

**3rd International Conference on Applications
of Mathematics and Informatics
in Natural Sciences and Engineering**

*Dedicated to the 80th Birthday of
Professor David Gordeziani*

PROGRAM OF THE CONFERENCE

**06.12 – 09.12.2017
TBILISI, GEORGIA**

ORGANIZERS:

- I. Javakhishvili Tbilisi State University
 - I. Vekua Institute of Applied Mathematics
 - Faculty of Exact and Natural Sciences
- Georgian Mechanical Union
 - Georgian National Committee of Theoretical and Applied Mechanics
- Tbilisi International Centre of Mathematics and Informatics



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Conference web-page: <http://www.viam.science.tsu.ge/aminse2017/>

Dedicated to the 80th Birthday of Professor David Gordeziani

Wednesday, December 6, 2017

Ilia Vekua Lecture Hall

- 14:00-14:25 **Opening**
Rector of I. Javakhishvili Tbilisi State University
George Sharvashidze
- 14:30-15:00 **George Jaiani, Temur Jangveladze** (Georgia)
Life and Activities of Professor David Gordeziani
- 15:05-15:35 **Philippe Ciarlet** (Hong Kong)
Nonlinear Estimates for Surfaces in Terms of Their
Fundamental Forms, and Applications

15:40-15:55 Coffee Break

Ilia Vekua Lecture Hall

- 16:00-16:30 **Vakhtang Kokilashvili** (Georgia)
New Trends in Function Spaces Theory and Applications to the
BVPs
- 16:35-17:05 **Paolo Emilio Ricci** (Italy)
Computation of Spectral Characteristics for Charged Integral
Equations
- 17:10-17:40 **Vladimir Gool'dshtein** (Israel)
On the First Eigenvalue of Free Vibrating Membrane
(of Neumann-Laplace Operator)

17:45-18:00 Coffee Break

Ilia Vekua Lecture Hall

- 18:05-18:35 **Bert-Wolfgang Schulze** (Germany)
Corner Calculus for Higher Singularities
- 18:40-19:10 **Ramaz Botchorishvili** (Georgia)
Modeling Symmetric Eigenvalue Problem with Time Dependent
Equations
- 19:15-19:45 **Hamlet Meladze, D. Gordeziani, T. Davitashvili** (Georgia)
On Some Parallel Algorithms for Approximate Solution of
Problems of Mathematical Physics

19:50-20:20 **Volodymyr Makarov** (Ukraine)
Exact and Approximate Solutions of the Spectral Problems for
the Differential Schrödinger Operator with a Polynomial
Potential in \mathbb{R}^k , $k \geq 2$

Thursday, December 7, 2017

Ilia Vekua Lecture Hall

9:00-9:30 **Paolo Podio-Guidugli** (Italy)
On the Modeling of Transport Phenomena in Continuum
and Statistical Mechanics

9:35-10:05 **David Natroshvili** (Georgia)
Application of BDIE Method in the Theory of Acoustic
Scattering by Inhomogeneous Anisotropic Obstacles

10:10-10:40 **Olga Gil-Medrano** (Spain)
Geometry of the Space of Curves. Application to a
Problem in Endodontics

10:45-11:15 **Philippe Destuynder** (France)
Few Results Concerning Non Destructive Testing of
Structures

11:20-11:40 Coffee Break

Ilia Vekua Lecture Hall

11:45-12:15 **Roland Duduchava**, T. Buchukuri,
G. Tephnadze (Georgia)
Laplace-Beltrami Equation on Hypersurfaces and
 Γ -Convergence

12:20-12:50 **Temur Kutsia** (Austria)
Anti-Unification in Description Logic EL

12:55-13:25 **Mircea Marin** (Romania)
Rule-Based Programming: The Mathematica Experience

13:30-14:30 Lunch Break

Ilia Vekua Lecture Hall

14:40-15:00 **Jemal Peradze** (Georgia)
A Nonlinear Equation for the Rectangular Dynamic Shell

- 15:05-15:25 **Nana Dikhaminjia**, J. Rogava (Georgia),
M. Tsiklauri (USA)
Parallel Type of Decomposition Scheme for Quasilinear
Abstract Hyperbolic Equation
- 15:30-15:50 **Hanno Scharr**, K. Krajsek (Germany)
Multi-Orientation Diffusion Schemes for Image
Reconstruction
- 15:55-16:15 **Hendrik Elbern** (Germany)
Optimal Observation Network Assessment for Controlling
High Dimensional Advection-Diffusion-Reaction
Equations
- 16:20-16:40 **Giorgi Arabidze** (Germany)
Transfer of Generalized Groupoid Action Along a Morita
Equivalence
- 16:45-17:05 **Nino Bukuri**, R. Botchorishvili (Georgia),
H. Elbern (Germany)
Adaptive Multischeme Refinement in the Spatially Two
Dimensional Case
- 17:10-17:30 **Tamar Janelidze**, R. Botchorishvili (Georgia),
H. Elbern (Germany)
Adjoint Development for Linear Advection Schemes in
ICON Model of the German Weather Service

19:00 Conference Dinner

Friday, December 8, 2017

Excursion Day

Saturday, December 9, 2017

Ilia Vekua Lecture Hall

- 11:00-11:30 **Alemdar Hasanov** (Turkey)
Lipschitz Continuity of the Fréchet Gradient in an Inverse
Coefficient Problem for a Parabolic Equation with
Dirichlet Measured Output

- 11:35-12:05 **Tamaz Vashakmadze** (Georgia)
On Investigation of Two Problems
- 12:10-12:40 **Tengiz Meunargia** (Georgia)
On I. Vekua's Method of the Consistent Theory of Elastic Shells
- 12:45-13:00 **Coffee Break**

Ilia Vekua Lecture Hall

- 13:05-13:25 **Roland Etienne** (Germany)
The One-Dimensional Modified Weyl-Berry Conjecture:
an Elementary Approach
- 13:30-13:50 **Piotr Skrzypacz, D. Wei** (Kazakhstan)
On Nonlinear MEMS Statics and Dynamics
- 13:55-14:15 **Revaz Kakubava, N. Svanidze** (Georgia)
An Alternative Transient Analysis for Closed Semi-
Markov Queuing Systems
- 14:20-14:40 **Nana Odishelidze** (Georgia)
On a Cyclically Symmetric Problem of Plate Bending with
Partially Unknown Boundary
- 14:45-15:45 **Lunch Break**

Ilia Vekua Lecture Hall

- 15:50-16:10 **Temur Chilachava** (Georgia)
Investigation of a Nonlinear Dynamical System Describing
the Process of Linguistic Globalization
- 16:15-16:35 **Kakhaber Odisharia, V. Odisharia, P. Tsereteli,**
N. Janikashvili (Georgia)
On the Mathematical Model of Drug Treatment of
Rheumatoid Arthritis
- 16:40-17:00 **Archil Papukashvili, T. Davitashvili** (Georgia)
On Approximate Solution of Anti-Plane Problem of
Composite Bodies Weakened by Crack
- 17:05-17:25 **Zurab Kiguradze, T. Jangveladze** (Georgia)
Asymptotic Properties of Solution and Difference Scheme
for One Nonlinear Integro-Differential Model

- 17:30-17:50 **Konstantine Pkhakadze**, M. Chikvinidze, G. Chichua,
D. Kurtskhalia, Sh. Malidze (Georgia)
The Trial Version of the Georgian Universal Smart
Corpus, the Aims of Defence of Georgian and Abkhazian
Languages from the Danger of Digital Extinction, and the
Law of Georgia “On Official Language”
- 17:55-18:15 **Gela Kipiani**, S. Bliadze (Georgia)
Calculation of Plates and Shells with Ribs Rigidity by the
Finite Element Method
- 18:20-18:40 **Abdul Hakim Khan** (India)
A Study of Algebraic Structure Involving Banach Space
through q -Analogue

Poster Presentations:

Ali Bakhshian, Nima Mirzaei (Turkey)

Facility Location for new Stone Crusher in Sarcheshmeh
Copper Mine with AHP and TOPSIS methods

Gela Kipiani, Seit Bliadze (Georgia)

Calculation of Plates and Shells with Ribs Rigidity by the
Finite Element Method

Satellite Workshop on Practical and Theoretical Aspects of Cryptography and Information Security

Friday, December 8, 2017

Ilia Vekua Lecture Hall

- 10:00-10:25 **Meryem Soysaldi**, S. Akleylek (Turkey)
On the Generalization of Linear-In-One-Argument Form of Multivariate Polynomials for Post-Quantum Cryptography
- 10:30-10:55 **Sedat Akleylek**, E. Engin (Turkey)
Reducing Key Sizes in Rainbow: Partially Hadamard-Rainbow
- 11:00-11:25 **Oğuz Yayla**, S. Kurt (Turkey)
Nearly perfect sequences and cryptographic functions

11:30-12:00 **Coffee Break**

Ilia Vekua Lecture Hall

- 12:00-12:25 **Zulfukar Saygi**, E. Tilenbaev, Ç. Ürtiş (Turkey)
On the number of k normal elements
- 12:30-12:55 **Baris Bulent Kirlar**, S. Akleylek (Turkey)
Computing Square Roots in Prime Fields via Singular Elliptic Curves

13:00-14:00 **Lunch**

Ilia Vekua Lecture Hall

- 14:00-14:25 **Nani Arabuli**, Z. Tsiramua, L. Adamia (Georgia)
Modern Methods of Cryptanalysis
- 14:30-14:55 **Besik Dundua**, M. Rukhaia, Kh. Rukhaia (Georgia)
Towards Protocol Analysis in Prholog
- 15:00-15:25 **Lela Mirtskhulava**, G. Gugunashvili (Georgia), S. Al-Majeed (Oman), S. Beruashvili (Germany)
Analysis of Trust Models in Wireless Networks
- 15:30-15:55 **Lela Mirtskhulava** (Georgia), S. Al-Majeed, A. Sharafi (Oman)
Human-Internet of Things (IoT) Communication: Security issues