005) - pp. 26-28. (in Slovak)
- [8] SYROVÁ, L., OLŠIAK, M.: Reconstruction of 3D Object from the Sequence of Images. In: EE - časopis pre elektrotechniku a energetiku. - Vol.11, (2005), - pp. 37-39. (in Slovak)
- [9] SZOLIK, I., KOVÁČ, K., SMIEŠKO, V.: Influence of Noncoherent Sampling Upon an Error of Power Quality Parameters Measurement. In: Measurement Science Review. - Vol.5, Sect.3 (2005) - pp. 35-38. (in English)

VIII.2 Conferences

- [1] BIELIK, R., HALLON, J.: Program System for Controlling EMC Measurements and Collecting Measured Data. In: 7th Conference for PhD Students ELITECH 2005 : Bratislava, Slovak Republic, 9.2.2005. pp. 18-20. (in English)
- [2] BIELIK, R., HALLON, J.: Program System for Controlling EMC Measurements and Collecting Measured Data. In: 5th International Conference on Measurement "Measurement 2005" : Smolenice Castle, Slovak Republic, 15.-19.5.2005. pp. 558-651. (in English)
- [3] BITTERA, M., HARŤANSKÝ, R.: EM Field Measurement Aspects for Electromagnetic Compatibility Purposes. In: 5th International Conference on Measurement "Measurement 2005" : Smolenice Castle, Slovak Republic, 15.-19.5.2005. pp. 335-338. (in English)
- [4] BITTERA, M., KOVÁČ, K., SMIEŠKO, V.: Estimation of Radiated Emission Measurement Uncertainty. In: 8th International Symposium on Mechatronics "Mechatromika 2005" : Trenčianske Teplice, Slovak Republic, 19.-21.5.2005. pp. 34-38. (in English)
- [5] BITTERA, M., SMIEŠKO, V., KOVÁČ, K.: NSA Measurement Influence to Radiated Emission Measurement Uncertainty. In: XV International Conference on Electromagnetic Disturbances : Bialystok, Poland, 21.-23.9.2005. pp. 2.1.1-4. (in English)
- [6] ČIČÁKOVÁ, O., ŠTEFANIČKA, P.: Efficiency of Automated Measurement Systems. In: 5th International Conference on Measurement "Measurement 2005" : Smolenice Castle, Slovak Republic, 15.-19.5.2005. pp. 134-137. (in English)
- [7] GRMAN, J.: Multifrequency Fast Localization Algorithm in the Defectoscopy of Steam Generator Tubes by Eddy-Current. In: 15th International Czech - Slovak Scientific Conference Radioelektronika 2005 : Brno, Czech Republic, 3.-4.5.2005. pp. 132-135. (in English)

- [8] GRMAN, J., RAVAS, R., SYROVÁ, L.: Contribution to Localization Algorithm in the Defectoscopy of Steam Generator Tubes by Eddy-Currents. In: 5th International Conference on Measurement "Measurement 2005" : Smolenice Castle, Slovak Republic, 15.-19.5.2005. pp. 554-557. (in English)
- [9] GRMAN, J., SYROVÁ, L.: Application of Recurrent Neural Network in the Field of Multifrequency Eddy-Current Testing. In: 16th International DAAAM Symposium "Intelligent Manufacturing & Automation: Focus on Young Researchers and Scientists" : Opatija, Croatia, 19.-22.10.2005. pp. 147-148. (in English)
- [10] HALLON, J., BITTERA, M., KOVÁČ, K., SZOLIK, I.: Influence of Cables Position upon Repeatability of Induced Voltages during EMC Immunity Tests of Large Systems. In: XV International Conference on Electromagnetic Disturbances : Bialystok, Poland, 21.-23.9.2005. pp. 3.3.1-4. (in English)
- [11] HALLON, J., BITTERA, M., KOVÁČ, K., SZOLIK, I.: Reproducibility of Immunity EMC Measurements for Large Systems. In: 8th International Symposium on Mechatronics "Mechantromika 2005" : Trenčianske Teplice, Slovak Republic, 19.-21.5.2005. pp. 91-93. (in English)
- [12] HARŤANSKÝ, R., BITTERA, M.: Electromagnetic Compatibility EM Field Measurement. In: 8th International Symposium on Mechatronics "Mechantromika 2005" : Trenčianske Teplice, Slovak Republic, 19.-21.5.2005. pp. 84-87. (in English)
- [13] KUKUČA, P.: CAN Bus Monitoring and Control Program. In: International Conference "Applied Electronics 2005" : Pilsen, Czech Republic, 7.-8.9.2005. pp. 201-204. (in English)
- [14] ONDRÁŠOVÁ, I., KRÁLIKOVÁ, E.: Virtual Instrumentation Helps Data Acquisition Education. In: 5th International Conference on Measurement "Measurement 2005" : Smolenice Castle, Slovak Republic, 15.-19.5.2005. pp. 125-128. (in English)
- [15] POLJOVKA, P.: Quality Tools in Cable Production. In: 9th International Conference Mechanical Engineering 2005 : Bratislava, Slovak Republic, 16.11.2005. pp. 700-701. (in English)
- [16] SETNIČKA, V., POLJOVKA, P.: Laboratory of Metrology. In: Scientific Seminar with International Participation " New Trends in Quality Management". : Trnava, Slovak Republic, April 2005. pp. 148-151. (in English)
- [17] STUHLÍKOVÁ, E., GRON, M., RADOBICKÝ, J., CSABAY, O., ROVANOVÁ, E., BEŇO, J., MONDOČKO, P., ŠTEVOVE, M., ONDRÁŠOVÁ, I., HULÉNYI, L., KINDER, R., HELBICH, M., VACEK, F., NAGY, A., BEDNÁR, M., NEMČOK, P.: Interactive Animations as an e-Learning Motivation Agent. In: 6th International Conference "Virtual University VU'05" : Bratislava, Slovak Republic, 15.-16.12.2005. pp. 151-156. (in English)
- [18] SYROVÁ, L., RAVAS, R., GRMAN, J.: Classification of Transparent Polymeric Foils. In: 15th International Czech - Slovak Scientific Conference Radioelektronika 2005 : Brno, Czech Republic, 3.-4.5.2005. pp. 381-384. (in English)
- [19] SYROVÁ, L., RAVAS, R., GRMAN, J.: The Use of Frequency Methods for Classification of Visualized Transparent Polymer Foils. In: 16th International DAAAM Symposium "Intelligent Manufacturing & Automation: Focus on Young Researchers and Scientists" : Opatija, Croatia, 19.-22.10.2005. pp. 359-360. (in English)

- [20] SYROVÁ, L., RAVAS, R., GRMAN, J.: The Use of Frequency Properties of Image in the Classification of Transparent Polymeric Foils. In: 5th International Conference on Measurement "Measurement 2005" : Smolenice Castle, Slovak Republic, 15.-19.5.2005. pp. 484-487. (in English)
- [21] SZOLIK, I., BITTERA, M., HALLON, J., SMIEŠKO, V.: The Influence of Window Function by Noncoherent Sampling at Low Frequency Electromagnetic Compatibility Measurements. In: 8th International Symposium on Mechatronics "Mechantromika 2005" : Trenčianske Teplice, Slovak Republic, 19.-21.5.2005. pp. 94-96. (in English)
- [22] SZOLIK, I., KOVÁČ, K., KRÁLIKOVÁ, E., SMIEŠKO, V.: Virtual Measuring Workplace for Distance Learning. In: 5th International Conference on Measurement "Measurement 2005" : Smolenice Castle, Slovak Republic, 15.-19.5.2005. pp. 121-124. (in English)
- [23] SZOLIK, I., KOVÁČ, K., SMIEŠKO, V.: Influence of Noncoherent Sampling upon an Error of Power Quality Parameters Measurement. In: 5th International Conference on Measurement "Measurement 2005" : Smolenice Castle, Slovak Republic, 15.-19.5.2005. pp. 88-91. (in English)
- [24] VEDEL, P.: Digital Image Processing: Image Segmentation. In: 7th Conference for PhD Students ELITECH 2005 : Bratislava, Slovak Republic, 9.2.2005. pp. 54-57. (in English)

VIII.3 Book

- [1] BÉLAI, I., JURIŠICA, L., KOVÁČ, K., ŠTURCEL, J.: Control and Diagnostics of the Technological Processes in Manufacturing Process Based on Application of ICT. - Bratislava: FEI STU, 2005. - 158 pp. (in English)