

მათემატიკის დეპარტამენტი

E. Nadaraia , G Sokhadze “On the statistical estimations of the logarithmic derivative of a measure in a Hilbert space” Georgian Mathematical Journal. 17, p. 741-747 (2010).

E. Nadaraia, G. Sokhadze, P. Babilua “On some goodness-of-fit tests based on estimates of kernel type distribution densities” Theory Probab. Appl. **54** (2010), No. 2, 324-333 (2010).

R. Koplatadze, “On asymptotic behavior of solutions of n-th order Emden-Fowler differential equations with advanced argument”, Czech. Math. J. **60** (135) 817-633 (2010);

R. Koplatadze, ” On a boundary value problem for integro-differential equations on the halfline” Nonlinear Anal. **72**, 836—846 (2010).

G. Jaiani, Gilbert, R. P.; Kharibegashvili, S.; Natroshvili D, **N. Chinchaladze**, “Cusped Elastic Beams under the Action of Stresses and Concentrated Forces”, Applicable Analysis, **89**, 757–774, (2010).

N. Chinchaladze, B. Maistrenko and P. Podio-Guidugli “Concentrated contact interactions in cuspidate prismatic shell-like bodies” Archive of Applied Mechanics (Online First, 30 December 2010).

T. Tadumadze “On the existence of an element for a delay control problem” Nonlinear Analysis Theory, **(73)** 211-220, (2010).

U. Goginava, K. Nagy, Maximal operators of Fejer means of Walsh-Kaczmarz-Fourier series.J.Funct. Spaces Appl. 8, No. 2, 181-200 (2010).

U. Goginava, K. Nagy, On the maximal operator of (C,a)- means of Walsh-Kaczmarz-Fourier series. Ukrainsk. Mat. Zh. 2, 62 (2010), 158-166.

U. Goginava, Maximal operators of Logarithmic means of one-dimensional Walsh-Fourier series, Rendiconti del Circilo Matematico di Palermo Serie II, 82pp. 345-357, (2010).

U. Goginava, Weak type inequality for the maximal operator of the (C,a) means of two-dimensional Walsh-Fourier series. Anal. Math. 36 (2010), no. 1, 1-31.

U. Goginava, A. Sahakian, On the convergence of Fourier series of functions of bounded partial generalized variation, East J. Approx. 16 no.2, 109-121, (2010).

H. Elbern, J. Schwinger, **R. Botchorishvili**, „Chemical state estimation for the middle atmosphere by four-dimensional variational data assimilation: system configuration”; Journal of Geophysical Research, vol.115, DO6302, doi:10.1029/2009JD011953 (2010).

G. Avalishvili, "Hierarchical modeling of thermoelastic plates with variable thickness"; Analysis and Applications, 2010, vol. 8, 2; 125–159 World Scientific Publishing Co.

Z. Kiguradze, "Large Time Asymptotic and Numerical Solution of a Nonlinear Diffusion Model with Memory"; *Computers & Mathematics with Applications*; 2010; Elsevier

მიღებული შრომები

P. Babilua, B. Dochviri "Задача оптимальной остановки для схемы Калмана-Бюси" Теория вероятностей и её приложения 55 (2010).

Q. Shavgulidze, On the dimension of spaces of generalized theta-series for some quaternary quadratic forms Journal of Number Theory 2010.

I. Tavkhelidze, D.Caratelli, P.Natallini, P.E.Ricci, J.Gielis "The Robin problem for Helmholtz equation in a starlike planar domain" Georgian Mathematical Journal;

T. Akhobadze, "On the theorem of M. Satô" AActa Math. Hung.

O. Jokhadze, S. S. Kharibegashvili, "Some properties of Riemann and Green-Hadamard functions for second order linear hyperbolic equations"; Differentsial'nye Uravneniya.

O. Jokhadze, S. S. Kharibegashvili, "The Cauchy-Goursat problem for wave equations with nonlinear dissipative term" Math. Notes.

O. Jokhadze, S. S. Kharibegashvili, "The Cauchy problem for generalized Liouville equation" Differentsial'nye Uravneniya.

O. Jokhadze, S. S. Kharibegashvili; B. G. Midodashvili, G. K. Berikelashvili, Finite difference solution of a nonlinear Klein-Gordon equation with an external source, Mathematic of Computation.

R. Omanadze, A. Sorbi „ Immunity properties of the s-degrees“ Georgian Mathematical Journal, v.17, #3, 2010, pp.563-579.

R. Omanadze, A. Sorbi, "Immunity properties of the s-degrees",
http://www.springerlink.com/content/09335846/preprint/?sort=p_OnlineDate&sortorder=desc&o_=10

ფიზიკის დეპარტამენტი

V. Skarka, N. B. Aleksic and **V. I. Berezhiani**, "Self-organization of dissipationless solitons in positive- and negative-refractive-index materials", Phys. Rev. A **81**, 045803 (2010).

V. Skarka, N. B. Aleksic, M. Derbazi, and **V. I. Berezhiani**, "Filamentation and coalescence of singular optical pulses in narrow-gap semiconductors and modeling of self-organization of vortex solitons using two-photon absorption", Phys. Rev. B **81**, 035202 (2010).

V. I. Berezhiani, S. M. Mahajan, and **N. L. Shatashvili**, "Stable optical vortex solitons in pair plasmas", Phys. Rev. A **81**, 053812 (2010).

V. I. Berezhiani, S. M. Mahajan, and **N. L. Shatashvili** "Stable localized electromagnetic pulses in asymmetric pair plasmas", J. Plasma Physics **76**, 467 (2010).

R. Khasanov, **A. Shengelaya**, I. M. Savić, C. Baines, and H. Keller "Comment on ‘‘Muon-spin-rotation study of the superconducting properties of Mo₃Sb₇’’ PHYS. REV. B **82**, 016501, (2010).

S. Weyeneth, M. Bendele, R. Puzniak, F. Mur’anyi, A. Bussmann-Holder, N. D. Zhigadlo, S. Katrych, Z. Bukowski, J. Karpinski, **A. Shengelaya**, R. Khasanov and H. Keller "Field-dependent superfluid density in the optimally doped SmFeAsO_{1-x}F_y superconductor", Europhysics Letters **91**, 47005 (2010).

R. Khomeriki, Dmitry O. Krimer, Masudul Haque, and Sergej Flach "Interaction induced Fractional Tunneling and Bloch Oscillations", Phys. Rev. A, **81**, 065601 (2010).

R. Khomeriki, „Nonlinear Landau-Zener tunneling in coupled waveguide arrays“, Phys. Rev. A, **82**, 013839 (2010).

R. Khomeriki, „Solitonic Bloch oscillations in two-dimensional optical lattices“, Phys. Rev. A, **82**, 033816, (2010).

R. Khomeriki, “Multiple Landau-Zener tunnelling in two weakly coupled waveguide arrays” European Physical Journal D, <http://dx.doi.org/10.1140/epjd/e2010-10447-9>

M. GogberaSvili, “Anti-de-Sitter Island-Universes from 5D Standing Waves”, Mod. Phys. Lett. A **25**, 2131 (2010).

E. Chikvaidze, “*UUV-vis and FT-IR spectra of ultraviolet irradiated collagen in the presence of antioxidant ascorbic acid*”, Ecotoxicology and Environmental Safety (EES) **73**, pp.448-455, (2010).

A. Tevzadze, “Linear coupling of modes in two-dimensional radially stratified astrophysical discs”, MNRAS **401**, 901 (2010).

A. Tevzadze, “Numerical simulations of the decay of primordial magnetic turbulence”, Phys. Rev. D. **81**, 123002,(2010).

A. Tevzadze, “Primordial magnetic field limits from cosmological data”, Phys. Rev. D., **82**, 083005 (2010).

G. Tsitsishvili, Z.F. Ezawa, Tohoku U. “Skyrmion and bimeron excitations in bilayer quantum Hall systems”, Physica E, **42** 1069 (2010).

M. R. Gochitashvili, R. Ya. Kezerashvili, and **R.A. Lomsadze** . “Excitation of Meinel and first negative band system at the collision of electron and proton with nitrogen molecule”, PHYS. REV. A, **82**, 022702-1 (2010).

Z. Toklikishvili, “Stochastic heating of a molecular nanomagnet”, PHYS. REV. B **82**, 014418 (2010).

Z. Toklikishvili, “Entanglement sudden death and influence of the dynamical Stark shift for two Tavis–Cummings atoms”, Phys. Lett. A **374**, 1642–1647 (2010).

Z. Toklikishvili, “Driven Nonlinear Dynamics of Magnetic Nanostructures: A Semiclassical Perspective” Journal of Computational and Theoretical Nanoscience”, **7**, 1–11, (2010).

M. Khvedelidze, **T. Mdzinarashvili**, **T. Partskhaladze**, **N. Nafee**, C.M. Lehr, U.F. Schaefer, M.Schneider ”Calorimetric and spectrophotometric investigation of PLGA nanoparticles and their complex with DNA” Journal of Thermal Analysis and Calorimetry , **99**, (337-348), (2010).

G. R. Mamatsashvili, W. K. M. Rice, *“Axisymmetric modes in vertically stratified self-gravitating discs”*, MNRAS **406**, 2050. (2010).

G. R. Mamatsashvili, Avsarkisov, V. S., Chagelishvili, G. D., Chanishvili, R. G., Kalashnik, M. V., *“Transient Dynamics of Nonsymmetric Perturbations versus Symmetric Instability in Baroclinic Zonal Shear Flows”*, J. Atm. Sci. **67**, 2972, (2010).

O. Kharshiladze, “Shear flow driven magnetized planetary wave structures in the ionosphere”, Journal of Atmospheric and Solar Terrestrial Physics. **72**, 971-981 (2010).

მიღებული შრომები

T. Kahnashvili, A. G. Tevzadze, B. Ratra, 2010, “Phase Transition Generated Cosmological Magnetic Field at Large Scales”, *Astrophys. J.* (accepted).

A. A. Khelashvili, **T. P. Nadareishvili**, “What is the boundary condition for radial wave function of the Schrödinger equation ?” *American Journal of Physics*.

Kharshiladze “Нелинейная динамика дрейфовых структур в замагниченной диссипативной плазме”, *Физика плазмы*.

ბიოლოგიის დეპარტამენტი

O. Selbach, C. Bohla, A. Barbara, **N. Doreulee**, K.S. Eriksson, O.A. Sergeeva, H.L. Haas, Orexins/hypocretins control bistability of hippocampal long-term synaptic plasticity through co-activation of multiple kinases; *Acta Physiol (Oxf)*; 2010; 198(3): 277-285.

E. Davitashvili, Comparative Study of the Hemagglutinating Activity of Lectins Isolated from Different Developmental Stages of Culinary-Medicinal Oyster Mushroom, *Pleurotus ostreatus* (Jacq.: Fr.) Kumm. (Agaricomycetidae) ; Internat. J. of Medicinal Mushroom; 2010 [XML](#) _12(Is.1):43-50. Begell House.

E. Davitashvili, “Influence of beta-galactose-specific mitochondrial lectins from prostate hyperplastic tissue on mitochondrial properties”, 2010, 70(1):33-39(7).

T. Lezhava, Chromosome and aging: genetic conception of aging, [BIOGERONTOLOGY](#); 253-260, (2010).

T. Lezhava, J. Monaselidze, **T. Jokhadze**, T. Gorgoshidze, T. Kiladze, and M. Gaiozishvili, Remodeling of heterochromatin induced by heavy metals in extreme old age, *AGE*, 2010. <http://www.springerlink.com/content/1086165466864500/>

O. Tavdishvili, **N. Archvadze**, **S. Tsagareli**, A. Stamateli, M. Gvajaia. The Study of Rats' Active Avoidance Behavior by the Cluster Analysis. Life System Modeling and Intelligent Computing. International Conference on Life System Modeling and Simulation, LSMS. Wuxi, China, September 17-20, 2010. Proceedings. Parts III. Springer. pp.180-188.

მიღებული შრომები

N. Koshoridze, Functional State of Rat Cardiomyocytes and Blood Antioxidant System under Psycho-Emotional Stress; 2010; Acta Biochimica et Biophysica Sinica (იმპაქტ-ფაქტორი-1,95); (in press).

D. Dzidziguri, Imitation of biomembranes on the basis of cholic acid and endogenic thermostable protein complex in biopartitioning micellar chromatography. Biomedical Chromatography, 2010, accepted for publication.

გეოგრაფიის დეპარტამენტი

D. A. Nikolaishvili, L. G. Matchavariani „Humus Reserves and Their Distribution in the Landscapes of Georgia“, Eurasian Soil Science 43, 39 (2010).

Thomas Hanauer, Peter Felix-Henningsen, Diedrich Steffens, Besik Kalandadze and Levan Navrozashvili, „In situ stabilization of metals (Cu, Cd, and Zn) in contaminated soils in the region of Bolnisi, Georgia“ Plant and Soil, <http://www.springerlink.com/content/gqg960428un645p5/>

E. Sh. Elizbarashvili, T. F. Urushadze, M. E. Elizbarashvili, Sh. E. Elizbarashvili and M. K. Schaefer, “Temperature regime of some soil types in Georgia „Eurasian Soil Science 43, 427 (2010).

D. KERESELIDZE, K. BILASHVILI, G. GRIGOLIA, G. BREGADZE, V. TRAPайдзе, Z. SAVANELI, I. MAKALATIA , “Assessment of the flooding in the Black Sea coastal area of Western Georgia” Book 4, 1483 (2010).

D. Nikolaishvili, L. Matchavariani “A Method for Determining Landscape Changes on the example of Georgia’s landscapes ” Proceedings of 2010 International Conference on Environmental Science and Technology , Thailand, January , Vol. 43, 565 (2010).

მიღებული შრომები

L. G. Matchavariani, Time Factor in Soils of Georgia – Mirror or Memory of Landscapes? Journal of Environmental Biology (Special Issue of JEB)

ინტერდისციპლინური (მათემატიკა, კომპიუტერულ მეცნიერებები) მიმართულება
ქვემიმართულება – რიცხვითი ანალიზი და გამოთვლითი ტექნოლოგიები

H. Elbern, J. Schwinger, **R. Botchorishvili**, Chemical state estimation for the middle atmosphere by four-dimensional variational data assimilation: system configuration, Journal of Geophysical Research, Vol.115, DO6302, doi:10.1029/2009JD011953 (2010).

G. Avalishvili, Hierarchical modeling of thermoelastic plates with variable thickness, Analysis and Applications, 2010, vol. 8, № 2; 125–159 World Scientific Publishing Co.

K. Kiguradze, Large Time Asymptotic and Numerical Solution of a Nonlinear Diffusion Model with Memory, *Computers & Mathematics with Applications*; 2010; Elsevier.

K. Kiguradze, Asymptotics for Large Time of Solutions to Nonlinear System Associated with the Penetration of a Magnetic Field into a Substance, *Applications of Mathematics*, 2010, Institute of Mathematics, Academy of Sciences of the Czech Republic.

K. Kiguradze, Asymptotic Behavior of Solution of One System of Nonlinear Integro-Differential Equations Differentsial'nye Uravneniya. 2010 (in press), MAIK Nauka/Interperiodica.

K. Kiguradze, Galerkin Finite Element Method for One Nonlinear Integro-Differential Model, *Applied Mathematics and Computation*, 2010 (in press), Elsevier.

Roland Omanadze, Andrea Sorbi, Immunity properties of the s-degrees, *Georgian Mathematical Journal*, v.17, #3, 2010, pp.563-579.

Roland Omanadze, Andrea Sorbi, Immunity properties of the s-degrees, http://www.springerlink.com/content/09335846/preprint/?sort=p_OnlineDate&sortorder=desc&o=10

ქიმიის დეპარტამენტი

M. Rukhadze, N. Lominadze, L. Akhalkatsi and M. Gvaramia, Study of chromatographic characteristics of inorganic analytes in biopartitioning micellar chromatography with ion-pair additives. *Biomedical Chromatography*, Volume 24, Issue 12, pages 1338–1341, 2010.

M. Gakhutishvili, W. Brostow, R. Gigauri, Sh. Japaridze, **N. Lekishvili** A new possibility of separation of natural oxide forms of arsenic and antimony. *Chem. Eng. J. (USA)* 2010, 159, 24-26.

N. Lekishvili, Kh. Barbakadze, D. Zurabishvili, T. Lobzhanidze, Sh. Samakashvili, Z. Pachulia, Z. Lomtadze. Antibiocorrosive covers and conservators based on new carbofunctional oligosiloxanes and biologically active compounds. *Oxid. Commun. (Intern. J.)*, 2010, 33, 1, 104-124.

N. Lekishvili, G. Kotrelev. Synthesis and Properties of Modified Polycarbonates by Organo-silazasiloxanes. *Asian J. Chem. (India)*, 2011, 23, 1, 239-246.

N. Lekishvili, M. Kezherashvili and G. Lekishvili. "Polyfunctional Si-N containing modifiers of industrial polymers: synthesis, properties"(Review). *Asian J. Chem. (India)*, 2010, 22, 6, 4150-4208.

S. Fanali, G. D' Orazio, K. Lomsadze, B. Sh. Samakashvili, **B. Chankvetadze**, Enantioseparations with amylose(5-chloro-2-methylphenylcarbamate) in nano liquid chromatography and capillary electrochromatography, *J. Chromatography A*, 2010, 1217, 1166–1174.

C. Servais, A. Rousseau, M. Fillet, K. Lomsadze, A. Salgado, J. Crommen, **B. Chankvetadze**, Separation of propranolol enantiomers by capillary electrophoresis using sulfated β -cyclodextrin derivatives in aqueous and nonaqueous electrolytes: Comparative CE and NMR study, *Electrophoresis*, 2010, 31, 1467-1474.

M. Merlani , V. Barbakadze, L. Amiranashvili, L. Gogilashvili, E. Kemertelidze, E. Yannakopoulou, K. Papadopoulos, **B. Chankvetadze**, Enantiomeric analysis of novel synthetic 3-(3,4-dihydroxyphenyl)-glyceric acid - basic monomeric moiety of a biologically active polyether from *Symphytum asperum* and *S. caucasicum*, *Chirality*, 22, 2010, 717-725.

B. Chankvetadze, Monolithic chiral stationary phases for liquid-phase enantioseparation techniques, *Journal of Separation Science*, 2010, 33, 305-314.

B. Chankvetadze, Comparative enantioseparations of chiral pharmaceuticals with chiral stationary phases based on dimethyl- and chloromethylphenylcarbamates of polysaccharides in capillary electrochromatography, Electrophoresis, 2010, 31, 3207-3216.

A.-C. Servais, A. Rousseau, M. Fillet, K. Lomsadze, A. Salgado, J. Crommen, **B. Chankvetadze**, Separation of propranolol enantiomers by using capillary electrophoresis with various cyclodextrins: Comparative CE and NMR studies, Journal of Separation Science, 2010, 33, 1617-1624.

K.S.S. Dossou, P. Chiap, **B. Chankvetadze**, A.C. Servais, M. Fillet, J. Crommen, Optimization of chiral pharmaceuticals enantioseparation using a coated stationary phase with cellulose tris(4-chloro-3-methyl-phenylcarbamate) as chiral selector and non-aqueous polar mobile phase, Journal of Separation Science, 2010, 33, 1699-1707.

O. Mukbaniani, T. Tatrishvili, Kh. Koberidze, U. Scherf. Hydride addition of methylhydride-siloxanes to conjugated cyclohexa-1,3-diene, Journal of Applied Polymer Science, 2010, v. 116, issue 1, pp. 1131-1137. <http://www3.interscience.wiley.com/journal/123214744/abstract>

O. Mukbaniani, J. Aneli, E. Markarashvili, G. Titvinidze M. Katsitadze, N. Gogesashvili. "Effect of Modification of Bentonite by Tetraethoxysilane on the Properties of Composites Based on Epoxy Resin". Oxidation Communications 2010, 33, No 3, pp. 555-560. <http://scibulcom.net/ocr.php?gd=2010&bk=3>

Samsoniya Sh.A., Chikvaidze I.Sh., Kadzhrishvili D.O., Targamadze N.L. Pyrroloindoles. 22. Optimization of methods of preparation of some isomeric pyrroloindoles. International Journal – Chemistry of Heterocyclic Compounds, 2010, v.46, №5, pp. 536-541 (www.kluweronline.com/issn/0009-3122/contents).

Samsoniya Sh. A., Chikvaidze I. Sh., Kadzhrishvili D. O., Barbakadze N. N., Narimanidze N. O. Indole derivatives. Some aspects of E. Fisher reaction. International Journal – Chemistry of Heterocyclic Compounds, 2010, v. 46, №6, pp. 765-767 (www.kluweronline.com/issn/0009-3122/contents).

Kalatozishvili A.Z., **Samsonia N.Sh.**, Targamadze N.L., **Chikvaidze I.Sh.**, Samsoniya Sh.A., Wesquet A.O., Kazmaier Uli. Bisindoles 41. A straightforward approach towards the synthesis of new bis-pyridazinoindoles. International Journal – Chemistry of Heterocyclic Compounds, 2010, v. 46, №5, 608–612, www.kluweronline.com/issn/0009-3122/contents.

Samsoniya Sh., Trapaidze M., Nikoleishvili N., Japaridze K., Maisuradze J., Kazmaier U. Bisindoles. 42. Synthesis of a new bispiripyrane system on the basis of indolo[4,5-e]indole. International Journal – Chemistry of Heterocyclic Compounds, 2010, Vol. 46, №8, pp. 1016–1019 (www.kluweronline.com/issn/0009-3122/contents).

Samsoniya Sh., Trapaidze M., Nikoleishvili N., Japaridze K., Maisuradze J., Kazmaier U. Dipyrrroloquinoxaline. 1. Synthesis of a new bispyropyrane system on the basis of bezo[e]pyrrolo[3,2-g]indole. International Journal – Chemistry of Heterocyclic Compounds, 2010, Vol. 46, №8, pp. 1020–1022 (www.kluweronline.com/issn/0009-3122/contents).

დასაბუქდად მიღებული შრომები

M. Rukhadze, M. Sebiskveradze, N. Lominadze, N. Kokiashvili. Trends in Chromatography, 2010.

M. Rukhadze, D. Dzidziguri, N. Giorgobiani and S. Kerkenja. Imitation of biomembranes on the basis of cholic acid and endogenic thermostable protein complex in biopartitioning micellar chromatography. Biomedical Chromatography.

O. Mukbaniani, T. Tatrishvili, G. Titvinidze, S. Patsatsia. Synthesis and characterization of polysiloxanes with pendant bicyclic fragments. Article first published online: 30 NOV 2010, <http://onlinelibrary.wiley.com/doi/10.1002/app.33164/abstract>.

L. Arabuli, D. Matoga, **N. Lekishvili**. SYNTHESIS AND STUDY OF THE STRUCTURE OF NOVEL BIS ARSENIC COMPLEX COMPOUNDS , Asian J. Chem. (India), 2011.

N. Lekishvili, O. Lekashvili, D. Zurabishvili, Z. Fachulia, K. Giorgadze. THE SYNTHESIS AND STUDY OF NEW ADMANTANE-CONTAINING HYDRAZIDE-HYDRAZONE LIGANDS AND COORDINATION COMPOUNDS BASED ON THEM. Oxid. Commun. (Intern. J.), 2010.

გეოლოგიის დეპარტამენტი

გამოსაქვეყნებლად მიღებული შრომები

Tutberidze Bejani, Late Cenozoic Volcanism of the Caucasian Movable Belt (Within Georgia), its Geological-Petrological Peculiarities and Geodynamic Conditions of Manifestation, Earth Sciences (in press).

Tutberidze Bejani, "ПОЗДНЕКАЙНОЗОЙСКИЙ БАЗАЛЬТОВЫЙ УЛКАНИЗМ ЦЕНТРАЛЬНОЙ ЧАСТИ КАВКАЗСКОГО СЕГМЕНТА (ЦЧКС) И ГЕОДИНАМИЧЕСКИЕ УСЛОВИЯ ЕЕ ФОРМИРОВАНИЯ"; Вулканология и Сейсмология (in press).

ელექტრული და ელექტრონული ინჟინერიის დეპარტამენტი

G. Ghvedashvili „The MAS approach to modeling of electromagnetic field's scattering on two-dimensional periodic structures“ Journal of Computational and Theoretical Nanoscience.