

SCIENTIFIC PROGRAM

Wednesday, June 21, 2023



ARRIVAL OF PARTICIPANTS 09:00 – 13:00

REGISTRATION AND CHECK-IN AT THE HOTEL RECEPTION 11:00

LUNCH 11:30 – 14:00

OPENING CEREMONY 15:00

PLENARY SESSION A1 *Introductory Lectures* 15:05

Ján Minár, Trung-Phuc Vo, Olena Tkach, Sylvain Tricot, Didier Sébilleau, Aimo Winkelmann, Olena Fedchenko, Yaryna Lytvynenko, Dmitry Vasilyev, Hans-Joachim Elmers and Gerd Schönhense

Circular Dichroism by Core-Level Angle-Resolved Photoemission: Application of Multiple&Single-Site Scattering Theory

Pavol Neilinger, Martin Baránek, Samuel Kern, Ján Šoltýs, Magdaléna Poláčková and Miroslav Grajcar

NbN Nanowires for Single Photon Detectors

Wolfgang Fritzsche

Bioanalytics Using Plasmonic Nanostructures

Katarína Gmucová, Martin Konôpka, Lucia Feriancová, Vojtech Nádaždy, Peter Bokes and Martin Putala

Analysis of Structural Defect States in Thin Films of Small-Molecular Organic Semiconductors Using Complex Impedance Data and DFT

Soren Cheng, Bruce Pierson and Marek Flaska

Accurate Experimental Assessment of Extreme Deadtime Conditions for Gamma-Ray Detection Systems

COFFEE BREAK 16:30

SESSION A2 ***International Conference:***

Advances in Nuclear Engineering I

17:00

Štefan Čerba, Branislav Vrban, Jakub Lüley, Vendula Filová and Vladimír Nečas

Evaluation of Shielding Materials for the DD Type Neutron Generator in the Mini Labyrinth Experiment

Andrej Novak, Carlos Granja, Andrea Sagatova, Vaclav Zach and Jan Stursa

A Simple Approach to MeV Proton Track Filtration and Analysis in Timepix3 Hybrid Pixel Detector with Si, CdTe and GaAs Sensor

Branislav Vrban, Štefan Čerba, Jakub Lüley, Vendula Filová and Vladimír Nečas
Simulation of Radiation Dose Around the Planned DD Neutron Generator at STU

Vendula Filová, Branislav Vrban, Pavol Blahušiak, Štefan Čerba, Jakub Lüley and Vladimír Nečas
Performance of PADC Track Detectors in Fast Neutron Dosimetry Under Different Etching Conditions

Acknowledgment. This scientific conference was supported by the Slovak Research Development Agency within the project No. APVV VV-20-300, APVV-21-0170 and by Nureco o. z.

SESSION B1 **6th international workshop:**
Current Successes in the Photoemission and Electron Microscopy I. 17:00

Marko Milivojević, Martin Gmitra, Marcin Kurpas, Ivan Štich and Jaroslav Fabian
Proximity Induced Spin-Orbit Coupling in Phosphorene on WSe₂ Monolayer

Jakub Schusser and Friedrich Reinert
The Effect of Symmetry on Photoemission Observables

Muthu Masilamani, Jakub Schusser, Mohammed Qahosh, Lukasz Plucinski and Friedrich Reinert
One-Step Model Photoemission Calculations of Type-II Dirac Semimetal PtTe₂

Maedeh Rassekh, Marko Milivojevic and Martin Gmitra
Charge-to-Spin Conversion in Graphene Proximitized by 1T-TaS₂

Juraj Mních and Martin Gmitra
First Principle Study of Helimagnetism in 1T-NiI₂ Monolayer

Laurent Nicolai, Ján Minár, Maria Christine Richter, Olivier Heckmann, Jean-Michel Mariot, Uros Djukic, Johan Adell, Mats Leandersson, Janusz Sadowski, Jürgen Braun, Hubert Ebert, Jonathan D. Denlinger, Ivana Vobornik, Jun Fujii, Pavol Šutta, Gavin Bell, Martin Gmitra and Karol Hricovini
Manipulation of Topological Surface States in III–V Compounds: Case of InBi Semimetal

Saleem Ayaz Khan, Laurent Nicolai, Jean Zaraket, Maria Christine Richter, Olivier Heckmann, Laxman Nagi Reddy, Waly Ndiaye, Mauro Fanciulli, Karol Hricovini and Ján Minár
Influence of Hf (0001) Surface Contamination on ARPES: a DFT Study Supporting Experiments

Sarath Sasi, Laurent Nicolai, Rostislav Medlín, Michal Procházka, Christine Richter, Karol Hricovini and Ján Minár
Evolution of Band Structure in 2D Transition Metal Dichalcogenide Alloy Mo_xW_{1-x}Se₂

Jana Simeg Veternikova, Matus Hupka, Stanislav Sojak, Martin Petriska and Vladimir Slugen
An Effect of Manganese and Nickel in VVER-440 Reactor Pressure Vessel Steels During the Process of Annealing

Robert Hinc, Vladimir Slugen, Julius Dekan and Branislav Stribrnsky
Working Life Assessment of Internal Load-Bearing Concrete Structures of Nuclear Power Plant

Yamin Song, Vladimir Krsjak, Vladimir Slugen, Radek Novotny, Stanislav Sojak, Michal Novak, Julius Dekan, Xingzhong Cao and Jarmila Degmova
The Effect of Surface Treatment on the Corrosion Behaviour of Austenitic Stainless Steels Exposed to Supercritical Water Conditions

Július Dekan, Stanislav Sojak, Róbert Hinc, Yamin Song, Vladimír Kršjak, Marek Mikloš and Jarmila Degmová
Structural Changes of Fecralloy Induced by Neutron Irradiation Observed by Mössbauer Spectrometry

Ivan Procházka, Josef Blažej, Vít Sopko, Roberta Bimbová, Jan Břínek, Matěj Stavinoha and Bruno Sopko
Single Photon Detector for Laser Time-Transfer Link to Next-Gen Galileo Satellite – Power Source Radiation Resistance

Branislav Stribrnský, Róbert Hinc and Gabriel Farkas
Modeling and Optimization of Radioactive Wastewater Monitor

Matúš Kornhauser, Štefan Čerba, Vendula Filová, Branislav Vrban, Jakub Lüley and Vladimír Nečas
Deterministic Evaluation of Digital Images of Passive Radiation Detectors

Bohumír Zařko, Marián Varga, Gabriel Vanko, Tibor Izsák, Andrea Šagátová and Alexander Kromka
Polycrystalline CVD Diamond-Based Structures for Detection of Charge Particles

Nikola Kurucová, Andrea Šagátová, Eva Kováčová and Bohumír Zařko
Influence of Quasi-Ohmic Electrode on Performance of Semi-Insulating GaAs Detectors

Jakub Lüley, Branislav Vrban, Štefan Čerba and Vladimír Nečas
Chromium Doped Fuel Calculation by FEMAXI-6

Robert Riedlmajer, Jozef Dobrovodský, Dušan Vaňa, Pavol Noga, Martin Muška, Juraj Halanda and Matúš Beňo
Additional TORVIS Ion Source to the 6 MV Tandatron Ion Accelerator - Achieved Characteristics

Katarína Sedlačková, Branislav Stribrnský and Vladimír Nečas
MCNPX Simulation of Proton-Irradiated Construction Steels for Nuclear Installations

*Andrea Šagátová, Ladislav Hrubčín, Nikola Kurucová, Vladimír Nečas, Eva Kováčová,
Sergej Alexandrovič Evseev and Bohumír Zařko*
Electrical Properties Study of the 4H-SiC Detectors Based on Thick Epitaxial Layer

Vladimir Krsjak, Yamin Song, Stanislav Sojak and Jarmila Degmova
Advanced Characterization Methods for Study of Austenitic Stainless Steels Exposed to Supercritical Water

Soňa Kotorová, Andrea Šagátová and Bohumír Zařko
Analysis of CdTe Detectors Using I-V Characteristics

SESSION C2 *New Materials and Structures, Nanostructures and Thin Films, Their
Analysis and Specific Applications, Applied Optics, Sensorics* 18:15

Norbert Tarjányi and Marián Janek
Birefringent Material-Based Stress Sensor

Martin Predanocy, Jaroslava Škriniarová, Robert Andok and Pavol Nemec
Smart Print UV System: A High-Resolution Maskless Lithography Technology for Cost-Effective and Rapid Fabrication

*Johann Zehetner, Dana Seyringer, Fadi Dohnal, Stanislava Serecunova, Heinz Seyringer,
Ivan Hotovy, Miroslav Mikolasek, Peter Ondrejka, Juraj Hotovy and Vlastimil Rehacek*
AWG-Spectrometer to Analyze Absorption Spectra of Optical Gas Sensors Fabricated by Femtosecond Laser Processing

Juraj Chlpík, Matej Kurtulík, Soňa Kotorová, and Július Cirák
Spectroscopic Ellipsometry of Au Nanoparticles Layers

*Katarína Viskupová, Branislav Grančič, Tomáš Roch, Štefan Nagy, Leonid Satrapinskyy,
Viktor Šroba, Martin Truchlý, Jiří Šilha, Peter Kúš and Marián Mikula*
Formation of Planar Defects in Thin $V_{1-x}Mo_xB_{2-\Delta}$ Films

Marek Veveričík, Peter Bury and František Černobila
The Effect of Magnetic Nanoparticles on the Optical Properties of Liquid Crystals

Magdaléna Poláčková, Elena Zhitlukhina, Mikhail Belogolovskii, Tomáš Plecenik and Maroš Gregor
Anomalous R-T Characteristics of Superconducting NbN Thin Films

Ivan Kostic, Katia Vutova, Robert Andok, Anna Bencurova and Anna Konecnikova
Multilayer Electron Beam Resist Systems for the Application in High Frequency Electronics Fabrication

Dávid Košovský, Marcel Miglierini, Tomáš Kmječ, Marek Bujdoš and Irena Janotová
Microstructure of High-Entropy Alloys

Štefan Hardoň, Jozef Kúdelčík, Peter Hockicko, Jaroslav Hornak and Miroslav Zahoran
Influence of ZnO Nanofillers on the Permittivity of New Cold-Curing Class Polyurethanes

Jaroslava Škriniarová, Magdaléna Kadlečiková, Ondrej Szabó and Pavel Škriniar
Investigating the Topography of Discontinuous Gold Layers at the Nanoscale

Magdaléna Kadlečiková, Jaroslava Škriniarová, Juraj Breza, Karol Jesenák and Katarína Bédiová
Silicate Substrates Used to Anchor Iron Particles Catalysing the Formation of Carbon Nanotubes

WELCOME PARTY (HOTEL RESTAURANT)

20:00-24:00

Thursday, June 22, 2023

BREAKFAST

07:00

SESSION A3 ***International Conference:***

Advances in Nuclear Engineering II

08:30

Izabela Skwira-Chalot, Przemysław Sękowski, Joanna Matulewicz, Sebastian Kusyk, Adam Spyra, Jan Swakoń, Wiktoria Szcześniak, Agata Taranienko, Damian Wróbel and Tomasz Matulewicz

SiO₂ as Oxygen Target to Study Nuclear Reactions Induced by Protons in the Hadrontherapy Energy Range

Juraj Valluš, Jakub Lüley, Branislav Vrban, Štefan Čerba and Vladimír Nečas

Comparison of the JEFF3.3 and ENDF/BVII.1 Libraries for SCALE Calculations

Matej Kleštinec, Jakub Lüley, Branislav Vrban, Štefan Čerba, Vendula Filová and Vladimír Nečas

Calculation of Accelerator-Based Neutron Source Anisotropy Using SCALE6 System

Štefan Gmuca and Ján Kliman

Low Energy Accelerator Calibration Using EBS Resonances

Acknowledgment. *This scientific conference was supported by the Slovak Research Development Agency within the project No. APVV VV-20-300, APVV-21-0170 and by Nureco o. z.*

SESSION B2 *International workshop:*
Current Successes in the Photoemission and Electron Microscopy II. 08:30

Pavel Calta, Pavol Šutta, Rostislav Medlín and Ján Minár

In-Depth Study of Silicon-Oxide Thin Films: Effect of N₂O/SiH₄ gas mixture

Tomáš Bárta, Petr Novák, Lucie Nedvědová, Štěpánka Jansová, Zdeněk Jansa, Laurent Nicolai and Ján Minár

Bismuth Films Deposited by Molecular Beam Epitaxy

Ondřej Šipr, Alberto Maromodoro, Sergiy Mankovsky and Hubert Ebert

Temperature-Dependence of the Ratio between Orbital and Spin Magnetic Moments and of the Magnetic Hyperfine Field by Ab-Initio Calculations

Zoltán Tajkov, Marko Milivojević and Martin Gmitra

Probing the Effects of NbSe₂ on Few-Layer Rhombohedral Graphite Using Tight-Binding and Density Functional Theory

COFFEE BREAK 09:30

SESSION B3 *International workshop:*
Current Successes in the Photoemission and Electron Microscopy III 10:00

Martin Gmitra and Jozef Haniš

Electronic Properties of NbSe₂ Monolayer and Its Misfit Structures

Jozef Haniš, Marko Milivojević and Martin Gmitra

Quasiparticle Interference Patterns of Ising Superconductor Monolayer NbSe₂ with Rashba Spin-Orbit Coupling

Roman Adam, Derang Cao, Daniel E. Bürgler, Sarah Heidtfeld, Fangzhou Wang, Christian Greb, Genyu Chen, Jing Cheng, Debamitra Chakraborty, Markus Büscher, Martin Mikulics, Hilde Hardtdegen, Roman Sobolewski, and Claus M. Schneider

Laser-Triggered Terahertz Radiation from Interlayer Exchange-Coupled Spintronic Emitters

Miroslav Cieslar, Lucia Bajtošová, Rostislav Králík, Barbora Kihoulou, Jan Hanuš and Jan Fikar

Coagulation of Metallic Nanoparticles at Elevated Temperatures

David Redka, Andreas Held, Hubert Ebert, Heinz P. Huber and Ján Minár

Electronic Correlations in the Optical Spectra of the CrMnFeCoNi High-Entropy Alloy

SESSION C3 *Physical Properties and Structural Aspects of Solid Materials, Biophysics and Interdisciplinary Physics, Computational Physics and Theory of Physical Properties of Matter I* 10:00

Justín Murín, Vladimír Goga, Juraj Hrabovský, Juraj Paulech, Gabriel Gálik, Ladislav Šarkán, Vladimír Kutiš and Mehdi Aminbaghai

Nonlinear Thermoelastic Analysis of Nylon Springs with Negative Thermal Expansion

Jaroslav Hornak, Ondrej Michal, Pavel Trnka, Pavel Prosr, Jozef Kudelcik and Stefan Hardon

The Effect of Voltage and Temperature Level on Dielectric Properties of PUR/MgO Nanocomposites

Jozef Onufer, Peter Duranka, Ján Ziman and Mária Kladivová

Circular Magnetization Reversal in Cylindrical Magnetic Wire

Ondrej Michal, Jaroslav Hornak and Vaclav Mentlik

Semi-Automated Havriliak-Negami Analysis for the Investigation of Nanocomposite Properties

Beata Butvinová, Leonardo Viana Dias, Irena Gejdoš Janotová, Igor Maňko, Dušan Janičkovič and Peter Švec Sr.

Effect of Si Contents on Magnetic Properties of Short-Term Annealed FeCuBPSi Alloys

Lenka Hašková, Andrea Kvasničáková, Klaudia Jeszeová, Mariana Ušáková and Elemír Ušák

Analysis of Selected Magnetic Characteristics of Europium Substituted LiZnTi Spinel Ferrites

Mária Hutníková, Olga Fričová and Ivan Chodák

Viscoelastic Properties of Biodegradable Polymer Blends of Poly(Butylene-Adipate-co-Terephthalate) with Thermoplastic Starch

Gabriel Gálik, Tibor Sedlár, Vladimír Goga, Michal Uličný and Justín Murín

Experimental Measurements of Nylon Coil Spring Properties for Validation of Numerical Models

Simona Saporová, Anton Baran, Natália Šmídová, Ivan Chodák and Mária Kovaľáková
Study of Structure and Molecular Mobility of Thermoplastic Starch-Based Nanocomposites Using NMR

Leoš Ondriš, Mária Hutníková, Ľuboš Popovič, Hamed Peidayesh and Olga Fričová
XRD and DMA Study of Thermoplastic Starch-Based Nanocomposites

Šimon Berta, Vladimír Goga, Ladislav Šarkán and Justín Murín
Device for Measuring the Stiffness of Tension Springs

SESSION C4 *Physical Properties and Structural Aspects of Solid Materials, Biophysics and Interdisciplinary Physics, Computational Physics and Theory of Physical Properties of Matter II,* 10:00

Miroslava Zemanová Diešková, Karolína Kovalčíková and Peter Bokes
Effect of Heat Source Location on Heat Transfer Coefficient in Aluminium Tube: Experimental and Analytical Study

Jozef Kravčák and Peter Vrábel
Magnetoimpedance of Soft Ferromagnetic CoSiB Microwire Suitable for Sensor Applications

Peter Duranka, Simeon Samuhel, Jozef Onufer, Mária Kladivová and Ján Ziman
Study of Domain Wall Dynamics in Bistable Magnetic Microwires

Denisa Olekšáková, Tetiana Rudeichuk, Peter Kollár and Martin Tkáč
Influence of Ball to Powder Ratio at Mechanical Milling on the Coercivity of Soft Magnetic Composites

Peter Kollár, Martin Tkáč, František Onderko, Denisa Olekšáková, Samuel Dobák, Ján Füzser, Mária Fáberová and Radovan Bureš
Structure and Magnetic Properties of Fe-Ferrite SMCs

Veronika Turiničová, Tereza Zuskinová, Tomáš Roch, Syed A. M. Tofail and Maroš Gregor
Influence of Electron Beam Irradiation on Dielectric Biocompatible Hydroxyapatite

Michal Miloslav Uličný, Vladimír Kutiš, Tímea Mikulová and Juraj Paulech
Numerical Analysis of PEM Fuel Cell

Andrej Ťrge and Vladimír Kutiš
Model Order Reduction Methods for Numerical Models

Zuzana Záhová and Vladimír Kutiš
Concept Development and Design of a Flexible Metallic Wheel for Space Rover Using FEM Analysis

Juraj Paulech, Justín Murín, Vladimír Kutiš, Vladimír Goga and Gabriel Gálik
Electro-Thermal Analysis of Nylon Spring

LUNCH 11:30 -14:00

SOCIAL PROGRAMME (FREE PROGRAM) 14:00

DINNER AND FRIENDSHIP PARTY (GRILL PARTY)
IN VATRA CLUB AND OUTDOOR TERRACE 19:00 - 23:00

Friday, June 23, 2023

BREAKFAST 07:00

CHECK OUT AT THE HOTEL RECEPTION 08:00-11:30

PLENARY SESSION A4 *New Materials and Structures, Nanostructures and Thin Films, Their Analysis and Specific Applications, Physical properties and structural aspects of solid materials and their influencing* 08:45

Michal Patrnčiak, Tomáš Plecenik, Lubomír Staňo, Branislav Grančič, Pavol Ďurina, Tomáš Roch and Leonid Satrapinsky

Hydrogen Gas Sensor with Capacitor-Like Pt/TiO₂/Pt Arrangement and Nanoporous Top Electrode

Jozef Dobrovodský, Dušan Vaňa, Jana Ptačinová, Alexander Kromka and Robert Riedlmajer
Verification of ¹¹B(p,α₁)⁸Be Nuclear Reaction Boron Analysis in Homogeneous Films

Tatiana Damatopoulou, Peter Svec and Evangelos Hristoforou
Low Carbon Steel as Magnetic Shielding for Electric Vehicles

Leonardo Viana Dias, Peter Švec, Irena Janotová, Dušan Janičkovič and Peter Švec Sr.
Formation of Hard Magnetic Phase in Bulk Al₄₅Mn₅₅ Prepared by Suction Casting

Milan Pavúk, Gabriel Farkas and Vladimír Slugeň
Influence of Free Cantilever Oscillation Amplitude on Image Contrast in the Magnetic Force Microscopy

CONCLUDING REMARKS (CONGRESS HALL) 10:00

COFFEE BREAK 10:05

LUNCH 11:30

DEPARTURE 13:00