

Georgian Mathematical Union
Batumi Shota Rustaveli State University
Ministry of Education, Culture and Sport of Adjara Autonomous
Republic

XIV INTERNATIONAL CONFERENCE
OF THE GEORGIAN MATHEMATICAL UNION
Dedicated to the 100-th Anniversary of the Georgian
Mathematical Union

PROGRAM

Batumi, September 2-7
2024

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Conference Thematic Sessions and Organizers

- Algebra and Number Theory (Khmaladze Emzar, Pirashvili Teimuraz, Shavgulidze Ketevan)
- Differential and Integral Equations, and Their Applications (Chkadua Otar, Duduchava Roland, Shavlakadze Nugzar)
- Geometry and Topology (Bakuradze Malkhaz, Baladze Vladimer, Khimshiashvili George)
- Logic, Language, Artificial Intelligence (Dundua Besik, Pkhakadze Konstantine, Rukhaia Mikheil)
- Mathematical Education and History of Mathematics (Gogishvili Guram, Vepkhvadze Teimuraz)
- Mathematical Logic and Discrete Mathematics (Kharazishvili Alexander, Kirtadze Aleks, Omanadze Roland)
- Mathematical Modeling and Numerical Analysis (Chilachava Temur, Jangveladze Temur, Meladze Hamlet)
- Theoretical Physics (Kvinikhidze Alexander)
- Probability Theory and Statistics, Financial Mathematics (Kvaratskhelia Vakhtang, Purtukhia Omar, Tarieladze Vaja)
- Real and Complex Analysis (Ephremidze Lasha, Oniani Giorgi, Tephnadze George)

Mini Symposia and co-chairs:

- Emerging Topics in Computer Science (co-chairs: Khachidze Manana and Tsintsadze Magda)

Editors: Gogishvili Guram, Davitashvili Tinatin

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Schedule of the Conference

Section	Room	Mo	Tu	We	Th	Fr
Plenary Session	1	10-14	9-14, 19-21	10-14	10-14, 19-21 ⁴⁰	9-9 ⁵⁰
Real and Complex Analysis	1					
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Algebra and Number Theory	2					
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Probability Theory and Statistics, Financial Mathematics	8					
Mini-Symposium: Emerging Topics in Computer Science	8					

Plenary Lectures

September 2, Monday

9 ⁰⁰ : 9 ³⁰	Registration
9 ³⁰ : 10 ⁰⁰	Opening of the Conference
Plenary Room	Chairman: Meskhi Alexander
10 ⁰⁰ : 10 ⁵⁰	Efendiyev Messoud. Frontiers of Biomathematics: The Impact of Biology on Mathematics
10 ⁵⁰ : 11 ⁴⁰	Borodovsky Mark. Mathematical Modeling of Genome Organization and Algorithms of Gene Prediction
11 ⁴⁰ : 12 ²⁰	Coffee break
Plenary Room	Chairman: Beridze Anzor
12 ²⁰ : 13 ¹⁰	Iosevich Alexander. Applications of Linear and Multi-linear Restriction to Uncertainty Principles and Exact Signal Recovery
13 ¹⁰ : 14 ⁰⁰	Burenkov Victor. On the Recent Results in the Theory of Operators in General Morrey-type Spaces
14 ⁰⁰ : 16 ⁰⁰	Lunch break
16 ⁰⁰ : 17 ¹⁵	Parallel Sessions
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 19 ⁰⁰	Parallel Sessions

September 3, Tuesday

Plenary Room	Chairman: Oniani Giorgi
9 ¹⁰ : 10 ⁰⁰	Xue Qingying. A Class of Multilinear Bounded Oscillation Operators on Measure Spaces and Applications
10 ⁰⁰ : 10 ⁵⁰	Tikhonov Sergey. Uncertainty Principles for Fourier Transform
10 ⁵⁰ : 11 ⁴⁰	Curbera Guillermo. The Finite Hilbert Transform Taking Values in the Zygmund Space $L_{exp}(-1,1)$
11 ⁴⁰ : 12 ²⁰	Coffee break
Plenary Room	Chairman: Meskhi Alexander
12 ²⁰ : 13 ¹⁰	Barsegian Grigor. The Idea of Complex Conjugacy (an Analogue of the Idea of Riemann Surfaces in Differential Geometry and Real Analysis)
13 ¹⁰ : 14 ⁰⁰	Falcone Giovanni. Periodic Functions, Toroidal Groups, Generalized Jacobians and Fractional Ideals of Non-totally Real Number Fields
14 ⁰⁰ : 16 ⁰⁰	Lunch break
16 ⁰⁰ : 17 ¹⁵	Parallel Sessions
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 19 ⁰⁰	Parallel Sessions
Online	Chairman: Ephremidze Lasha
19 ⁰⁰ : 19 ⁵⁰	Biswas Anjan. Quasi-stationary optical gaussons with maximum intensity
20 ⁰⁰ : 20 ⁵⁰	Ullrich Mario. Widths of Convex Sets and the Power of Adaption and Randomization

September 4, Wednesday

Plenary Room	Chairman: Beridze Anzor
10 ⁰⁰ : 10 ⁵⁰	Mastylo Mieczysław. Projection Constants for the Spaces of Multivariate Polynomials
10 ⁵⁰ : 11 ⁴⁰	Zabka Matthew. Topological Data Analysis with an Example in Social Networks
11 ⁴⁰ : 12 ²⁰	Coffee break
Plenary Room	Chairman: Ephremidze Lasha
12 ²⁰ : 13 ¹⁰	Georgiou Dimitrios N. An Introduction to Dimension Theory of Topological Spaces – Zero-dimensional Extensions of Topologies
13 ¹⁰ : 14 ⁰⁰	Escobar Santiago. Logical Reasoning Capabilities in Maude 3.4
The evening	Banquet

September 5, Thursday

Plenary Room	Chairman: Duduchava Roland
9 ¹⁰ : 10 ⁰⁰	<u>Gorlatch Sergei</u> and <u>Garanina Natalia.</u> Auto-Tuning High-Performance Programs with Model Checking in Promela
10 ⁰⁰ : 10 ⁵⁰	Kutsia Temur. Recent Advances in Logic-based Generalization
10 ⁵⁰ : 11 ⁴⁰	Vakhania Nodari. The Domination Problem in Graphs and Solution Methods
11 ⁴⁰ : 12 ²⁰	Coffee break
Plenary Room	Chairman: Jangeladze Temur
12 ²⁰ : 13 ¹⁰	Peinador Elena Martin. Angelic Spaces: Eberlein-Šmulyan Type Results for Abelian Topological Groups

13 ¹⁰ : 14 ⁰⁰	Pappalardi Francesco. Imprimitive Points on Elliptic Curves
14 ⁰⁰ : 16 ⁰⁰	Lunch break
16 ⁰⁰ : 17 ¹⁵	Parallel Sessions
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 19 ⁰⁰	Parallel Sessions
Online	Chairman: Tarieladze Vaja
19 ⁰⁰ : 19 ⁵⁰	Kąkol Jerzy. About the Problem of Banach and Mazur from the 1930s. Classical and New Results
20 ⁰⁰ : 20 ⁵⁰	Kuchment Peter. The Wonderful Wizardry of Tomography
20 ⁵⁰ : 21 ⁴⁰	Eichmann Gernot. From Quarks and Gluons to Exotic Hadrons

September 6, Friday

9 ⁰⁰ : 16 ⁰⁰	Free time
16 ⁰⁰ : 17 ¹⁵	Parallel Sessions
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 19 ⁰⁰	Parallel Sessions

September 7, Saturday

10 ⁰⁰ : 12 ⁰⁰	Parallel Sessions
Room 1, 12⁰⁰	Closing

Thematic Sessions

Algebra and Number Theory.

September 4, Wednesday

Room 2	Chairman: Khmaladze Emzar
16 ⁰⁰ : 16 ²⁵	Lomadze Vakhtang. A note on generalized functions
16 ²⁵ : 16 ⁵⁰	<u>Nebiyev Celil</u>, <u>Ökten Hasan Hüseyin</u>. On cofinitely \oplus -g-supplemented modules
16 ⁵⁰ : 17 ¹⁵	Mokhtari Amir Hossein. Proper linear commutant preserving maps
17 ¹⁵ : 17 ⁴⁰	<u>Sampson Marshal</u>, <u>Lipcsey Zsolt</u>. Algorithm for semigroup bases and its implication on the bases of classes of semigroup
17 ⁴⁰ : 18 ⁰⁵	Pirashvili Teimuraz. Modul over square rings

September 5, Thursday

Room 2	Chairman: Pirashvili Teimuraz
16 ⁰⁰ : 16 ²⁵	<u>Neuhauser Markus</u>, <u>Heim Bernhard</u>, <u>Abdesselam Abdelmalek</u>, <u>Troeger Robert</u>. Log-concavity of infinite product generating functions
16 ²⁵ : 16 ⁵⁰	<u>García Martínez Xabier</u>. A characterisation of Lie algebras using ideals and subalgebras
16 ⁵⁰ : 17 ¹⁵	<u>Patchkoria Alex</u>, <u>Martins-Ferreira Nelson</u>, <u>Montoli Andrea</u>, <u>Sobral Manuela</u>. The third cohomology group of a monoid and admissible abstract kernels
17 ¹⁵ : 17 ⁴⁵	Coffee break

$17^{45} : 18^{10}$	Mesabliashvili Tamar. On factorization of monoids
$18^{10} : 18^{35}$	<u>Rakviashvili Giorgi</u>, Muladze Vitali, Turmanidze Lela. On projective class group of crossed products
$18^{35} : 19^{00}$	Khmaladze Emzar. Crossed modules, cohomology and Wells exact sequence for Leibniz n-algebras

September 6, Friday

Room 2	Chairman: Mesabliashvili Bachuki
$16^{00} : 16^{25}$	Mesabliashvili Bachuki. On simultaneously reflective and coreflective full subcategories of an (enriched) functor category
$16^{25} : 16^{50}$	<u>Amaglobeli Mikheil</u>, Miasnikov Alexei. On the categories of exponential R-groups
$16^{50} : 17^{15}$	Bokelavadze Tengiz. On nilpotent power MR-group
$17^{15} : 17^{45}$	Coffee break
$17^{45} : 18^{10}$	Kemoklidze Tariel. Endomorphisms of a separable primary group
$18^{10} : 18^{35}$	(Online) Goy Taras. Connection formulas between Mersenne and Fibonacci numbers using Trudi's formula

Differential and Integral Equations and their Applications

September 2, Monday

Room 3	Chairman: Gol'dshtein Vladimir
16 ⁰⁰ : 16 ²⁵	Duduchava Roland, Tsaava Medea. Transmission problems for a second order differential equation on a hypersurface with Lipschitz boundary in the generic Bessel potential spaces.
16 ²⁵ : 16 ⁵⁰	Gol'dshtein Vladimir, Pchelintsev Valery. About Faber-Krahn Inequality for divergence form elliptic operators
16 ⁵⁰ : 17 ¹⁵	Ospanov Kordan, Moldagali Erkebulan, Uspanova Zhulduzai. Conditions for the regularity of a solution of one fourth-order differential equation with unbounded coefficients
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	Seibel Daniel. Analytical integration in Galerkin boundary element methods
18 ¹⁰ : 18 ³⁵	Ospanov Myrzagali, Merzetkhan Akerke. On the solvability of a system of first-order differential equations in a non-cylindrical domain

September 3, Tuesday

Room 3	Chairman: Duduchava Roland
16 ⁰⁰ : 16 ²⁵	Hömberg Dietmar. Two-scale topology optimization - modeling, analysis and numerical results.
16 ²⁵ : 16 ⁵⁰	Partsvania Nino. Kneser Problem for Two-Dimensional Nonlinear Singular Differential Systems
16 ⁵⁰ : 17 ¹⁵	Olgun Cabri, Toprakseven Suayp. On q Sturm Liouville Operator with Periodic Boundary Conditions

17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	Smadiyeva Asselya. Decay estimates for the degenerate differential equations.
18 ¹⁰ : 18 ³⁵	Zholamankyzy Ainur. On the existence of the solution to the Goursat problem for loaded system hyperbolic equations.
18 ³⁵ : 19 ⁰⁰	Hamidreza Marasi. Solving fractional models using artificial neural networks

September 4, Wednesday, **Online**

Room 3	Chairman: Shavlakadze Nugzar
14 ³⁰ : 14 ⁵⁵	Kovtunenکو Victor. Well-posedness of the governing equations for nonlinear elastic model in which both stress and strain appear linearly
14 ⁵⁵ : 15 ²⁰	<u>Ayele Tsegaye</u>, <u>Dagnaw Mulugeta</u>, <u>Monijore Shumatir.</u> Boundary-domain integral equations for Helmholtz BVPs with non-smooth coefficients on Lipschitz domain
15 ²⁰ : 15 ⁴⁵	<u>Ayele Tsegaye</u>, <u>Hagos Goitom.</u> United boundary-domain integro-differential and integral equations to the Dirichlet problem for a compressible Stokes system with variable viscosity
15 ⁴⁵ : 16 ¹⁰	Beznea Lucian. Positive solutions to semilinear Dirichlet problems with general boundary data

September 5, Thursday

Room 3	Chairman: Jokhadze Otar
16 ⁰⁰ : 16 ²⁵	Gachechiladze Roland, <u>Gachechiladze Avtandil</u>. Boundary contact problems with regard to friction of couple-stress viscoelasticity for inhomogeneous anisotropic bodies (non-coercive, quasi-static cases)
16 ²⁵ : 16 ⁵⁰	Abylayeva Akbota, Two-sided estimates of Weyl type operator
16 ⁵⁰ : 17 ¹⁵	Rupp Florian. Modeling and Simulating the Stochastic Dynamics of Games with Three Pure Strategies
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	<u>Muratbekov Madi</u>, Muratbekov Mussakan. Estimates of approximation numbers and completeness of root vectors of a singular operator generated by the linear part of the Korteweg-de Vries operator
18 ¹⁰ : 18 ³⁵	Dauren Matin, <u>Bokayev Nurzhan</u>, Akhazhanov Talgat. Compactness of the commutator of the multilinear Calderon–Zygmund singular integral operator in global Morrey-type spaces

September 6, Friday

Room 3	Chairman: Chkadua Otar
16 ⁰⁰ : 16 ²⁵	Jokhadze Otar, Kharibegashvili Sergo. On some boundary value problems for the equation of string oscillation.
16 ²⁵ : 16 ⁵⁰	Shavlakadze Nugzar, Pachulia Bachuki, The contact problem for piecewise-homogeneous viscoelastic plate with elastic patch
16 ⁵⁰ : 17 ¹⁵	Shalamberidze Merab, <u>Sokhadze Zaza</u>. Basics of designing individual orthopedic Boot-Tree by for children with cerebral palsy

17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	Giorgashvili Levan, Zazashvili Shota , Boundary Value Problem of statics of the Second Gradient Theory of Thermoelasticity for a Ball
18 ¹⁰ : 18 ³⁵	Ashordia Malkhaz, Kekelia Nestan , On the existence of bounded solutions for systems of linear impulsive equations
18 ³⁵ : 19 ⁰⁰	Toloraia Anika . The solvability and regularity results of dynamical mixed type boundary-transmission problems with interior cracks of the thermo-electro-elasticity theory without energy dissipation

Geometry and Topology

September 2, Monday

Room 2	Chairman: Bakuradze Malkhaz
15 ⁰⁰ : 15 ⁵⁰	Saneblidze Samson . The secondary cohomology operations and loop space cohomology
15 ⁵⁰ : 16 ⁰⁰	Coffee break
16 ⁰⁰ : 16 ⁵⁰	Patchkoria Irakli . Chromatic congruences and Bernoulli numbers
16 ⁵⁰ : 17 ¹⁵	Aliashvili Teimuraz, Kapanadze Gvantsa . On the topology of an intersection of quadric
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	Kuznetsov Evgeny . On Boolean Topos Constructions by Freyd and Patariaia and their generalizations
18 ¹⁰ : 18 ³⁵	Baladze Vladimer, Dumbadze Fridon . An inverse system approach of map and its application in (co)homology theory

September 3, Tuesday

Room 2	Chairman: Saneblidze Samson
15 ⁰⁰ : 15 ⁵⁰	Pirashvili Mariam. The Drinfeld centre and Gottlieb group of a crossed module
15 ⁵⁰ : 16 ⁰⁰	Coffee break
16 ⁰⁰ : 16 ⁵⁰	Bakuradze Malkhaz. Complex cobordism modulo spherical cobordism
17 ⁵⁰ : 17 ¹⁵	Latifinaid Sousan, <u>Abazari Nemat</u>, Yayli Yusuf. A characterization of dual catenaries problem in dual spaces
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ³⁵	<u>Beridze Anzor</u>, <u>Traczyk Pawel</u>. On the homological approach in Burau representation theory
18 ³⁵ : 19 ⁰⁰	<u>Bayramov Sadi</u>, <u>Velieva Kamale</u>. Neutrosophic topology on soft sets

Logic, Language and Artificial Intelligence

Dedicated to the 105th Anniversary of founder of Georgian School of the Classical Mathematical Logic, Honored Scientist of Georgia, Shalva Pkhakadze

September 2, Monday

Room 4	Chairman: Rukhaia Mikheil
16 ⁰⁰ : 16 ²⁵	Bishara Merium. Some properties of Unranked Probabilistic Logic
16 ²⁵ : 16 ⁵⁰	Bishara Merihan. Probabilistic Inductive Logic Programming Techniques
16 ⁵⁰ : 17 ¹⁵	Dundua Besik. Fuzzy Extension of Lambda Calculus

17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	<u>Abuladze Inga</u>, <u>Siradze Saba</u>, <u>Tsertsvadze Giorgi</u>. Development of an electronic library for mobile applications using AI functions
18 ¹⁰ : 18 ³⁵	<u>Jintcharadze Elza</u>, <u>Khinkiladze Lika</u>. Performance analysis for homomorphic encryption techniques based on Paillier Encryption
18 ³⁵ : 19 ⁰⁰	<u>Saghinadze Teimuraz</u>. LoRA-like parameter-efficient transfer learning for CNNs

September 3, Tuesday

Room 4	Chairman: Dundua Besik
16 ⁰⁰ : 16 ²⁵	<u>Nadiradze Luka</u>. Cross-Disciplinary Insights in AI and Neuroscience
16 ²⁵ : 16 ⁵⁰	<u>Kalandadze Raphael</u>, <u>Katamadze Sofio</u>, <u>Ferrari Laura</u>, <u>Tsmindashvili Tatia</u>, <u>Mueller Philipp</u>, <u>Kukhilava Natia</u>, <u>Wirth Benedikt Emanuel</u>. Evaluation in EEG emotion recognition: state-of-the-art review and unified framework
16 ⁵⁰ : 17 ¹⁵	<u>Kachiashvili Soso</u>, <u>Tabagari Luka</u>, <u>Karapetian David</u>, <u>Müller Philipp</u>, <u>Wirth Benedikt Emanuel</u>, <u>Balazia Michal</u>. Emotion recognition on the basis of human body movements using artificial intelligence methods
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	<u>Rukhaia Mikheil</u>. Rewriting logic with quantitative relations
18 ¹⁰ : 18 ³⁵	<u>Kurtanidze Lia</u>. Exploring some applications of probability logics
18 ³⁵ : 19 ⁰⁰	<u>Tibua Lali</u>. Extension of τ logic with probabilistic operators

Mathematical Education and History of Mathematics

September 2, Monday

Room 5	Chairman: Gogishvili Guram
16 ⁰⁰ : 16 ²⁵	Gogishvili Guram. On the precision of mathematical concepts' defining.
16 ²⁵ : 16 ⁵⁰	Chelidze George, Nikoleishvili Mikheil, <u>Tarieladze Vaja</u>. On a sufficient condition of solvability of a Diophantine equation.
16 ⁵⁰ : 17 ¹⁵	<u>Kutkhashvili Ketevan</u>, Sulaqvelidze Levan, Kupatadze Kote. School and university - one unit, one goal.
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	<u>Pkhovelishvili Merab</u>, Archvadze Natela, Gogichaishvili Kakha, Zandarashvili Zurab. Modern Confirmation Theory.
18 ¹⁰ : 18 ³⁵	Zarnadze David. On the Representation of the "either ..., or ..." Conjunction in School Mathematics Textbooks and National Examination Tests.

September 3, Tuesday

Room 5	Chairman: Vepkhvadze Teimuraz
16 ⁰⁰ : 16 ²⁵	Vepkhvadze Teimuraz. On the importance of teaching the elements of number theory in middle and high school
16 ²⁵ : 16 ⁵⁰	<u>Manukyan Vardan</u>, Nikoghosyan Gagik. Some kinematic approaches to solving geometric problems.
16 ⁵⁰ : 17 ¹⁵	Mebonia Ia. About the specifics of using the open book method at school.
17 ¹⁵ : 17 ⁴⁵	Coffee break

17 ⁴⁵ : 18 ¹⁰	Samsonadze Guram. About the ABET-Program in Linear Algebra.
18 ¹⁰ : 18 ³⁵	Mahagna Ahlam. Pines and Future.

September 5, Thursday

Room 5	Chairman: Sulakvelidze Levan
16 ⁰⁰ : 16 ²⁵	<u>Tsamalashvili Davit</u>, Kurchishvili Lamara. One approach to solve probability problems
16 ²⁵ : 16 ⁵⁰	Macharashvili Giorgi. Data analysis
16 ⁵⁰ : 17 ¹⁵	<u>Deisadze Manana</u>, Kirtadze Shalva. A Universal design of teaching and differentiated approach
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	Adeishvili Vladimer, <u>Gokadze Ivane</u>. Ptolemy's theorem for cyclic quadrilaterals and its consequences
18 ¹⁰ : 18 ³⁵	Butchukhishvili Mamuli. On the issue of teaching irrational equations.
18 ³⁵ : 19 ⁰⁰	Giorgadze Teimuraz. From the history of trigonometric functions.

Mathematical Logic and Discrete Mathematics

September 4, Wednesday

Room 4	Chairman: Kirtadze Aleks
14 ³⁰ : 14 ⁵⁵	<u>Altayeva Aizhan</u>, Kulpeshov Beibut. Almost omega-categoricity in weakly o-minimal theories
14 ⁵⁵ : 15 ²⁰	Beriashvili Mariam. On some topological properties of Luzin set
15 ²⁰ : 15 ⁴⁵	Ahmed Mamoon. The Graded Graph for Submodules

September 5, Thursday

Room 4	Chairman: Beriashvili Mariam
$16^{00} : 16^{25}$	Grigolia Revaz, Liparteliani Ramaz. Decidability of Generalized 3-valued Post algebras
$16^{25} : 16^{50}$	Yershigeshova Aisha, Verbovskiy Viktor, On pure linear orderings of Morley o-rank 1
$16^{50} : 17^{15}$	Zambarnaya Tatyana, Baizhanov Bektur. Observations on the number of countable models of ordered theories
$17^{15} : 17^{45}$	Coffee break
$17^{45} : 18^{10}$	Tazabekova Nargiza, Baizhanov Bektur. V-independent sequences
$18^{10} : 18^{35}$	Zarnadze David, Tsozniashvili Soso. Boolean algebras with exclusive disjunction and symmetric difference

September 6, Friday

Room 4	Chairman: Grigolia Revaz
$16^{00} : 16^{25}$	Kirtadze Aleks, On some properties of small sets
$16^{25} : 16^{50}$	Khachidze Marika. On almost invariant Bernstein type sets
$16^{50} : 17^{15}$	Beriashvili Shalva, Kasrashvili Tamar, Tetunashvili Tengiz. On estimation of sums of certain finite systems of vectors with applications
$17^{15} : 17^{45}$	Coffee break
$17^{45} : 18^{10}$	Beraia Lika. On Mazurkiewicz type sets

Mathematical Modeling and Numerical Analysis

September 2, Monday

Room 6	Chairman: Meladze Hamlet
16 ⁰⁰ : 16 ²⁵	<u>Kublashvili Murman</u>, Sanikidze Zaza, Saghinadze Teimuraz, Macharashvili Gela. Approximate calculations of singular integrals with piecewise differentiating density
16 ²⁵ : 16 ⁵⁰	Ugulava Duglas, <u>Zarnadze David</u>. On a central algorithm for calculation of the inverse of the multidimensional harmonic oscillator in the spaces of orbits
16 ⁵⁰ : 17 ¹⁵	<u>Zakradze Mamuli</u>, Tabagari Zaza, Koblishvili Nana, Davitashvili Tinatin. The numerical solution of the Dirichlet generalized and classical harmonic problems for irregular n-sided pyramidal domains by the MPS
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	Baghaturia Giorgi, <u>Menteshashvili Marine</u>. Application of grid-characteristic method to characteristic problems for one class of quasi-linear equations
18 ¹⁰ : 18 ³⁵	<u>Tsiramua Sergo</u>, Davitashvili Tinatin, Meladze Hamlet. Logical-probabilistic modeling of risks and quantitative assessment of safety
18 ³⁵ : 19 ⁰⁰	Vashakmadze Tamaz. To the reduction, spread and perspective of nonlinear complex analysis for some problems of theoretical physics

September 2, Monday

Room 7	Chairman: Tsiramua Sergo
16 ⁰⁰ : 16 ²⁵	<u>Odisharia Vladimer</u>, Odisharia Kakhaber, Janikashvili Nona, Kalichava Zviad. Mathematical model of combined treatment of rheumatoid arthritis considering IL6

16 ²⁵ : 16 ⁵⁰	Kalichava Zviad, Odisharia Vladimer, Odisharia Kakhaber, Janikashvili Nona. Nonlinear mathematical model of immunopathogenesis of rheumatoid arthritis considering the role of mediator of inflammation
16 ⁵⁰ : 17 ¹⁵	Meladze Hamlet, Davitashvili Tinatin, Tchelidze Tamar, Basharuli Nika, Burdiladze Luka. About one method of solving the Schrödinger equation and its application in modeling the electronic properties of quantum nanostructures
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	(Online) Slabospitsky Alexander. Least squares time-varying parameter estimation with least deviations from attraction points and its recurrent representation for some classes of systems under non-classical assumptions
18 ¹⁰ : 18 ³⁵	(Online) Khatiashvili Nino. On the Novel Solutions of 2D Navier-Stokes Equation
18 ³⁵ : 19 ⁰⁰	(Online) Peradze Jemal. A numerical algorithm of solving a nonlinear integro-differential string equation and its error

September 3, Tuesday

Room 6	Chairman: Chilachava Temur
16 ⁰⁰ : 16 ²⁵	<u>Chilachava Temur</u>, Pochkhua George. Mathematical models of the propagation of world religions
16 ²⁵ : 16 ⁵⁰	Chilachava Temur, Zedashidze Rusudan. Mathematical model of detonation wave propagation in a nonhomogeneous gravitational gas sphere
16 ⁵⁰ : 17 ¹⁵	Kereselidze Nugzar. Information security model in the case of two sources of misinformation
17 ¹⁵ : 17 ⁴⁵	Coffee break
	Chairman: Jangveladze Temur

17 ⁴⁵ : 18 ¹⁰	Akhobadze Merab, <u>Kurtskhalia Elguja</u>. <i>Q</i> -analysis of connections of hierarchical systems using fuzzy sets
18 ¹⁰ : 18 ³⁵	<u>Chkhikvadze Teimuraz, Jangveladze Temur, Kiguradze Zurab</u>. On one nonlinear fourth-order integro-differential parabolic equation
18 ³⁵ : 19 ⁰⁰	<u>Gagoshidze Mikheil, Jangveladze Temur, Kiguradze Zurab</u>. On approximate solution of one two-dimensional system of nonlinear partial differential equations

September 3, Tuesday

Room 7	Chairman: Davitashvili Tinatin
16 ⁰⁰ : 16 ²⁵	<u>Elbakidze Khatuna, Kharshiladze Oleg, Kutalia Konstantine</u>. The solar wind - earth magnetic field interactions and its effect on the climate change
16 ²⁵ : 16 ⁵⁰	<u>Martínez-Aroza José A., Gómez-Lopera Juan F.</u> Histogram clustering and edge detection in grayscale digital images
16 ⁵⁰ : 17 ¹⁵	<u>Mdzinarishvili Tengiz, Shanidze Revaz, Osepashvili Mariam</u>. Mathematical modeling of carcinogenesis
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	Alizadeh Abdollah. Numerical Simulation of generated heat in Metal plate placed upon the optical waveguide using the 1D simulation and extending to 3D
18 ¹⁰ : 18 ³⁵	<u>Kumar Sanjeev, Gautam Diksha, Sharma Rashmi</u>. A rigorous mathematical analysis to explore the density of tumour cells and immune response (TNF)
18 ³⁵ : 19 ⁰⁰	<u>Vadher Pragna A., Deheri Gunamani B., Kumar Sanjeev, Valani Bharatkumar N., Patel Rakesh M.</u> The combined effect of elastic deformation and viscosity variation on a ferrofluid based rough short bearing: A comparison of porous structures

September 5, Thursday

Room 7	Chairman: Jangveladze Temur
16 ⁰⁰ : 16 ²⁵	Bulut Sadullah, Yiğider Muhammed. Numerical solution and applicability of β -conformable time fractional derivative equations with artificial neural networks
16 ²⁵ : 16 ⁵⁰	Jafarzadeh Yousef. Dual integral transform in the class of laplace
16 ⁵⁰ : 17 ¹⁵	Jafarzadeh Yousef. Some theorems and new result related to the triple laplace transform
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	Oleinikov Alexander. Fracture criteria for matrix and fibers in unidirectional polymeric composites
18 ¹⁰ : 18 ³⁵	Yousefikhoshbakht Majid, Dolatnezhadsomarin Azam. A combination of ant colony optimization and simulated annealing for solving the multiple traveling salesman problem
18 ³⁵ : 19 ⁰⁰	(Online) Kechiche Dounya. A litterature survey on the effect of scanning strategy on temperature gradients in SLM

Probability Theory and Statistics, Financial Mathematics

September 2, Monday

Room 8	Chairman: Kachiashvili Kartlos
16 ⁰⁰ : 16 ²⁵	<u>Kachiashvili Kartlos</u>, <u>Kachiashvili Joseph</u>, <u>SenGupta Ashis</u>. Quasi-optimal rule of testing directional hypotheses and its application to big data
16 ²⁵ : 16 ⁵⁰	Sági Judit. Measurement of the excess inflation in the Balassa Samuelson model in the countries of the South Caucasus
16 ⁵⁰ : 17 ¹⁵	Udvaros József. Econometric forecasting during crisis periods, using unrestricted mixed-data sampling regression
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	<u>Namgalauri Ekaterine</u>, <u>Jaoshvili Vakhtang</u>, <u>Purtukhia Omar</u>. Clark-Ocone type formulas for some past-dependent Brownian functionals
18 ¹⁰ : 18 ³⁵	<u>George Giorgobiani</u>, <u>Kvaratskhelia Vakhtang</u>, <u>Tarieladze Vaja</u>. On sub-gaussianity in finite and infinite-dimensions
18 ³⁵ : 19 ⁰⁰	<u>Kvatadze Zurab</u>, <u>Parjiani Beqnu</u>, <u>Kvatadze Tsiala</u>. Chebyshev's theorem for sequences with chain dependence

September 3, Tuesday

Room 8 Online	Chairman: Kvaratskhelia Vakhtang
16 ⁰⁰ : 16 ²⁵	<u>Tkach Mariia</u>, <u>Livinska Hanna</u>. Evaluation of some optimal characteristics of a metro station by queueing modelling
16 ²⁵ : 16 ⁵⁰	<u>Salia Nani</u>, <u>Kakubava Revaz</u>. Queue length's analysis for an M/G/1 system in random environment

16 ⁵⁰ : 17 ¹⁵	<u>Zerakidze Zurab</u>, Aleksidze Lela, Eliauri Laura. The "Z-Criteria" of hypotheses testing for statistical structure in Banach Space of measures
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	<u>Babilua Petre</u>, Nadaraya Elizbar. On the estimating Poisson regression function using Bernstein polynomials
18 ¹⁰ : 18 ³⁵	Mnatsakanov Robert. Nonparametric estimation in random coefficient regression model
18 ³⁵ : 19 ⁰⁰	Magrakvelidze Dali. Fuzzy probability - one of the ways to remove uncertainty

Real and Complex Analysis

*Dedicated to the 100th Anniversary of Honored Scientist of Georgia,
Professor Gogi Manjavidze*

September 2, Monday

Room 1	Chairman: Meskhi Alexander
16 ⁰⁰ : 16 ²⁵	Meskhi Alexander. Rubio de Francia's extrapolation in grand Banach function spaces
16 ²⁵ : 16 ⁵⁰	Oniani Giorgi. Approximation and transfer of properties between translation invariant convex differentiation bases
16 ⁵⁰ : 17 ¹⁵	<u>Makharadze Dali</u>, Meskhi Alexander. Commutators of sublinear operators in Grand variable exponent Morrey spaces and applications to PDEs
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	Chelidze George, <u>Giorgobiani George</u>, Tarieladze Vaja. Rearrangement universality of the Dirichlet type series
18 ¹⁰ : 18 ³⁵	Qin Moyan. Limiting weak type behaviors for rough operators, and characterizations

$18^{35} : 19^{00}$	Zhang Juan. Riesz transforms associated with the Neumann Laplacian
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September 3, Tuesday

Room 1	Chairman: Oniani Giorgi
$16^{00} : 16^{25}$	Bokayev Nurzhan, Gogatishvili Amiran, <u>Matin Dauren</u>, Abek Azhar. On optimal embedding of the space of generalized fractional-maximal functions in rearrangement-invariant spaces
$16^{25} : 16^{50}$	Giorgadze Grigor, Makatsaria Giorgi, <u>Manjavidze Nino</u>. Some functional properties of generalized solutions of two-dimensional elliptic system
$16^{50} : 17^{15}$	Bakuridze Mzevinar, <u>Tarieladze Vaja</u>. On Khavin subsets of complex plane
$17^{15} : 17^{45}$	Coffee break
$17^{45} : 18^{10}$	Khanna Nikhil. A note on scalable K - g -frames
$18^{10} : 18^{35}$	Sharma Nitin, <u>Sharma Sumit Kumar</u>. On Hilbert-Schmidt frames in quaternionic Hilbert spaces

September 5, Thursday

Room 1	Chairman: Ephremidze Lasha
$16^{00} : 16^{25}$	Ephremidze Lasha. Algorithm for Wiener-Hopf factorization of polynomial matrices with monomial determinant
$16^{25} : 16^{50}$	Tepnadze George. Almost everywhere convergence of subsequences of partial sums of Fourier series with respect to Vilenkin systems
$16^{50} : 17^{15}$	Almohammedali Fadelah, <u>Chan Kit</u>. Conditions for automorphic compositions on the upper half-plane to be universal
$17^{15} : 17^{45}$	Coffee break

$17^{45} : 18^{10}$	<u>Akhazhanov Talgat</u>, <u>Bokayev Nurzhan</u>, <u>Matin Dauren</u>. Compactness of the commutator of the multilinear Calderon–Zygmund singular integral operator in global Morrey-type spaces.
$18^{10} : 18^{35}$	Meskhi Alexander, <u>Natelashvili Lazare</u>. Boundedness criteria for the multilinear Riemann-Liouville operators

September 6, Friday

Room 1	Chairman: Tutberidze Giorgi
$16^{00} : 16^{25}$	<u>Cagareishvili Giorgi</u>, <u>Tsagareishvili Vakhtang</u>, <u>Tutberidze Giorgi</u>. Unconditional convergence of general Fourier series
$16^{25} : 16^{50}$	<u>Poumai Khole Timothy</u>. Short-Time Gabor transform in graph signal processing
$16^{50} : 17^{15}$	<u>Tetvadze Giorgi</u>, <u>Tetvadze Lili</u>, <u>Tsibadze Lamara</u>, <u>Tvalodze Iuri</u>. On the boundary behaviour of Blaschke-Djrbashyan canonical product in the unit disk
$17^{15} : 17^{45}$	Coffee break
$17^{45} : 18^{10}$	<u>Mukhambetzhan Manshuk</u>, <u>Turgumbaev Mendybai</u>. On the weighted integrability of the series with monotonic coefficients with respect to the multiplicative systems

September 7, Saturday (Online)

Room 1	Chairman: Lasha Ephremidze
$10^{00} : 10^{25}$	<u>Asad Zaighum Muhammad</u>. Sublinear operators on Grand Herz Hardy spaces
$10^{25} : 10^{50}$	<u>Mathi Manivannan</u>. Radius properties of harmonic mappings fixing with the analytic part as convex

Theoretical Physics

September 5, Thursday

Room 6	Chairman: Gevorkyan Ashot
16 ²⁵ : 16 ⁵⁰	Devidze Gela. Top quark rare decays in the BSM scenarios
16 ⁵⁰ : 17 ¹⁵	Gevorkyan Ashot. Quantum chromodynamics of nucleons in the representation of complex probabilistic processes
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	Katchiuri Irine, Kipiani Gela. Dynamic Study of Overhead crane
18 ¹⁰ : 18 ³⁵	Khunjua Tamaz, Klimenko Konstantin , Zhokhov Roman. Dual symmetries of dense three and two-color QCD and some QCD-like NJL models
18 ³⁵ : 19 ⁰⁰	Özçağ Emin. On compositions of some singular distributions

September 6, Friday

Room 6	Chairman: Khunjua Tamaz
16 ⁰⁰ : 16 ²⁵	Kvinikhidze Alexander. Boosting bound state wave functions for the Chiral EFT
16 ²⁵ : 16 ⁵⁰	Tchelidze Tamar, Meladze Hamlet, Davitashvili Tinatin, Machavariani Zaal, Basharuli Nika, Burdiladze Luka. Coulomb interaction in semiconductor quantum wells
16 ⁵⁰ : 17 ¹⁵	Tediashvili Zurab. On the uniqueness in the inverse problems of potential theory
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	Tsutskiridze Badri, Tsutskiridze Mari. The flow between two co-axial tube

Mini-Symposium: Emerging Topics in Computer Science

September 5, Thursday

Room 8	Chairman: Archuadze Maia
16 ⁰⁰ : 16 ²⁵	Archuadze Maia, Tsintsadze Magda, Khachidze Manana. Gender challenges in computer science and STEM
16 ²⁵ : 16 ⁵⁰	Archvadze Natela, Pkhovelishvili Merab, Shetsiruli Lia. The prediction model of parallel data
16 ⁵⁰ : 17 ¹⁵	Asabashvili Elisabed. Identifying key relationships in a data set
17 ¹⁵ : 17 ⁴⁵	Coffee break
17 ⁴⁵ : 18 ¹⁰	Gagloshvili Julieta. The best intelligent systems for idea management and their practical integration
18 ¹⁰ : 18 ³⁵	(Online) Tsintsadze Magda, Archuadze Maia, Khachidze Manana. The role of patterns in improving performance in the .NET environment.
18 ³⁵ : 19 ⁰⁰	(Online) Khachidze Manana, Kobrava Davit, Archuadze Maia, Tsintsadze Magda. Using reverse Monte Carlo to populate data lakes and marts

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