

International Workshop on the Qualitative Theory of Differential Equations
QUALITDE – 2013

Dedicated to the 100th birthday anniversary of Professor Levan Magnaradze

December 20 – 22, 2013

Tbilisi, Georgia

*A. Razmadze Mathematical Institute of I. Javakishvili Tbilisi State University
6 Tamarashvili Str., Room # 612, Tbilisi 0177, Georgia*

P r o g r a m

December 20, 2013

- 11:00 – 11:30** **Opening of the Workshop**
- 11:30 – 12:00** **M. Ashordia** – On a two-point boundary value problem for systems of nonlinear generalized ordinary differential equations with singularities
- 12:00 – 12:30** **M. Ashordia, G. Ekhvaia, N. Kekelia** – On the nonlinear boundary value problems for systems of impulsive equations with finite points of impulses actions
- 12:30 – 13:00** **T. Tadumadze, N. Gorgodze** – Initial data optimization problem for one class of neutral functional differential equation with the continuous initial condition
- 13:00 – 13:30** **N. Gigauri** – Variation formulas of solution for a nonlinear functional differential equation taking into account two delay parameters perturbation and the continuous initial condition
- 13:30 – 14:00** **T. Jangveladze** – On some properties and approximate solution of one system of nonlinear partial differential equations
- 14:00 – 14:30** **O. Jokhadze, S. Kharibegashvili** – The mixed problem for the semilinear wave equation with a nonlinear boundary condition
- 14:30 – 15:00** **S. Kharibegashvili** – Nonlocal in time problems for semilinear multidimensional wave equations
- 15:00 – 15:30** **Coffee Break**
- 15:30 – 17:30** **Overview of the talks of participants in absentia**
- G. Agranovich, E. Litsyn, A. Slavova** – Feedback stabilization of complex system behavior
- E. Burlakov, J. Wyller** – The connection between the delayed hopfield network model and the Wilson-Cowan neural field model with delay
- N. A. Izobov** – Lipschitz property of the lower sigma-exponent of linear differential system

N. A. Izobov, S. A. Mazanik – On some properties of irreducibility sets of linear differential systems

R. I. Kadiev, A. Ponosov – Exponential stability of linear Itô equations with delay and Azbelev's W -transform

M. V. Karpuk – Precise baire characterization of the Lyapunov exponents of families of morphisms of metrized vector bundles with a given base

A. Levakov, Ya. Zadvorny – Properties of stable and attracting sets of L -systems

N. Kh. Rozov – Bursting effect in neuron systems

E. K. Makarov – An axiomatic definition for smallness classes in Lyapunov exponents theory

M. Perestyuk, P. Feketa – New results on preservation of invariant tori of nonlinear multi-frequency systems

December 21, 2013

- 11:00 – 11:30** **P. Dvalishvili, B. Ghvaberidze** – Modeling and optimal control of one commodity production and supply system
- 11:30 – 12:00** **I. Kiguradze** – Positive solutions of nonlinear nonlocal problems for second order singular differential equations
- 12:00 – 12:30** **Z. Kiguradze** – Asymptotic property and semi-discrete scheme for one system of nonlinear partial integro-differential equations
- 12:30 – 13:00** **N. Partsvania** – A priori estimates of the Kneser solutions of singular in time and phase variables second order differential inequalities
- 13:00 – 13:30** **N. Partsvania, B. Půža** – On Kneser solutions of second order nonlinear singular differential equations
- 13:30 – 14:00** **G. Berikelashvili, N. Khomeriki** – Difference schemes for one fully nonlocal boundary-value problem
- 14:00 – 14:30** **M. Ashordia, G. Ekhvaia, N. Topuridze** – On the general nonlinear boundary value problems for systems of discrete equations
- 14:30 – 15:00** **Coffee Break**
- 15:00 – 17:00** **Overview of the talks of participants in absentia**
- L. Berezansky, E. Braverman, B. Karpuz** – A discussion of some sharp constants in oscillation and stability theory of delay differential equations
- A. Domoshnitsky** – Nonoscillation and exponential stability of second order delay differential equations without damping term
- A. Domoshnitsky, R. Hakl, B. Půža** – On the dimension of the solution set to the homogeneous linear functional differential equation of the first-order
- M. Garrione, M. Zamora** – Existence of 2π -periodic solutions for the brillouin electron beam focusing equation

J. Jaroš, T. Kusano – Asymptotic analysis of positive decreasing solutions of first order nonlinear functional differential systems in the framework of regular variation

A. Lomtadze, J. Šremr – Carathéodory solutions to a hyperbolic differential inequality with a non-positive coefficient and delayed arguments

G. A. Monteiro, M. Tvrđý – Generalized linear differential equations in a Banach space (Extension of the Opial continuous dependence result)

Z. Opluštil, J. Šremr – Myshkis type oscillation criteria for second-order linear delay differential equations

I. Rachůnková, J. Tomeček – Boundary value problems with state-dependent impulses

S. Staněk – Differential and fractional boundary value problems with strong time singularities

December 22, 2013

11:00 – 13:00

Overview of the talks of participants in absentia

I. Astashova – On existence of quasi-periodic solutions to a nonlinear higher-order differential equation

T. Y. Barinova, A. V. Kostin – Sufficiency conditions for the asymptotic stability of solutions of linear homogeneous nonautonomous differential equation of second-order

A. K. Demenchuk – The control problem of the frequency spectrum of irregular oscillations for linear systems

V. M. Evtukhov, A. G. Chernikova – Asymptotic behaviour of solutions of nonautonomous ordinary differential equations with rapidly varying nonlinearities

T. Kiguradze – Initial value problems for nonlinear singular hyperbolic equations of higher order with two independent variables

L. Koltsova, A. Kostin – The existence of σ -solutions of quasi-linear two-dimensional system of differential equations in the case when the roots of the characteristic equation are $0 \neq \lambda_1(+\infty) \in \mathbb{R}$, $\lambda_2(+\infty) = 0$

S. Mukhigulashvili – Nonlocal boundary value problem for strongly singular higher-order linear functional-differential equations

A. Rontó, M. Rontó, N. Shchobak – Construction of periodic solutions and interval halving procedure

13:00 – 13:30

Coffee Break

13:30 – 15:30

Overview of the talks of participants in absentia

M. O. Bilozeroва – Asymptotic behavior of solutions of essentially nonlinear differential equations of the n -th order

- V. Danilov, T. Kovalchuk, V. Kravets** – Averaging method in optimal control problems for systems of ordinary differential equations
- A. V. Konyukh** – On the properties of regular linear differential systems with unbounded coefficients
- V. P. Maksimov** – On the solvability of linear overdetermined boundary value problems for a class of functional differential equations
- Yu. Perestyuk** – On a certain discontinuous dynamical system in the plane
- S. A. Shchogolev** – On existence of a special kind's integral manifold of the nonlinear differential system, containing slowly varying parameters
- O. Stanzhytskyi, V. Mogilova, A. Tkachuk** – Invariant sets of Ito stochastic systems
- M. A. Talymonchak** – Asymptotic representations of solutions of essentially nonlinear systems of ordinary differential equations
- A. S. Vaidzelevich** – Calculation of exact upper bounds of Lyapunov exponents of linear differential systems with exponentially decreasing perturbations of the matrix coefficients