

**XXVI Enlarged Sessions of the Seminar of
Ilia Vekua Institute of Applied Mathematics of
Ivane Javakhisvili Tbilisi State University
April 23–25, 2012**

Program



**Opening - April 23, Monday, 13:00,
Ilia Vekua Lecture Hall in VIAM**

Organizing committee

N. Avazashvili (Vice-chairman)
M. Amaglobeli
J. Antidze
G. Axalaia
M. Baaz
G. Gabrichidze
M. Gvaramadze (Secretary)
G. Giorgadze
U. Goginava
L. Gogoladze
D. Gordeziani
T. Davitashvili
A. Danelia
T. Vashakmadze
T. Vepkhvadze
T. Tadumadze
Z. Kiguradze
R. Koplatadze
T. Meunargia

E. Nadaraia
D. Natroshvili
R. Omanadze
J. Rogava
Kh. Rukhaia
M. Svanadze
A. Kipiani
O. Purtukhia
L. Qajaia
K. Shavgulidze
J. Sharikadze
N. Chinchaladze (Scientific Secretary)
A. Kharazishvili
S. Kharibegashvili
G. Khimshiashvili
N. Khomasuridze
G. Jaiani (Chairman)
T. Jangveladze

Section of Foundations of Mathematics and Mathematical Logic

Chairs – Roland Omanadze, Alexander Kharazishvili

Co-Chair – Archil Kipiani

Wednesday, 25 April

Auditory № 254 (VIAM)

- 10:00-10:20 **A. Kharazishvili.** On well-orderings of the real line.
10:25-10:45 **R. Omanadze.** On the r - maximal sets.
10:50-11:10 **A. Kirtadze.** Set-theoretical axioms and the evolution of the notion of measurability.
11:15-11:35 **G. Pantsulaia.** On a property of outer measure in certain set-theoretical models.
11:40-12:00 **N. Makhviladze.** To the question of teaching the history of mathematical.

Section of Applied Logics and Programming

Chair – M. Baaz (Austria)

Co-Chairs – J. Antidze, Kh. Rukhaia

Tuesday, April 24

Auditory № 224 (VIAM)

- 14:00-14:20 **N. Iashvili, L. Tibua, G. Fedulov, T. Dzagania.** The logical computer game for pupils to study English, on the basis of the algorithm of solving the bin packing problem.
- 14:25-14:45 **J. Antidze, N. Gulua, I. Kardava.** Georgian Texts Computer Processing.
- 14:50-15:10 **S. Pkhakadze.** Property of strongly effectively immune sets and e - reducibility.
- 15:15-15:35 **G. Miqanadze.** Concern between bQ – reducibility and bounded effectively speedable set.
- 15:40-16:00 **K. Pkhakadze, L. Abzianidze, A. Maskharashvili, G. Chichua, M. Chikvinidze.** The Short Overview of the Aims, Methods and Results of the Logikal Grammar of the Georgian Language.

Section of Algebra and Geometry

Chairs – M. Amaglobeli, T. Vepkhvadze, G. Khimshiashvili

Co-Chair – K. Shavgulidze

Wednesday, April 25

Auditory № 141 (viam)

10:00-10:20 **M. Amaglobeli.** Algorithm Problems for 2-Nilpotent MR-groups.

10:25-10:45 **A. Kipiani.** On product isomorphisms of binary relations.

10:50-11:10 **M. Bakuradze.** Morava K- theory of finite groups.

11:15-11:35 **T. Vepkhvadze.** The representations of numbers by quadratic forms of 16 level.

11:40-12:00 **R. Surmanidze.** Tensor fields of some homogeneous spaces.

12:05-12:25 **K. Shavgulidze.** On the construction of the quadratic form of type $(-2, q, 1)$ with diskriminant q^2 .

Section of Real Analysis

Chairs – U. Goginava, L. Gogoladze

Co-Chairs – A. Danelia

Monday , April 23

Auditory № 332 (XI building of TSU)

14:00-14:20 **T. Kopaliani, A. Gogatishvili.** On spherical maximal operators.

14:25-14:45 **L. Gogoladze, V. Tsagareishvili.** On almost every where convergence of Fourier series with respect to some orthonormal systems.

14:50-15:10 **U. Goginava.** On the uniform convergence of Fourier – Legendre series.

15:15-15:35 **G. Nadibaidze.** Law of large numbers for the series with respect to orthonormal systems, rearranged in blocks.

15:40-16:00 **G. Tephnadze.** On the boundedness of Fejer means of Fourier – Walsh series.

Section of Complex Analysis and Applications

Chair – G. Giorgadze

Co-Chair – G. Akhalaia

Wednesday, April 25

Auditory № 137 (VIAM)

- 11:00-11:20 **G.Giorgadze**. Some properties of the many-valued generalized analytic functions.
- 11:25-11:45 **G.Makatsaria**. On a one class of singular elliptic systems.
- 11:50-12:10 **N.Kaldani**. On the analogs of the Coushy and Morera's theorems for generalized analytic functions.
- 12:15-12:35 **V.Jikia**. Linear conjugation problem for irregular Carleman-Vekua equations.
- 12:40-13:00 Break
- 13:00-13:20 **V.Paatashvili**. On factorization of the measurable functions.
- 13:25-13:45 **L. Epremidze, I. Spitkovski (USA)**. On factorization of the polynomial matrix-functions.
- 13:50-14:10 **I. Lomidze**. On the minimal complete set of invariants of Hermitian operators with degenerate spectrum.
- 14:15-14:35 **G.Akhalaia, N.Manjavidze**. On some classes of generalized analytic vectors.

Section of Ordinary Differential Equations and Optimal Control

Chairs – T. Tadumadze, R. Koplatadze

Monday , April 23

Auditory № 256 (VIAM)

- 14:00-14:20 **T. Tadumadze, A. Nachaoui** (France). On a connection between of controllability of the original and perturbed two-stage systems.
- 14:25-14:45 **M. Iordanishvili**. Local formulas of variation of solution for a class of delay controlled differential equation.
- 14:50-15:10 **N. Khvedelidze**. The existence of non-bounded oscillatory solutions of the third order linear differential equations.
- 15:15-16:20 Break
- 16:20-16:40 **Ph. Dvalishvili, B. Gvaberidze**. About finding of the optimal mixed strategies in fuzzy matrix games.
- 16:45-17:05 **R. Koplatadze, S. Pinelas** (Portugal). Integral comparison theorems of Sturm type for singular differential equations .

Section of Partial Differential Equations

Chairs – D. Natroshvili, S. Kharibegashvili, T. Jangveladze

Co-Chair – Z. Kiguradze

Monday, April 23

Auditory № 118 (VIAM)

- 14:00-14:20 **T. Jangveladze, Z. Kiguraze, B. Neta** (USA). Finite element method for a system of nonlinear integro-differential equations with mixed boundary conditions.
- 14:25-14:45 **M. Gagoshidze**. On parabolic regularization for one nonlinear diffusion model.
- 14:50-15:10 **B. Tabatadze**. On parabolic regularization for one nonlinear partial differential system.
- 15:15-15:35 **M. Menteshashvili**. Some variants of nonlocal nonlinear characteristic problems.
- 15:40-16:00 **D. Shulaia**. On one integral equation with singularity arising from transport theory.
- 16:05-16:25 **M. Aptsiauri**. Asymptotic behavior of the solution of one nonlinear integro-differential model with source term.
- 16:30-16:50 **M. Nikolishvili**. Stability of the stationary solution for one system of nonlinear partial differential equations.

Section of Probability Theory and Mathematical Statistics

Chair – E. Nadaraya

Co-Chair – O. Purtukhia

Monday , April 23

Auditory № 335 (XI building of TSU)

- 13:30_13:50 **E. Nadaraya, G. Sokhadze, O. Purtukhia.** Maximum likelihood estimates in Hilbert space.
- 13:55_14:15 **O. Glonti .** Necessary and sufficient conditions of independence of Brownian functionals.
- 14:20_14:40 **B. Chikvinidze, M. Mania.** BSDEs and BMO martingales.
- 14:45_15:05 **P. Babilua, B. Dochviri, O. Purtukhia.** On reduction of one problem of optimal stopping with incomplete data.
- 15:10_15:30 **R. Tevzadze.** Robust Quadratic hedging problem.
- 15:35_15:55 **G. Saatashvili .** Set-theoretical characteristics of pairwise orthogonal non-elementary non-separable diffusion stationary processes.
- 16:00_16:20 **O.Purtukhia, V. Jaoshvili.** Sobolev and logarithmic Sobolev type inequalities
- 16:25_16:45 **T. Buadze, G. Sokhadze,** On the Skorokhod-Fernic type integrals.

Section of Mechanics of Continua

Chairs – Tengiz Meunargia, Merab Svanadze, Jondo Sharikadze, Nuri Khomasuridze, George Jaiani
Co-chair – Natalia Chinchaladze

Tuesday, April 24

Auditory № 115 (VIAM)

- 15:00-15:20 **T. Meunargia.** On satisfaction of boundary conditions on the face surfaces of non-shell shells.
- 15:25-15:45 **M. Ivanidze.** Properties of layer potentials of thermoelastostatics.
- 15:50-16:10 **N. Totibadze.** On a vibration problems of the elastic beam with the sinusoid cusped edge.
- 16:15-16:35 **D. Ivanidze.** Boundary value problems for the adjoint system of differential equations of the thermoelasticity theory of hemitropic solids.
- 16:40-17:00 **R. Bantsuri, G. Kapanadze.** On the problem of the partly unknown boundary of the theory of elasticity.
- 17:05-17:25 **A. Guran** (Canada). Notes on the Structure of Ancient Iranian Citadels, Towers and Bridges
- 17:30-17:50 **L. Bitsadze.** The Dirichlet BVP of the theory of thermoelasticity with microtemperatures for a sphere and spherical cavity in an infinite medium.

Wednesday, April 25

Auditory № 115 (VIAM)

- 15:00-15:20 **Kh. Mshvenieradze.** Approximate Solution of problem study free convection law with conductive fluid.
- 15:25-15:45 **K.Svanadze.** On one nonlocal boundary value problem of static of the plane theory of elastic mixtures.
- 15:50-16:10 **N. Chinchaladze.** Harmonic vibration of a cusped plate in the zero approximation of Vekua's hierarchical models.
- 16:15-16:35 **I.Tsagareli and M. Svanadze.** Numerical solution of the boundary value problem of statics in the theory of thermoelastocity with microtemperatures for circular ring.
- 16:40-17:00 **G. Khatiashvili.** On the solution of plane problems of elasticity theory by means of harmonic functions.
- 17:05-17:25 **N. Khomasuridze, N. Zirakashvili, R. Janigava.** Some nonclassical problems for a three-layered rectangular parallelepiped.
- 17:30-17:50 **J. Sharikadze.** On a some dynamical problems for a magnetohydrodynamics.

Section of Mathematical Modeling and Numerical Analysis

Chairs – David Gordeziani, Tamaz Vashakmadze , Jemal Rogava

Co-Chair –Teimuraz Davitashvili

Wednesday, April 25

Auditory №132 (VIAM)

- 14:00-14:20 **A. Papukashvili, D. Gordeziani, T. Davitashvili, M. Sharikadze** . About approximate solving methods of antiplane problems of elasticity theory for composite bodies weakened by cracks.
- 14:25-14:45 **Tinat Davitashvili**. An Iteration Method for Solving the Differential Equation with Cubic Nonlinearity.
- 14:50-15:10 **Z. Tsiklauri**. On a method of solution of Kirhhoff"s two-dimentional statical equation.
- 15:15-15:35 **J. Peradze**. On the approximate solution of a nonlinear system of ordinary differential equations.
- 15:40-16:00 **N. Khatiashvili**. On the approximate solution of one nonlinear integral equation.
- 16:05-16:25 **G. Geladze**. About one problem of aerosol distribution in atmosphere.
- 16:30-16:50 **J. Rogava, M. Tsiklauri**. Second order semi-discrete accuracy scheme for Charney-Obukhov nonlinear equation.
- 16:55–17:15 **G.Berikelashvili, N. Khomeriki**. sOn the convergence of difference scheme approximating one nonlocal boundary value problem.
- 17:20–17:40 **G. Avalishvili, M. Avalishvili** . On one nonlocal in time problem for hyperbolic equation.

Thursday, April 26

Auditory № 132 (VIAM)

- 14:00-14:20 **T. Vashakmadze**. Some numerical algorithms for Dirichlet and Neymann BVPs for Laplace equation in a circle.
- 14:25-14:45 **Y. F. Gülver (Turcey), B. Gulua**. To numerical realizations of some projective methods.
- 14:50-15:10 **A. Tvalchrelidze**. A rod model of electrical machines.
- 15:15-15:35 **G. Manelidze**. To numerical experimental data for linear BVP of ODE by The Alternating to Perturbation Technique Method.
- 15:40-16:00 **I. Tavkhelidze, M. Rogava** . On volume of the dynamical Mobius-Listing's bodies and some it's applications.