



INTERNATIONAL
SOCIETY
FOR ANALYSIS
ITS APPLICATIONS
AND COMPUTATION



NAZARBAYEV
UNIVERSITY



IMMM
Institute of Mathematics and
Mathematical Modeling

International Conference Program

“FUNCTION SPACES, ANALYSIS AND APPROXIMATION”

February 3-6, 2024

Senate Hall, Nazarbayev University

Astana, Kazakhstan



DAY 1
FEBRUARY, 3

09:30-09:50 **Registration**

Moderator: Gonzalo Hortelano, Dean SSH NU

09:50-10:10 **Opening speech**

Ilesanmi Adesida, Provost NU

Darkhan Ahmed-Zaki, Vice-Minister of Science and Higher Education

Chair: Tolga Etgu

10:10-10:50 **Vladimir Stepanov** (Computing Center of FEB RAS)

Strong and weak associated reflexivity of certain function classes

10:50-11:30 **Mario Ullrich** (Johannes Kepler Universität Linz)

Sampling recovery, discretization and projections in the uniform norm

11:30-11:50 **Coffee break**

Chair: Makhmud Sadybekov

11:50-12:30 **Baoxiang Wang** (Jimei University)

Global Cauchy problem for nonlinear evolution equations in super-critical spaces

12:30-13:00 **Aidyn Kassymov** (Institute of Mathematics and Mathematical Modeling)

Stein-Weiss-Adams inequality on Morrey spaces

13:00-14:30 **Lunch break**

Chair: Sergey Tikhonov

14:30-15:00 **Durvudkhan Suragan** (Nazarbayev University)

Improved Hardy inequalities on homogeneous groups

15:00-15:30 **Egor Kosov** (Centre de Recerca Matemàtica)

Sampling discretization problem for Orlicz-type norms

15:30-15:50 **Ademi Ospanova** (Eurasian National University)

Weighted spaces of Besov. Embedding and interpolation theorems

15:50-16:00 **Short break**

Chair: Dauren Bazarkhanov

16:00-16:20 **Maria Nasyrova** (Computing Center of FEB RAS)

Estimates for the norm of the Hardy-type operator in operator ideals

16:20-16:40 **Nikita Dobronravov** (St. Petersburg State University)

Generalisation of Frostman lemma

16:40-17:00 **Nurgissa Yessirkegenov** (SDU University)

Hypoelliptic functional inequalities and ground states for higher order nonlinear Schrödinger type equations

17:00-17:20 **Egor Dobronravov** (St. Petersburg State University)

Rotations of minimal locally concave functions and its application to Bellman functions theory



DAY 2
FEBRUARY,4

Chair: Makhmud Sadybekov

09:10-09:50 **Sergey Tikhonov** (Catalan Institution for Research and Advanced Studies)

New uncertainty principle relations for Fourier transforms

09:50-10:30 **Dachun Yang** (Beijing Normal University)

Ball Banach Function Spaces Meet BBM, BVY & BSVY Formulae

10:30-10:50 **Coffee break**

Chair: Tolga Etgu

10:50-11:30 **Feng Dai** (University of Alberta)

Universal sampling discretization of integral norms and sparse sampling recovery

11:30-11:40 **Short break**

11:40-12:20 **Oleg Besov** (Steklov Institute)

Integral representations of functions and their applications

12:20-13:00 **Mikhail Dyachenko** (Moscow State University)

Multiple Fourier series with partial-monotone coefficients

13:00-14:10 **Lunch break**

Chair: Nurzhan Bokayev

14:10-14:30 **Victor Burenkov** (RUDN)

Interpolation theory methods for nonlinear operators

15:00 Bus to the National Museum

Excursion to the National Museum (for all international participants)

DAY 3
FEBRUARY, 5

Chair: Tynysbek Kalmenov

9:10-09:50 **Eugene Tyrtysnikov** (Moscow State University)

Tensor Decompositions in Mathematics and Applications

9:50-10:30 **Amiran Gogatishvili** (Institute of Mathematics of the Czech Academy of Sciences)

A unified approach to inequalities for K-functionals and moduli of smoothness

10:30-10:50 **Coffee break**

Chair: Durvudkhan Suragan

10:50-11:30 **Wen Yuan** (Beijing Normal University)

Some progress of pointwise multipliers on Besov spaces

11.30-11:40 **Short break**

11:40-12:20 **Alexander Meskhi** (Razmadze Mathematical Institute)

Extrapolation and Interpolation in Weighted Grand Morrey Space

12:20-13:00 **Lubos Pick** (Charles University)

Fractional Orlicz-Sobolev spaces

13:00-14:30 **Lunch break**

Chair: Ryskul Oinaruly

14:30-14:50 **Sergei Artamonov** (National Research University Higher School of Economics)

Triebel-Lizorkin spaces with generalized smoothness and strong summability problem

14:50-15:10 **Kayrat Mynbayev, Elena Lomakina** (Kazakh-British Technical University, Computing Center of FEB RAS)

Estimates of the norms of the Hardy operator in operator ideals

15:10-15:30 **Valerii Ivanov** (Tula State University)

Sturm's theory about zeros of discrete polynomials

15:30-15:40 **Short break**

Chair: Muvasharkhan Jenaliyev

15:40-16:00 **Tynysbek Kalmenov** (Institute of Mathematics and Mathematical Modeling)

On integral representation of the Green function of the Dirichlet problem for the Laplace equation

16:00-16:20 **Nurzhan Bokayev** (Eurasian National University)

On estimates of non-increasing rearrangement of generalized fractional maximal function

16:20-16:40 **Elena Ushakova** (Trapeznikov Institute of Control Sciences of RAS)

The study of Riemann–Liouville operators in weighted function spaces by splines

16:40-17:00 **Gabdolla Akishev** (Kazakhstan Branch, Lomonosov Moscow State University)

Estimates of the best M-term approximations of periodic functions in the anisotropic Lorentz-Zygmund space

18:00 **Conference Dinner**

DAY 4
FEBRUARY, 6

Chair: Kayrat Mynbayev

09:10-09:50 **Tino Ullrich** (Chemnitz University of Technology)

On Haar frames in Besov and Triebel-Lizorkin spaces

09:50-10:30 **Dauren Bazarkhanov** (Institute of Mathematics and Mathematical Modeling)

Several Topics in Approximation Theory for Some Function Classes on the Multidimensional Torus

10:30-10:50 **Coffee break**

Chair: Makhmud Sadybekov

10:50-11:30 **Alexei Shadrin** (University of Cambridge)

Several remarks on the B-spline basis condition number

11.30-11.40 **Short break**

11:40-12:20 **Erlan Nursultanov** (Kazakhstan Branch, Lomonosov Moscow State University)

Anisotropic net spaces and interpolation properties of integral operators

12:20-13.00 **André Uschmajew** (University of Augsburg)

On the approximation of vector-valued functions by samples

13:00-14:10 **Lunch break**

Chair: Vladimir Stepanov

14:10-14:50 **Dmitriy Stolyarov** (St. Petersburg State University)

Hardy spaces of fractional order

14:50-15:10 **Evgenii Berezhnoi** (Yaroslavl State University)

Multipliers for a pair of Morrey spaces

15:10-15:30 **Martin Schäfer** (Chemnitz University of Technology)

Besov-type function spaces on the hypercube based on the half-period cosine system

15:30-15.50 **Moritz Moeller** (Chemnitz University of Technology)

Tractable s-widths in weighted Wiener spaces

15:50-16:00 **Short break**

Chair: Tolga Etgu

16:00-16:20 **Dmitry Gorbachev**

Refinement of the mean angle in the Fejes Tóth problem

16:20-16:40 **Arran Fernandez** (Eastern Mediterranean University)

Algebraic Properties of Function Spaces for Mikusinski's Operational Calculus

16:40-17:00 **Gulnur Zaur** (Institute of Mathematics and Mathematical Modeling, Almaty)

On fractional inequalities on metric measure spaces with polar decomposition

17:00-17:20 **Mikhail Novikov** (St. Petersburg Department of Steklov Mathematical Institute)

Sharp bounds for distribution of martingale transform of bounded functions

17.20 **Closing Speech**