

Ilia Vekua – 100

ISAAC Conference
23-27 April, 2007, Tbilisi

**COMPLEX ANALYSIS, PARTIAL DIFFERENTIAL
EQUATIONS, AND MECHANICS OF CONTINUA**

Final Program



ISAAC CONFERENCE
ISAAC
on



**Complex Analysis, Partial Differential Equations, and
Mechanics of Continua**

Dedicated to Centenary of Ilia Vekua

Iv. Javakhishvili Tbilisi State University (TSU)
Faculty of Exact and Natural Sciences
I. Vekua Institute of Applied Mathematics (VIAM)
April 23 – 27, 2007, Tbilisi, Georgia

Final Program

SESSIONS

- Complex Analysis and Applications (Chairs H. Begehr, V. Kokilashvili)
- Partial Differential Equations and Applications (Chairs R. Gilbert, R. Duduchava)
- Computation (Chair D. Gordeziani)
- Mechanics of Continua (Chairs G. C. Hsiao, W.L. Wendland, D. Natroshvili)

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Abstracts of all the oral and poster presentations are available on
the web-site:

<http://www.viam.science.tsu.ge/others/ticmi/vekua100/abstracts.htm>

Monday, April 23

9⁰⁰-10⁰⁰ Registration

10⁰⁰-11⁰⁰ Opening Ceremony (VIAM, I.Vekua Lecture-Hall)

George Khubua (Rector of Iv.Javakhishvili Tbilisi State University, Georgia)

Natia Jokhadze (Acting Director of the Georgian National Science Foundation, Georgia)

Dick H. Van Campen (IUTAM Secretary-General, Netherlands)

11⁰⁰-11⁴⁵ Opening Lecture

Bojarski Bogdan (Poland)

Life and scientific activity of Ilia Vekua

Lunch

14³⁰-15³⁰ Meeting with the President of the Georgian Academy of Sciences

16⁰⁰-17⁰⁰ Visit to Mtatsminda Pantheon

18⁰⁰ Jubilee Session (Rustaveli State Theatre)

20³⁰ Reception by the Ministry of Education and Science (Palace of Youth)

Tuesday, April 24

VIAM, I.Vekua Lecture-Hall

Mixed Session 1

10⁰⁰-10³⁰ Wendland Wolfgang L. (Germany), Hsiao G.C.

(USA), Steinbach O. (Germany)

Efficient boundary element method in solid mechanics

10³⁵-11⁰⁵ Kokilashvili Vakhtang (Georgia)

Generalized singular integral operators and applications to the approximation problems for regular solutions of second order elliptic type PDE

11¹⁰-11⁴⁰ Aksoy Ü., Celebi A. O. (Turkey)

Norm estimates of a class of Calderon-Zygmund type strongly singular integral operators

Coffee Break

Partial Differential Equations and Applications 1

11⁵⁵-12²⁵ Schulze Bert-Wolfgang (Germany)

Boundary value problems on configurations with singular geometry

12³⁰-13⁰⁰ Khatiashvili Nino (Georgia)

On some new representations of analytic functions in latticed domains

13⁰⁵-13³⁵ Bogveradze Giorgi (Portugal)

On the Fredholm property and Index of Wiener-Hopf plus/minus Hankel operators with piecewise almost periodic symbols

Lunch

Partial Differential Equations and Applications 2

15⁰⁰-15³⁰ Mikhailov Sergey (UK)

About traces, extensions and co-normal derivative operators on Lipschitz domains

15³⁵-16⁰⁵ Natalini Pierpaolo, Ricci Paolo Emilio (Italy)

The Laplacian in stretched polar co-ordinates and applications

16¹⁰-16⁴⁰ Natroshvili David, Buchukuri Tengiz,

Chkadua Otar (Georgia)

Mathematical problems for piezoelectric-metallic composites

Coffee Break

Computation 1

- 16⁵⁵-17²⁵ Eving R. (USA), Lazarov R. (USA), Makarov V. (Ukraine), Vashakmadze T. (Georgia)**
New mathematical models for thin-walled solid structures and projective methods for its applications
- 17³⁰-18⁰⁰ Botchorishvili Ramaz (Georgia)**
Compact splitting schemes for conservation laws
- 18⁰⁵-18³⁵ Jangveladze Temur, Kiguradze Zurab (Georgia)**
Large time behaviour of solutions to nonlinear integro-differential system associated with the penetration of a magnetic field into a substance
- 19³⁰ Conference Banquet**

Wednesday, April 25

10⁰⁰ Excursion

Thursday, April 26

VIAM, I.Vekua Lecture-Hall

Partial Differential Equations and Applications 3

- 10⁰⁰-10³⁰ Shulaia Dazmir (Georgia)**
General representation of solutions to the equation of linear multivelocity neutron transport theory
- 10³⁵-11⁰⁵ Avalishvili Gia, Avalishvili Mariam, Gordeziani David (Georgia)**
Non-local in time problems for some equations of mathematical physics
- 11¹⁰-11⁴⁰ Tovmasyan Nazaret (Armenia)**
The Dirichlet problem for second order elliptic equations in a half-plane

Coffee Break

Complex Analysis and Applications 1

- 11⁵⁵-12²⁵ Kokilashvili Vakhtang,
Paatashvili Vakhtang (Georgia)
The Riemann-Hilbert problem in the class of weighted
Cauchy-type integrals with density in $L^{p(\cdot)}(\Gamma)$**
- 12³⁰-13⁰⁰ Aksoy Ü., Çelebi A. O. (Turkey)
On a boundary value problem for higher order elliptic
complex partial differential equations**
- 13⁰⁵-13³⁵ Akhalaia G., Manjavidze Nino,
Makatsaria T. (Georgia)
First order elliptic systems in the plane**

Lunch

14²⁵-14⁵⁵ Poster Session

Mixed Session 2

- 15⁰⁰-15³⁰ Gvazava Jondo (Georgia)
On general integrals and some their applications for a
class of quasilinear second order non-uniformly elliptic
equations**
- 15³⁵-16⁰⁵ Koplatadze R. (Georgia)
On oscillatory properties of generalized ordinary
differential equations of Emden-Fowler type**
- 16¹⁰-16⁴⁰ Kharibegashvili Sergo (Georgia)
On the existence and nonexistence of global solutions
of the characteristic Cauchy and Darboux problems for
the multidimensional nonlinear wave equations**

Coffee Break

Mechanics of Continua 1

- 16⁵⁵-17²⁵ Bantsuri R., Odishelidze Nana,
Kapanadze G. (Georgia)
Problems of plane theory of elasticity and of bending of
thin plates with partially unknown boundaries**

- 17³⁰-18⁰⁰ Sargsyan Samvel H. (Armenia)**
 General theory of elastic micropolar thin shells
- 18⁰⁵-18³⁵ Guentner Arnold (Germany), Guentner V. (Russia)**
 Linear thermoelasticity equations in the conjugate Basis
 of three-dimensional space
- 18⁴⁰-19¹⁰ Kachiashvili Kartlos, Gordeziani D.,
 Melikdzhanian D. (Georgia)**
 Software realization problems of mathematical models
 of pollutants transport in rivers

Friday, April 27

VIAM, I.Vekua Lecture-Hall

Computation 2

- 10⁰⁰-10³⁰ Dattoli G. (Italy), Gordeziani Ekaterine,
 Gordeziani D. (Georgia)**
 On approximate-analytical and decomposition
 algorithms for investigation of some non-classical
 problems
- 10³⁵-11⁰⁵ Peradze Jemal (Georgia)**
 On the approximate solution of the Kirchhoff-Bernstein
 nonlinear wave equation
- 11¹⁰-10⁴⁰ Rogava Jemal, Tsiklauri Mikheil (Georgia)**
 The fourth order accuracy decomposition scheme
 for abstract hyperbolic equations

Coffee Break

Computation 3

- 11⁵⁵-12²⁵ Tavkhelidze Ilia (Georgia)**
 Analytic representation and classification of a wide
 set of geometric figures

**12³⁰-13⁰⁰ Ugulava Douglas, Zarnadze David (Georgia)
On the application of Ritz's extended method to approximate solution of inverse and computing tomography problems**

**13⁰⁵-13³⁵ Davitashvili Teimuraz (Georgia), Ebel Adolf (Germany)
Numerical and analytical modeling of spilled oil penetration in soils for risk assessment**

Lunch

**15⁰⁰-15⁴⁵ Closing lecture: Begehr Heinrich (Germany)
Complex partial differential equations in a manner of I.N. Vekua**

15⁴⁵-16¹⁵ Closing Ceremony

POSTER SESSION

The poster presentations will be exposed in the library of VIAM (conference venue) from 23 April until 27 April, 10⁰⁰-19⁰⁰. To contact the authors will be possible during the poster session on **Thursday, 26 April, 14²⁵ - 14⁵⁵**.

1. **Babilua P., Bokuchava I., Dochviri B., Shashiashvili M. (Georgia)**. Semimartingale local time and the American put option
2. **Babilua P., Bokuchava I., Dochviri B., Shashiashvili M. (Georgia)**. On the pricing of the American option
3. **Baghaturia G. (Georgia)**. The problem of a normal impact of quarter of an elastic space on a fixed rigid barrier
4. **Bitsadze L. (Georgia)**. On some solutions of statics of the elastic transversally isotropic binary mixtures
5. **Bregvadze A.V., Saginadze I.S., Arkania Z.M., Lekveisvili D.M. (Georgia)**. Development of optimum circuits of coast guard in area approach channel to port Poti
6. **Chilachava T. (Georgia)**. The mathematical modeling of gas dynamics problems
7. **Chokoraia Dali (Georgia)**. A boundary value problem for a spherical layer
8. **Gachechiladze A., Gachechiladze R., Natroshvili D. (Georgia)**. Contact problems in hemitropic elasticity: a boundary variational inequality approach
9. **Geladze G., Davitashvili T., Skhirtladze N. (Georgia)**. Taking into account of some radiation and microphysical elements in atmosphere humidity processes
10. **Giorgadze G. (Georgia)**. L_p -Connection for holomorphic principal bundle on Riemann surfaces and its application
11. **Giorgashvili L., Zazashvili Sh. (Georgia)**. General representation of solutions to the system of differential equations of hemitropic elasticity and its applications

12. **Gulua B. (Georgia)**. On application of I. Vekua's method for non-linear shallow cylindrical shells
13. **Jagmaidze A. (Georgia)**. Static and dynamical boundary-contact value problems of linear theory of elastic mixtures
14. **Jikidze L. (Georgia)**. Unsteady magneto-hydrodynamic flow of low-conductive liquid in a neighborhood of infinite rotary porous plate in case of variable suction velocity
15. **Khomasuridze N., Janjgava R., Zirakashvili N. (Georgia)**. Effective solutions of some boundary value problems of I.N. Vekua's shell theory
16. **Kobadze N. (Georgia)**. The asymptotic solution of Blasius problems with strong suction
17. **Komurjishvili O. (Georgia)**. New schemes of a multidimensional equation of heat conductivity
18. **Kukudzanov S. (Georgia)**. On oscillations and stability of orthotropic shells of rotation, close to the cylindrical ones
19. **Kutateladze G. (Georgia)**. On some boundary problems of holomorphic functions theory and their application to theory of elasticity
20. **Meunargia T., Gogia A. (Georgia)**. Some problems of the stresses concentration for non-shallow cylindrical shells on the basis of I.Vekua's theory
21. **Mosia M. (Georgia)**. On the solvability of one boundary value problem of geometrically nonlinear theory of plates
22. **Nanobashvili N. (Georgia)**. On the compression of linear algebraic equations systems
23. **Narmania M. (Georgia)**. The solution of one problem by method of I. Vekua for approximation $N=2$

24. **Shavlakadze N. (Georgia)**. The contact problem for compound plate with an elastic semi-infinite inclusion
25. **Shapakidze L. (Georgia)**. On complex regimes in liquid flows between two rotating cylinders
26. **Sharikadze J. (Georgia)**. Falkner-Skan problems for conducting fluid with strong magnetic field
27. **Sokhadze R. (Georgia)**. Nonlocal boundary value problems for mixed type equation with strong parabolic degeneracy in the domain
28. **Svanadze K. (Georgia)**. On a two-dimensional inverse problem of statics in the theory of elastic mixtures
29. **Toradze D. (Georgia)**. Dynamical problems of magneto-elasticity for ideal electro-conductive isotropic circle
30. **Tsagareli I. (Georgia)**. Solution to the boundary value problems of statics of thermoelasticity theory of binary mixture for circular domains
31. **Tskhvedadze R., Kipiani G. (Georgia)**. Calculation of shell type thin-walled composite constructions
32. **Tsitskishvili A. (Georgia)**. The exact solution of spatial axisymmetric stationary problems of the theory of filtration with partially unknown boundaries
33. **Tsutskiridze V. (Georgia)**. Heat transfer with the flow of conducting fluids in circular pipes with finite conductivity under uniform transverse magnetic fields
34. **Tvalchrelidze A. (Georgia)**. Generalized spatial parameterization in I.N.Vekua's shell theory
35. **Vashakmadze T., Chikashua R. (Georgia)**. Calculation of classical orthogonal polynomials

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