

# CONTENTS (SCIENTIFIC PROGRAM)



Wednesday, June 20, 2018

OPENNING CEREMONY 15:00

PLENARY SESSION *Introductory lectures* 15:05

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*Š. Luby*

**Present Migration Flows into Europe in Terms of Diffusion Theory and Gravity Model**

*J. Krempaský, G. Springholz, J. Minár, J. H. Dil*

**$\alpha$ -GeTe and (GeMn)Te Semiconductors: a New Paradigm for Spintronics**

*Wen-Hsiu Cheng, Ping-Huan Tsai, Yi-Hung Chen, Hung-Yin Tsai, R. Andok*  
**Fabrication of Field Emitters of Ultra-Nano-Crystalline and Micro-Crystalline Diamond Films by the MPECVD Method**

*J. Fúzer, P. Kollár, M. Strečková, S. Dobák, L. Ďáková, Z. Birčáková, R. Bureš, M. Fáberová*

**Soft Magnetic Composites**

*U. Topal, P. Švec Sr., Hava Can, P. Švec Jr.*

**Critical Design of a Fluxgate Magnetometer and a Magnetic Torque Rod for Low Orbit Satellites**

COFFEE BREAK 16:45

SESSION 1(A) *International workshop:*  
*Current Successes in the Photoemission (CSPES) I.* 17:15

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**Acknowledgment.** All contributions in this workshop were supported by the project CEDAMNF, reg. no. CZ.02.1.01/0.0/0.0/15\_003/0000358, co-funded by the European Regional Development Fund (ERDF).

*S. Eich, M. Plötzing, M. Rollinger, S. Emmerich, R. Adam, C. Chen, H. C. Kapteyn, M. M. Murnane, L. Plucinski, D. Steil, B. Stadtmüller, M. Cinchetti, M. Aeschlimann, C. M. Schneider, S. Mathias*

**Electron and Spin Dynamics in Co/Cu(001) During Laser-Induced Demagnetization**

*M. Gmitra*

**Proximity Effects in Layered Heterostructures**

*J. Minár, S. Nemšák, I. A. Vartaniants, Ch. S. Fadley*

**Element- and Momentum-Resolved Electronic Structure from Standing-Wave Hard X-ray Angle-Resolved Photoemission**

*L. Nicolai, J. Minár*

**XPS Limit in Soft X-Ray Photoemission Spectroscopy of Ag(001)**

*F. Alarab, J. Minár, P. Šutta, L. Prušáková, R. Medlín, O. Heckmann, Ch. Richter, K. Hricovini*

**Study and Characterization of SrTiO<sub>3</sub> Surface**

SESSION 1(B)

*Nuclear Engineering*

17:15

*D. Flamíková, V. Nečas*

**Creation of Reference Biosphere Model for Safety Assessment of Deep Geological Repository**

*M. Pavlovič, P. Vlk*

**Monitoring of PET Cyclotron Radiation Fields Using a Novel Bonner Sphere Spectrometer**

*M. Saro, M. Petriska, V. Slugeň*

**Performance of LYSO and BC420 Coupled with Ketek and Sensl SiPM for Needs of PALS**

*F. Osuský, B. Vrban, Š. Čerba, J. Lüley, J. Haščík, V. Nečas*

**Reactivity Response Analysis of a Movable Reflector System for the GFR 2400 Core**

*B. Vrban, J. Lüley, Š. Čerba, F. Osuský, V. Nečas*

**The VVER-440 Burnup Credit Computational Benchmark Used for the SCALE System Qualification**

*J. Lüley, Š. Čerba, B. Vrban, F. Osuský, V. Nečas, J. Haščík*

**Criticality Safety Validation of the SCALE System**

*Š. Čerba, B. Vrban, J. Lüley, F. Osuský, V. Nečas*

**Estimation of the Dose Rate in the Preparation Phase of the Neutron Emission Rate Measurement**

SHORT BREAK

SESSION 2(A)

*New materials and structures, their analysis, nanostructures*

18:30

*M. Kadlečiková, J. Breza, L. Vančo, A. Grmanová, J. Racko*

**Raman Spectroscopy of Material Burnt in Electric Arc (A Case Study)**

*Š. Hardoň, J. Kúdelčík, M. Rajňák*

**Study of Structural Arrangement in Ferrofluid at Various Temperatures by Acoustic Spectroscopy**

*P. Nemeč, I. Hotový, R. Andok, I. Kostič*

**Increased Sensitivity of a Gas Sensor by Controlled Extension of TiO<sub>2</sub> Active Area**

*R. Andok, R. Hartánský, J. Hricko, J. Halgoš*

**Concept of a MEMS Load Cell Sensor of Mechanical Quantities Based on High-Frequency Effects**

*P. Hrkút, I. Kostič, M. Benkovičová, M. Kotlár, Š. Luby*

**Silicon Substrates for Nanoparticle Gas Sensors with Embedded Electrodes and Planar Surface**

*J. Szűcssová, A. Zeleňáková, O. Kapusta, A. Berkutova, V. Zeleňák*

**Influence of Silica Coating on Magnetic Properties and Zeta Potential of Fe<sub>3</sub>O<sub>4</sub>@mSiO<sub>2</sub> Core-Shell for Drug Delivery Systems**

*J. Škoviera, T. Krajňák, P. Švec*

**Comparison of Planar Flow Cast Magnesium and its Non-Transition Metal Alloys**

*V. Kutiš, J. Paulech, J. Murín, G. Gálik*

**Analysis of Piezoelectric Beams for Smart Structures**

*G. Gálik, V. Kutiš, J. Paulech*

**Thermal Transient Analysis of Bolometer**

SESSION 2(B)

*Optical phenomena in materials, optical waveguides,  
new principles in sensors and detection methods*

18:30

*N. Tarjányi, M. Uhříčik, D. Káčik, P. Palček*

**Photoelastic Birefringence of Polycarbonate as a Basis for Optical Sensors of Load**

*D. Seyringer, L. Gajdosova, C. Burtscher, A. Kuzma, J. Chovan, F. Uherek*

**Design of Low Loss Silicon Nitride 8-Channel AWG**

*L. Gajdošová, D. Seyringer, C. Burtscher, J. Chovan, A. Kuzma, F. Uherek*

**Simulation of Silicon Nitride Based Arrayed Waveguide Gratings Applying Three Different Photonics Tools**

*S. Halászová, T. Váry, V. Nádaždy, J. Chlpík, J. Cirák*

**Effect of Substrate Roughness on Photoluminescence of Poly(3-Hexylthiophene)**

*T. Charubin, M. Nowicki, R. Szewczyk*

**Spectral Analysis of Matteucci Effect Based Magnetic Field Sensor**

*N. Kaplan, J. Jasenek, J. Červeňová*

**The Influence of Magnetic Field Applied on Fiber Bragg Gratings**

WELCOME PARTY

20:00-01:00

**Thursday, June 21, 2018**

BREAKFAST 07:00

SESSION 3(A) ***International workshop:***  
***Current Successes in the Photoemission (CSPEs) II.*** 08:30

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**Acknowledgment.** All contributions in this workshop were supported by the project CEDAMNF, reg. no. CZ.02.1.01/0.0/0.0/15\_003/0000358, co-funded by the European Regional Development Fund (ERDF).

*H. Volfova, R. Wilcken, M. Block, E. Riedle*

**Time Resolved Spectroscopy: from Molecules to Solid State Materials**

*M. Rosmus, R. Kurlito, D. J. Gawryluk, M. Z. Cieplak, J. Goraus, P. Starowicz*  
**Influence of Co and Ni Doping on the Electronic Structure of FeTe<sub>0.65</sub>Se<sub>0.35</sub>**

*P. Starowicz, R. Kurlito, M. Rosmus, Ł. Walczak, A. Tejada, K. Treiber, F. Reinert, M. Szlawska, D. Gnida, J. Goraus, D. Kaczorowski*  
**ARPES Studies of Selected Cerium Heavy Fermion Systems**

*O. Heckmann, M. C. Richter, J.-M. Mariot, L. Nicolai, I. Vobornik, W. Wang, U. Djukic, K. Hricovini*  
**Quasi 1D Structures at the Bi/InAs(100) Surface**

*J. Krempaský*

**COPHEE: the complete photoemission experiment station**

*R. Kurlito, J. Goraus, S. Baran, Yu. Tyvanchuk, Ya. M. Kalychak, A. Szytuła, P. Starowicz*  
**Electronic Structure of the CeCu<sub>9</sub>In<sub>2</sub> Compound**

SESSION 3(B) ***New materials, structures, nanostructures, nuclear science and technology*** 08:30

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*M. Benkovičová, A. Hološ, J. Kollár, J. Mosnáček, Y. Halahovets, M. Kotlár, M. Jergel, J. Ivančo*  
**Control of Interparticle Distance of Ordered Iron-Oxide Nanoparticle Assemblies by Means of Surfactant Design**

*K. Gmucová, V. Nádaždy, T. Váry*

**Density of Dark and Light-Induced Polaron States in Polymer PFO and Copolymer PFO-DBT Thin Films**

*I. Janotová, P. Švec, I. Maňko, D. Janičkovič, P. Švec Sr.*  
**Evolution and Degradation of Magnetic MnBi Phase**

*V. Skákalová, M. Hulman, M. Jergel, Ch. Hofer, V. Vretenár, P. Kotrusz*  
**Advances in Graphene Preparation through Chemical Routes Studied by XPS, XRD, STEM and Electrical Transport**

*B. Zafko, F. Dubecký, L. Ryc, A. Šagátová, K. Sedlačková, E. Kováčová, V. Nečas*  
**The Study of 4H-SiC Alpha Particle Detectors with Different Schottky Contact Metallization**

*Š. Gmuca, J. Kliman*

**Making Nuclear and XRF Targets with the HIVIPP Method**

COFFEE BREAK

10:00

SESSION 4(A) *Physical properties, structural aspects of materials and their influencing, theory of physical properties, computational physics*

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10:30

*J. Paulech, J. Murín, V. Kutiš, G. Gálik, V. Goga, T. Sedlár*

**The Electro-Thermal Link Finite Element with 3D Spatial Functionally Graded Material Properties**

*J. Racko, M. Mikolášek, T. Lalinský, A. Grmanová, P. Benko, M. Kadlečiková, L. Harmatha, J. Breza*

**High-field Electron Mobility Model of Vertical Charge Transport in Al/Al<sub>2</sub>O<sub>3</sub>/GaN/AlGaN/GaN Heterostructures**

*R. Szewczyk, M. Nowicki*

**Explicitness of Jiles-Atherton Model Parameters Identified During the Optimization Process**

*P. Duranka, J. Onufer, J. Ziman*

**Effect of Temperature on Domain Wall Dynamics in Magnetic Microwire**

*B. Butvinová, P. Butvin, P. Švec Sr., M. Kuzminski, I. Matko*

**Magnetic properties of multi-layered metallic ribbons**

*P. Vrábel, A. Baran, M. Koval'aková, M. Hutníková, D. Olčák*

**Characterization of Native and Plasticized Starch Using Solid State NMR**

*J. Murín, V. Goga, J. Hrabovský, L. Šarkan, T. Malinarovičová, J. Paulech*

**Modelling and Measurement of Dynamic Parameters of the Nylon Actuators**

*J. Kravčák*

**Influence of the Surface Structure of Thin Ferromagnetic Wires on Magnetoimpedance**

*D. Olekšáková, M. Jakubčín, P. Slovenský, P. Kollár, J. Füzér, F. Onderko*

**Magnetic Properties of FeNiMo Compacted Powder**

*P. Gazda, M. Nowicki, R. Szewczyk*

**Influence of Alloy Composition on GMI Effect in Amorphous Ribbons**

*A. Šagátová, B. Zaťko, D. Kubanda, P. Boháček, M. Sekáčová, V. Nečas*  
**Optimization of X-ray Imaging by Timepix Based Radiation Camera with SI GaAs Sensor**

*S. Sojak, J. Degmová, M. Petriska, V. Slugeň*  
**Investigation of Laboratory Produced ODS Alloys**

*J. Degmová, V. Kršjak, M. Petriska, J. Š. Veterníková, S. Sojak*  
**Microstructural Properties of Materials for Nuclear Applications**

*K. Sedlačková, M. Miglierini, J. Dekan, V. Nečas, M. Kopáni*  
**Structural and Compositional Study of Human Brain Tissues Using X-ray Fluorescence and Mössbauer Spectroscopy**

LUNCH 11:30  
 SOCIAL PROGRAMME 13:00  
 DINNER AND FRIENDSHIP PARTY 19:30

**Friday, June 22, 2018**

BREAKFAST 07:00

**SESSION 5 (PLENARY) *New materials and structures; their analysis and influencing*** 08:30

*J. Krempaský*  
**Synchrotrons today, synchrotrons tomorrow**

*J. Müllerová, P. Šutta, L. Prušáková*  
**Derivative Optical Spectroscopy of Thin Films of Alkaline-Earth Titanates: Critical Points**

*S. Jurečka, T. Matsumoto, K. Imamura, H. Kobayashi*  
**Properties of Nanostructured Layers Formed on Silicon**

*J. Sitek, D. Holková, J. Dekan, P. Novák, A. Šagátová, S. Sojak*  
**Properties of Nanocrystalline Alloys after Electron Beam Irradiation of Amorphous Precursor**

*J. Dobrovodský, D. Vaňa, M. Beňo, M. Sahul, L. Čaplovič*  
**IBA Characterization of Ti-Si-C-N Nanocomposite Coatings**

CONCLUDING REMARKS 10:00

COFFEE BREAK 10:05

CHECK OUT AT THE HOTEL RECEPTION 11:00

LUNCH 11:30

DEPARTURE 13:00