# XXII INTERNATIONAL SEMINAR
# OF METROLOGY

## "Methods and Techniques of Signal Processing in Physical Measurements"



### Rzeszów – Arłamów

**17 – 20  September 2018**

# AGENDA

ORGANIZERS:

**RZESZÓW UNIVERSITY OF TECHNOLOGY**
Department of Metrology and Diagnostic Systems

**LVIV POLYTECHNIC NATIONAL UNIVERSITY**
Department of Information Measuring Technology

# Framework program XXII MSM'2018

*Monday 17.09.2018*

08:00 – 12:00   Exhibition of measuring and control equipment
09.00 – 10.00   Registration of participants
10.00 – 10.15   Opening Ceremony
10.15 – 10.30   Photo
10.30 – 11.30   Session I
11.30 – 12.00   Coffee break
12.00 – 13.00   Session II
13.00 – 14.30   Social program
14.30 – 17.30   Conference bus departure from Rzeszów to Arłamów (lunch during the trip)
18.00 – 18.30   Accommodation in Arłamów Hotel
19.00           Welcome dinner

*Tuesday 18.09.2018*

07.30 – 09.00   Breakfast
09.00 – 11.00   Session III
11.00 – 11.30   Coffee break
11.30 – 13.10   Session IV
13.10 – 14.30   Lunch
15.00 – 16.00   Tour of the power plant the Arłamów
16.00 –         Free time
19.00           Gala dinner

*Wednesday 19.09.2018*

07.30 – 09.00   Breakfast
09.00 – 11.00   Session V
11.00 – 11.30   Coffee break
11.30 – 13.00   Session VI - Poster session
13.30 – 15.00   Lunch
13.30           Social program
19.00           Barbeque

*Thursday 20.09.2018*

07.30 – 09.00   Breakfast
09.00           Conference bus departure from Arłamów to Rzeszow
11.30           Expected arrival at the Rzeszow Central railway station and Rzeszow Central
                bus station

10.00 – 10.15    Opening Ceremony XXII MSM'2018

# Session I

### 17.09.2019, 10.30 - 11.30

chairman: Prof. Adam Kowalczyk

10.30 – 10.50    Tadeusz Wieczorek, Roman Przyłucki, Joanna Lisok, Adrian Smagór
*Silesian University of Technology, Poland*
**Analysis of the Accuracy of Crime Scene Mapping Using 3D Laser Scanners**

10.50 – 11.10    Christian Kreischer
*Helmut Schmidt University, Hamburg, Germany*
**Measurement Methods for End Winding Vibrations of Large Electrical Machines**

11.10 – 11.30    Jerzy Lewitowicz, Mariusz Zieja, Andrzej Szelmanowski, Andrzej Pazur
*Air Force Institute of Technology, Warsaw, Poland*
**New Measures of Operational Readiness for Multi-states Avionics Integrated Systems with Reduced Efficiency**

# Session II

### 17.09.2019, 12.00 - 13.00

12.00 – 13.00    Sponsorship presentations

*Tuesday 18.09.2018*

# Session III

### 18.09.2018, 09.00 - 11.00

chairman: Prof. Bohdan Stadnyk

09.00 – 09.20    Lukas Böhler, Mateusz Daniol, Anton Keller, Ryszard Sroka
*Aesculap AG, Germany; AGH University of Science and Technology, Poland*
**Heat Resistant Monitoring and Tracking System for Medical Sterile Containers**

09.20 – 09.40    Mateusz Daniol, Lukas Böhler, Anton Keller, Ryszard Sroka
*Aesculap AG, Germany; AGH University of Science and Technology, Poland*
**Autoclave Sterilization Powered Medical IoT Sensor Systems**

09.40 – 10.00    Beata Pałczyńska
*Gdynia Maritime University, Poland*
**Signal Reconstruction from Sparse Measurements Using Compressive Sensing Technique**

10.00 – 10.20    Piotr Jankowski-Mihułowicz, Mariusz Węglarski, Wojciech Lichoń
*Rzeszów University of Technology, Poland; Talkin Things, Warsaw, Poland*
**A Procedure for Validating Impedance Parameters of HF/UHF RFID Transponder Antennas**

10.20 – 10.40      Magdalena Sielachowska, Damian Tyniecki, Maciej Zajkowski
*Białystok University of Technology, Poland*
**The Method of Measuring Light Flux Distribution Emitted from Sports Facilities Using Unmanned Aerial Vehicles**

10.40 – 11.00      Sponsorship presentations: TESPOL Sp. z o.o.

## <u>Session IV</u>

### <u>18.09.2018, 11.30 - 13.00</u>

chairman: Prof. Mykhaylo Dorozhovets

11.30 – 11.50      Mariusz R. Rząsa, Beata Czapla-Nielacna
*Opole University of Technology, Poland*
**Marker Method of Determining the Speed of Fluid Movement During the Flow Visualization**

11.50 – 12.10      Piotr Piechota, Piotr Synowiec, Artur Andruszkiewicz, Wiesław Wędrychowicz
*Wrocław University of Science and Technology, Poland*
**Analysis of the Accuracy of Liquid Flow Measurements by the Means of Ultrasonic Method in Non-standard Measurements**

12.10 – 12.30      Andrzej Szelmanowski, Mariusz Zieja, Andrzej Pazur, Paweł Janik
*Air Force Institute of Technology, Warsaw, Poland*
**Estimation of the Angular Positioning Inaccuracy in Avionics Helmet-Mounted Cueing Systems with Magnetic Method**

12.30 – 12.50      Wiesław Sabat, Dariusz Klepacki, Kazimierz Kuryło, Kazimierz Kamuda
*Rzeszów University of Technology, Poland*
**Measuring Methodology of Conducted Disturbances Generated by Avionic Systems in Aircrafts Systems**

12.50 – 13.10      Waldemar Bąk
*Arłamów Hotel, Poland*
**The hotel has created technology - technology has created the hotel**

### <u>*Wednesday 19.09.2018*</u>

## <u>Session V</u>

### <u>19.09.2018, 09.00 - 11.00</u>

chairman: Prof. Adam Kowalczyk

09.00 – 09.20      Mykhaylo Dorozhovets, Ivanna Bubela, Anna Szlachta
*Rzeszów University of Technology, Poland; National University - Lviv Politechnic, Ukraine; State Enterprise "Scientific-Research Institute of Metrology of Measurement and Control Systems" (DP NDI "Systema"), Lviv, Ukraine*
**Investigation of the Instrumental Components in Uncertainty of Extreme Random Observations**

09.20 – 09.40      Roman A. Tabisz, Monika Bykowska
*Rzeszów University of Technology, Poland*
**The "DIAG-CAL-ACQUIS" software intended for calibration and validation of computer data acquisition boards**

09.40 – 10.00    Eligiusz Mieloszyk, Anita Milewska, Sławomir Grulkowski
*Gdańsk University of Technology, Poland*
**Assessment of Image Processing Methods for the Determination of Propagation of Squat-Type Defects in Rails**

10.00 – 10.20    Piotr Gierlak, Andrzej Burghardt, Dariusz Szybicki, Krzysztof Kurc
*Rzeszów University of Technology, Poland*
**Eliminating the Efects of Inertial Forces on the Measurement of the Forces of Interaction Between a Robotic Manipulator and Its Environment**

10.20 – 10.40    Marcin Zych, Gabriel Stachura, Robert Hanus, Norbert P. Szabó
*AGH – University of Science and Technology, Poland; Rzeszów University of Technology, Poland; University of Miskolc, Hungary*
**Application of Neural Networks in Identification of Geological Formations on the Basis of Well Logging Data – a Comparison of Computational Environments' Efficiency**

10.40 – 11.00    Józef Grzybowski, Dawid Janeczko
*Rzeszów University of Technology, Poland; PILC, Rzeszów, Poland*
**System for Adhesion Control of Car Steering Column Couplers**

# Poster session

## 19.09.2018,  11.30 - 13.00

1. Artur Andruszkiewicz, Kerstin Eckert
*Wrocław University of Science and Technology, Technische Universität Dresden, Germany*
**Measurements of Gas Phase Velocity in Liquid Metal by Means of Ultrasonic Pulse-Echo Method**

2. Piotr Piechota, Piotr Synowiec, Artur Andruszkiewicz, Wiesław Wędrychowicz
*Wrocław University of Science and Technology*
**Measurements of Gas Streams with Disturbed Velocity Distribution by the Means of an Elbow Flowmeter**

3. Yaroslav Marushchak, Mykhaylo Dorozhovets, Damian Mazur
*Rzeszów University of Technology, Poland; National University - Lviv Politechnic, Ukraine*
**Operational Estimating of Arcs Voltage of Arc Steel Furnace**

4. Marcin Zych, Przemysław Włodarczyk, Marcin Nowak, Tomasz Kubacka, Andrzej Gardeła
*AGH – University of Science and Technology, Poland; "CHEMKOP" Sp. z o.o., Poland*
**System for geophysical measurements in salt dome**

5. Krzysztof Tomczyk, Marek Sieja
*Cracow University of Technology, Poland*
**Frequency Components of Signals Producing the Upper Bound of Absolute Error Generated by the Charge Output Accelerometers**

6. Mariusz Trybus
*Rzeszów University of Technology, Poland*
**Differential Measurements of TGS Samples – Unbalanced Bridge Concept and Model**

7. Krystyna Maria Noga, Beata Palczynska, Romuald Masnicki
*Gdynia Maritime University, Poland*
**The Multiplatform Environment for Simulation and Features Estimation of Mixed-signal Devices**

8. Piotr Jankowski-Mihułowicz, Mariusz Węglarski, Wojciech Lichoń, Marcin Pilarz
*Rzeszów University of Technology, Poland; Talkin Things, Warsaw, Poland*
**Efficiency Problem of FMCG Identification in HF RFID System with Multiplexed Antennas for Commercial Refrigerator**

9. Eligiusz Pawłowski
*Lublin University of Technology, Poland*
**Power Grid Frequency Estimation Based on Zero Crossing Technique Using Least Squares Method to Approximate Sampled Voltage Signal Around Zero Level**

12. Svitlana Herasymenko, Piotr Bieńkowski, Piotr Kopniak
*Lublin University of Technology, Poland*
**The Algorithm for Automatic Determination of Human Step Phases**

10. Romuald Masnicki, Adam Minczyk
*Gdynia Maritime University, Poland*
**Synthesis of Three-Phase Waveforms Using the Selected Microprocessor – Analysis of Constraints**

11. Krzysztof Kurc, Andrzej Burghardt, Piotr Gierlak, Dariusz Szybicki
*Rzeszów University of Technology, Poland*
**Non-Contact Robotic Measurement of Jet Engine Components**

12. Paweł Obal, Andrzej Burghardt, Krzysztof Kurc, Dariusz Szybicki, Piotr Gierlak
*Rzeszów University of Technology, Poland*
**Monitoring the Parameters of Industrial Robots**

13. Dariusz Szybicki, Andrzej Burghardt, Piotr Gierlak, Krzysztof Kurc
*Rzeszów University of Technology, Poland*
**Robot-assisted Quality Inspection of Turbojet Engine Blades**

14. Jacek S. Tutak, Wojciech Kłos
*Rzeszów University of Technology, Poland*
**The Mechatronic Device for the Hand and Forearm Rehabilitation**

15. Jacek S. Tutak, Wojciech Puzio
*Rzeszów University of Technology, Poland*
**The Mechatronic Device Which Provides Comfort and Safety for the Elderly and Disabled People**

16. Damian Mazur, Lesław Gołębiowski, Andrzej Smoleń, Marek Gołębiowski, Zygmunt Szczerba
*Rzeszów University of Technology, Poland*
**Modeling and Analysis of the AFPM Generator in a Small Wind Farm System**

17. Barbara Wilk, Patryk Post
*Rzeszów University of Technology, Poland*
**Assessment of Heart Rate Variability Under the Influence of Music Based on the Photoplethysmographic Signal**

18. Bartosz Dominikowski, Krzysztof Pacholski, Piotr Woźniak
*Łódź University of Technology, Poland*
**Using an Input Data Segregation Algorithm to Minimize the Error of the Fuzzy Controller in the Metrological Correction System of Electric Energy Meters**