

QUESTIONNAIRE

(*) – mandatory fields

	Details about organization
* Organization name	N.Muskhelishvili institute of Computational Mathematics
Organisation acronym	
* Organization Activity Type (RES - Research, HE - University, SME - Small and Medium Enterprise, IND - Industry, OTH - Other)	RES
* Keywords of main research areas	computational algorithms, numerical methods, boundary integral equation, singular integral, Dirichlet problem, conformal mapping, double layer integral equation, quadrature formula, shell, shell weight, stressed state, Steel mixture, Poisson equation, boundary value problem, Christoffel-Schwartz integral, complex potential function, nonhomogenous hollow cylinder, stochastic processes prediction, probability distribution, Gaussian measure, Sub- Gaussian measures, Laws of large numbers, Banach-Saks property, stationary processes, Levy-Steinitz theorem, rearrangements of series, sum range, Kolmogorov- Garsia conjecture, almost everywhere convergence, orthonormal systems, compact vector summation, scheduling theory, generalized random elements, inner product spaces, , Jung constant, optimal location, nuclear groups, Schwartz groups, locally compact group, Hardy space, Dirichlet L-series, orthogonal multiplication, homotopic elliptic curves, rational solution, congruent numbers, θ -congruent numbers, mathematical statistics, χ -distribution, mathematical models of economics, modeling of ecological processes, extreme problems, energy system, storage control, production smoothing, matrix games, gradient method, Monte-Carlo method, code, cryptographic systems , fuzzy sets, fuzzy discrimination, piston problem, inverse spline-interpolation, p-linear splines, automatic systems,
* Head of organization (first name, family name)	Vakhtang Kvaratskhelia
* Post code	0171
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* City	Tbilisi
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*** Description of organization and its research achievements for the last five years (~ 5000 signs)**

The main scientific fields of research of our Institute are – Elaboration of theoretical and applied problems of the Theory of Computational Mathematics; Research of the problems of Probability Theory in infinite dimensional linear spaces; Application of the methods of Operations Research in economics, ecology and other branches of industry; Computer technologies and coding theory. A part of publications of last five years shows the area of research of the staff of our Institute.

1. T. Chantladze, N. Kandelaki, D. Ugulava. Gaussian distributions and Dirichlet series. Proc. A.Razmadze Math. Inst., 135, 2004, 49-56.
2. T. Chantladze, N. Kandelaki, D. Ugulava. On some matrix Clifford algebras. Georg. Math. J., 12, 1, 2005, 15-25.
3. G.Chelidze. Inner product spaces and minimal values of functionals. J. Math. Anal. Appl. 298,1, 2004, 106-113.
4. G.Chelidze(and others). Some remarks concerning nonemptiness of intersections of sets. Math. Notes, 80, 3, 2006, 449-455.
5. G.Chelidze. The modulus of convexity and inner product in linear normed spaces. Bull.Georg.. Acad. Sci., 2, 1, 2008, 38-40.
6. S.Chobanyan (and others). Prokhorov blocks and strong law of large numbers under rearrangements. J. Theor. Prob., 17, 3, 2004, 647-672.
7. S.Chobanyan, (and others). On the constant in Menshov-Rademacher inequality. J. Inequal. Appl., 2006, Article ID 68969, 2006, 7 p.
8. S.Chobanyan (and others). General maximal inequalities related to the strong law of large numbers. Math. Notes, 81, 1, 2007, 85-96.
9. J.Giorgobiani, M.Nachkebia, (and others). Dynamic model of smoothing problem in water power Systems. UCD/CCH Report 272, Univer.Colorado, Denver, Center for Math. CO,2008.
10. J.Giorgobiani, M.Nachkebia. Mathematical models of some control problems of power engineering . Bull. Georg. Acad. Sci., 2, 2, 2008, 34-37.
11. J.Giorgobiani (and others) , Metastrategic extentions of lexicographic noncooperative game in case of two players. Bull. Georg. Acad. Sci., 2, 2, 2008, 29-33.
12. G.Khatiasvili. On Saint-Venant's problems for three-layered concentric isotropic circular beams. Proc. Math. Inf.Mech., 11, 2, 2006, 14p.
13. Z.V.Khukhunashvili (and others). Algebraic structure of space and field. EJQTDE, 6, 2004, 1-52.
14. G.Kutateladze. On boundazy value problem of finding of two functions for a plane with linear cuts. Proc. A. Razmadze Math. Inst., 139, 2005, 53-60.
15. N.Kandelaki, D.Ugulava, T.Chantladze. Approximation of functions and measures on locally compact Abelian groups. Proc. A.Razmadze Math. Inst., 140. 2006, 65-74.
16. M.Mirianashvili (and others). Convergence of fourth order compact difference schemes for three-dimensional convection-diffusion equations. SIAM J. Numer.Anal., 45, 1, 443-455.
17. B.Mamporia, A.Shangua, V.Tarieladze. Permutations and convergence in probability. Bull. Georg. Acad. Sci., 172, 2, 2005, 23-25.
18. M.Pkhovelishvili, L.Sheziruli. Questions of automation organization of distance learning. Bull. Georg. Acad. Sci., 172, 2, 2005, 222-224.
19. M.Pkhovelishvili, L.Sheziruli. Electron textbook and system of it's construction. Bull. Georg. Acad. Sci., 172, 3, 2005, 426-428.
20. J.Sanikidze, M.Mirianashvili. Approximation schemes for singular integrals

- and there application to some boundary problems. *Comp. Meth.Appl.Math*, 4,1, 2004, 94-104.
21. J.Sanikidze, M.Mirianashvili. On application of singular integral approximation method in numerical conformal mappings. *Proc. Conf. Comput. and Math. Meth. Sci. and Engin. Univers. of Alicante, Spain, 2005*, 497.
 22. J.Sanikidze. On numerical solution of one class of singular integral equations on infinite interval. *Diff. Equations*, 41, 9, 2005,1280-1285..
 23. J.Sanikidze, K.Ninidze. On numerical solution of boundary integral equations of the plane elasticity theory by singular integral approximation methods. *WSEAS Trans. Appl. and Th. Mech. I. 1, 2, 2007*, 1-6.
 24. J. Sanikidze. On the numerical solution of integral equations for some main problems in plane elasticity. *Diff. Equations*, 43, 9, 2007,1-8.
 25. A.Shangua, V.Tarieladze. Two permutational versions of the Banach-Saks property. *Bull. Georg. Acad. Sci.*, 173, 3, 2006, 229-232.
 26. V.Tarieladze (and others). A property of Dunford-Pettis type in topological groups. *Proc. Amer. Math. Soc.*, 132, 6, 2004, 1827-1837.
 27. V.Tarieladze (and others). Eberlein-Smulian theorem for topological groups. *J. London Math. Soc.*, 70, 2, 2004, 341-355.
 28. V. Tarieladze(and others). On Schwartz groups. *Studia Math.*, 181(3), 2007, 199-210
 29. V.Tarieladze, N.Vakhania. Disintegration of Gaussian measures and average-case optimal algorithms. *J. Complexity*, 23(2-4), 2007, 851-866.
 30. V.Tarieladze (and others). Lindelof spaces $C(X)$ over topological groups. *Forum Math.* 20, 2, 2008, 201-212.
 31. M.Tutberidze. The Comparison Theorems for one system of nonlinear partial differential equations. *Bull.Georg. Acad.Sci.*, 179, 1, 2006, 46-48.
 32. Z.Tsintsadze. Optimal processes in smooth-convex minimization problems. *Journal of Math. scien.*, Springer, NY, 148, 3, 2008.
 33. N.Vakhania, V.Kvaratskhelia. On inequalities between the moments of normed measures, *Bull.Georg. Acad.Sci.*,172, 2, 2005,173-175.
 34. N.Vakhania, V.Kvaratskhelia, V.Tarieladze. Weakly sub-Gaussian random elements in Banach spaces. *Ukrain. Math. J.*, 57,9, 2005, 1187-1208.
 35. N.Vakhania, V.Kvaratskhelia. Unconditional convergence of weakly sub-Gaussian series in Banach spaces. *Prob.Th. and Appl.*, 51, 2, 2006, 247-270.
 36. N. Vakhania, V. Tarieladze. Regular conditional probabilities and disintegrations. *Bull. Georg.Acad. Sci.*, 175,2, 2007, 7-14.
 37. M.Zakradze, A.Chaduneli, Z.Tabagari. On solving the Dirichlet generalized boundary problem for a harmonic function by the method of probabilistic solution. *Bull. Georg. Acad. Sci.*, 173, 1, 2006, 30-33.
 38. M.Zakradze, A.Chaduneli, Z.Tabagari. A computer simulation of probabilistic solution to the Dirichlet plane boundary problem for the Laplace equation in case of an infinite plane with a hole. *Bull. Georg. Acad. Sci.*, 171,3, 2005, 437-440.

Contact Information	
* Contact person (first name, family name)	George Giorgobiani
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International co-operation / Participation in EU RTD programmes or other bilateral / multilateral actions INTAS, TACIS, TEMPUS, COST, EUREKA, other RTD programmes (please specify programme/s, project title/s and year/s)
<ol style="list-style-type: none"> 1. GRDF-grant GEMI-3328-TB-03, Rearrangement of vectors, Theory and application in Probability, Statistics and Computer Networks, 2005-2006; 2. ISF-grant No 1453/3, to take part in II World Congress of Bernoulli Society, 1994; 3. ISF-grant MXC000, Gaussian measures in infinite-dimensional spaces, 1994-1996

	* Please, use “X” to indicate the scientific area/s of your potential project
CHEMISTRY	
SOCIAL AND HUMAN SCIENCES	
ECONOMIC SCIENCES	X
ENGINEERING SCIENCE	X
ENVIRONMENT	X
AGRICULTURE AND FOOD	X

HEALTH	
MATHEMATICS	X
INFORMATION SCIENCE	X
PHYSICS	
NANOTECHNOLOGIES	
ENERGY	X
TRANSPORT	
SPACE	

* Summary of potential research project envisaged hosting of European researcher for the period of between 1 and 2 years
<ol style="list-style-type: none"> 1. Effectively realizable computational algorithms for some classes of problems; 2. Elaboration of methods of numerical solution of technical problems (some problems on plane and spatial elasticity theory, shell theory, quantum field theory); 3. Elaboration of computational package of information-technological structure; 4. New classes of homotopic elliptic curves and their rational solutions, congruent numbers and θ-congruent numbers; 5. Characterization problems of probability distributions on complex and quaternion fields; 6. Maximum Inequalities for Rearrangements with Applications to Functional Analysis and Scheduling Theory: <ol style="list-style-type: none"> a) Compact vector summation problem and it's application in scheduling theory; b) New methods in solving of Kolmogorov conjecture on rearrangements of orthonormal series; 7. Generalized random elements and stochastic integrals in infinite dimensions; 8. Best approximation and characterization of inner product spaces 9. Elaboration of new models of continuous and discrete problems of operational calculus and their application to various fields of economics: <ol style="list-style-type: none"> a) Modeling of extreme problems of industry; b) Elaboration of methods of numerical realization of extreme problems; 10. Modeling of ecologic processes and their statistical elaboration. Models of water pollution and corresponding statistic-calculation schemes; 11. Elaboration of new informational technologies. Construction and analysis of systems of imposing secrecy and security; 12. Application of information and code theory to conflictology. Elaboration of cryptograph systems; 13. Elaboration of new technologies in decision-making on the basis of fuzzy possibilities theory. Elaboration of modified fuzzy possibilities theory; 14. Construction of computerized systems for distance learning.

	Please, confirm your agreement on data publication and dissemination
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I agree with the publication of the data on the web-site http://www.inco-ecca.net , and dissemination among Mobility National Contact Points of the EU MS and AC (YES / NO)	YES
Date	2008, December 10