

# **XII INTERNATIONAL MATHEMATICAL FORUM**



## **PROGRAM**

**International Conference  
“Order Analysis and Related Problems  
of Mathematical Modelling, XVI.  
Operator Theory and Differential Equations”**

**Vladikavkaz, Russia  
September 20–24, 2021**

**Southern Mathematical Institute  
of the Vladikavkaz Scientific Center of the Russian Academy of Sciences  
Regional Mathematical Center of Southern Federal University  
North Caucasian Center for Mathematical Research of the  
Vladikavkaz Scientific Center of the Russian Academy of Sciences**

## **PROGRAM**

**International Conference  
“Order Analysis and Related Problems  
of Mathematical Modelling, XVI.  
Operator Theory and Differential Equations”  
(Online)**

**Vladikavkaz, Russia  
September 20–24, 2021**

## **Program Committee:**

<b>Daniel Andreucci</b>	(Rome, Italy)
<b>Martin Weber</b>	(Dresden, Germany)
<b>Gennady V. Demidenko</b>	(Novosibirsk, Russia)
<b>Sergei I. Kabanikhin</b>	(Novosibirsk, Russia)
<b>Alexey N. Karapetyants</b>	(Rostov-on-Don, Russia)
<b>Anatoly G. Kusraev</b>	(Vladikavkaz, Russia) – <b>Chairman</b>
<b>Semen S. Kutateladze</b>	(Novosibirsk, Russia)
<b>Marcel de Jeu</b>	(Leiden, the Netherlands)
<b>Mohammad Sal Moslehian</b>	(Mashhad, Iran)
<b>Vladimir V. Peller</b>	(Michigan, USA)
<b>Vladimir G. Romanov</b>	(Novosibirsk, Russia)
<b>Evgeny I. Smirnov</b>	(Yaroslavl, Russia)
<b>Fedor A. Sukochev</b>	(Sydney, Australia)
<b>Fang Xiaochun</b>	(Shanghai, China)

### **Organizing Committee:**

<b>Alexander V. Abanin</b>	(Rostov-on-Don, Russia) – <b>Co-Chairman</b>
<b>Vera S. Abaturova</b>	(Vladikavkaz, Russia) – <b>Co-Chairman</b>
<b>Anatoly A. Alikhanov</b>	(Stavropol, Russia)
<b>Alexander O. Vatulyan</b>	(Rostov-on-Don, Russia)
<b>Vincenzo Vespri</b>	(Florence, Italy)
<b>Durdimurod K. Durdiev</b>	(Bukhara, x Uzbekistan)
<b>Eduard Yu. Emel'yanov</b>	(Ankara, Turkey)
<b>Olga A. Ivanova</b>	(Rostov-on-Don, Russia)
<b>Evgeny S. Kamenetcky</b>	(Vladikavkaz, Russia)
<b>Ruslan Ch. Kulaev</b>	(Vladikavkaz, Russia)
<b>Zalina A. Kusraeva</b>	(Vladikavkaz, Russia)
<b>Georgy G. Magaril-II'yaev</b>	(Moscow, Russia)
<b>Irina E. Malova</b>	(Bryansk, Россия)
<b>Dmitry M. Polyakov</b>	(Vladikavkaz, Russia)
<b>Batradz B. Tasoev</b>	(Vladikavkaz, Russia)
<b>Anatoly F. Tedeev</b>	(Tskhinval, Republic of South Ossetia)
<b>Zhanna D. Totieva</b>	(Vladikavkaz, Russia) – <b>Conference Secretary</b>

### **Conference time limits:**

Plenary talk – 40 min.

Session talk – 15 min.

# September 20, 2021 (Monday)

## PLENARY SESSION

**Chairman: Professor Anatoly G. Kusraev**

9<sup>30</sup> -10<sup>00</sup> Online Connecting

10<sup>00</sup> -10<sup>30</sup> **Opening**

10<sup>30</sup> -11<sup>10</sup> **Abanin Alexander** (SFedU, Rostov-on-Don; SMI VSC RAS, Vladikavkaz; Russia)

“Description of components of the composition operators’ set in Bergman spaces”

11<sup>10</sup> -11<sup>50</sup> **Vatulyan Alexander** (SFedU, Rostov-on-Don; SMI VSC RAS, Vladikavkaz; Russia)

“Iterative processes and sensitivity characteristics in inverse problems”

11<sup>50</sup> -12<sup>30</sup> **Nikonorov Yuri** (SMI VSC RAS, Vladikavkaz; Russia)

“On finite homogeneous subspaces of Euclidean spaces”

**SESSIONS II, III**  
**“DIFFERENTIAL AND INTEGRAL EQUATIONS”,**  
**“MATHEMATICAL MODELLING”**

**Chairman: Professor Anatoly F. Tedeev**  
**Secretary: Dmitri M. Polyakov**

- 13<sup>30</sup> -13<sup>45</sup> *Anabela de Sousa e Silva* (CIDMA - University of Aveiro, Portugal)  
“A class of convolution integral equations associated with the linear canonical transform”
- 13<sup>45</sup> -14<sup>00</sup> *Belkacem Chaouchi* (Université de Khemis Miliana, Algérie)  
“An abstract approach for the study of a boundary value problem for the biharmonic equation set in a singular domain”
- 14<sup>00</sup> -14<sup>15</sup> *Shamolin Maxim* (MSU, Moscow; Russia)  
“Tensor invariants of dissipative systems”
- 14<sup>15</sup> -14<sup>30</sup> *Gerardo Giovanni* (University of Salerno, Salerno; Italy),  
*Nasedkin Andrey*, (SFedU, Rostov-on-Don; Russia)  
*Nasedkina Anna* (SFedU, Rostov-on-Don; Russia)  
“Computer homogenization of porous nonuniformly polarized piezoelectric composites using the effective moduli method and the 3-0 algorithm of the ACELAN-COMPOS package under various types of boundary conditions”
- 14<sup>30</sup> -14<sup>45</sup> *Subbotin Vladimir* (SRSPU (NPI), Novocherkassk; Russia)  
“On the existence of RR-polyhedra of the second type”
- 14<sup>45</sup> -15<sup>00</sup> **Break**
- 15<sup>00</sup> -15<sup>15</sup> *Ashurov Ravshan* (IM UzAS, Tashkent; Uzbekistan),  
*Fayziev Yusuf* (UzNU, Tashkent; Uzbekistan)  
“Inverse problem of determining the order of the fractional derivative in the wave equation”

- 15<sup>15</sup> -15<sup>30</sup> **Yuldashev Tursun** (UzNU, Tashkent; Uzbekistan)  
 “Nonlocal boundary value problems for integro-differential equations with degenerate kernel”
- 15<sup>30</sup> -15<sup>45</sup> **Atayan Asya** (DSTU, Rostov-on-Don; Russia)  
 “Mathematical modeling of hydrodynamic processes in a shallow reservoir on a multiprocessor computer system”
- 15<sup>45</sup> -16<sup>00</sup> **Martynova Yuliya** (RN-BashNIPIneft, Ufa; Russia),  
**Muzipov Vadim** (BESK Engineering, Ufa)  
 “On an inverse spectrum problem for quantum graph-type "tree"”
- 16<sup>00</sup> -16<sup>15</sup> **Bayan Bekbolat** (KazNU, Almaty; Kazakhstan; SDU, Kaskelen; Kazakhstan; Ghent University, Ghent; Belgium),  
**Niyaz Tokmagambetov** (KazNU, IMMM, Almaty; Kazakhstan; Ghent University, Ghent, Belgium)  
 “An inverse problem for the heat equation associated with the Jacobi operator”
- 16<sup>15</sup> -16<sup>30</sup> **Postnov Sergey** (ISC RAS, Moscow; Russia)  
 “Optimal control for the systems, modeled by diffusion-wave equation”
- 16<sup>30</sup> -16<sup>45</sup> **Nedin Rostislav** (SFedU, Rostov-on-Don; Russia)  
 “Regarding modeling the lattice plate of the eye sclera with account for the residual stress fields”

## POSTER SESSION

- 16<sup>45</sup> -17<sup>00</sup> **Kostin Andrey** (EI KFU, Elabuga; Russia)  
 “The shadow problem for horoballs and psvedospherical surfaces of revolution” (<https://youtu.be/7nWPZova3EE> )

# September 21, 2021 (Tuesday)

## PLENARY SESSION

Chairman: Professor Evgeny S. Kamenetsky

9<sup>30</sup> -10<sup>00</sup> Online Connecting

10<sup>00</sup> -10<sup>40</sup> ***Gutman Alexander*** (IM SB RAS, Novosibirsk; Russia)  
“Boolean-valued analysis: to discover the simple in the complicated”

10<sup>40</sup> -11<sup>20</sup> ***Kusraev Anatoly*** (SMI VSC RAS, Vladikavkaz; Russia)  
“Compact disjointness preserving polynomials”

11<sup>20</sup> -12<sup>00</sup> ***Nesterov Sergei*** (SMI VSC RAS, Vladikavkaz; Russia)  
“Scale-dependent deformation models of layered bodies”

12<sup>00</sup> -12<sup>40</sup> ***Muzaev Illarion*** (GPI VSC RAS, Vladikavkaz; Russia),  
***Kharebov Konstantin*** (GPI VSC RAS, Vladikavkaz; Russia),  
***Muzaev Nugzar*** (GPI VSC RAS, Vladikavkaz; Russia)  
“Formulation and solution of an initial boundary value problem modeling an effective method of water intake from a cold layer of a stratified reservoir”

## SESSIONS II, III

### “DIFFERENTIAL AND INTEGRAL EQUATIONS”, “MATHEMATICAL MODELLING”

**Chairman: Professor Evgeny S. Kamenetsky**

**Secretary: Dmitry M. Polyakov**

- 13<sup>15</sup>-13<sup>30</sup> ***Korablina Ella*** (SFedU, Rostov-on-Don; Russia; Russia),  
***Levenshtam Valery*** (SFedU, Rostov-on-Don; SMI VSC RAS,  
Vladikavkaz; Russia)  
“The inverse problem for a wave equation with a lower term and  
rapidly oscillating data”
- 13<sup>30</sup>-13<sup>45</sup> ***Vatulyan Alexander*** (SFedU, Rostov-on-Don; SMI VSC RAS,  
Vladikavkaz; Russia),  
***Nedin Rostislav*** (SFedU, Rostov-on-Don; SMI VSC RAS, Vla-  
dikavkaz; Russia)  
“On some direct and inverse elasticity problems for 2-dimensio-  
nal prestressed region”
- 13<sup>45</sup>-14<sup>00</sup> ***Nazarov Aleksandr*** (SPbU, St. Petersburg; Russia),  
***Nazarov Sergei*** (SPbU, St. Petersburg; Russia),  
***Zavorokhin German*** (SPbU, St. Petersburg; Russia)  
“On symmetric wedge mode of an elastic solid”
- 14<sup>00</sup>-14<sup>15</sup> ***Litvinov Vladimir*** (DonSAU, Zernograd; Russia),  
***Gracheva Natalya*** (DonSAU, Zernograd; Russia),  
***Rudenko Nelli*** (DonSAU, Zernograd; Russia)  
“Organization of parallel pipeline calculations for modeling the  
process of spreading pollutants in a reservoir based on a graph  
model”
- 14<sup>15</sup>-14<sup>30</sup> ***Nikitina Alla*** (SFedU, Rostov-on-Don; Russia),  
***Filina Alena*** (SRC SC & NC, Taganrog; Russia),  
***Litvinov Vladimir*** (DonSAU, Zernograd; Russia)  
«Development of mathematical modeling tools for the biodegra-  
dation processes of oil pollution in coastal systems”

- 14<sup>30</sup>-14<sup>45</sup> ***Nikonorova Yulia*** (SFedU, Rostov-on-Don; Russia)  
 “Application of nonlinear regressions to study a number of economic processes”
- 14<sup>45</sup>-15<sup>00</sup> **Break**
- 15<sup>00</sup>-15<sup>15</sup> ***Askhabov Sultan*** (ChSPI, KCHSU, Grozny; Russia)  
 “System of inhomogeneous integral equations of convolution type with power nonlinearity”
- 15<sup>15</sup>-15<sup>30</sup> ***Aniyarov Almir*** (IMMM, Almaty; Kazakhstan),  
***Nurakhmetov Daulet*** (IMMM, Almaty; Kazakhstan)  
 “Controlling vibrations of a beam with nonlocal boundary conditions”
- 15<sup>30</sup>-15<sup>45</sup> ***Novikov Vladimir*** (SSU, Saratov; Russia)  
 “On a consistency of nonparametric regression estimates”
- 15<sup>45</sup>-16<sup>00</sup> ***Perevaryukha Andrey*** (SPC RAS, Saint Petersburg)  
 “Modeling transient oscillatory regimes of populations with aggregated delay”
- 16<sup>00</sup>-16<sup>15</sup> ***Chistyakov Alexander*** (DSTU, Rostov-on-Don; Russia),  
***Kuznetsova Inna*** (SFedU, Rostov-on-Don; Russia)  
 “Modeling the process of mixing water in the estuarine area in the presence of a density gradient of the aquatic environment”
- 16<sup>15</sup>-16<sup>30</sup> ***Kamenetsky Evgeny*** (SMI VSC RAS, Vladikavkaz; Russia),  
***Basaeva Elena*** (SMI VSC RAS, Vladikavkaz; Russia)  
 “Indicators of social tension for Lithuania and Kyrgyzstan”

**September 22, 2021 (Wednesday)**

**PLENARY SESSION**

**Chairman: Professor Yuri G. Nikonorov**

$9^{30}$  -  $10^{00}$  Online Connecting

$10^{00}$  -  $10^{40}$  ***Vatulyan Alexander*** (SFedU, Rostov-on-Don; SMI VSC RAS, Vladikavkaz; Russia),

***Yurov Victor*** (SMI VSC RAS, Vladikavkaz; Russia)

“Asymptotic and numerical study of waves in inhomogeneous waveguides”

$10^{40}$  -  $11^{20}$  ***Janko Stennder*** (TU Dresden, Dresden; Germany)

“Operators on pre-Riesz spaces: Generalizations of Riesz and n-Riesz homomorphisms”

$11^{20}$  -  $12^{00}$  ***Fernando León Saavedra*** (UCA, Cadiz; Spain)

“Comutants and bicomutants of composition operators”

## SESSION I

### “FUNCTION SPACES AND OPERATOR THEORY”

**Chairman: Professor Alexander E. Gutman**

**Secretary: Batradz B. Tasoev**

- 14<sup>00</sup> -15<sup>15</sup> ***Nazife Erkurşun Özcan*** (Hacettepe University, Ankara; Turkey)  
“Asymptotic equivalences of operator nets”
- 14<sup>15</sup> -14<sup>30</sup> ***Korablina Yulia*** (SFedU, Rostov-on-Don; SMI VSC RAS, Vladikavkaz; Russia)  
“On the criteria of the boundedness of classical operators on Bergman spaces, Bloch and Fock spaces”
- 14<sup>30</sup> -14<sup>45</sup> ***Tasoev Batradz*** (SMI VSC RAS, Vladikavkaz; Russia)  
“Variable power of quasi-Banach lattices”
- 14<sup>45</sup> -15<sup>00</sup> ***Melikhov Sergej*** (SFedU, Rostov-on-Don; SMI VSC RAS, Vladikavkaz; Russia)  
“Invariant subspaces of backward shift operator and rational functions”
- 15<sup>00</sup> -15<sup>15</sup> ***Ivanova Olga*** (SFedU, Rostov-on-Don; Russia)  
“On the subspaces of entire functions which are invariant with respect to the generalized backward shift operator”
- 15<sup>15</sup> -15<sup>30</sup> ***Aliyev Yagub*** (BSU, Baku; Azerbaijan)  
“Sturm-Liouville Problems with spectral parameter in a boundary condition”
- 15<sup>30</sup> -16<sup>00</sup> **Break**
- 16<sup>00</sup> -16<sup>15</sup> ***Budyka Viktoria*** (PFUR, Moscow; Russia)  
“Self-adjointness and discreteness of block Jacobi matrices and their application to differential operators”
- 16<sup>15</sup> -16<sup>30</sup> ***Granovsky Yaroslav*** (IAMM, Donetsk)  
“Bargman estimation for non-compact finite quantum graphs with summable potentials”

- 16<sup>30</sup> -16<sup>45</sup> ***Okorochkov Ivan*** (MPSU, Moscow; Russia),  
***Tikhonov Ivan*** (MSU, Moscow; Russia),  
***Sherstukov Vladimir*** (MEPhi, Moscow; Russia)  
 “On the connection of Bernstein and Kantorovich polynomials  
 for a symmetric module function”
- 16<sup>45</sup> -17<sup>00</sup> ***Almohammad Khalil*** (PFUR, Moscow; Russia)  
 “Integral properties of generalized potentials of Bessel type and  
 Riesz type”
- 17<sup>00</sup> -17<sup>15</sup> ***Francisco Bulnes*** (Research Department in Mathematics and  
 Engineering, TESCHA, Chalco; Mexico)  
 “Mukai-Fourier Transforms as Solutions to Field Equations in  
 Derived Categories: Spectrum as Higgs-Oscillations in the  
 Space-Time  $V$ ”
- 17<sup>15</sup> -17<sup>30</sup> ***Polyakova Daria*** (SFedU, Rostov-on-Don; SMI VSC RAS,  
 Vladikavkaz; Russia)  
 “On the range of the Borel map for spaces of ultradifferen-  
 tiable functions of mean type”
- 17<sup>30</sup> -17<sup>45</sup> ***Kusraeva Zalina*** (RMC SFedU, Rostov-on-Don; SMI VSC  
 RAS, Vladikavkaz; Russia)  
 “On almost interval preserving linear operators”

**SESSION II, III**  
**“DIFFERENTIAL AND INTEGRAL EQUATIONS”,**  
**“MATHEMATICAL MODELLING”**

**Chairman: Professor Alexander O. Vatulyan**  
**Secretary: Dmitry M. Polyakov**

- 14<sup>30</sup> -15<sup>45</sup> **Muzaev Illarion** (GPI VSC RAS, Vladikavkaz; Russia),  
**Kharebov Kinstantin** (GPI VSC RAS, Vladikavkaz; Russia),  
**Muzaev Nugzar** (GPI VSC RAS, Vladikavkaz; Russia)  
“Mathematical modeling of shear seismic vibrations of an array  
consisting of recultivated material deposits of the mining indus-  
try (tails)”
- 14<sup>45</sup> -15<sup>00</sup> **Dudarev Vladimir** (SFedU, Rostov-on-Don; SMI VSC RAS,  
Vladikavkaz; Russia),  
**Mnukhin Roman** (SFedU, Rostov-on-Don; Russia)  
“On some computational aspects of solving inverse problems for  
inhomogeneous bodies”
- 15<sup>00</sup> -15<sup>15</sup> **Revina Svetlana** (SFedU, Rostov-on-Don; SMI VSC RAS, Vla-  
dikavkaz; Russia)  
“Diffusion-driven instability region for systems of parabolic  
equations”
- 15<sup>15</sup> -15<sup>30</sup> **Safarov Jurabek** (IM UzAS, Tashkent; Uzbekistan)  
“Solutions of an inverse problem for an integro-differential  
equation by the method of moments”
- 15<sup>30</sup> -15<sup>45</sup> **Totieva Zhanna** (SMI VSC RAS, Vladikavkaz; Russia)  
“About global solvability of a multidimensional inverse problem  
for an viscoelasticity equation”
- 15<sup>45</sup> -16<sup>00</sup> **Dzhamalov Sirojiddin** (IM UzAS, Tashkent; Uzbekistan),  
**Ashurov Ravshan** (IM UzAS, Tashkent; Uzbekistan),  
**Turakulov Khamidullo** (IM UzAS, Tashkent; Uzbekistan)  
«On one nonlocal boundary value problem of periodic type for

the three-dimensional Chaplygin equation in an unbounded prismatic domain»

- 16<sup>00</sup> -16<sup>15</sup> **Vatulyan Alexander** (SMI VSC RAS, Vladikavkaz; Russia),  
**Yavruyan Oksana** (SMI VSC RAS, Vladikavkaz; Russia)  
“One approach to the study of stratification of a strip from the base using the models of the gradient theory of elasticity”
- 16<sup>15</sup> -16<sup>30</sup> **Break**
- 16<sup>30</sup> -16<sup>45</sup> **Kamenetsky Evgeny** (SMI VSC RAS, Vladikavkaz; Russia),  
**Panaetova Olga** (SMI VSC RAS, Vladikavkaz; Russia),  
**Radionov Anatoly** (SMI VSC RAS, Vladikavkaz; Russia),  
**Timchenko Vasily** (SMI VSC RAS, Vladikavkaz; Russia)  
“Mathematical modeling of dust transport to estimate the ecological situation in the mountain valleys of the RNO-Alania”
- 16<sup>45</sup> -17<sup>00</sup> **Kamenetsky Evgeny** (SMI VSC RAS, Vladikavkaz; Russia),  
**Panaetova Olga** (SMI VSC RAS, Vladikavkaz; Russia),  
**Radionov Anatoly** (SMI VSC RAS, Vladikavkaz; Russia),  
**Timchenko Vasily** (SMI VSC RAS, Vladikavkaz; Russia)  
“Processing of data from satellite observations of atmospheric optical density over the mountainous territories of the RNO-A”
- 17<sup>00</sup> -17<sup>15</sup> **Shoyimardonov Sobirjon** (IM UzAS, Tashkent; Uzbekistan)  
“A discrete time SEIR model for COVID-19 spread”
- 17<sup>15</sup> -17<sup>30</sup> **Kazarnikov Alexey** (SMI VSC RAS, Vladikavkaz; Russia)  
“Parameter identification for models of biological pattern formation in the case of severely limited data set”
- 17<sup>30</sup> -17<sup>45</sup> **Hamadeh Alkhalil Nesrin** (PFUR, Moscow; Russia)  
“Estimation of the modulus of continuity in the Bessel potentials space over Calderon space”
- 17<sup>45</sup> -18<sup>00</sup> **Polyakov Dmitry** (SMI VSC RAS, Vladikavkaz; Russia)  
«On spectrum asymptotics for second-order differential operator with nonlocal boundary conditions»

**September 23, 2021 (Thursday)**

**PLENARY SESSION**

**Chairman: Professor Evgeny S. Kamenetsky**

- 10<sup>00</sup> -10<sup>40</sup> Online Connecting
- 10<sup>40</sup> -11<sup>20</sup> ***Shubarin Mikhail*** (SFedU, Rostov-on-Don; Russia)  
“Isomorphisms of "large" families of power spaces”
- 11<sup>20</sup> -12<sup>00</sup> ***Anil Kumar Karn*** (NISER, Bhubaneswar; India)  
“Orthogonality: an antidot to Kadison's anti-lattice theorem”
- 12<sup>00</sup> -12<sup>40</sup> ***Morgulis Andrey*** (SFedU, Rostov-on-Don; SMI VSC RAS,  
Vladikavkaz; Russia)  
“Effect of the boundary conditions on the hydrodynamic  
stability”

## SESSION I

### “FUNCTION SPACES AND OPERATOR THEORY”

**Chairman: Professor Aleksandr V. Abanin**

**Secretary: Batradz B. Tasoev**

- 14<sup>15</sup> -14<sup>30</sup> **Magomed-Kasumov Magomedrasul** (SMI VSC RAS, Vladikavkaz; Russia)  
“Uniform convergence of Fourier series in a Sobolev orthogonal system of polynomials associated with Jacobi polynomials”
- 14<sup>30</sup> -14<sup>45</sup> **Balashchenko Vitaly, Kunitsa Viktoriya** (BSU, Minsk; the Republic of Belarus)  
“Generalized Hermitian structures on three dimensional solvable Lie groups”
- 14<sup>45</sup> -15<sup>00</sup> **Hiroyuki Osaka** (Ritsumeikan University, Kyoto; Japan)  
«On a subclass of norm attaining operators»
- 15<sup>00</sup> -15<sup>15</sup> **Emel'yanov Eduard** (Middle East Technical University, Ankara; Turkey; IM SB RAS, Novosibirsk; Russia)  
“On the domination problem for Lebesgue, KB, and Levi operators”
- 15<sup>15</sup> -15<sup>30</sup> **Sahiba Arora** (TU Dresden, Dresden; Germany)  
“Convergence of eventually positive operator semigroups”
- 15<sup>30</sup> -15<sup>45</sup> **Podoroga Anastasia** (MSU, Moscow; Russia),  
**Tikhonov Ivan** (MSU, Moscow; Russia)  
“On a special method for simulation of solutions of quasi-linear differential equations”
- 15<sup>45</sup> -16<sup>15</sup> **Break**
- 16<sup>15</sup> -16<sup>30</sup> **Ivanov Pavel** (SFedU, Rostov-on-Don; Russia)  
“On the backward shift operators in polycylindrical domains”
- 16<sup>30</sup> -16<sup>45</sup> **Volochkov Valery** (DonNU, Donetsk),  
**Volochkov Vitaly** (DonNU, Donetsk)  
“Functions with zero ball means with given values on fixed points”

- 16<sup>45</sup>-17<sup>00</sup> **Tashpulatov Sa'dulla** (INP UzAS, Tashkent; Uzbekistan),  
**Parmanova Rukhsat** (INP UzAS, Tashkent; Uzbekistan)  
“Structure of essential spectra and discrete spectrum of the energy operator of four-electron systems in the impurity Hubbard model. Triplet states”
- 17<sup>00</sup>-17<sup>15</sup> **Petrosova Margarita** (MPSU, Moscow; Russia)  
“Some special estimates related to the coefficients of Bernstein polynomials on a symmetric interval”
- 17<sup>15</sup> -17<sup>30</sup> **Romanov Alexander** (IM SB RAS, Novosibirsk; Russia)  
“Extremality of p-harmonic functions in  $\mathbb{R}^2$ ”

**SECTION II, III**  
**“DIFFERENTIAL AND INTEGRAL EQUATIONS”,**  
**“MATHEMATICAL MODELLING”**

**Chairman: Professor Anatoly F. Tedeev**  
**Secretary: Dmitry M. Polyakov**

- 14<sup>00</sup>-14<sup>15</sup> **Belova Yulia** (DSTU, Rostov-on-Don; Russia)  
«Mathematical modeling of the displacement of the areas of  
phytoplankton populations in the conditions of hydrological  
changing regime in the Azov sea»
- 14<sup>15</sup>-14<sup>30</sup> **Belova Yulia** (DSTU, Rostov-on-Don; Russia),  
**Rakhimbaeva Elena** (DSTU, Rostov-on-Don; Russia)  
«Mathematical models, algorithms and user interface for prob-  
lems of plankton population dynamics»
- 14<sup>30</sup>-14<sup>45</sup> **Volochkova Natalya** (DNTU, Donetsk),  
**Volochkov** (DonNU, Donetsk),  
**Ischenko Natalya** (DonNU, Donetsk)  
«On the Inversion of the Local Pompeiu Transformation»
- 14<sup>45</sup>-15<sup>00</sup> **Dimitrieva Natalia** (IM NASU, Kiev; Ukrain)  
«Simulation of two-phase flows behind a streamlined body»
- 15<sup>00</sup>-15<sup>15</sup> **Borisov Denis** (IM UFRC RAS, Ufa; Russia)  
«Spectra of differential operators on graphs with small edges»
- 15<sup>15</sup>-15<sup>30</sup> **Zunnunov Rakhimjon** (IM UzAS, Tashkent; Uzbekistan)  
“On a nonlocal problem for a mixed-type equation in a domain  
whose elliptical part is a quarter of the plane”
- 15<sup>30</sup>-15<sup>45</sup> **Break**
- 15<sup>45</sup>-16<sup>00</sup> **Zelenchuk Pavel** (SFedU, Rostov-on-Don; Russia)  
“Numerical study of the "predator-prey" system based on the  
diffusion-advection-reaction equations”

- 16<sup>00</sup>-16<sup>15</sup> **Leontyev Anton** (SFedU, Rostov-on-Don; Russia),  
**Chumak Margarita** (DSTU, Rostov-on-Don; Russia)  
«Application of FPGA technologies for modeling hydrophysical processes in reservoirs with complex bottom relief»
- 16<sup>15</sup>-16<sup>30</sup> **Litvinov Vladislav** (SSTU, Samara; Russia),  
**Litvinov Kristina** (MSU, Moscow; Russia)  
«Nonlinear mathematical model of longitudinal – transversal vibrations of a string with a moving border»
- 16<sup>30</sup>-16<sup>45</sup> **Trynin Aleksandr** (SSU, Saratov; Russia)  
«On approximative properties of generalizations of the sinc approximation on the class of Privalov-Chanturia»
- 16<sup>45</sup>-17<sup>00</sup> **Semenov Vladimir** (IKBFU, Kaliningrad; Russia)  
«Special properties of plane solenoidal fields»
- 17<sup>00</sup>-17<sup>15</sup> **Sharifullin Airat** (EI KFU, Elabuga; Russia)  
«Generalized convex sets»

**September 24, 2021 (Friday)**

**PLENARY SESSION**

**Chairman: Professor Anatoly G. Kusraev**

9<sup>30</sup> -10<sup>00</sup> Online Connecting

10<sup>00</sup> -10<sup>40</sup> **Magril-Ilyaev Georgy** (MSU, Moscow; SMI VSC RAS, Vladikavkaz; Russia),

**Sivkova Elena** (SMI VSC RAS, Vladikavkaz; Russia)

«On optimal recovery of a family of linear operators»

10<sup>40</sup> -11<sup>20</sup> **Smirnov Evgeny** (YSPU, Yaroslavl; Russia)

“Features and functionality of a hybrid neural net for schoolchildren's project and research activities organization”

11<sup>20</sup> -12<sup>00</sup> **Naziev Aslanbek** (RSU, Ryazan; Russia)

“School mathematics from the point of view of mathematical logic”

12<sup>00</sup> **Closing**

**SESSION IV**  
**“PROBLEMS OF MATHEMATICAL EDUCATION”**

**Chairman: Vera S. Abaturova**  
**Secretary: Laura A. Tokaeva**

- 15<sup>00</sup> -15<sup>15</sup> **Abaturova Vera** (SMI VSC RAS, Vladikavkaz; Russia)  
“Mathematical modeling in teaching mathematics of students in the basic school”
- 15<sup>15</sup> -15<sup>30</sup> **Avsanova Marina** (SNCMS, Vladikavkaz; Russia)  
“Method of solving geometric problems by subtasks”
- 15<sup>30</sup> -15<sup>45</sup> **Boychenko Sergei** (ASU, Maikop; Russia)  
“The problems and the ways of solutions in distance learning organization projects of Caucasus Mathematical Center”
- 15<sup>45</sup> -16<sup>00</sup> **Gazarian Robert** (CCPD, Nalchik; Russia),  
**Kishtikova Elena** (NCSTA, Nalchik; Russia)  
“Familiar and unfamiliar parabola”
- 16<sup>00</sup> -16<sup>15</sup> **Gussaova Renata** (SNCMS, Vladikavkaz; Russia)  
“Olympiad tasks as means the students ' mathematical abilities developing”
- 16<sup>15</sup> -16<sup>30</sup> **Dvoryatkina Svetlana** (YelSU, Yelets; Russia)  
“Methodological unity and the basics of intelligent management of the process of teaching mathematics in the triad "teacher-computer-student"”
- 16<sup>30</sup> -16<sup>45</sup> **Dyatlov Vladimir** (NSU, Novosibirsk; SMI VSC RAS, Vladikavkaz; Russia)  
“Functional theme in problems with parameters”
- 16<sup>45</sup> -17<sup>00</sup> **Kuznetsova Irina** (YSPU, Yaroslavl; Russia)  
“To the question of the content of the additional vocational education program "Functional and digital literacy of a student in the creative and level-based mastering of complex mathematical objects, procedures and phenomena””

- 17<sup>00</sup> -17<sup>15</sup> **Malova Irina** (BSU, Bryansk; Russia)  
“Methodical activity: from intuition to justifications”
- 17<sup>15</sup> -17<sup>30</sup> **Kurbanova Irina** (SNCMS, Vladikavkaz; Russia)  
“Using the principles of mathematical logic in solving Olympiad problems from the section «Number Theory”
- 17<sup>30</sup> -17<sup>45</sup> **Ohvat Lyubov** (School 1, Arkhonskaya village; Russia)  
“Interactive worksheet as a means of forming independent cognitive activity of students”

## LIST OF ABBREVIATIONS

ASU	Adyghe State University
KaNU	Al-Farabi Kazakh National University
BSU (Baku)	Baku Slavic University
BSU (Minsk)	Belarusian State University
BSU (Bryansk)	Bryansk State University
CCPDT	Center for Continuous Professional Development of Teachers (Nalchik)
ChSPU	Chechen State Pedagogical University
GPI	Geophysical Institute of the Vladikavkaz Scientific Center of the Russian Academy of Sciences
DSTU	Don State Technical University
DonNU	Donetsk National University
Don SAU	Don State Agrarian University
EI KFU	Elabuga Institute of Kazan Federal University
IAMM	Donetsk Institute of Applied Mathematics and Mechanics
INP UzAS	Institute of Nuclear Physics of the Academy of Sciences of the Republic of Uzbekistan
IKBFU	Immanuel Kant Baltic Federal University
IM UzAS	Romanovsky Institute of Mathematics of the Academy of Sciences of the Republic of Uzbekistan
IM NASU	Institute of Mathematics of National Academy of sciences of Ukraine
IMMM	Institute of Mathematics and Mathematical Modeling (Almaty)

IM SB RAS	Sobolev Institute of Mathematics, Siberian Branch of the Russian Academy of Sciences
IM UFRC RAS	Institute of Mathematics with Computing Centre of the Ufa Federal Research Centre of Russian Academy of Sciences.
ISC RAS	Institute of Control Sciences of the Russian Academy of Sciences
KCHSU	Kadyrov Chechen State University
MEPhI	National Research Nuclear UniversityMoscow Engineering Physics Institute
MPSU	Moscow Pedagogical State University
MSU	Lomonosov Moscow State University
NCSTA	North Caucasus State Institute of Arts
NISER	National Institute of Science Education and Research
NSU	Novosibirsk State University
UzNU	National University of Uzbekistan
PFUR	Peoples' Friendship University of Russia
RCMI SFedU	Regional Mathematical Center of Southern Federal University
RN-BashNIPIneft	Bashkerian Research and Design Institute of Oil Exploration
RSU	Ryazan State University named for S, Yesenin
SDU	Suleyman Demirel University
SNCMS	Suvorov North Caucasian Military School
SSU	Saratov State University
SSTU	Samara State Technical University

SPC RAS	St. Petersburg Federal Research Center of the Russian Academy of Sciences
SPbU	St Petersburg University
SRC SC & NC	Supercomputers and Neurocomputers Research Center
SRSPUP(NPI)	Platov South Russian State Polytechnic University
SFedU	Southern Federal University
SMI VSC RAS	Southern Mathematical Institute of the Vladikavkaz Scientific Center of the Russian Academy of Sciences
TU Dresden	Dresden Technical University
UCA	University of Cadiz
YeISU	Bunin Yelets State University
YSPU	Yaroslavl State Pedagogical University named after K.D. Ushinsky