International Workshop on the Qualitative Theory of Differential Equations
QUALITDE – 2022
December 17 – 19, 2022, Tbilisi, Georgia

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

P r o g r a m

December 17, 2022

13:45 – 14:00   Opening of the Workshop

14:00 – 14:30   **I. Kiguradze –** On the Set of Solutions of the Cauchy Problem for Higher Order Non-Lipshitzian Ordinary Differential Equations

14:30 – 15:00   B. Anjaparidze, **M. Ashordia –** On the Criterion of Well-Posedness of the Cauchy Problem with Weight for Systems of Linear Ordinary Differential Equations with Singularities

15:00 – 15:30   **O. Jokhadze –** On the Periodicity of the Riemann Function of Second Order General Type Linear Hyperbolic Equations

15:30 – 16:00   **N. Partsvania –** Optimal Conditions for the Solvability of the Cauchy Weighted Problem for Higher Order Singular in Time and Phase Variables Ordinary Differential Equations

16:00 – 16:30   **B r e a k**

16:30 – 19:00   Overview of the talks of participants in absentia

        J. López-Gómez, P. Omari – Optimal Regularity Results for the One-Dimensional Prescribed Curvature Equation Via the Strong Maximum Principle

        C. Wang, R. P. Agarwal – Quaternionic Exponentially Dichotomous Operators

        J. Šremr – Bifurcation of Positive Periodic Solutions to Non-Autonomous Undamped Duffing Equations

        V. Mikhailets, N. Reva, O. Pelekhata – On Limit Theorems for Solutions of Boundary-Value Problems

        E. Bravyi – On the Solvability of the Cauchy Problem for Second Order Functional Differential Equations with an Alternating Coefficient

        Z. Došlá, M. Marini – Asymptotic Representation for Unbounded Solutions of Higher Order Differential Equations

        S. Staněk – Existence of Solutions to BVPs at Resonance for Mixed Caputo Fractional Differential Equations

M. Tvrdy – Duality for Stieltjes Integral Equations

A. Rontó, M. Rontó, I. Varga – Necessary Solvability Conditions for Non-Linear Integral Boundary Value Problems

R. Hakl, E. Trofimchuk, S. Trofimchuk – Periodic-Type Solutions for Differential Equations with Positively Homogeneous Operators

R. I. Kadiev, A. Ponosov – Global Stability of Nonlinear Delay Itô Equations and N. V. Azbelev's W-Method

T. Kiguradze, R. Alhuzally – On a Dirichlet Type Boundary Value Problem in an Orthogonally Convex Piecewise Smooth Cylinder for a Class of Quasilinear Partial Differential Equations

T. Kiguradze, A. Almutairi – On a Periodic Type Boundary Value Problem for a Second Order Linear Hyperbolic System

Z. Kiguradze – Approximate Solution for Heat Equation Applying Neural Network

V. P. Maksimov – On the Continuous Dependence of Solutions to Linear Boundary Value Problems on Boundary Conditions

S. Mukhigulashvili, M. Manjikashvili – Two Point Boundary Value Problems for the Fourth Order Ordinary Differential Equations

December 18, 2022

11:00 – 11:30   **T. Jangveladze –** Investigation and Approximate Solution of One Nonlinear Degenerate Integro-Differential Equation of Parabolic Type

11:30 – 12:00   **S. Kharibegashvili –** The Boundary Value Problem for One Class of Nonlinear Systems of Partial Differential Equations

12:00 – 12:30   **T. Shavadze**, I. Ramishvili **–** On the Functional Integral Equation with the Two Types Controls

12:30 – 13:00   **T. Tadumadze**, M. Iordanishvili **–** On the Optimization Problem for One Class of Controlled Functional Differential Equation with the Mixed Initial Condition

13:00 – 13:30   **B r e a k**

13:30 – 16:00   Overview of the talks of participants in absentia

                  N. A. Izobov, A. V. Il'in – Anti-Perron Effect of Changing All Positive Characteristic Exponents to Negative in the Linear Case

                  I. N. Sergeev – Definition of Total Wandering and Total Nonwandering of a Differential System and their Study at the First Approximation

                  E. K. Makarov – Characteristic Vectors for Normed Partitions of Cauchy Matrices

                  E. A. Barabanov, E. B. Bekriaeva – On Two Generalizations of Exponentially Dichotomous Systems

E. A. Barabanov, V. V. Bykov – Lyapunov Irregularity Coefficient and Exponential Stability Index of a Linear Parametric System as a Vector Function of the Parameter

A. N. Vetokhin – Exact Baire Class of the Local Entropy Considered as a Function of a Point in the Phase Space

A. K. Demenchuk – Control Problem of Asynchronous Spectrum of a Linear Periodic System with a Degenerate Block of Mean Value of Coefficient Matrix

A. Pranevich, A. Grin, E. Musafirov, F. Munteanu, C. Sterbeti – Non-Autonomous First Integrals of Autonomous Polynomial Hamiltonian Systems

N. Alarbi – On Initial-Periodic Type Problems for Three-Dimensional Linear Hyperbolic System

M. M. Alrumayh – On Initial-Boundary Value Problems for Quasilinear Hyperbolic Systems of Second Order

A. V. Drozhzhyna – Asymptotic Representations of Rapid Varying Solutions of Differential Equations Asymptotically Close to the Equations with Regularly Varying Nonlinearities

V. V. Karapetrov – The Critical Case of the Matrix Differential Equations' Systems

December 19, 2022

11:00 – 13:30   Overview of the talks of participants in absentia

O. Kapustyan, M. Perestyuk, T. Yusypiv, S. Dashkovskiy – Robust Stability for the Attractors of Nonlinear Wave Equations

O. Kapustyan, A. Ryzhov, N. Kasimova, T. Zhuk – Averaging Method to the Optimal Control Problem of a Non-Linear Differential Inclusion with Fast-Oscillating Coefficients on Finite Interval

K. Stiepanova, R. Sampalmieri, F. Di Michele – Localization Property of Solutions for Parabolic PDE

V. Sobchuk, I. Zelenska – Algorithm for Constructing Uniform Asymptotics of a Solution for Problem for Singular Perturbed Systems of Differential Equations with Differential Turning Point

I. V. Astashova, A. V. Filinovskiy, D. A. Lashin – Double Minimum Control Problem for a Parabolic Equation

I. V. Astashova, V. A. Nikishov – On Extensibility and Asymptotics of to the Riccati Equation with Real Roots of its Right Part

N. A. Antonov – Application of the Fractional Power Series to Solving Some Fractional Emden-Fowler Type Equations

S. Ezhak, M. Telnova – On a Lower Estimate for the First Eigenvalue of a Sturm-Liouville Problem

V. Evtukhov, L. Koltsova – The Asymptotic of Unboudedly Continuable to the Right Solutions of the Ordinary Differential Equation of Second Order

O. Stanzhytskyi, V. Tsan, R. Uteshova, V. Mohyl'ova – Existence of Bounded Solutions of a Dynamic Equation

S. Chuiko, N. Popov – On the Solution of Nonlinear Boundary Value Problems with a Small Parameter in a Special Critical Case

O. Nesmelova, O. Chuiko, D. Diachenkok – Nonlinear Autonomous Boundary-Value Problem for Differential Algebraic System

O. Nesmelova, O. Chuiko, K. Shevtsova – Differential-Algebraic Boundary-Value Problems with Pulse Perturbations with Constant Rank of a Leading Coefficient Matrix

O. Boichuk, S. Chuiko, V. Kuzmina – Nonlinear Integro-Differential Fredholm Type Boundary Value Problems Not Solved with Respect to the Derivative with Delay

O. A. Boichuk, V. A. Feruk – Fredholm Boundary-Value Problem for the System of Fractional Differential Equations with Caputo Derivative

M. A. Bilozerova, G. A. Gerzhanovskaya – Slowly Varying Solutions of Essentially Nonlinear Differential Equations of Second Order

O. O. Chepok – The Asymptotic Representation of $P_\Omega\left(Y_0, Y_1, 1\right)$-Solutions of Second Order Differential Equations with the Product of Regularly and Rapidly Varying Functions in its Right-Hand Side

N. Sharay, V. Shinkarenko – Asymptotic Representations of Some Classes of Solutions of Third Order Nonautonomous Ordinary Differential Equations