

QUALITDE – 2023

Dedicated to the 120th birthday anniversary of Professor V. Kupradze

December 9 – 11, 2023, Tbilisi, Georgia

*A. Razmadze Mathematical Institute of I. Javakishvili Tbilisi State University
2, Merab Aleksidze II Lane, Tbilisi 0193, Georgia*

Program

December 9, 2023

- 13:45 – 14:00 **Opening of the Workshop**
- 14:00 – 14:30 **I. Kiguradze** – Blow-Up Solutions of the Cauchy Problem for Nonlinear Delay Ordinary Differential Equations
- 14:30 – 15:00 **J. Šremr** – Parameter-Dependent Periodic Problems for Non-Autonomous Duffing Equations with a Sign-Changing Forcing Term
- 15:00 – 15:30 **S. Kharibegashvili** – Antiperiodic Problem for One Class of Nonlinear Partial Differential Equations
- 15:30 – 16:00 **N. Partsvania** – Rapidly Growing Solutions to Two-Dimensional Nonlinear Differential Systems
- 16:00 – 16:30 **Coffee Break**
- 16:30 – 19:00 **Overview of the talks of participants in absentia**
- J. López-Gómez, P. Omari** – Branches of Positive Solutions of a Superlinear Indefinite Prescribed Curvature Problem
- C. Wang, R. P. Agarwal** – General Theory of the Higher-Order Linear Quaternion q -Difference Equations
- C. Mesquita, M. Tvrdý** – On the Existence of Bifurcation Points for Periodic Problems to Distributional Differential Equations
- V. Mikhailets, A. Goriunov, V. Molyboga** – Sturm-Liouville Operators with Strongly Singular Coefficients: Semi-Boundedness and Self-Adjointness
- E. Bravyi** – On Solvability Conditions for the Cauchy Problem for Second Order Linear Non-Volterra Functional Differential Equations
- A. Lomtadze** – Periodic Solutions of a Pendulum Like Planar System
- Z. Došlá, M. Marini, S. Matucci** – Asymptotic Proximity Between Equations with Mean Curvature Operator and Linear Equation
- S. Staněk** – Solvability of BVPs for Sequential Fractional Differential Equations at Resonance
- T. Tanigawa** – Existence and Asymptotic Behavior of Nonoscillatory Solutions of Quasilinear Differential Equations with Variable Exponents
- J. Jaroš, T. Kusano** – Nonoscillation Theory of Nonlinear Differential Equations of Emden-Fowler Type with Variable Exponents

L. Idels, R. I. Kadiev, A. Ponosov – Lyapunov Stability of Time-Fractional Stochastic Volterra Equations

T. Kiguradze, A. Almutairi – Nonlocal Boundary Value Problems for Second Order Linear Hyperbolic Systems

T. Kiguradze, M. M. Alrumayh – Nonlocal Boundary Value Problems for Second Order Nonlinear Hyperbolic Systems

Z. Kiguradze – Numerical Solution for One Nonlinear Integro-Differential Equation Applying Deep Neural Network

V. P. Maksimov – Uncertainty Estimates for Target Functionals Values to a Class of Continuous-Discrete Systems with Incomplete Information

S. Mukhigulashvili – Pointwise Conditions of Solvability of a Periodic Problem for Higher Order Functional Differential Equations

December 10, 2023

10:00 – 10:30 **R. Hakl, J. Oyarce** – Positive Periodic Solutions for Functional Differential Equations with Super-Linear Growth

10:30 – 11:00 **Ph. Dvalishvili, A. Nachaoui, M. Nachaoui, T. Tadumadze** – On the Optimization Problem of One Market Relation Containing the Delay Functional Differential Equation

11:00 – 11:30 **M. Ashordia** – On the Criterion of Well-Posedness of the Modified Cauchy Problem for Singular Systems of Linear Ordinary Differential Equations

11:30 – 12:00 **O. Jokhadze, S. Kharibegashvili** – On the Solvability of a Periodic Problem in an Infinite Stripe for Second Order Hyperbolic Equations

12:00 – 12:30 **Coffee Break**

12:30 – 13:00 **A. Rontó, M. Rontó, N. Rontóová, I. Varga** – On Investigation of Differential-Algebraic Systems with Two-Point Non-Linear Boundary Conditions

13:00 – 13:30 **T. Jangveladze** – On Decomposition Method for Bitsadze-Samarskii Nonlocal Boundary Value Problem for Nonlinear Two-Dimensional Second Order Elliptic Equations

13:30 – 14:00 **N. Gorgodze, I. Ramishvili, T. Shavadze** – On the Representation Formula of a Solution for a Class of Perturbed Controlled Neutral Functional Differential Equation

14:00 – 15:30 **Overview of the talks of participants in absentia**

N. A. Izobov, A. V. Il'in – A Version of Anti-Perron Effect of Changing Positive Exponents of Linear Approximation to Negative Ones Under Perturbations of Higher Order of Smallness

I. N. Sergeev – Definition and Some Properties of Measures of Stability and Instability of a Differential System

E. K. Makarov – Some Tests for Regularity and Almost Reducibility for Limit Periodic Linear Systems

E. A. Barabanov, V. V. Bykov – Dimensions of Subspaces Defined by the Lyapunov Exponents of Regular Linear Differential Systems with Parametric Perturbations Vanishing at Infinity as Functions of the Parameter

A. V. Lipnitskii – On the Instability of Millionshchikov Linear Systems with Smooth Dependence on a Parameter

A. N. Vetokhin – Some Properties of Topological Entropy of Families of Dynamical Systems on the Cantor Set

E. Musafirov, A. Grin, A. Pranevich – On Admissible Perturbations of 3D Autonomous Polynomial ODE Systems

December 11, 2023

10:00 – 12:30 **Overview of the talks of participants in absentia**

M. Perestyuk, V. Slyusarchuk – The Method of Local Linear Approximation in the Theory of Nonlinear Impulse Systems

K. Mamsa, Yu. Perestyuk, M. Perestyuk – On the Stability of Toroidal Manifold for One Class of Dynamical System

O. Kapustyan, A. Krasnieieva – Stability of Global Attractors for the Chafee-Infante Equation w.r.t. Boundary Disturbances

O. Stanzhytskyi, V. Tsan, O. Martynyuk – Periodic Solutions in Dynamic Equations on Time Scales and Their Relationship with Differential Equations

L. Roksolana, V. Mogylova, T. Koval'chuk – The Optimal Control Problem of a System of Integro-Differential Equations on Infinite Horizon

V. Sobchuk, I. Zelenska – A System of Singularly Perturbed Differential Equations with an Unstable Turning Point of the First Kind

A. K. Demenchuk, A. V. Konyukh – On the Massera's Theorem of Existence of Periodic Solutions of Linear Differential Systems

O. Perehuda, F. Asrorov – Investigation of the Behavior of Solutions of Stochastic Ito Differential Equations

V. V. Karapetrov – Solutions of Some Type n -th Order Differential Equations

P. Feketa, J. Fedorenko, D. Bezushchak, A. Sukretna – Qualitative Behavior of the Trajectories Impulsive Semigroup for the Hyperbolic Equation

I. V. Astashova, G. A. Chechkin, A. V. Filinovskiy, T. A. Shabatina, Yu. Morozov – General Decreasing Solutions to the Equation Arises in Cryochemistry

V. M. Evtukhov, S. V. Golubev – Asymptotic Behaviour of Solutions of One Class of Nonlinear Differential Equations of Fourth Order

O. Pravdyvi, V. Kravets – Existence and Uniqueness of Weak Solutions of Stochastic Functional-Differential Neutral Equations in Hilbert Space

M. I. Zaidel – Stability and Exponential Stability Indices of a Linear System Depending on a Parameter