2015 Tbilisi International Conference on Computer Science and Applied Mathematics

Conference Program

Sponsors:

Rustaveli National Scientific Foundation

Sokhumi State University

Kurt Godel Society

March 21-23, 2015

Tbilisi, Georgia

Mathematics, Tbilisi, Georgia

Prof. Tudor Jebelean, Linz University, Linz, Austria.

Prof. Konstantin Kamkamidze, Georgian Technical University, Tbilisi, Georgia

Prof. Nestan Kekelia, Sukhumi State University, Tbilisi, Georgia

Prof. Zurab Khasidashvili, Jerusalem, Israel

Prof. Roman Koplatadze, I.Javakhishvili Tbilisi State University, Tbilisi, Georgia

Academician Volodimir Makarov, Institute of Mathematics, Kiev, Ukraine

Prof. Damana Melikishvili,Tbilisi State University, Tbilisi, Georgia

Prof. Tengiz Meunargia, I.Vekua Institute of Applied Mathematics, Tbilisi, Georgia

Academician Vagif Mirsalimov, Institute of Mechanics NAS, Baku, Azerbaijan

Prof. Oleg Namicheishvili, Georgian Technical University, Tbilisi, Georgia

Prof. Michel Parigot, Sorbonne University, Paris 7, Paris, France

Prof. Nino Partsvania, A.Razmadze Mathematical Institute,Tbilisi, Georgia

Prof. Jemal Peradze, I.Javakhishvili Tbilisi State University,Tbilisi, Georgia>

Academician Archil Prangishvili, Rector Georgian Technical university, Tbilisi, Georgia

Prof. Tedo Sajenuk, Tbilisi Oncological Center, Tbilisi, Georgia

Prof. Jemal Sanikidze, N.Muskhelishvili Institute of Computational Mathematics, Tbilisi, Georgia

Prof. Nugzar Shavlakadze, A.Razmadze Mathematical Institute, Tbilisi, Georgia

Prof. Zaza Sokhadze, A. Tsereteli State University , Kutaisi, Georgia

Prof. Ketevan Tskhakaia, A.Tsereteli State University, Kutaisi, Georgia

Prof. Milan Tvrdy, Mathematical Institute of Science, Prague, Czech Republic

Local Organizing Committee Chair

Prof. Joni Apakidze, Rector of Sokhumi State University, Tbilisi, Georgia

Local Organizing Committee Members

Prof. Konstantin Ninidze, Sokhumi State University, Tbilisi, Georgia

Prof. Khimuri Rukhaia, Sokhumi State University, Tbilisi, Georgia

PhD. Student Natia Putkaradze, Tbilisi State University, Tbilisi, Georgia

Instruction for Oral Workshop

Device provided by the Conference Organizer:

- Laptops (with MS Office & Adobe Reader)
- Projectors & Screen
- Laser Sticks

Materials provided by the presenters:

- powerPoint or PDF files

Duration of each presentation (tentatively):

- Regular Oral Session: about 15 minutes of presentation, 3 minutes of Q&A;
- Keynote Speech: 45 minutes of presentation including 5 minutes of Q&A.

Conference Schedule

Day 1, Saturday, March 21, 2015

REGISTRATION: The Lobby of the Faculty of
Mathematics and Computer Science, Politkovskaia 12
10:00 am – 20:00 pm Arrival, Registration and Conference
Material Collection

Day 2, Sunday, March 22, 2015

VENUE: Morning	09.00 am – 09.45 am	**Keynote Speaker I:** **Prof. Mattias Baaz,Vienna University of Technology, Vienna, Austria** **Title:** Godel Logics
	09.45 am – 10.30 am	**Keynote Speaker II:** **Prof. Andrei Voronkov, Manchester University, Manchester, Great Britain** **Title:** First order Theorem Proving and Vampire
	10.30 am – 10:50 am	Coffee Break

	10.50 am – 11:35 am	**Keynote Speaker III** **Prof. Bruno Buchberger Johannes Kepler University of Linz, Linz, Austria Title:** The Global Math Digital Library and Theorema
	11.35 am – 12.20 pm	**Keynote Speaker IV**
		Academician V. L. Makarov Head of Numerical Mathematics, Institute of Mathematics, NAS of Ukraine, Kiev, Ukraine, and Prof. V. B. Vasylyk Institute of Mathematics, NAS of Ukraine, Kiev, Ukraine Title: Exponentially convergent method for a first order differential equation in Banach space with nonlocal condition
	12.20 pm – 15 pm	Lunch
	15.00pm – 17.00 pm	Sectional Presentations

	17.00 pm – 17.20 pm	Coffee Break
	17.20 pm – 19.00 pm	Sectional Presentations
	20.00 pm	Conference Dinner – Restaurant "Kolkheti", Address: the left bank of the r. Mtkvari; Telephone: 2357153

Day 3, Monday, March 23, 2015

Excursion in Tbilisi and Mtskheta

Beginning in 10.00 am from Sokhumi State University

Day 2
Timetable of Sections

Section #1

Artificial Intelligence

Section's Chair: Temur Kutsia, JKU, Linz, Austria

#	Authors and Affiliations	Title
1	Shohei Matsumoto and Shin-ya Nishizaki, Department of Computer Science, Tokyo Institute of Technology, Tokyo, Japan .	Continuation-Passing Style Translation of Non-local Jumps and Control Capturing
2	Natia Putkaradze and Mariam Dolidze, Tbilisi State University, Tbilisi, Georgia	An X-Bar Approach to Georgian and German
3	Irakli Kardava, Sokhumi State University, Tbilisi, Georgia	Georgian speech recognizer in famous searching systems and management of software package by voice commands in

		Georgian languages.
4	Archil PrangiShvili, Tinatin Kaishauri, Natia Namicheishvili, Georgian Technical University, Tbilisi, Georgia.	Strategy of Incremental Adaptation of the Expert System for Disclosure of the Possible Insurance Fraud
5	Jemal Antidze, Sokhumi State University, Tbilisi, Georgia	One approach to programming of some large volume projects
6	Besik Dundua, VIAM, Ivane Javakhishvili Tbilisi State University, Georgia, and Temur Kutsia, RISC, Johannes Kepler University, Linz, Austria.	Regular Expression, Types, Sub-typing, and Subject Reduction
7	Damana Melikishvili and Nino Chichikoshvili, Tbilisi State University, Tbilisi, Georgia.	On the Principles of Classification of Conjugated/Finite Georgian Verb Forms

#	Authors and Affiliations	Title
8	Rusudan Asatiani, Tbilisi State University, Tbilisi, Georgia.	The Algorithm Defining the Appearance of Active-Passive Formal Models in Georgian
9	Irina Lobzhanidze, School of Arts and Sciences, Ilia State University, Tbilisi, Georgia.	Finite State Morphological Approach to Georgian Verbal Paradigm

Section #2

Cryptography

Section's Chair: Zurab Kochladze, Tbilisi State University, Tbilisi, Georgia

#	Authors and Affiliations	Title
1	Richard Megrelishvili, Tbilisi State University, Tbilisi, Georgia	Tropical cryptography and original matrix one-way function
2	Richard Megrelishvili, Tbilisi State University, Tbilisi, Georgia and Sophia Shengelia, Sokhumi State University, Tbilisi, Georgia.	Open Channel Key Exchange Algorithm and Fractal Structures Research
3	Zurab Kochladze, Tbilisi State University, Tbilisi, Georgia.	Modified Version of the Hill's Algorithm
4	Zurab Kochladze, Tbilisi State University, Tbilisi, Georgia, and	Using genetic algorithm for

	Lali Beselia, Sokhumi State niversity, Tbilisi, Georgia.	cryptanalysis cryptoalgorithm Merkle-Hellman

Section #3

Problems of Solid Mechanics

Section's Chair: O. Vovkodav, S. Timoshenko Institute of Mechanics, NAS, Kyev, Ukraine

#	Authors and Affiliations	Title
1	B. Gulua, P. Qarchava *Sokhumi State University Tbilisi,Georgia, and Tbilisi State University, Tbilisi, Georgia.*	Vekua's hierarchical models of the second type for plates and shells
2	Uğur Yolum, Ahmet Taştan, Mehmet A.Guler[*] Department of Mechanical Engineering, TOBB University of Economics and Technology, Ankara, Turkey.	Peridynamic Modeling of Fracture in Ductile Materials
3	Tengiz Meunargia, I. Vekua Institute of Applied Mathematics of Iv. Javakhishvili Tbilisi State University,Tbilisi, Georgia.	The nonlinear theory of non-shallow shells
4	Vagif Mirsalimov, Shahin Hasanov, Azerbaijan Technical University,	Modeling of Road Covering Fracture

	Baku, Azerbaijan.	
5	V.Odisharia, Tbilisi State University, Tbilisi, Georgia.	A One-Dimensional Non-Linear Static Problem for the Timoshenko Shell
6	Archil Papukashvili, Jemal Rogava, Zurab Vashakidze, I.Vekua Institute of Applied Mathematics & Faculty of Exact and Natural Sciences, Tbilisi State University, Tbilisi, Georgia.	On one numerical method of research of the stress-deformed condition of some multystructures with difficult geometry
7	Jemal Peradze, Tbilisi State University,Tbilisi, Georgia, and Georgian Technical University, Tbilisi, Georgia.	An iteration method of solution of a nonlinear integral equation for a Kirchhoff type beam
8	A. Grigorenko, O. Vovkodav, S. Timoshenko Institute of Mechanics, NAS, Kyev, Ukraine.	Stress–Strain State of Nonthin Spherical Shells of Variable Hardness under Different Types of Loads
9	Tamaz Vashakmadze, I.Vekua Institute of Applied Mathematics, Tbilisi State University, Tbilisi, Georgia.	To Some Problems for Thermo-Dynamic Elastic Multilayer Thin-Walled Structures

Section #4

Problems of Hydro-Aero Dynamics

Section's Chair: Temur Davitashvili, Tbilisi State University, Tbilisi, Georgia.

#	Authors and Affiliations	Title
1	Teimuraz Davitashvili, Demuri Demetrashvili, *I.Vekua Institute of Applied Mathematics, Tbilisi State University, Tbilisi, Georgia, and Institute of hydrometeorology of Q Technical echnical University, Tbilisi, Georgia.*	Numerical Modeling of Air Flow above the Caucasus Region
2	D.Demetrashvili, D. Kvaratskhelia, M. Nodia, Institute of Geophysics, Tbilisi State University, Tbilisi, Georgia, and Sokhumi State University, Tbilisi, Georgia.	Numerical model applied for investigation of the thermodynamic state in the biologically acting layer of the Black Sea
3	Olha Dudik Department of Mathematics, Crimean State Engineering and Pedagogical University, Simferopol, Ukraine .	Problem of a Hydro-dynamical System Consisting of a Pendulum with two Capillary Viscous Fluids
4	O.Kharshiladze, Kh. Chargazia, J. Rogava, I.Vekua Institute of Applied Mathematics, Tbilisi State University,Tbilisi, Georgia, and M. Nodia Institute of Geophysics, Tbilisi State University, Tbilisi,	Theoretical Analysis and Numerical Simulation of Nonlinear Dynamic Equations in the Shear Flow driven dissipative ionosphere

	Georgia.	
5	V. Tsutskiridze , L. Jikidze , E. Elerdashvili Department of Matematics, Georgian Technical University , Tbilisi, Georgia.	Pulsation flow of the laminar liquid with heat transfer

Section #5

Applied Mathematics and Approximate Theory

Section's Chair: Konstantin Ninidze, Sokhumi State University, Tbilisi, Georgia

	Authors and Affiliations	Title
1	Murman Kintsurashvili, Georgian Technical University, Tbilisi, Georgia.	On a certain sufficient condition for non-shyness some classical Banach spaces
2	David Zarnadze, Duglas Ugulava, N. Muskhelishvili Institute of Computational Mathematics , Georgian technical University, Tbilisi, Georgia.	The Laser Squares Method for Harmonic Oscillator Operator in Schwartz Space
3	Victoria Baramidze, Lasha. Ephremidze, Nika Tsimakuridze, Department of Mathematics, Western Illinois University, USA: Division of Science and Mathematics, New York University Abu Dhabi, UAE; Department of Mathematics and Computer Sciences, Free University of Tbilisi, Georgia.	On numerical methods of scalar spectral factorization

	Authors and Affiliations	Title
4	R. Galdava, Z. Gegechkori, D. Rogava, Sokhumi State University, Tbilisi, Georgia. romeogaldava@gmail.com	On the Estimates for Error of the Parallel Decomposition Scheme for Abstract Evolutionary Equation with Variable Operator
5	Jemal Sanikidze, Konstantin Ninidze N. Muskhelishvili Institute of Computational Mathematics , Tbilisi, Georgia. and Sokhumi State University, Tbilisi, Georgia	On Discrete Vortices Type Computational Schemes with Higher Accuracy for the Numerical Solution of Some Classes of the Singular Integral Equations

Section #6

Differential Equations and Their Applications

Section's Chair: Malkhaz Ashordia, Sokhumi State University, Tbilisi, Georgia.

	Authors and Affiliations	Title
1	Svatoslav Stanek Palacky University, Olomouc, Czech Republic.	A Remark to Caputo fractional Differential Equations with Periodic Boundary Conditions

2	Irena Rachunkova, Palacky University Olomouc, Czech Republic.	Two methods for BVPs with state-dependent impulses
3	Milan Tvrdy, Institute of Mathematics, NAS, Prague, Czech republic.	Periodic oscillations related to the Liebau phenomena
4	Jiri Šremr, Institute of Mathematics, Academy of Sciences of the Czech Republic, Brno, Czech Republic.	Conjugacy criteria for second order half-linear differential equations
5	Nestan Kekelia, The faculty of mathematics and computer sciences, Sokhumi State University, Tbilisi, Georgia.	On the necessary and sufficient conditions for stability of systems of impulsive equations
6	Goderdzi Ekhvaia, The faculty of mathematics and computer sciences, Sokhumi State University, Tbilisi, Georgia**.**	On the nonlinear boundary value problems for impulsive and difference systems
7	Malkhaz Ashordia, The faculty of mathematics and computer sciences, Sokhumi State University, Tbilisi, Georgia.	On the anti-periodic boundary value problem for generalized linear ordinary differential equations
8	Svatoslav Stanek, Palacky University, Olamouc, Czech Republic.	Boundary value problems for fractional differential equations at resonance via Leray-Schauder degree

		method

NOTES: