

**DEPARTMENT OF ELECTROTECHNOLOGY**

<http://www.elf.stuba.sk/Katedry/KETG/>

**Head of Department**

**Doc. Ing. Jaroslav Lelák, PhD.**

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**I. STAFF**

Associate Professors	Doc. Ing. Anna Grusková, PhD., Doc. Ing. Jaroslav Lelák, PhD., Doc. Ing. Vladimír Šály, PhD., Doc. Ing. Miroslav Kopča, PhD.
Assistant Professors	Ing. Vladimír Ďurman, PhD, Ing. Soňa Milovská, PhD., Ing. Juraj Packa, PhD.
Senior Scientists	Ing. Michal Ružinský, PhD., Ing. Peter Poljovka, PhD.
Technical Staff	Anna Ferenčíková (secretary), Marián Kamendy
PhD. Students	Ing. Tomáš Ďuriš, Ing. Michal Váry

**II. EQUIPMENT**

**II.1 Teaching and Research Laboratories**

- Photovoltaic Laboratory
- High Voltage Laboratory
- Laboratory of Cables and Wires
- Laboratory of Health Protection at Work
- Laboratory of Dielectric Properties of Materials
- Laboratory of Electrical Components
- Laboratory of Liquid Dielectrics
- Laboratory of Magnetic Materials

**II.2 Special Measuring Instruments and Computers**

- Equipments for combined ageing tests of insulating systems
- Solar Simulator for Photovoltaics
- System for Measuring of Complex Impedance
- Vibration Magnetometer PVM-1

**III. TEACHING**

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

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

Safety and Protection of Health at Work I	(1st sem., 1-2h)	M.Kopča, V.Šály, J.Packa
Materials for Electrical Engineering	(3rd sem., 2-3h)	V.Šály
Materials and Technology for Electrical Engineering	(3rd sem., 2-3h)	J.Lelák
Safety and Protection of Health at Work II	(4th sem., 1-4h)	M.Kopča, V.Šály

Technological Processes	(6th sem., 2-3h)	V.Šály, A.Grusková
High Voltage Systems	(7th sem., 2-2h)	J.Lelák
Metallic and Optical Cables	(8th sem., 2-2h)	J.Lelák

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

Technology of Electronic Devices	(1st sem., 2-2h)	M.Kopča
Renewable Energy Sources	(1th sem., 2-1h)	M.Ružinský
Technology of Electric Machines	(2nd sem., 2-2h)	J.Lelák
Technology of Ceramic Composites	(2nd sem., 2-2h)	A.Grusková
Materials physics 2	(2nd sem., 3-2h)	V.Đurman
Quality management	(3rd sem., 2-1h)	P.Poljovka

### III.3 Undergraduate Study (Bc. Distance Education Method)

Safety and Protection of Health at Work I	(1st sem.)	M.Kopča
Materials for Electrical Engineering	(3rd sem.)	J.Lelák

## IV. RESEARCH PROJECTS

- Investigation of Ageing the Electroinsulating Materials for Objective Determination of Durability of Selected Electrical Systems, APVV-99-011905 (VUKI), J. Lelák
- Establish of Research-Development Network for Materials and Technology (MATNET) ESF Nr. JPD 3 2005/1-018 UMMS SAV, KETG FEI, J.Lelák
- Research of Magnetic Materials Intended for Electrical Engineering, Electronics, Data-Recording and Applications Related to the Electromagnetic Compatibility, VEGA 1/3096/06, J.Sláma, A.Grusková, V.Đurman
- Magnetic Structural Processes in Nano and Microcrystalline States Prepared from Amorphous Precursors, VEGA 1/3189/06, J.Sitek, A.Grusková
- Research of the Materials Based on Inclusive Compounds and Their Using. VEGA 1/1385/04 Re (UPJŠ Košice), V. Šály

#### International Scientific Projects:

- Project in Sixth Framework Programme of European Union FP6: Upgrading Semiconductor Silicon Wafers to Manufacture Cheap Solar Cells, M. Ružinský
- Preparation and Research of Doped Ionic Conductor  $\text{LiNbO}_3$  for Electrochrom Element or Electrolytes for Lithium-ionic Microbatteries., Slovak-Greek cooperation, V.Šály
- Fabrication of Novel Transparent and Conductive Oxide with Enhanced Properties for Optoelectronic and Photovoltaic Applications, Slovak-Greek Project, M.Ružinský
- Preparation and Characterization of Materials Based on Iron Oxides by Magnetic Methods, Czech /Slovak cooperation, ZS-4/2001-2010, J.Šubrt, A. Grusková
- Magnetic and Microstructural Studies of New Nanocomposited and Substituted Ferrites, Synthesized by Mechanical Alloying and Other Advanced Methods, CONACYT (UABC, Mexicali), Mexico-Slovak Project, A.Gozález, A. Grusková
- Leonard Da Vinci Programme, Safety on Machinery, M.Huba, M.Kopča, V.Šály

## V. COOPERATION

**V.1 Cooperation in Slovakia**

- VUKI j.s.c., Bratislava
- VÚJE j.s.c., Trnava
- DELTA ENERGY SYSTEMS s.r.o. Nová Dubnica
- SE a.s. OZ EBO, Jaslovské Bohunice
- BEZ a.s. Bratislava
- Elkond HHK j.s.c. Trstená
- OBO Bettermann Slovakia, Bratislava
- Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava
- Institute of Physics, Slovak Academy of Sciences, Bratislava
- SYLEX s.r.o. Bratislava
- VUSAPL, Nitra
- THERMO-SOLAR p.l.c., Žiar n. Hronom
- MURAT, s.r.o. Pezinok
- ELBA a.s. Kremnica
- CERAM j.s.c., Nové Sady
- TAU-CHEM Ltd, Bratislava
- All Deco s.r.o. Jaslovské Bohunice
- Institute of Materials Research, Slovak Academy of Sciences, Košice
- Elektroservis a.s. Bratislava
- SONY Slovakia, Trnava Plant
- UPJŠ Košice
- ZSE a.s. Bratislava
- HAKL s.r.o. Bratislava

**V.2 International Cooperation**

- Technical University, Brno, CzR
- Czech Technical University, Prague, CzR
- ABB Corporate Research, Baden Daettwil, Switzerland
- Institute of Anorganic Chemistry, Academy of Sciences, Řež, CzR
- Piezoceramics, p.l.c. Hradec Králové, CzR
- Motorpal, a.s. Světlá Hora, CzR
- PROTECH Group, s.r.o., Klatovy, CzR
- TECNATOM, s.a., Madrid, Spain
- IMEC Leuven, Belgium
- Fraunhofer Institute for Solar Energy Systems ISE, Freiburg, Germany
- EC JCR Ispira, Italy
- SEI – Solar Energy Italia, Italy
- Solartec, p.l.c., Rožnov pod Radhoštěm, CzR
- WAGO Electric GmbH., Vienna, Austria
- Foundation for Research and Technology, MRG-IESL, Heraklion, Crete, Greece
- WSC – World Solar Challenge, Adelaide, Australia
- Institute of Microelectronics and Optoelectronics, Warsaw University of Technology, Poland
- Foundation for the Development of Material Science, Cracow University of Technology, Cracow, Poland
- WREN - World Renewable Energy Network, Reading, UK
- CINVESTAV, Saltillo, Mexico
- AU of BAJA CALIFORNIA, Mexicali, Mexico
- Aristotle University, Thessaloniki, Greece
- TU Plovdiv, Bulgaria
- Industri Tech A/S, Denmark
- A/M-Gruppen A/S, Denmark
- EU Vest, Denmark
- Frareg s.r.l., Italy

### V.3 Membership in International Organizations and Societies

- M.Ružinský: Senior Member, IEEE - EDS (Electron Devices Society), USA
- M.Ružinský: WREN - World Renewable Energy Council /Network, UK
- V.Šály: WREN - World Renewable Energy Council /Network, UK
- A.Grusková: member of International Steering Committee EMFM
- A.Grusková: member of European Physical Society
- M.Ďuriš: member of European Physical Society
- V.Šály: member of European Physical Society
- J.Packa: member of European Physical Society

### V.4 Contracts

- Lelák J. at all. : Long time combined ageing test of insulation systems. Contract with ABB Corporate Research, Baden Daettwil, Switzerland
- Lelák, J. Kamendy M.: Relative permittivity measurement of compound crude petroleum - water. Contract with Intech, s.r.o. Bratislava
- Lelák J. Packa J. : Tests of electrical properties cable deposits from NPP. Contract with VUJE a.s. Trnava
- Lelák J., Packa J., : Electrical tests of high precision piezoceramic discs. Contract with Piezoceram s.r.o. Libřice, Czech Republic.
- Lelák, J. Váry M.: Measurement of repetitive peak surge current on high voltage diodes. Contract with Semicron s.r.o. Vrbové
- Lelák, J. Packa J., Kamendy, M. : Properties of opt-couplers on wide temperature range, Contract with Delta Energy Systems s.r.o., Nova Dubnica
- Lelák, J. Packa J., Váry M., Kamendy, M. : Development of test methods for composite insulated cables. Contract with Murat s.r.o. Pezinok
- Lelák, J. Packa J., Kamendy, M. : Expertise of failure reason on high voltage cable, Contract with EVPU a.s., Nova Dubnica
- Lelák, J. Váry M.: Voltage tests on transformer bushings, Contract with Polyservis Nitra s.r.o. Nitra
- Grusková, A.: Preparation of magnetite with various substitution of Fe with Ni and Cr, ALL Deco s.r.o, Jaslovské Bohunice
- Grusková, A.: Production of nanopowders by combustion synthesis, TAU-CHEM Ltd, Bratislava

## VI. THESES

### VI.1 Masters Theses

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

- [1] P.Neupauer: Design of Technological Line for Patchcord Production with Ultra Low Loss of Optical Power (J.Lelák)
- [2] I.Kuliffay: Measuring and Monitoring in Cable Production (P.Poljovka)

### VI.2 Habilitation These

- [1] M. Kopča: The Heat and Degradation of Insulation in Electrical Devices.

## VII. OTHER ACTIVITIES

- organizing of the International Conference DISEE 2006, Bratislava - Častá (J.Lelák)

- members of International Steering Committee of “World Renewable Energy Congress IX“, WREC 2008, 19 – 25 August (M.Ružinský, V.Šály)
- member of Committee of Slovak Physical Society (A.Grusková)
- activities in: Renewable Energy World Suppliers, Database 2006, James&James Science Publishers Ltd, London, UK (M.Ružinský)
- activities in Czech-Slovak section CS-IEEE (M.Ružinský)
- collaboration with IEEE-EDS Photovoltaic Devices Technical Committee and EDS Administrative Committee (AdCom), USA (M. Ružinský)
- invited lecture “Solar Energy Automobiles“, In: ECOVAST, Section: “Rural Development in the Knowledge – Based Society“, Bratislava, 16 – 18 October, 2006 (M.Ružinský, J.Packa)
- invited lecture “Photovoltaics in New Countries of Europe Union“, In: ECOVAST, Section: “Rural Development in the Knowledge – Based Society“, Bratislava, 16 – 18 October, 2006 (V.Šály, J.Packa)
- invited lecture “Effect of Various Degradation Factors on The Properties of PVC Insulated Power Cables“, In: 5<sup>th</sup> International Conference, URB-CORR 2006, Study and control of corrosion in the perspective of sustainable development of urban distribution grids, Romania, 18 – 20 May, 2006 (J.Lelák)
- invited lecture “Renewable Energy in Slovakia“, In: The Memorandum of the II International Conference “Renewable Energy Sources in the Visegrad Countries“, Zakopane, 6 – 7 November, 2006 (T.Ďuriš)
- member of Local Organising Committee of the Int. Conference “Magnetic Measurement“, Závažná Poruba, 2006 (A.Grusková)
- bilateral agreement, Socrates programme Higher education (ERASMUS) STU Bratislava - Angel Kunchev University of Rouse (V.Šály)
- active participation in Leonardo Da Vinci Project: Successful Way Through the Training to the EU Market (SUWAM), Solartec s.r.o., Rožňov pod Radhoštem, CzR (T. Ďuriš)

## **VIII. PUBLICATIONS**

### **VIII.1 Journals**

### **VIII.2 Conferences**

### **VIII.3 Book**

### **VIII.4 Textbook**