

## Program Overview

Time	Monday	Tuesday	Wednesday	Thursday	Friday		
8.00-9.30		<i>Breakfast</i>					
9.30-10.20		<b>Langemann</b>	<b>Pereverzyev</b>	<b>Redaelli</b>	<b>Departure of participants</b>		
10.20-10.40		<b>Antoniouk</b>	<b>Kriukova</b>	<b>Votta</b>			
10.40-11.00		<b>Kmit</b>	<b>Vasylyeva</b>	<b>Gautieri</b>			
11.00-11.30		<i>Coffee Break</i>					
11.30-11.50		<b>Semenov</b>	<b>Voskoboinick</b>	<b>Makhno</b>			
11.50-12.10		<b>Verbytskyi</b>	<b>Bobyr/Shanin</b>	<b>Isaienkov</b>			
12.10-12.30		<b>Veselovska</b>	<b>Cheredarchuk</b>	<b>Overko</b>			
12.30-12.50		<b>Petrov</b>		<b>Derevianko</b>			
13.30-14.30		<i>Lunch</i>					
14.30-15.20		<b>Arrival of participants</b> <b>Registration</b>	<b>Nesteruk</b>	<i>Excursion</i>			<b>Keller</b>
15.20-15.50	<b>Sini</b>		<b>Mercier</b>				
15.50-16.10	<b>Kudybyn</b>		<b>Gutjahr</b>				
16.10-16.40	<i>Coffee Break</i>		<i>Coffee Break</i>				
16.40-17.00	<b>Shydlich</b>		<b>Ivanushkina</b>				
17.00-17.20	<b>Stasyuk</b>		<b>Kotsur</b>				
17.20-17.40	<b>Pozharska</b>		<b>Nikolov</b>				
17.40-18.00	<b>Schober</b>						
18.00-19.00	<b>Welcome Party</b>	<b>Meeting of coordinators</b>					
19.00		<i>Dinner</i>		<i>Conference Dinner</i>			

## **Program**

### **Monday**

#### **Arrival of Participants**

14.30 -18.00 **Registration**

18.00 **Welcome Party**

### **Tuesday Morning**

8.00-9.30 **Breakfast**

*Chair: Juergen Prestin*

#### **Opening of the Conference**

9.30-10.20 Dirk Langemann

*Mathematical aspects within the epistemology of modeling*

10.20 -10.40 Alexandra Antoniouk

*Application of the  $p$ -adic analysis to the modelling of the capillary flow in porous medium*

10.40-11.00 Irina Kmit

*A generalized implicit function theorem with applications to hyperbolic PDEs*

11.00-11.30 **Coffee Break**

*Chair: Sergei Pereverzyev*

11.30-11.50 Vasyl Semenov

*Application of graph Laplacian in semi-supervised learning*

11.50-12.10 Ievgen Verbytskyi

*A non-contact Photoacoustic Tomography reconstruction procedure. Requirements for data processing algorithms*

12.10 -12.30 Hanna Veselovska

*A parameter estimation of multivariate exponential sums*

12.30-12.50 Evgeniy Petrov

*Ordinal spaces as a generalization of metric spaces*

13.30 – 14.30 **Lunch**

## **Tuesday Afternoon**

*Chair: Riccardo Vismara*

14.30-15.20 Igor Nesteruk

*Blood flow characteristics in the ventricles and large vessels: calculations based on 4D MRI data and user-friendly software*

15.20 -15.50 Mourad Sini

*Mathematical Analysis of Imaging Modalities using Electric or Magnetic Nanoparticles as Contrast Agents*

15.50-16.10 Igor Kudybyn

*Statistical analysis of the relationship between the velocity and body mass in human sport activities (running, swimming, skiing, skating, cycling and rowing)*

16.10-16.40 **Coffee Break**

*Chair: Hanna Veselovska*

16.40-17.00 Andrii Shydlich

*Direct and inverse approximation theorems of functions of several variables in the spaces  $S^p$*

17.00-17.20 Serhii Stasyuk

*Sparse trigonometric approximation of classes of functions with mixed smoothness*

17.20 -17.40 Kateryna Pozharska

*Entropy numbers for the classes  $B_{p,\theta}^\Omega$  of periodic multivariate functions*

17.40-18.00 Kevin Schober

*Multivariate directional wavelet systems on the torus*

18.00-19.00 **Meeting of Coordinators**

19.00 **Dinner**

## **Wednesday**

8.00-9.30 **Breakfast**

*Chair: Irina Kmit*

9.30-10.20 Sergei Pereverzyev

*Legendre polynomials as a recommended basis for numerical differentiation in the presence of square summable or stochastic white noise*

10.20 -10.40 Galyna Kriukova

*Embedding Hidden Markov Models into Reproducing Kernel Hilbert Spaces*

10.40-11.00 Nataliya Vasylyeva

*Solvability of linear boundary value problems for the stationary fractional advection dispersion equation*

11.00-11.30 **Coffee Break**

*Chair: Oleg Chertov*

11.30-11.50 Volodymyr Voskoboinick

*Hydro-vibroacoustic diagnostics of operation of the prosthetic bileaflet heart valve*

11.50-12.10 Anastasiia Bobyr/Vladyslav Shanin

*Finding patterns of glycemia behavior for prediction of nocturnal hypoglycemia*

12.10-12.30 Andrii Cheredarchuk

*Application of data grid and graphics processing units for distributed cloud-based high-performance computing*

13.30 -14.30 **Lunch**

14.30-19.00 **Excursion**

19.00 **Dinner**

## **Thursday Morning**

8.00-9.30 **Breakfast**

*Chair: Nataliya Vasylyeva*

9.30-10.20 Alberto Redaelli

*Cardiovascular Imaging: advanced computational techniques for 4D data representation, quantification and surgical planning*

10.20 -10.40 Emiliano Votta

*Quantification of in vivo fluid dynamics in diseased left ventricles and aortas*

10.40-11.00 Alfonso Gautieri

*Computational Investigation and Design of Calcitonin-based Amyloids*

11.00-11.30 **Coffee Break**

*Chair: Alfonso Gautieri*

11.30-11.50 Taisiia Makhno

*Generalized modeling in the neuro-interstitial and neuromuscular interaction research problem*

11.50-12.10 Kostiantyn Isaienkov

*Convolutional neural network for recognition of the problem zones on ultrasound images of blood vessels with atherosclerotic lesion*

12.10 -12.30 Vitalii Overko

*The influence of left ventricle's torsion motion on the helical flow in the aorta*

12.30-12.50 Nadiia Derevianko

*Flexible protein-ligand docking: preliminary results*

13.30 – 14.30 **Lunch**

## **Thursday Afternoon**

*Chair: Mourad Sini*

14.30-15.20 Karsten Keller

*A general symbolic approach to nonlinear data analysis*

15.20 -15.50 Gwenael Mercier

*Convergence of solutions of TV-regularized linear inverse problems*

15.50-16.10 Tim Gutjahr

*Relationship between permutation entropy and Kolmogorov-Sinai entropy for ergodic interval maps with positive entropy*

16.10-16.40 **Coffee Break**

*Chair: Alexandra Antoniouk*

16.40-17.00 Nataliia Ivanushkina

*Computational study of electrical restitution in cardiomyocytes*

17.00-17.20 Dmytro Kotsur

*Parameters estimation of active contour models for the problem of automatic cellular filaments tracking*

17.20 -17.40 Mykola Nikolov

*Analyzing the video data of cell oscillations in microchips: algorithm and preliminary results*

**Closing of the Conference**

19.00 **Conference Dinner**

## **Friday**

8.00-9.30 **Breakfast**

**Departure of Participants**