

Program of the MEASUREMENT 2025 Conference

2 - 4 June 2025, Smolenice Castle, Slovakia

Monday 2. 6. 2025 9:00 Conference Opening

Monday 2. 6. 2025 9:30 Keynote lecture I

Chairpersons P. Szomolányi (Slovakia)

Time Authors and Title

9:30 **KN lecture: Siegfried Trattnig**
Basic and Advanced MRI of Cartilage

10:15 *Coffee break*

Monday 2. 6. 2025 10:30 AI in Medicine

Chairpersons F. Plešinger (Czech Republic)
Z. Rošťáková (Slovakia)

Time Authors and Title

10:30 *Serge Ayme Kouakouo Nomvussi, Jan Mikulka*
Measurement Image Reconstruction in Electrical Impedance Tomography Through 1D-UNet

10:45 **YIA paper: Iveta Pajanova, Andrej Krafčík**
Application of Deep Learning Algorithms for Automated MRI Knee Joint Image Segmentation

11:00 *Beata Ondrusova, Canberk Almus, Jana Svehlikova, Yesim S. Dogrusoz*
Non-Invasive Approaches for Premature Ventricular Contractions Localization

11:15 *Zuzana Rošťáková, Roman Rosipal, Nina Evetović*
Halfway Between CP and Tucker Model: PARALIND Analysis of Human Electroencephalogram

11:30 *Coffee break*

Monday 2. 6. 2025 11:45 Measurement in Biology and Medicine

Chairpersons J. Švehlíková (Slovakia)
J. Mikulka (Czech Republic)

Time Authors and Title

11:45 *Michal Teplan, Hoang Vu Viet, Lubomír Kremnický, Martin Bereta*
Growth of *Saccharomyces Cerevisiae* in a 50 Hz Magnetic Field

12:00 **YIA paper: Antónia Kováčová, Ondrej Kováč, Ján Šaliga**
Adjustment Algorithm for Multi-Lead QRS Detection

12:15 *Roman Kobylanskyi, Krzysztof Przystupa, Valentyn Lysko, Lyudmyla Vikhor, Mykola Havryliuk, Ivan Konstantynovych, Vadym Boichuk, Oleg Zadorozhnyy, Orest Kochan, Mykola Umanets, Nataliya Pasyechnikova, Svitlana Boitsaniuk, Khrystyna Melnyk*
Perioperative Measurements of Temperature and Heat Flux Density of the Human Eye with Thermoelectric Sensors in Vitreoretinal Surgery

12:30 *Martin Škrátek, Ján Maňka, Michal Kluknavský, Iveta Bernátová*
Measurement of Haemoglobin Iron Content in the Blood of Laboratory Animals with the Squid Magnetometer

12:45 **Lunch**

Monday 2. 6. 2025 13:30 Keynote lecture II

Chairpersons J. Švehlíková (Slovakia)

Time Authors and Title

13:30 **KN lecture: Filip Plešinger**
Human and AI Clash on the Signal Processing Battleground

Monday 2. 6. 2025 14:15 Theoretical Problems of Measurement I

Chairpersons V. Witkovský (Slovakia)
I. Zakharov (Ukraine)

Time Authors and Title

14:15 *Igor Zakharov, Olesia Botsiura*
Comparative Analysis of Approaches to Uncertainty Evaluation of Indirect Correlated Measurements

14:30 **YIA paper: Hana Krakovská, Anna Krakovská**
Parameter Selection for Prediction-Based Denoising of Measured Time Series

14:45 **YIA paper: Lukáš Zdražil, Zdeněk Roubal**
Noise Measurement of High-Ohm Metal-Oxide Resistors

15:00 **YIA paper: George Sammarah, Martin Halaj**
A Python Application for Generating Digital Calibration Certificate

Monday 2. 6. 2025 15:15 Poster Session I

Poster Authors and Title

P01 *Aneta Kostárová*
Tests for Integer-Valued Time Series Based on the Probability Generating Function

P02 *Zuzana Rošťáková, Roman Rosipal*
Introducing Specter 2.0 - an Enhanced Version of the Tensor Based Eye Blink Removal Algorithm

P03 *Michal Dzuris, Jakub Krchnak, Anatolii Kliuchka, Rene Hartansky*
Common Problems with Real-World GSM Antenna Usage

P04 *Teodor Toth, Miroslav Kohan, Miroslav Dovica*
Analysis of the Influence of 3D Printing Factors on the Geometric Accuracy of the Product

P05 *Roman Vaněk, Jan Mikulka*
Usability Evaluation and Characterization of Active Electrodes in Electrical Impedance Tomography

P06 *Viktor Witkovský*
Weighted Estimation and Uncertainty Propagation in Nonlinear Errors-in-Variables Regression for Metrological Applications

- P07 *Igor Zakharov, Olesia Botsiura*
Evaluation of the Numerical Value and Type a Standard Uncertainty of Repeated Observations from Their Extreme Values
- P08 *Zbigniew Krawiecki, Przemysław Otomański*
Remote-Controlled Measurement System for Sample Signal Generation with Measurement of Selected Parameters of This Signal
- P09 *Miroslav Matuš, Jaromír Markovič, Mário Drbúl, Michal Šajgalík, Peter Špuro, Jozef Mrázik*
Design of Non-Contact Measurement Methods and Evaluation of the Impact of Surface Layers on the Mechanical Properties of Functional Implant Components
- P10 *Richard Joch, Mário Drbúl, Jaromír Markovič, Miroslav Cedzo, Jozef Mrázik, Jozef Holubják*
Optimizing Measuring Artifact Design for Accuracy Assessment of Additive Manufacturing Devices
- P11 *Y.C. Wang, C.P. Chang, C.C. Kuo, M. H. Tsai*
Investigation on a Dual-Beam Fabry-Perot Interferometer
- P12 *Daniel Gogola, Pavol Blahušiak, Dušan Mašek, Rudolf Tanglmajer*
Design and Construction of Novel Instrumentation to Measure the Anisotropy of Commonly Used Neutron Sources
- P13 *Andrej Krafcik, Oliver Strbak*
Shortening of T2 Relaxation Time in MRI Due to Presence of Physiological and Pathological Ferritin: Simulations Preliminary Results
- P14 *Jiří Přibíl, Anna Přibilová, Tomáš Dermek*
Measurement of Resistance/Force Conversion Characteristics of FSR Elements for Evaluation of Contact Skin Pressure by PPG Sensors
- P15 *Miroslav Kamenský, Imrich Szolík, Martin Gabrišák, Ján Halgoš*
Flexible Remote Teaching Workplace Configured for DMM Frequency Error Measurement
- P16 *Jozef Leja, Jana Sochorová, Jan Rybář, Stanislav Ďuriš, Peter Onderčo, Andrej Smetánka, Jana Gerneschová*
Slovak National Standards and Czech State Standards of Ionizing Radiation
- P17 *Martin Gabrišák, Jozef Hallon, Mikuláš Bittera, Michal Dzuriš*
Influence of Wire Misalignment in Current Injection Probe on the Bulk Current Injection (BCI) Test
- P18 *Andrej Dvurečenskij, Alexander Cigáň, György Radnóczy, Martin Škrátek, Melinda Majerová, Zuzana Hájovská, Eva Kováčová, Ján Maňka*
Magnetic Properties of Nanocolloids Based on Titanium and Ionic Liquid BMIM PF6
- P19 *Liudmyla Petrushchenko, Michal Mariassy, Farshid Manoocheri, Natalia Parkhomenko, Yelizaveta Tarasenko, Rezazadeh Yasaman, Peter Pavlasek*
Selection and Preliminary Measurements of Optical Absorbance Liquid Filters as Reference Materials
- P20 *B. Sus, K. Przystupa, O. Kozynets, J. Caban, S. Lytvynenko, O. Tsymbalyuk, O. Bauzha, V. Yeromenko, A. Ivanyshyn, R. Kochan*
Modeling the Physical Mechanisms of Recombination-Based Sensors for the Detection of Biological Markers in Living Systems
- P21 *Tetiana Bubela, Jacek Majewski, Oleh Seheda, Orest Kochan, Pylyp Scoropad, Anna Szlachta, Ivan Pytel, Ihor Mykytyn, Serhii Artemuk, Valerii Yeromenko*
Research on the Influence of Irradiation Angle on Temperature Measurement Results for Raman Thermometry

16:15 **Coffee break**

Monday 2. 6. 2025 16:30 Measurement of Physical Quantities I

Chairpersons M. Bittera (Slovakia)
B. Antić (Serbia)

Time Authors and Title

- 16:30 *Józef Wiora*
Comparison of Train Speed Estimates Determined Using Different Fusion Methods
- 16:45 **YIA paper:** *Arnolds Ubelis, Zane Metra, Aleksandrs Kolesniks, Janis Rupkus*
Measurement of Atomic and Ionized (Pb I and Pb II) Spectra of Lead, Using Unique Technique - Hybrid Plasma System
- 17:00 **YIA paper:** *Aleksandrs Kolesniks, Arnolds Ubelis, Austris Pumpurs*
Application of Resonance Atomic Spectra Lines of Se I and Te I in Measurement Transmittance of Optical Fibers in Far UV
- 17:15 *Jakub Krchnak, Michal Dzuris, Rene Hartansky, Michal Stibrany*
Identification of a Faulty Antenna in Large FM Antenna System Using Hybrid Dataset
- 17:30 **Coffee break**

Monday 2. 6. 2025 17:45 Measurement of Physical Quantities II

Chairpersons R. Klepochová (Slovakia)
P. Otomański (Poland)

Time Authors and Title

- 17:45 *Tibor Rózsár, Vladimír Jančárik, Michal Dzuriš, Ján Halgoš*
Colpitts Oscillator for a Mechanical Quantity Sensor
- 18:00 *Melinda Majerová, Anna Prnová, Beata Pecušová, Jozef Kraxner, Dušan Galusek*
Study of Thermal Properties of $\text{Ca}_2\text{Al}_2\text{SiO}_7$ Glasses by a Combination of Differential Scanning Calorimetry and High Temperature X-Ray Diffraction
- 18:15 *T. Sabadková, J. Valúchová, M. Majerová, P. Švančárek, M. Švančárková, M. Škrátek, A. Dvurečenskij, D. Drdlik, A. Prnová, D. Galusek*
Preparation and Characterization of Magnetic HEO with the Composition $(\text{Al}_{0.2}\text{Co}_{0.2}\text{Cr}_{0.2}\text{Ni}_{0.2}\text{Fe}_{0.2}\text{X}_{0.2})_3\text{O}_4$, X = Mg, Zn
- 18:30 *Jan Rybář, Matej Hruška, Frederik Ujhelyi, Miroslav Chytil*
Measurement and Preparation of Reference Tubes for the Primary Standard Piston Flowmeter
- 19:30 **Welcome Dinner**

Tuesday 3. 6. 2025 9:00 Keynote lecture III

Chairpersons L. Valkovič (Slovakia)

Time Authors and Title

- 9:00 **KN lecture: Damian Tyler**
Hyperpolarized Magnetic Resonance Imaging - A Novel Window on Altered Metabolism

Tuesday 3. 6. 2025 9:45 Quantitative MRI

Chairpersons P. Szomolányi (Slovakia)
S. Trattnig (Austria)

Time Authors and Title

- 9:45 *R. Klepochová, D. Pajuelo, M. Dezortová, P. Kordač, M. Burian, M. Hájek, I. Just, P. Šedivý, P. Szomolányi, M. Krššák*
Quality Control Pipeline for Skeletal Muscle Energy Metabolism Assessed by ^{31}P MRS in Patients with Muscle Weakness
- 10:00 **YIA paper:** *Veronika Janacova, Pavol Szomolanyi, Diana Sitarcikova, Siegfried Trattnig, Vladimir Juras*
Knee Positioning Influences Cartilage Thickness but Not Volume in MRI Segmentation
- 10:15 *Vladimir Juras, Veronika Janacova, Pavol Szomolanyi, Diana Sitarcikova, Siegfried Trattnig*
Quantitative MRI Imaging Methods for Osteoarthritis Clinical Trials
- 10:30 *Ladislav Valkovič, Ferenc E. Mózes, Yuanyuan Lyu, Jabrane Karkouri, Christopher T. Rodgers, Fabian Niess, Wolfgang Bogner, Pavol Szomolányi*
Fast 3D ^{31}P B_1+ Mapping Using Concentric Ring Trajectory MRSI at 7T
- 10:45 **Coffee break**

Tuesday 3. 6. 2025 11:00 Poster Session II

Poster Authors and Title

- P22 *Radek Zbončák*
Modal Analysis of Functionally Oriented Fabric Laminate with 10 mm Wide Carbon Strips and a 20 mm Circular Notch
- P23 *Zdeněk Roubal, Ivan Kirsanov*
Design of an Electrostatic Field Sensor for the Study of Air Ions and Thunderstorms
- P24 *Jan Bělík, Pavel Klouček*
Development of Force Sensor for Linear Guides
- P25 *Juraj Priesol, Alexander Šatka*
Refining EBIC Analysis of GaN p-n Junctions Through Numerical Simulations
- P26 *Krzysztof Musioł, Marian Kampik, Ryszard Rybski, Janusz Kaczmarek, Mirosław Koziol, Maciej Koszarny, Jolanta Jursza, Adam Ziólek*
Investigation of Temperature Coefficients of New Impedance Standards
- P27 *Kalvis Kalnins, Uldis Berzins, Vyacheslav V. Kim, Rashid A. Ganeev*
Formation of LIPSS on GaAs in Water Using Vector Laser Beams
- P28 *Matīss Čakšs*
Measurements of Potential Positive Ion Sources of Gadolinium
- P29 *Norbert Palsovcics, Martin Černík, Martin Pustka*
Equivalent Model of Electrodynamic Exciter and Its Verification
- P30 *Martin Černík, Norbert Palsovcics, Martin Pustka*
Measurement of Electrodynamic Exciter Parameters
- P31 *M. Novák, M. Kemény, M. Mikolášek*
A Partial Current Pulse Response as an Alternative to EIS Measurements for Accurate Internal Temperature Estimation of Lithium-Ion Battery Cells

- P32 *Orest Kochan, Ivan Pytel, Roman Borukh, Jacek Majewski, Roman Kobylanskyi, Krzysztof Przystupa, Mykola Beshley, Iryna Petrovska*
Enhancing Temperature Measurement Accuracy and Reliability in Nuclear Power Plants
- P33 *Bogdan Maslyiak, Mykola Beshley, Nataliia Vozna, Andriy Segin, Roman Kochan, Halyna Beshley, Valerii Yeromenko, Roman Kobylanskyi*
Concept of Using Cloud to Improve Accuracy and Metrological Reliability of IoT Based Data Acquisition Systems
- P34 *P. Latta, M. Kojan, L. Vojtišek, Z. Starčuk Jr., A. Malá, V. Juras*
Evaluation of Fat Suppression Effect on Evaluation of T2* Components in Achilles Tendons.
- P35 *Anna Přibilová, Jana Švehlíková*
Image Similarity Measures for Autocorrelation Maps Comparison
- P36 *Ivona Hrivová, Hana Krakovská, Anna Krakovská*
Inferring a Gene Regulatory Network Involved in Drosophila Melanogaster's Muscle Development
- P37 *Hoang Vu Viet, Michal Teplan, Lubomír Kremnický, Martin Bereta*
Optimization of Physical and Biological Parameters for Studying Microorganism Responses to Low-Frequency Magnetic Fields
- P38 *Andrej Krafčík, Iveta Pajanová, Daniel Gogola, Pavol Szomolanyi*
Automated Segmentation of Knee Articular Cartilages in 3D MRI Data of Human Patients: Using Deep Learning Approach
- P39 *R. Kobylanskyi, K. Przystupa, V. Lysko, L. Vikhor, A. Prybyla, M. Havryliuk, O. Zadorozhnyy, O. Kochan, O. Dorokhova, N. Pasyechnikova, A. Shulhai, M. Levkiv*
Thermoelectric Cooling Devices for Ophthalmology
- P40 *Anna Krakovská, Matej Salanci*
Predictability as a Marker of Healthy and Pathological ECG

Tuesday 3. 6. 2025 12:00 Theoretical Problems of Measurement II

Chairpersons J. Wiora (Poland)
R. Kochan (Ukraine)

Time Authors and Title

- 12:00 *Krzysztof Dziarski, Arkadiusz Hulewicz, Przemysław Otomański*
The Uncertainty of the Indirect Thermographic Measurement of the Temperature of the Semiconductor Element
- 12:15 *Abu Bantu, Józef Wiora*
Analysis of Fitting GNSS Data Provided by Stationary Receiver to Non-Gaussian Distributions
- 12:30 *Boris Antić, Marina Bulat*
Less Dithering for Higher Accuracy in Stochastic Harmonic Instruments
- 12:45 *Michal Dzuris, Jakub Krchnak, Michal Stibrany*
Large Scale Model for Radiation Pattern Measurement Methodology
- 13:00 **Lunch**
- 14:30 **Social program**
- 19:00 **Farewell Dinner**

Wednesday 4. 6. 2025 9:00 Keynote lecture IV

Chairpersons M. Tyšler (Slovakia)

Time Authors and Title

9:00 **KN lecture: Jorge Sanchez Arciniegas**
Modeling the Heart: Advances and Applications of Cardiac Digital Twins

Wednesday 4. 6. 2025 9:45 Modeling and Simulations of Biological Signals

Chairpersons M. Tyšler (Slovakia)
J. S. Arciniegas (Spain)

Time Authors and Title

9:45 *Elena Cocherová, Lukáš Zelieska, Milan Tyšler*
Influence of Limb Electrodes Placement on the Simulated ECG Signals

10:00 **YIA paper: Lukas Zelieska, Beata Ondrusova, Milan Tysler, Jorge Sánchez**
In Silico Investigation of the Impact of the Ventricular Filling Heterogeneity on the Electrical Field Propagation Using a Patient-Specific Model

10:15 *Beata Ondrusova, Argvrios Petras, Johannes Szasz, Jens Meier, Luca Gerardo-Giorda*
Can Side Holes in Returning Cannula Improve VV-ECMO Effectiveness?

10:30 *Jana Svehlikova, Miriam Zemanikova, Jan Zelinka*
Patient-Specific Simulation of PVC Activation Using Cellular Automaton

10:45 **YIA paper: Krzysztof Dziarski, Łukasz Drużyński, Arkadiusz Hulewicz, Józef Piechocki**
Indirect Thermographic Measurement of the Contact Temperature of an Electromechanical Relay

11:00 **Coffee break**

Wednesday 4. 6. 2025 11:30 Measurement of Physical Quantities III

Chairpersons J. Maňka (Slovakia)
O. Kochan (Ukraine)

Time Authors and Title

11:30 *Jaroslav Foltýnek, Jiří Tesař, Jaroslav Synáč, Miroslava Benková, Jan Rybář, Stanislav Ďuriš*
The Water-Monopropylene Glycol Mixtures Flow Rate Measurement

11:45 *Przemysław Otomański, Eligiusz Pawłowski, Anna Szlachta*
Use of the LabVIEW Environment to Determine the Characteristics of Selected Industrial Temperature Sensors

12:00 *Tomáš Valenta, Jiří Tesař, Jan Rybář, Stanislav Ďuriš*
Realisation of New Primary Standard of Gas Flow

12:15 *Orest Kochan, Pavlo Hamula, Su Jun, Hongxing Bai, Lingyu Yan, Jacek Majewski, Roman Kobylanskyi*
Relationship Between Errors of Thermoelectric Converters Due to Thermoelectric Inhomogeneity and Drift

12:30 **Closing Ceremony**

13:00 **Lunch**

14:30 *Conference bus departure from Smolenice to Bratislava*

Student and Young Investigator Award Competition

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