

**GEORGIAN TECHNICAL UNIVERSITY
TECHINFORMI**

ISSN 1512-0775

GEORGIAN ABSTRACTS JOURNAL

Published since 2000

**Periodicity:
2 issues per year**

No. 15(27), 2016



Tbilisi

Editor-in-Chief: **M. Kopaleishvili**

Editorial Board: **I. Bedinashvili, I. Kvachadze (TSMU), M. Lebedeva,
N. Makhviladze, V. Sarjveladze, M. Ghogheliani,
O. Shatberashvili (Federation GFID, Association ESIDG),
T. Chubinishvili, N. Chkhaidze, N. Javakhadze**

Text Editor: **V. Sarjveladze**

Contact address: **47 Kostava St., Tbilisi
Tel.: 233-53-15; 233-59-03
E-mail: tech@caucasus.net, dor@caucasus.net
www.tech.caucasus.net**

The present issue was according to classification of OECD

© Publishing House **Technical University, 2016**

<http://www.gtu.ge/publishinghouse>



All rights reserved. No part of this publication may be reproduced in any form by any means, electronics, mechanical, photocopying, recording, or otherwise, or stored in any restricted system of any nature without the written permission of the copyright holder, application for which be addressed to TECHINFORMI. Such written permission must also be obtained before any part of the publication is stored in a retrieval system of any nature.

Contents

b1. Natural Sciences

- [b1.1](#) Mathematics
- [b1.2](#) Computer and information sciences
- [b1.3](#) Physical sciences
- [b1.4](#) Chemical sciences
- [b1.5](#) Earth and related environmental sciences
- [b1.6](#) Biological sciences
- [b1.7](#) Other natural sciences

b2. Engineering and Technology

- [b2.1](#) Civil engineering
- [b2.2](#) Electrical engineering, electronic engineering, information engineering
- [b2.3](#) Mechanical engineering
- [b2.4](#) Chemical engineering
- [b2.5](#) Materials engineering
- [b2.6](#) Medical engineering
- [b2.7](#) Environmental engineering
- [b2.8](#) Environmental biotechnology
- [b2.9](#) Industrial Biotechnology
- [b2.10](#) Nano-technology
- [b2.11](#) Other engineering and technologies

b3. Medical and Health Sciences

- [b3.1](#) Basic medicine
- [b3.2](#) Clinical medicine
- [b3.3](#) Health sciences
- [b3.4](#) Health biotechnologies
- [b3.5](#) Other medical sciences

b4. Agricultural Sciences

- [b4.1](#) Agriculture, forestry and fisheries
- [b4.2](#) Animal and dairy science
- [b4.3](#) Veterinary science
- [b4.4](#) Agricultural biotechnologies
- [b4.5](#) Other agricultural sciences

b5. Social Sciences

- [b5.1](#) Psychology
- [b5.2](#) Economics and business
- [b5.3](#) Educational sciences
- [b5.4](#) Sociology
- [b5.5](#) Law
- [b5.6](#) Political Science
- [b5.7](#) Social and economic geography
- [b5.8](#) Media and communications
- [b5.9](#) Other social sciences

List of Scientific Publications Reflected in Georgian Abstracts Journal

- | | | |
|-----|--|------------------------|
| 1. | A.Eliashvili Institute of Control Systems, Proceedings | ISSN 0135-0765 |
| 2. | A.Janelidze Institute of Geology, Proceedings | ISBN 978-9941-406-51-5 |
| 3. | Bulletin of Abastumani Astrophysical Observatory | ISSN 0375-6644 |
| 4. | Agrarian-Economic Science and Technologies | ISSN 1987-6335 |
| 5. | Modern Problems of Architecture and Town Planning | ISSN 2233-3266 |
| 6. | Aghmashenebeli | ISSN 1512-2581 |
| 7. | Akhali Agraruli Sakartvelo (New Agrarian Georgia) | ISSN 1987-8729 |
| 8. | Akhali Ekonomisti (New Economist) | ISSN 1512-4649 |
| 9. | Pediatric Cardiology | ISSN 1987-9857 |
| 10. | Business-Engineering | ISSN 1512-0538 |
| 11. | Business Courier | ISSN 1987-6041 |
| 12. | Biofarmer | ISSN1987-9598 |
| 13. | Accounting | ISSN 1512-0805 |
| 14. | Gadasaxadebi (Taxes) | ISSN 1987-9156 |
| 15. | Gaenatis Matsne (Gaenati Herald) | ISSN 1512-4096 |
| 16. | G. Tavartkiladze Teaching University, Scientific Works | ISBN 978-9941-17-347-9 |
| 17. | Ganatleba (Education) – Scientific Journal | ISSN 1987-782X |
| 18. | Journal of Georgian Geophysical Society | ISSN 1512-1127 |
| | a. Physics of Solid Earth | |
| | b. Physics of Atmosphere, Ocean and Space Plasma | |
| 19. | Goni | ISSN 1512-066X |
| 20. | The EU Eastern Partnership Programme and Prospects of Innovative Development of Georgia. Tbilisi | ISBN 978-9941-0-3679-8 |
| 21. | Economics | ISSN 1512- 1313 |
| 22. | Economics and Business | ISSN 1987-5789 |
| 23. | Economisti | ISSN 1987-6890 |
| 24. | Energy | ISSN 1512-0120 |
| 25. | Experimental & Clinical Medicine | ISSN 1512-0392 |
| 26. | Transactions of V. Bagrationi Institute of Geography | ISBN 99940-60-19-4 |
| 27. | Scientific Works of Tbilisi Balneological Resort | ISBN 99940-845-7-7 |
| 28. | Collection of Scientific Works of Tbilisi State Medical University | ISSN1987-8990 |
| 29. | Collected Scientific Works of I. Kutateladze Pharmacochemistry Institute | ISSN 1987-7277 |
| 30. | Caucasus International University Herald | ISSN 1987-863 X |
| 31. | Scientific Works of Caucasus University | ISSN 1987-8869 |
| 32. | Cardiology and Internal Medicine-XXI | ISSN 1512-1291 |
| 33. | Ceramics | ISSN 1512-0325 |
| 34. | Critical Care & Catastrophe Medicine | ISSN 1512-2689 |
| 35. | Metsniereba da Technogiebi (Science and Technologies) | ISSN 0130-7061 |
| 36. | Metsniereba da Tskhovreba (Science and Life) | ISSN 1987-9377 |
| 37. | Mermisi – Collection of Scientific Works | ISSN 1512-4585 |
| 38. | Bee-keeping. /G. Madzgharashvili/. Monograph. - 2013 | ISBN978-9941-442-01-8 |
| 39. | Multi-Level Innovation Policy and European Integration. TECHINFORMI. – 2010. 312 pp. Geo. | ISBN978-9941-0-2452-8 |
| 40. | Building | ISSN 1512-3936 |
| 41. | Novation | ISSN 1512-3715 |
| 42. | Actual problems of pathology, therapy and medical rehabilitation | ISBN 978-9941-0-6499-9 |
| 43. | Professional's Voice | ISSN 1987-6831 |
| 44. | Georgian Journal of Radiology | ISSN 1512-0031 |
| 45. | Scientific Works of Georgian-British Institute of International Law and Management | ISSN 1987-6866 |

46.	Law and Economics	ISSN 1987-8303
47.	Mining Journal	ISSN 1512-407X
48.	Results of Study of Farm Loan and Farm Insurance. Elkana. - 2010	ISBN978-9941-406-51-5
49.	Wood Bulletin	ISSN 1512-0546
50.	Newsletter of Academy of Education Sciences of Georgia	ISSN 1512-195X
51.	Bulletin of Centre of Strategic Development of Georgia	ISSN 1512-0813
52.	Appendix to the Journal Newsletters of Education Sciences of Georgia	ISSN 1512-102X
53.	Georgian Journal of Geography	ISSN 1512-1267
54.	Works of Georgian Academy of Economic Sciences	ISSN2233-3207
55.	Bulletin of Georgian National Academy of Sciences	ISSN 0132-1447
56.	Proceedings of the Georgian National Academy of Sciences, Biological Series A	ISSN 0321-1665
57.	Proceedings of the Georgian Academy of Sciences, Biological Series B	ISSN 1512-2123
58.	Proceedings of the Georgian National Academy of Sciences, Biomedical Series	ISSN 0321-1665
59.	Proceedings of the Georgian National Academy of Sciences – Chemical Series	ISSN 0132-6074
60.	Georgian Oil and Gas	ISSN 1512-0457
61.	Georgian Pediatrician	ISSN 1512-1542
62.	Respiratory Journal of Georgia	ISSN1512-2778
63.	Georgian Medical News (GMN)	ISSN 1512-0112
64.	Georgian Scientific News (GSN)	ISSN 1987-7234
65.	Transactions of Technical University of Georgia	ISSN 1512-0996
66.	Proceedings of Int. Sci. Conf. of Technical University of Georgia, Basic Paradigms in Science and Technology Development for the 21st Century	
67.	Georgian Chemical Journal	ISSN 1512-0686
68.	Air Transport	ISSN 1512- 4916
69.	The Role of Social Capital in Rural Development of Georgia. M. Muskhelishvili, L. Mezvrishvili, B. Natsvlshvili, M. Elizbarashvili. Monograph.	ISBN 978-9941-17-879-5
70.	Social, Ecological and Clinical Pediatrics	ISSN 1987-9865
71.	Herald of Sokhumi State University	ISSN 1987-572X
72.	Subtropical Crops	ISSN0207-9224
73.	Food Safety and Quality. K. Laperashvili, G. Kuchukashvili	ISBN 978-9941-0-3995-9
74.	Collection of Scientific Works of Sukhishvili University	ISSN 1987-5711
75.	Transport and Machinebuilding	ISSN 1512-3537
76.	Actual Topics of Women's Health	ISSN 2298-0091
77.	Collected Papers of Institute of Water Management	ISSN 1512-2344
78.	Khandzta	ISSN 1512-3812
79.	Institute of Hydrogeology and Engineering Geology, Proceedings	ISBN 978-9941-405-81-5
80.	Hydro Engineering	ISSN 1512-410X
81.	Transactions of the Institute of Hydrometeorology	ISSN 1512-0902
82.	Computer Sciences and Telecommunications	ISSN 1512-1232
83.	GEN-Georgian Engineering News	ISSN 1512-0287
84.	Nano Studies	ISSN 1987-8826
85.	The Caucasus and the World	ISSN 1987-7293
86.	Culture & Philosophy	ISSN 0132-1447
87.	Bacteriophages and Probiotics – Alternatives to Antibiotics – Intern. Conf. Abstr.	ISSN0132-1447
88.	Problems of Metallurgy, Welding and Material Science	ISSN 0512-1909
89.	Modern Issues of Medicine and Management	ISSN 1512-4169
90.	Actual Problems of Parasitology in Georgia	ISSN 1987-7420
91.	Automated Control Systems	ISSN 1512-3979, E ISSN 1512-2174

List of publications reflected in the present issue

1. Agrarian-Economic Science and Technologies. – 2015. – #3
2. Pediatric Cardiology. – 2015. – #9
3. Accounting. – 2015. – #9
4. Gaenatis Matsne (Gaenati Herald). – 2015. – v. II. – #4
5. Economics. – 2015. – #3-4; – #5-6
6. Economisti. – 2014. – #6
7. Collection of Scientific Works of Tbilisi State Medical University. – 2014. – v. 8. – #1
8. Computer Sciences and Telecommunications. – 2015. – #1(45). – 2014. – #4(44); #2(42); #1(41)
9. Automated Control Systems. – 2015. – #1(19)
10. Modern Issues of Medicine and Management. – 2015. – #2
11. Science and Life. – 2015. – #1(11)
12. Novation. – 2015. – #15
13. Actual Problems of Parasitology in Georgia. XII Intern. Scient. Conf. Tbilisi. – 2014. – v. XII
14. Professional's Voice. – 2015. – #2–3(5)
15. Bulletin of Georgian National Academy of Sciences. – 2014. – v. 8. – #1
16. Georgian Medical News. (GMN). – 2015. – #1(238), #2(239)
17. Proceedings of Technical University of Georgia. – 2015. – #1(495)
18. Georgian Engineering News (GEN). – 2014. – #2, #3, #4; – 2015. – #1, #2
19. Social, Ecological and Clinical Pediatrics. – 2015. – #17–12-11
20. Transport and Machinebuilding. – 2014. – #3(31). – 2015. – #1(32)
21. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. - July 16-19. – 2015
22. Annals of Agrarian Science. – 2014. – v.13. – #1, #2
23. Nano Studies. – 2014. – #10

b1. NATURAL SCIENCES

b1.1 Mathematics

b15.1.1.1. On one interpretation of positioning tasks solution. /N. Nikvashvili, I. Khatiskatsi/. Transport and Machinebuilding. – 2014. – #3(31). – pp.87-89.- rus.; abs.: rus., geo., eng.

Considered is an algorithm of arbitrary positioning tasks solution with participation of arbitrary surfaces, where due perfection of three graphical tasks is possible to solve task on construction of common points of line and surface (including straight line and plane), two surfaces (including two planes, plane and surface). Ref. 1.

Auth.

b15.1.1.2. Plotting linear surfaces by application of additional projecting. /N. Nikvashvili, I. Khatiskatsi/. Transport and Machinebuilding. – 2014. – #3(31). – pp.99-102.- geo.; abs.: geo., rus., eng.

Solved is the task of plotting of intersection line for one group of surfaces – for linear surfaces with one guide and vertex. This group includes cylinders (prisms), cones (pyramids). This problem is performed on the example of intersections of prism and cylinder. The simplification of solution is reached due additional skew-angle projection in the Π_1 , in direction of non-intrinsic vertex Π_1 on its guide – circumference a_1 with the same circumference coincide the additional skew-angle projections of intersection line of given surfaces. The horizontal projection of desired line of intersection is produced by return of additional projection points of intersection lines on initial horizontal projections of prism elements. Fig. 1, Ref. 1.

Auth.

b15.1.1.3. Mathematical methods as an important tool for strategic analysis and some practical aspects of their use in the economy. /I. Amanatashvili, T. Diasamidze, N. Elashvili, D. Shanidze/. Transport and Machinebuilding. – 2015. – #1(32). - pp. 31-39. – rus.; abs.: geo., eng., rus.

At the present stage of development of society, great importance is attached to improving the processes of economic research. In today's economy of our country, when a reasonable approach to the management and regulation of economic activities of a modern science-based company, it is imperative that these issues become even more necessary. On the basis of this approach it is possible to ensure the reconstruction and development of our national economy. This work is devoted to the study, decision-making and presentation of the importance of economic and mathematical methods and techniques and their application in practice. Ref. 9.

Auth.

b15.1.1.4. Geometric constructions on a plane solution of one problem by method of loci. /L. Asatiani/. Transport and Machinebuilding. – 2015. – #1(32). - pp. 98-101. – rus.; abs.: geo., eng., rus.

Upon solving the parallelogram construction problem the method of loci reduced to finding any two lines or curves, at the intersection of which a point is found that meets the conditions set put in the problem is used. The set of such points represents a definite line that will be the locus. For solving this problem, we used two known loci. The solution of the problem shows that by knowing the method of loci the problems are easily and gracefully solved. Fig. 2, Ref. 4.

Auth.

b15.1.1.5. One characteristic problem for equation of oscillations taking place in magnetohydraulic pusher. /S. Bitsadze, R. Bitsadze/. Transport and Machinebuilding. – 2015. – #1(32). - pp. 147-151. – geo.; abs.: geo., eng., rus.

The work studies a characteristic problem for equation of oscillations, which is received by mathematical modelling of processes taking place in magnetohydraulic pusher of a specific design. The solution is written in an explicit form, and its domain of existence is established. Ref. 4.

Auth.

b15.1.1.6. Initial problem for the equation describing processes taking place in magnetohydraulic pusher. /S. Bitsadze, R. Bitsadze/. Transport and Machinebuilding. – 2015. – #1(32). - pp. 152-157. – geo.; abs.: geo., eng., rus.

The work studies an initial problem for the nonlinear hyperbolic equation, which is received by mathematical modeling of processes taking place in magnetohydraulic pusher of specific design. The uniqueness of solution, which is written in an explicit form, and range of definitions for solution is established is shown. Ref. 3.

Auth.

b15.1.1.7. Construction of circle tangent to three circles by Gergonne method. /S. Bitsadze, R. Bitsadze, M. Barbakadze/. Transport and Machinebuilding. – 2015. – #1(32). - pp. 158-163. – geo.; abs.: geo., eng., rus.

Circle tangent to three circles is constructed by the Gergonne method in the work. The definitions and theorems used during application of the Gergonne method are given. Fig. 1, Ref. 4.

Auth.

b15.1.1.8. Nonlinear mathematical model of bilateral assimilation. /T. Chilachava/. Computer Sciences and Telecommunications. – 2014. – #1(41). – pp. 62-68. – eng.; abs.: geo., eng., rus.

A new nonlinear mathematical model describing assimilation of the people (population) speaking a less widespread language with two states speaking two different widespread languages is offered. In the model three subjects are considered: the population and government institutions with the widespread first language, influencing by means of state and administrative resources the third population with some less widespread language for the purpose of their assimilation; the population and government institutions with the widespread second language, influencing by means of state and administrative resources the third population with some less widespread language for the purpose of their

assimilation; the third population (probably small state education, an autonomy), exposed to bilateral assimilation from two powerful states. In that specific case, a natural zero increase of the population of these three subjects, Cauchy's problem for nonlinear system of the differential equations is analytically solved. Ref. 13.

Auth.

b15.1.1.9. On testing the hypothesis of equality of two Bernoulli regression functions. /E. Nadaraya, P. Babilua, G. Sokhadze/. Bulletin of the Georgian National Academy of Sciences. – 2014. – Vol. 8, #1.– pp. 18-26. – eng.; abs.:eng., geo.

The limiting distribution of an integral square deviation between two kernel type estimators of Bernoulli regression functions is established in the case of two independent samples. The criterion of testing is constructed for both simple and composite hypotheses of equality of two Bernoulli regression functions. The question of consistency is studied. The asymptotics of behavior of the power of test is investigated for some close alternatives. Ref. 7.

Auth.

b15.1.1.10. Problem of elasticity and plasticity for a plate with a shape of n-angle weakened by n-holes. /Z. Abashidze/. Bulletin of the Georgian National Academy of Sciences. – 2014. – Vol. 8, #1.– pp. 27-31. – eng.; abs.:eng., geo.

A homogeneous, isotropic plate with a shape of rectilinear n-angle weakened by n-cyclic symmetric holes is considered. The plate is in a stressed state; a region of plasticity contains only contours of holes and does not spread inside of the plate. A problem of elasticity and plasticity for this plate is reduced to a boundary problem of linear relationship for a unit circle with sectionally constant coefficients. The equation of unknown contours of holes is presented; the solution of this problem is obtained. Fig.1, Ref. 6.

Auth.

b15.1.1.11. Clark's representation of Wiener functionals and hedging of the barrier option. /O. Glonti, O. Purtukhia/. Bulletin of the Georgian National Academy of Sciences. – 2014. – Vol. 8, #1.– pp. 32-39. – eng.; abs.:eng., geo.

For one functional of Wiener process, which in case of Bachelier's model of financial market is the payoff of Knock-out Barrier Option, the Clark's integral representation with explicit form of integrand is obtained. This functional represents the product of European Call Option payoff and indicator of some event. It is impossible to use directly the Clark-Ocone's formula because the indicator of event is Malliavin differentiable if and only if probability of this event is equal to zero or one. We use our integral representation of functionals of Wiener process, which slightly generalizes the Clark-Ocone's formula, and obtain the explicit form of integrand. This integrand is the optimal hedging strategy replicating the Knock-out Barrier Option in case of Bachelier's model. Ref. 4.

Auth.

b15.1.1.12. Nonlocal contact problem for two-dimensional linear elliptic equations. /D. Gordeziani, I. Meladze/. Bulletin of the Georgian National Academy of Sciences. – 2014. – Vol. 8, #1.– pp. 40-46. – eng.; abs.:eng., geo.

A nonlocal contact boundary problem for two-dimensional linear elliptic equations is stated and investigated. The uniqueness of the solution is proved. The iteration process is constructed, which allows one not only to prove the existence of a regular solution of the problem, but also to develop an approximate algorithm of its solution. The solution of a nonlocal contact problem is reduced to the solution of classical boundary value problems, in particular to the solution of Dirichlet problems. Fig.1, Ref. 22.

Auth.

b15.1.1.13. Calculation of Hurst exponent for dynamics of cost of the company. /N. Bichenov/. Automated Control Systems. – 2015. – #1(19). – pp.42 - 45. – rus.; abs.: geo., eng., rus.

The paper describes an algorithm for a new statistical method - R/S analysis described by Harold Hurst. Given method allows to determine whether the time series is random or persistent, that is, whether it has a long-term memory. The algorithm of R/S analysis is used for the time series of stock prices; the conclusion about the nature of their persistence is drawn. It is the most important factor when we examine such phenomena as, for example, the stock exchange or currency, for which a clear fallacy of Gaussian approach is confirmed by numerous studies. Fig. 1, Tab. 1, Ref. 5.

Auth.

b15.1.1.14. Picking up stock shares by means of Hurst exponent and fractal analysis of the stock market. /L. Gurgenidze/. Automated Control Systems. – 2015. – #1(19). – pp.46 - 49. – geo.; abs.: geo., eng., rus.

This article describes estimation of stock shares within Hurst exponent. It gives us opportunity to define the value of stock shares. The Hurst exponent occurs in several areas of applied mathematics, including fractals and chaos theory, spectral analysis. A practical example of estimation stock shares is solved in this article. We use VTB bank stock shares to prove this. Fig. 3, Ref. 2.

Auth.

15.1.1.15. Mathematic model and argumentation theory with multiagent-based architecture for pattern recognition. /Z. Bosikashvili, G. Archvadze/. Automated Control Systems. – 2015. – #1(19). – pp.187-196. – eng.; abs.: geo., eng., rus.

When agents communicate they do not necessarily use the same vocabulary or ontology. For them to interact successfully they must find correspondences between the terms used in their ontologies. The paper describes the work for constructing a formal framework for reaching agents' consensus on the terminology they use to communicate. Each agent can decide according to its interests whether to accept or refuse the candidate correspondence. The authors are trying to construct a pattern recognition model and how to use different ways to recognize patterns. Fig. 3, Tab. 3, Ref. 8.

Auth.

b15.1.1.16. The distribution of the centroid devaluation. /K. Shvangiradze/. Novation. – 2015. – #15. – pp. 24-27. – geo.; abs.: geo, eng., rus.

For distributing the centroid devaluation a theorem is given; according to which where the experiment's casual errors are independent and correspond to the same normal distribution with the zero average value of σ^2 variance then all the values of A_j are independent and correspond to α_j normal distribution. To prove said theorem the well-known theorem is used saying that in case the variates are independent and correspond to a standard normal distribution, then any orthogonal transformation of these values will be possible, the transformed values will be independent and correspond to the standard normal distribution. Ref. 3.

Auth.

b15.1.1.17. The intervals of confidence for parameters. /K. Shvangiradze/. Novation. – 2015. – #15. – pp. 28-31. – geo.; abs.: geo., eng., rus.

It is shown that the theorem proven in the article above concerning the probability distribution of estimations enables to receive the interval of confidence acceptable only to the sum where σ 's meaning is already known, which is rare in practice. It is given that when σ 's meaning is unknown, the Student's distribution can be used to construct the interval of confidence. Thus, $\frac{A_j - \alpha_j}{\frac{\sigma}{\sqrt{H_j}}}$ value has the standard normal distribution, while the independent from it value $\frac{Q}{\sigma^2}$ has χ^2

distribution with the k freedom degree. The given P probability is found by the Student's schedule for such $t=t(P, k)$ where $P\{|T|>t\}=P$. Ref. 3.

Auth.

b15.1.1.18. Possibilities of drawing and creation of sounds by mathematical modeling in the Mathcad environment. /N. Kopaliani, V. Gogisvanidze, R. Filia, D. Dzadzamia, V. Gogisvanidze/. Periodical Scientific Journal "Novation". – 2015. – #15. – pp. 56-61. – geo.; abs.: geo., eng., rus.

Simple examples of the opportunities of drawing and creation of sounds by mathematical modeling in the MathCad environment are reviewed. For this purpose the image processing and signal processing theories are used. The MathCad opportunities have a great practical value and wide application in many engineering problems, including the mathematical modeling of problems of vibration monitoring and diagnostics of technical conditions of power equipment. Ref. 4.

Auth.

b15.1.1.19. On the method of mathematical modeling of the floating wave damper's action. /T. Gvelesiani, Z. Tsikhelashvili, G. Berdzenashvili, Kh. Iremashvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. - July 16-19. – 2015. – pp. 40-44. – geo.; abs.: geo., eng., rus.

The method of mathematical modeling of the floating (at the near shore sea shelf) wave damper device (proposed by the author of the work), based on the usage of the 2D hydrodynamic problem solution obtained formerly by T. Gvelesiani is proposed. Fig. 2, Ref. 4.

Auth.

b15.1.1.20. Variational problems in economic systems with distributed parameters. /N. Narimanashvili/. Automated Control Systems. – 2015. – #1(19). – pp.38-41. – geo.; abs.: geo., eng., rus.

A mathematical model of simple, closed economic system with distributed parameters is considered. On the basis of variation principle the problem of price determination and maximal profit is formulated. The problem solution ways are shown taking into account the market conditions, on which basis recommendations on selection of the optimal strategy of planning are elaborated. Fig. 3, Ref. 4.

Auth.

b1.2 Computer and information sciences

b15.1.2.1. Using Lee metrics for designing invariant systems. /N. Ugrelidze, M. Sordia, T. Kvikvinia/. Transactions of Technical University of Georgia. – 2015. – #1(495). – pp.15-21. - geo.; abs.: geo., eng., rus.

Invariant systems' design issues using the Lee metrics are considered. Invariance conditions for codes and signal-codes' systems are formulated. Several corresponding examples are illustrated for convolutional codes with alphabetic redundancy. Fig. 4, Ref. 12.

Auth.

b15.1.2.2. Optimal encoding of the Georgian alphabet letters. /N. Ugrelidze, V. Zurabishvili, D. Gordzamashvili/. Transactions of Technical University of Georgia. – 2015. – #1(495). – pp.22-26. – geo.; abs.: geo., eng., rus.

The optimal encoding of the Georgian alphabet with efficiency of 99% is considered. The code satisfies the condition of code prefix, which in turn determines the simplicity of constructing a decoder and the code can be recommended for sending short text messages at high speed. Tab. 2, Fig. 1, Ref. 8.

Auth.

b15.1.2.3. Bayesian networks and mathematical review of related hypotheses. /A. Prangishvili, N. Namicheishvili/. Computer Sciences and Telecommunications. – 2015. – #1(45). – pp. 3-29. – geo.; abs.: geo., eng., rus.

The article contains a description of the approach to Bayesian Networks as a method of descriptive analysis of the subject area. The concepts of the introduced graph theory are necessary for further consideration of the results. The Bayesian network is defined as an oriented acyclic graph, whose nodes correspond to the notions of the subject area, and arcs (ribs) - to directly stochastic relations between them. Relative to the Bayesian network the hypothesis of conditional independence, factorization and separation are formulated for a probability distribution on the set of values of nodes. The equivalence of these hypotheses is proved. This allows using a single hypothesis, which imposes restrictions on a set of parameters of probabilistic distribution of nodes in the network. These limits correspond to the conditional independence between nodes that are interconnected in a network by means of the routes. The routes pass through the sets sharing these nodes. Fig. 2, Ref. 22.

Auth.

b15.1.2.4. New codes with alphabetic redundancy. /T. Kvikvinia, E. Urushadze/. Computer Sciences and Telecommunications. – 2014. – #4(44). – pp. 44-52. – geo.; abs.: geo., eng., rus.

The article deals with distance invariant codes with alphabetic redundancy. In particular, software was developed by the authors for computer searching of new codes. Convolutional codes were designed for binary symmetric channels. Also ternary signal-code systems using simplex signals are designee. All results are given in tables. It is shown that the given quaternary codes could be used both for the binary symmetric channels and for Gaussian channels with binary and quaternary phase modulated signals. Fig. 5, Tab. 2, Ref. 6.

Auth.

b15.1.2.5. Continuous nonlinear mathematical and computer model of information warfare with participation of authoritative interstate institutions. /T. Chilachava, A. Chakhvadze/. Computer Sciences and Telecommunications. – 2014. – #4(44). – pp. 53-74. – eng.; abs.: geo., eng., rus.

A new nonlinear mathematical and computer model of information warfare with the participation of interstate authoritative institutes is offered. The model is described by Cauchy's problem for nonlinear non-homogeneous system of the differential equations. Confronting sides extend provocative statements, and the third side (the peacekeeping international organizations) extends soothing statements; the peacekeeping institutions call upon the sides to terminate the information warfare. In the specific case of information warfare "aggressor-victim", exact analytical solutions are produced for the third peacekeeping side, while the functions defining the number of the provocative statements of the sides satisfy the Cauchy's problems for Riccati certain equations that are solved by a numerical method. For the general case computer modeling is carried out and it is shown that irrespective of high aggression of the confronting sides, the interstate authoritative institutions are still capable extinguishing the information warfare even when efforts of international organizations are not sufficient for the purpose. Fig. 13, Tab. 2, Ref. 26.

Auth.

b15.1.2.6. Construction of management information systems of distributed business processes based on petri networks and object-role modeling. /G. Gogichaishvili, G. Surguladze, N. Topuria, B. Urushadze/. Bulletin of the Georgian National Academy of Sciences. – 2014. – Vol. 8, #1. – pp. 58-64. – eng.; abs.:eng., geo.

The model of the service organs optimum number of client-server architecture based on Markovian processes and algorithmic schemes of its solution are worked out. On the ground of certain facts the Object Role Model (ORM) is created. The concept of the distributed databases creation for various financial structures based on Service-Oriented Architecture is offered. The forms of web application on Ms Visual Studio.NET platform by NORMA software and Ms SQL Server package are realized. The issues of modeling for business processes of corporate systems, automatization of designing the database structures and the consumers' interfaces are considered. Tab.1, Fig. 2, Ref. 12.

Auth.

b15.1.2.7. 10 most affordable business activities on the Internet. /N. Shakaia/. Novation. – 2015. – #15. – pp. 109-112. – geo.; abs.: geo., eng., rus.

The article aims to inform customers about such issues as sales of advertisements, online counseling and role of drop shipping, internet marketing, freelance services, info-business, reselling and partnership. Ref .3.

Auth.

b15.1.2.8. Gamification: offer your customers to play. /N. Shakaia/. Novation. – 2015. – #15. – pp. 113-117. – geo.; abs.: geo., eng., rus.

Definition of gamification allows us to better understand the game content with customers, which method or methods are best to accurately observe the objectives and business needs. The gamification technique/method is a database of known techniques and computer games online. To achieve gamification in the Internet business the player must solve the problem quickly and get the reward. The gamification algorithm is designed for all who manage companies in business; to create a script of the game, a two-tier structure of the system exists in gamification, which helps players achieve the goal. The article defines gamification as an information system for the player, which can be represented in a structure, scenario, technique, etc. Ref .4.

Auth.

b15.1.2.9. What should be considered when building a website? /N. Lomidze/. Novation. – 2015. – #15. – pp. 118-121. – geo.; abs.: geo., eng., rus.

To create a site, you must first desire and aspire, then create a web space and locate a file therein. It is hard to say what criteria a good site should meet to sell a business idea. The article describes briefly and succinctly the steps that accompany the website creation, management, efficiency, safety, cost, attractiveness and comfort. The goal is to help those people who want to create their own website, take into account the difficulties and benefits that accompany the

creation of the site, to give the idea of creating in the right direction that would introduce users to the site with a good user interface. Ref 3.

Auth.

b15.1.2.10. Online shop: deliverer of orders. /N. Lomidze/. Novation. – 2015. – #15. – pp. 122-125. – geo.; abs.: geo., eng., rus.

Online-shop along with other features has an order delivery function; the financial opportunities, loss and profit mainly fall on the online shop. The courier service is the fastest way to get money from orders. An ancillary service to the courier is self-shipment, which is a good way to save money. The purpose of the paper is to provide consumers with a variety of ways and methods of shipment. Ref 4.

Auth.

b15.1.2.11. Organization of “news” on site. /N. Lomidze/. Novation. – 2015. – #15. – pp. 126-129. – geo.; abs.: geo., eng., rus.

The section "News" is for the companies engaged in active foreign activities to attract new suppliers and discuss key technologies. The "News" category is a wide range of information about the events, which can be used in the coverage of various issues. Based on the article, when creating the section "News", at least one publication a week should appear to contribute to the existence of the site, otherwise the progress of the site will be hindered; your duty is to assess the need for such a section and then organize the publication. Ref 3.

Auth.

b15.1.2.12. How to keep up with the competitor's site? /N. Lomidze/. Novation. – 2015. – #15. – pp. 130-133. – geo.; abs.: eng., rus.

To get more information about the competitors' resources, the monitoring with them must be brought into line with the level, so that no change would escape your attention. For this there is a Similar Web, which searches for and displays the like sites, through which you can identify your direct competitors. SEM ru analyzes the competitors' sites, the words acceptable to them, the most popular pages, allows you simultaneously compare 5 sites and get a full report on them. Based on the above, the data obtained from observation of competitors give you not only knowledge, but also as a strategy how to manage your work in the future. Ref 3.

Auth.

b1.3 Physical sciences

b15.1.3.1. Adaptive usage of main resources in MIMO-cognitive radio networks. /Sh. Kvirvelia, T. Kortua, J. Beridze/. GEN. – 2014. – #2. – pp. 26-30. – eng.; abs.: rus.

Cognitive radio is a novel approach that basically improves the utilization efficiency of the radio spectrum. MIMO cognitive network means: a more efficient usage of the available frequency spectrum; more robust wireless end-to-end connections without sacrificing the real-time capability; improved mobility by means of autonomous, intelligent adaptation to the environment. Fig. 3, Ref. 4.

Auth.

b15.1.3.2. A method of measurement of the geometric and optical parameters of lenses by using a microscope. /D. Shalamberidze, D. Zardiashvili, I. Kordzakhia, G. Abramishvili, I. Avaliani/. GEN. – 2014. – #3. – pp. 41-43. – geo.; abs.: eng.

The paper deals with a method of measurement of the geometric and optical parameters of lenses by using a microscope. The radii of the lens curvature and the refractive index of the optical material were calculated by measuring the distances from the front and back surfaces of the lens to the point of the image with the help of an optical microscope. Fig. 2, Ref. 2.

Auth.

b15.1.3.3. Determination of the coefficient of unsteady flow hydraulic resistange in main pipelines. /D. Namgaladze, G. Mandaria/. GEN. – 2014. – #4. – pp. 59-61. – geo.; abs.: eng.

Non-stationary hydrodynamic processes belong to complicated physical events during which hydrodynamic parameters (rate and pressure) change in time and space. The unsteady flow hydraulic coefficient is often determined experimentally. Nowadays, the main reason for this fact is that there is no complete and quite convincing theory. The experimental determination of the unsteady flow parameters with real objects is discussed in this work. Fig. 2, Ref. 4.

Auth.

b15.1.3.4. Static analysis of a double-chamber tunnel built using cut and cover construction. /L. Japaridze/. Bulletin of the Georgian National Academy of Sciences. – 2014. – Vol. 8, #1. – pp. 47-50. – eng.; abs.:eng., geo.

The worldwide shortage of life and transport spaces makes it necessary to utilize underground space of the cities by construction of tunnels and near surface facilities using the so-called cut and cover method. Calculation of such structures is a responsible task. Now there are lots of numerical computer programs that are used in designing of the underground constructions. However, the numerical methods sometimes yield results that can vary significantly from those obtained with classical methods. Therefore, in some cases classical methods of forces and displacements are recommended to be used in the structural analysis of cut and cover tunnel structures. The concept is right not only for cut and cover, but for other types of tunnels and underground facilities. Tasks, which can be solved analytically, must be worked out by classical computer methods. The qualified specialists must use numerical methods in parallel with analytical methods, if possible. Such approach can be useful for facilitation of the work, testing the calculation results in

order to avoid potential errors. It is often difficult to find the appropriate analytical apparatus for solving typical schemes of such structures. The analytical apparatus for static analysis of one or two-span frame of the tunnel structures using methods of forces and displacements is elaborated and presented in the paper. Fig. 1, Ref. 4.

Auth.

b15.1.3.5. Classical motion of a relativistic test particle in the static cylindrically symmetric metric. /M. Yavari/. Bulletin of the Georgian National Academy of Sciences. – 2014. – Vol. 8, #1. – pp. 51-57. – eng.; abs.: eng., geo.

In the paper, the gravitoelectric and gravitomagnetic fields are discussed in the threading formalism. The motion of a relativistic test particle in the static cylindrically symmetric metric is studied by applying the Hamilton-Jacobi method. In threading formalism the gravitoelectromagnetic force in this spacetime is also calculated. Ref. 15.

Auth.

b15.1.3.6. Comparative analysis of geometric descriptions of coils of ATLAS detector. /A. Sharmazanashvili, N. Tsutskiridze, A. Surmava, B. Kekelia/. Automated Control Systems. – 2015. – #1(19). – pp. 13-22. – geo.; abs.: geo., eng., rus.

Simulation of physics experiments at CERN (European Organization for Nuclear Research) is underway in parallel with real experiments. There are strict requirements to reach the adequacy of data coming from detectors and event's generator. In most of cases there are discrepancies and there are several options from where they might be coming. Differences may be caused by geometric inaccuracy of models. So, development of methods and tools for creation of precise geometry models of ATLAS Detector is an urgent task. For this purpose a special "Simulation Loop" method has been developed. The Simulation Loop permits to carry out investigation of various geometries and discover existing inaccuracies. Investigation of model of COIL geometry was carried out using the Simulation Loop. As a result, volumetric and weight inaccuracies were found. The received results were considered by a simulation group at CERN. As a result, discrepancies were reduced. Fig. 7, Tab. 1, Ref. 13.

Auth.

b15.1.3.7. Fractal representation of fluid flow into porous media. /D. Janelidze/. Automated Control Systems. – 2015. – #1(19). – pp. 148-155. – eng.; abs.: geo., eng., rus.

The paper discusses fluid flow into the porous media. With conjunction of diffusion equation, according to Darcy's law and conservation of mass equation, and Pore-Solid Fractal model, a new model is created that explains fractal look on fluid flow in porous media. The new fractalization coefficient is proposed. This approach is inverse perspective of fluid flow into ground, where a new property of homogenous liquid is got from characteristics of ground. Fig. 5, Tab. 1, Ref. 16.

Auth.

b15.1.3.8. Research of the Dirikhl problem solving for heat exchange processes in a disperse layer in case of the dynamic mode, taking into account light emission. /T. Modebadze/. Novation. – 2015. – #15. – pp. 81-86. – geo.; abs.: geo., eng., rus.

An operator method of solving a system of differential equations of heat exchange for Dirikhl's problem in case of dynamic process is given. The problem solving is proved. It is shown under what conditions this solution exists, and to what class of functions the solution belongs. Ref. 5.

Auth.

b15.1.3.9. Stability of plates with discontinuous parameters. /G. Kipiani, V. Mikadze, L. Nikolaishvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. - July 16-19. – 2015. – pp. 293-300. – eng.; abs.: geo., eng., rus.

For analysis of plates having cuts and breaks, design formulae that gives the possibility to describe all singularities of stability components variables in adjacent of discontinuities, reflect variation and distribution of forces and moments in loading process, are obtained. New tasks of the plates with cuts and ribs for calculation of the stability under various types and various conditions of contour loadings are solved. Fig. 3, Ref. 10.

Auth.

b1.4 Chemical sciences

b15.1.4.1. Concentration distribution in the diffusion layer in the overlimiting mode of electro dialysis. /Sh. Rukhadze, M. Apridonidze, K. Kevanishvili/. GEN. – 2014. – #2. – pp. 81-85. – geo.; abs.: rus.

For single-component solutions for the conditions of a perfectly selective cation-exchange membrane in relation to electro dialysis, obtained was a numerical solution to the problem of formation of ion fluxes in the diffusion boundary layer. The solution was formulated on the basis of Nernst-Planck equations under a nonlinear character of the concentration change with dissociation products of water – hydrogen and hydroxyl ions. In the overlimiting mode of electro dialysis, the dependences of transfer numbers for the ions involved in mass transfer on the current density and the changes in local transfer numbers by the thickness of the diffusion layer were obtained. Fig. 3, Ref. 8.

Auth.

b15.1.4.2. Thermogravimetric study of complex compounds of silver (I) with tertiary arsines. /M. Kikalishvili/. GEN. – 2014. – #3. – pp. 67-69. – rus.; abs.: eng.

Behavior of silver (I) tetra (triphenylarsine) perchlorate under heating conditions was studied by means of the thermogravimetric analysis. As it is found, upon heating the ligand brokes initially from the compound. The final product of thermal decomposition is silver. Fig. 1, Ref. 6.

Auth.

b15.1.4.3. Thermodynamic analysis of interaction of B₂O₃ with carbon. /J. Bagdavadze, K. Ukleba, Z. Tsikaridze/. Bulletin of the Georgian National Academy of Sciences. – 2014. – Vol. 8, #1. – pp. 65-67. – eng.; abs.:eng., geo.

The work presents full thermodynamic analysis (FTA) of the B-O-C system at atmospheric pressure and in vacuum for the reaction $2B_2O_3 + 7C = B_4C + 6CO$. The main results of FTA are plotted in graphs. Comparative analysis of the obtained results shows that carbon reduction of B₂O₃ occurs at much higher temperature at atmospheric pressure than similar processes conducted in vacuum. Ref. 1.

Auth.

b15.1.4.4. New formulas of spectral-line excitation profiles for coherent anti-Stokes Raman scattering by molecules in solutions. /M. Zakaraia, G. Chonishvili/. Bulletin of the Georgian National Academy of Sciences. – 2014. – Vol. 8, #1. – pp. 72-77. – eng.; abs.:eng., geo.

The inhomogeneity of the surrounding of scattering molecules significantly affects the intensity distribution in coherent anti-Stokes Raman scattering (CARS) spectra and excitation profiles. A theoretical expression is obtained that describes the excitation profile of an arbitrary relationship, σ of the vibronic levels of the excited electronic state and parameter Γ between the relaxation constant characterizing the inhomogeneity of the environment. The possible influence of inhomogeneity on the CARS spectral lines is also discussed in the paper. Ref. 9.

Auth.

b15.1.4.5. Synthesis of some derivatives of N-(1-Adamantyl)Carbonyl-N'-Benzyliden-oPhenylenediamine. /Sh. Samsonia, D. Zurabishvili, T. Bukia, G. Buzaladze, M. Lomidze, E. Elizbarashvili, U. Kazmaier/. Bulletin of the Georgian National Academy of Sciences. – 2014. – Vol. 8, #1. – pp. 78–84. – eng.; abs.:eng., geo.

N-(1-adamantyl)carbonyl-o-phenylenediamine and 4-methoxy-2-aminophenyl-N-(1-adamantyl)carboxamide are synthesized. Condensation reaction of the synthesized compounds with aldehydes of salicyl-, 5-bromo salicyl- and 3,5-dibromo salicylic is studied. As a result N-(1-adamantyl)carbonyl-N'-(2-hydroxybenzylidene)-, N-(1-adamantyl)carbonyl-N'-(2-hydroxy-5-bromobenzylidene)-, N-(1-adamantyl)carbonyl-N'-(2-hydroxy-3,5-dibromo benzylidene)-, 4-methoxy-N-(1-adamantyl)carbonyl-N'-(2-hydroxybenzylidene)-, 4-methoxy-N-(1-adamantyl)carbonyl-N'-(2-hydroxy-5-bromobenzylidene)-, 4-methoxy-N-(1-adamantyl)carbonyl-N'-(2-hydroxy-3,5-dibromobenzylidene)-ophenylenediamines are obtained. Structures of the compounds are confirmed by IR, UV and NMR spectra. Fig. 2, Ref. 13.

Auth.

b1.5 Earth and related environmental sciences

b15.1.5.1. Assessment of the geothermal potential of West Georgia. /G. Melikadze, N. Kapanadze, G. Kobzev, T. Jimsheladze, A. Sborshchikovi/. Nano Studies. – 2014. – #10. – pp. 123-128. – eng.

The geothermal potential of West Georgia is assessed. Fig. 4, Tab. 1, Ref. 5.

Ed.

b15.1.5.2. Security of cloud computing. /G. Nachkebia/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 106-110. – geo.; abs.: geo., eng., rus.

Cloud services are one of the powerful and growing directions of the development of modern information and communication technologies. The article deals with the issues concerning the securities of cloud computing. The issues concerning its physical security and legal side are discussed. The issues of maintenance of network security are discussed on the example of “Amazon”, one of the leader companies of cloud computing. Fig. 2, Ref. 4.

Auth.

b15.1.5.3. Mathematical modeling of the shore structure located at river channel for scouring deposition of sediment or small landslide masses. /A. Akhmedov, Kh. Iremashvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. - July 16-19. – 2015. – pp. 9-12. – rus.; abs.:geo., eng, rus.

Cheap and simple transversal spur type river shore structure having holes for scouring deposition of sediment or small landslide masses at specific parts of the river channel is proposed. Mathematical modeling of the characteristics of this structure action is developed. Fig. 3, Ref. 4.

Auth.

b15.1.5.4. River flow velocities' distribution at the transversal coast-protecting structure zone. /T. Gvelesiani, Kh. Iremashvili, A. Akhmedov, G. Berdzenashvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. - July 16-19. – 2015. – pp. 45-48. – eng.; abs.: geo., eng., rus.

The solution of the boundary value problem on the 3D ununiformed fluid motion in a river channel has been obtained formerly by T. Gvelesiani. This solution is used to plot for a concrete example the field of velocities at the coast-protecting transversal spur zone. Fig. 4, Ref. 3.

Auth.

b15.1.5.5. On prediction and prevention of debris flow's catastrophic impacts on hydraulic projects in mountain areas. /T. Gvelesiani, G. Jinjhashvili, G. Berdzenashvili, T. Stepania, G. Aronia/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. - July 16-19. – 2015. – pp. 49-54. – eng.; abs.: geo., eng., rus.

Topicality and research novelty of the problem on prediction and prevention of debris flow's negative environmental impact in mountainous regions as well as its great social, ecological and economic importance are specified. Fig. 3, Ref. 5.

Auth.

b15.1.5.6. Evaluation of the Black Sea water quality within Georgia. /R. Diakonidze, E. Shengelia, G. Chakhaia, L. Tsulukidze, Z. Varazashvili, T. Supatashvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 69-72. – geo.; abs.: geo., eng., rus.

The article is dedicated to the evaluation of the Black Sea water quality and protection of its ecological safety. It is true that one year research is not enough to evaluate the Black Sea water quality (laboratory researches are under way), but results of laboratory researches allow focus on the general approximate evaluation of laboratory research results at this stage. Ref. 6.

Auth.

b15.1.5.7. Global warming and the Black Sea level regime. /I. Iordanishvili, M. Vartanov, K. Iordanishvili, D. Potskhveria/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 102-114. – rus.; abs.: geo., eng., rus.

The results of analytical and *in situ* study of the Black Sea level regime on the Kolkheti coastal area are given. The Black Sea basin development factors and conditions and the level regime on the Kolkheti Lowland are presented and discussed. Fig. 7, Tab. 4, Ref. 9.

Auth.

b15.1.5.8. Influence of hydrogeological conditions on the dynamic of ground water and preserving ecological stability. /L. Maisaya, Kh. Kiknadze, A. Gogiashvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 166-168. – geo.; abs.: geo., eng., rus.

The article considers the influence of hydrogeological conditions on the dynamic of ground water and preserving the ecological stability. The irrigation regime of ground water as a type of technogenic regime, also the causative factors of hydrogeological conditions are discussed. Ref. 3.

Auth.

b15.1.5.9. Analysis of the basic data of wind and wave regimes in the Poti Black Ssea region. /I. Saghinadze, J. Kadaria, M. Kodua/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 244-248. – rus.; abs.: geo., eng., rus.

The paper presents the basic long-term observations and measurements of wind and wave regimes of the Poti Black Sea region. Analyzed is the impact of these factors on raising the sea water level and coastal currents. Tab. 5, Fig. 1, Ref. 5.

Auth.

b15.1.5.10. Determination of physical-chemical parameters of the River Duruji debris flow colloidal sediment and using it for agricultural purpose. /T. Supatashvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 255-260. – geo.; abs.: geo., eng., rus.

The article considers a research of physical and chemical parameters of the River Duruji colloidal sediment and of an experiment carried out by using said sediment. On the basis of the received results the conclusions and recommendation are presented. Fig. 1, Tab. 4, Ref. 4.

Auth.

b15.1.5.11. Mountain reservoir impact assessment criteria. /J. Panchulidze, G. Metreveli/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 288-292. – geo.; abs.: geo., eng., rus.

The features of an artificial reservoir – mountain reservoir - created in the vertical changeability zone of geographical elements: intensive sedimentation, significant impact on climate, sea coastal sustainability and the surrounding areas infrastructure security are discussed in the article. The main problem of the hydropower, coastal protection and population security is found to be the reservoir clogging as a result of intensive silting. The assessment of the inert material, or the "siltting prism", accumulated in the reservoirs and the river above it as a mineral wealth and the activation of a permanent conveyor "reservoir-seashore-user" for its utilization would be a solution to the problem. Ref. 9.

Auth.

b15.1.5.12. The evaluation and forecast of erosion-debris flow processes formed as a result of an ecocide taking place in Borjomi Valley in 2008. /G. Chakhaia, Z. Varazashvili, L. Tsulukidze, R. Diakonidze, I. Khubulava, T. Supatashvili, G. Omsarashvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 301-305. – geo.; abs.: geo., eng., rus.

In the Borjomi Valley, as a result of field reconnaissance exploration, in the Nagvarevi Ghele, near the village of Data, the debris flow phenomena provoked by negative results of ecocide (fire) was fixed. By using the globally tested

methodologies, the quantitative characteristics of the erosion-debris flow processes and a forecast to assess the risks of geodynamic processes running in Borjomi valley (the Nagvarevi Ghele catchment basin) were made. Fig. 2, Tab. 3, Ref. 7.

Auth.

b15.1.5.13. State of geological hazards and risks increasing trends in Georgia. /E. Tsereteli, M. Gaprindashvili, G. Gaprindashvili, O. Kurtsikidze, Ts. Donadze, T. Nanobashvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 306-317. – geo.; abs.: geo., eng., rus.

Areas affected by multi-spectrum elemental geological processes are of large scale in Georgia, associated with frequent repeatability, large economic losses and high risk of hazard. Around 70% of country's territory is within the range of risk of hazard. According to economic losses and human casualties, landslide – gravitational and mudflow phenomenon of exceptional heterogeneous character, through increasing in time interval is considered in the highest register. A complete understanding of hazardous risk of landslide – gravitational and mudflow processes in Georgia, allows currently developed special zoning maps in accordance with damage and hazardous risks. The principle of zoning is based on constantly determining (basic) process defining deterministic substrate, such as geological features of the environment, lithology, and energy potential of the relief, hydrogeological conditions and its sensitivity to these processes. The combination of time-variable, process provoking stochastic factors in non-stationary mode, determining recovery of geological environment from the established state of homeostasis and leading tension of physical fields to critical threshold, leads to the dynamics of landslide-gravitational mudflow processes from baseline conditions to the extreme. These types of maps represents basic ground for the assessment of the area, various directions of the economy and engineering activities and carrying out geo-monitoring studies of a regional nature. However, as landslide-gravitational mudflow processes represents ongoing drastically changing phenomenon through space and time in non-stationary dynamic mode, it is necessary, periodically (at least once every 10 years) to update these types of maps. For aforementioned reason, will serve received information, on the basis of permanently conducted regional geo-monitoring studies. Fig. 2, Tab. 2, Ref. 4.

Auth.

b15.1.5.14. Scientific basis of modern environmental monitoring. /Z. Charbadze/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 318-321. – rus.; abs.: geo., eng., rus.

The article presents information on the major scientific problem of monitoring. Its importance concerning the process change objectives, forecasting and management of these processes in the environment is defined. The anthropogenic understanding of monitoring, its global and regional challenges are specified focus is made on its three levels: ecological and hygienic monitoring, geosystem or natural economic and the biospheric. Ref. 2.

Auth.

b15.1.5.15. Analysis and prospects of modern anti-debris flow measures. /I. Khubulava/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 327-331. – geo.; abs.: geo., eng., rus.

The paper gives the general classification of anti-debris flow measures, considering their purpose and conditions of use. Analysis of the data obtained from the laboratory and theoretical studies of modern standard structures built on the principle of streamlining is made. The prospects of their introduction are also evaluated. Fig. 5, Tab. 1, Ref. 7.

Auth.

b1.6 Biological sciences

b15.1.6.1. Biological method of plant protection from root rot. /Sh. Kanchaveli/. GEN. – 2014. – #4. – pp. 80-83. – rus.; abs.: eng.

Plant root rot is one of the main diseases that stand out for its harm. The method of biological protection is one of the most effective among the root rot control measures. For biological protection, fungus antagonists, fungus – hyperparasites and cross plant protection can be used. The fungal genus *Trichoderma* was tested from fungus antagonists (*T. viride*, *T. harzianum*, *T. koningi*) and biocatena – a biopreparation of local production was prepared on their strains. The latter was introduced into the root in the form of a spore suspension and a good result was gained. From fungus hyperparasites, *P. oligandrum* was tested, beet seeds were treated before sowing by its spore suspension. This caused not only the restriction of phytopatogens in the rhizosphere, but also the improvement of the germination ability. During cross plant protection, young plants which were weakened by nonvirulent strains got diseased that caused the activation of natural immunity of the plant. Ref. 5.

Auth.

b15.1.6.2. Asai – a berry crops with safe, antioxidant high nutritional value. /M. Garuchava/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 91-94. – geo.; abs.: geo., eng., rus.

The paper indicates that in order to avoid possible world hunger the humanity needs to search for new different plant and animal cultures and create innovative technology on this basis. Chemical, biochemists and microbiological composition of Asai berry crop are discussed. Its content of nutrients and nutritional value are discussed. In comparison with other crops, Asai has unique antioxidant properties and is the best antioxidant berry crop. Fig. 1, Tab. 2, Ref. 3.

Auth.

b15.1.6.3. Results of faunistic study of Georgian freshwater hairworms (Nematomorpha: Gordiida). /N. Kintsurashvili, A. Schmidt-Rhaesa/. Actual Problems of Parasitology in Georgia. XII Intern. Scient. Conf. Tbilisi. – 2014. – V. XII. – pp. 132-138. – geo.; abs.: geo., rus., eng.

This study encompasses the results of faunistic investigations of Georgian freshwater hairworms using light and scanning electron microscopy from the following regions: Imereti, Ajara, Borjomi-Kharagauli National Park and Tbilisi. We have identified six new species: *Gordius aquaticus*, Linnaeus, 1758. *Chordodes anthophorus*, Kirjanova, 1950. *Spinochordodes* sp. [Gorgadze, Schmidt-Rhaesa, Kintsurashvili, 2008]; *Gordionus violaceus*, Baird, 1853 [Gorgadze, Schmidt-Rhaesa, Kintsurashvili, 2012]; *Gordionus lineatus*, Leidy, 1851., *Chordodesparabipilus*, [Kintsurashvili, Schmidt-Rhaesa, Gorgadze, 2011]. Genus *Gordionus* is registered for the first time for Georgian fauna; *Chordodes parabipilus* is a new species. We plan to extend our faunistic studies of freshwater hairworms in other regions of Georgia. Fig. 1, Ref. 8.

Auth.

b15.1.6.4. Efficacy of *Steinernema carpocapsae* in the biological control of *Mesembrina meridionalis* (Muscidae). /M. Lortkipanidze, O. Gorgadze, M. Kuchava, M. Kokhia, N. Gratiashvili, N. Gabroshvili/. Actual Problems of Parasitology in Georgia. XII Intern. Scient. Conf. Tbilisi. – 2014. – V. XII. – pp. 139-143. – geo.; abs.: geo., rus., eng.

This paper presents the results of using entomopathogenic nematodes *Steinernema carpocapsae* for biological control of cattle fly *Mesembrina meridionalis* under field conditions. In the experiment were used fly larvae and pupae (50-50) colonized in 2 kg cattle dung. For infestation of insects the nematode suspension with certain concentration – the titre of 10 000 IJs/ml was prepared. Three test samples were taken, to each dung sample was added - 70, 50, 25 ml from the mentioned suspension. Appropriately, in test sample 1 the number of nematodes made 350 per 1 g dung, in test sample 2 - 250 and in test sample 3 - 125. Thus, we can conclude that no less than 350 nematodes should be used for biological control of cattle fly larvae and pupae. Fig. 1, Ref. 5.

Auth.

b15.1.6.5. Investigation of DNA synthesis intensity among the functionally distinguished flight muscles in the process of locust development. /G. Papidze, Ts. Sumbadze, N. Gachechiladze, O. Akhmetelashvili/. Bulletin of the Georgian National Academy of Sciences. – 2014. – Vol. 8, #1. – pp. 118–121. – eng.; abs.: eng., geo.

DNA synthesis intensity (³H-thymidine was used as a marker) among functionally different monofunctional (MOF) and bifunctional (BIF) flight muscles (dorsal longitudinal 112, tergosternal 113, tergocoxal 119,120) in the process of locust development (the 5th age larva, one-day and mature imago) was investigated. It was determined that the intensity of DNA synthesis in the locust functionally different MOF and BIF flight muscles of one-day imago is several times higher than that of the 5th age larva and mature imago. In MOF muscle 112 of one-day imago as well as in the case of mature locust the level of DNA synthesis was low. The difference among DNA synthesis in other muscles (113, 119,120), as well as in the case of MOF and BIF muscles of the 5th age larva was not observed. The sufficient difference among DNA synthesis in MOF and BIF muscles in the process of locust development was not observed. Tab. 1, Fig. 1. Ref. 16.

Auth.

b15.1.6.6. Carnivorous plants, feeding, digestion and trapping mechanisms. /N. Gvinianidze/. Novation. – 2015. – #15. – pp. 77-80. – geo.; abs.: geo., eng., rus.

The paper deals with the behavior of the carnivorous plants in all aspects ranging from trapping the victim to its digestion. Some representatives of carnivorous plants capture their prey by means of passive traps. Such traps are deep and have the form of a bowl. When an insect touches the trap, it is stuck and cannot escape. This time the plant begins the secretion of digestive enzymes. This causes the death of the insect and the digestion process begins. In such cases trapping mechanisms are covered with adhesive substances. From chemical point of view they are carbohydrates. These substances are produced in gland-tipped hairs on the leaves of carnivorous plants. In case of active traps an insect is stuck to the leaf and then is wrapped in special hairs. The catching mechanism uses the principle of a trap. In all cases, the plant attracts insects through polysaccharide mucus or nectar. These substances are produced either in a trap or in glands that are located around it. Ref. 8.

Auth.

b15.1.6.7. Results of field research in the Black Sea coastline within the borders of Georgia in April 2015. /A. Gavardashvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 23-29. – geo.; abs.: geo., eng., rus.

The field-precognitive research was carried out on the Black Sea coastline of 110 km length within the boarder of Georgia on April 21-30, 2015 in order to assess the modern ecological problems. The sea water samples were taken from the 35 points chosen from Sarpi to Ganmukhuri area. The coordinates were determined using the GPS and the water (*t*₁) and air temperatures (*t*₂) were measured, which relative values vary from 0,74 to 1,00; acidity (PH) was 8,11–8,69 and salinity of the water (TDS) was within 3,84–13,50. Fig. 3, Tab. 1, Ref. 5.

Auth.

b15.1.6.8. Introduction of modern risk methodologies for provision of security measures for population located in disaster areas in case of failures of high earthen dams. /G. Gavardashvili, B. Ayub, K. Bziava/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 30-39. – eng.; abs.: geo., eng., rus.

The main goal of the research is the development and introduction of a regional strategy and action plan for managing risks due to natural and human-caused hazards (including terrorism) for South Caucasus regions including Armenia, Azerbaijan and Georgia, taking into consideration the Hyogo international strategy (Hyogo Declaration and Hyogo Framework for Action) for 2005-2015 years (18-22 January, 2005, Kobe, Hyogo prefecture, Japan) to reduce disaster

risk. The main attention is given towards use a formal risk analysis framework, such as the Critical Asset and Portfolio Risk Analysis (CAPRA) method, to examine human-caused threats, such as terrorism events, and natural hazards, such as flooding due to dam failures, with a focus on potential failure modes due to deterioration. Three case studies of dams in Armenia, Azerbaijan, and Georgia will be developed including the use of monitoring systems and the statistical analysis of collected data. Fig. 1, Tab. 1, Ref. 5.

Auth.

b15.1.6.9. The green covering arrangement on the roofs of buildings and constructions of Georgian cities and towns to improve the ecological situation. /Z. Ezugbaia, I. Iremashvili, N. Mskhiladze, Sh. Cheishvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 73-85. – geo.; abs.: geo., eng., rus.

The issues related to the innovation technology of green covering arrangement on the roofs of buildings and constructions are overviewed. The green coverage kinds (types) and the detailed data of the construction are given. The appropriate conclusion, given in the work, shows that this kind of coverings is better than the traditional roofs. Fig. 20, Tab. 1, Ref. 8.

Auth.

b15.1.6.10. Phytochemical study of the leaves of lily (Syringa Vulgaris L.) growing in Georgia. / N. Bikashvili, A. Bozhadze, M. Jokhadze, D. Chincharadze, D. Berashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.35-36. – geo.; abs.: eng.

Lily (*Syringa*) is perennial, shrub or small tree in the olive family (*Oleaceae*); *Syringa* is a genus of 30 currently recognized species. *Syringa vulgaris* L. is a most widely used among other species of *Syringa*. The purpose of research was phytochemical study of leaves of *S. vulgaris* growing in Georgia. Based on phytochemical researches were identified 25 phenolic compounds (among them 16 flavonoids and 9 phenolic acids); Linoleic and palmitic acids were identified in chloroformic fraction; homoprotocatechic acid and limonene - in butanolic fraction; 2-methoxy-4-vinylphenol, silicium 2-methylcinnamoyl acid ester, 2,5-dimethyl-3-furan carboxylic hydrazide, 9-butyl-1,2,3,4-tetrahydro anthracene, sitosterol, tyrosol, dihydrocoumarin, methylbenzaldehyde in the ethyl acetate fraction. Some analytical characteristics of syringe leaves were determined: humidity (10-12%), ash (7-11%), extractive compounds (25-28%), tannins (10-14%), flavonoids (1%). Tab. 2, Ref. 5.

Auth.

b15.1.6.11. Microbiological examination of medical waste in obstetric and gynecological department. /D. Kobeshavidze, D. Chikviladze, Kh. Gachechiladze, M. Mikeladze/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. - pp.99 – 102. – geo.; abs.: eng.

The article presents the data of microbiological examination of medical waste samples taken in the obstetric and gynecological departments. Examination was carried out during 2014 year. Microorganisms, which in some cases were isolated from disinfected medical waste, showed poly-resistance to antibiotics, stability to disinfectants and were more virulent in comparison to microorganisms which had been isolated before disinfection. All this indicates the possibility of their nosocomial origin. Thereby, permanent microbiological examination of medical waste samples, which were in direct contact with patient's excreta, may be regarded as one of the methods of detection of hospital strains. Tab. 2, Ref. 8.

Auth.

b15.1.6.12. Spleen cell specificity of gnotobionts in regard to age. /B. Kochlamazashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. - pp.106 – 109. – geo.; abs.: eng.

Immuno-morphologic investigation with morphometry of cyto-architecture of spleen of regular (conventional) and germfree (gnotobionts) white rats of different age was performed. The results of study showed that generally spleen lymphoid tissue of gnotobionts unlike conventional ones do not reduce during aging. In follicles, despite of simplifying anti-genic loading, has been increased (in comparison with the control) phagocytic activity, enhancing with the aging process. Has been indicated aging increasing of T-lymphocytes' number on the background of unchanged number (comparing with the control, not depending on age) of B-cells. So, concerning the age-related changes it can be said that lymphopoietic potential of gnotobionts' spleen depends not on the "external" environmental antigenic stimuli, but on the influence of "internal" (deposition, hemokatharsis) factors, creating "local" conditions for antigenic stimulation of the organ. Tab. 3, Ref. 8.

Auth.

b15.1.6.13. In vitro antifungal activity of several species of the genus Allium L. growing in Georgia. /M. Maisashvili, J. Kuchukhidze, D. Chincharadze, M. Jokhadze, A. Favel/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. - pp.115 – 117. – eng.; abs.: geo.

The genus *Allium* contains 500 species. 38 species grow in Georgia. This genus is a rich source of steroidal saponins. Which are characterized by a wide range of their biological actions. *In vitro* antifungal activities of pure compounds, as well as crude extract were evaluated. Among pure compounds a spirostanol saponin aginoside – (25R), 5 α -spirostan – 2 α , 3 α , 6 α – triol 3-O- β -D- glucopyranosyl – (1 \rightarrow 2)-[β -D-xylopyranosyl-(1 \rightarrow 3)] – β -D- glucopyranosyl- (1 \rightarrow 4)- β -D-galactopyranoside, had a higher antifungal active on the most yeast tested (with a MCF from 6.25 to 12.5 mg/ml). Among crude extracts the most active was the sum of steroidal saponins from *Allium rotundum* (MCF < 12.5 mg/ml). Tab. 1, Ref. 13.

Auth.

b15.1.6.14. Validation of the HPLC quantitative analysis method of aginoside in the flowers of Allium Rotundum. /M. Maisashvili, M. Jokhadze, D. Chincharadze, L. Zardiashvili, J. Kuchukhidze/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. - pp.117 – 119. – geo.; abs.: eng.

According to the modern requirement of validation we have established all the parameters for the LC assay method we have developed. These parameters include – specificity, linearity, precision, repeatability, detection limit, quantification limit. The validation of the listed studies has shown us that the presented method is repeatable, precise and fast. It also allows the precise assay of aginoside in the presence of other steroidal saponins a feature important for the standardization of sum preparations. Tab. 4, Ref. 6.

Auth.

b2. ENGINEERING AND TECHNOLOGY

b2.1 Civil engineering (Construction)

b15.2.1.1. Renovation of the architectural – planning structures of public centres of Baku. /I. Isbatov/. Transactions of Technical University of Georgia. – 2015. – #1(495). – pp.58-62. – rus.; abs.: rus., geo., eng.

The Centre of Baku, which is the administrative centre of the Republic of Azerbaijan performs the functions of inter-settlement services and is organized taking into account the population's urging towards the city centre (downtown). Along with the main city centre, the system of city centre of Baku includes specialized centres, residential areas, places of work and rest. The functional content of Baku community centres is multifunctional and specialized. Versatility is common to all centres providing comprehensive service of different territorial units of the city - planning and residential areas, places of work and rest. The most multifunctional is the centre of Baku. At the same time, therapeutic, sports, educational and other centres are being formed in Baku. Ref. 7.

Auth.

b15.2.1.2. The role of deployment of oil-extracting areas in the development of industrial and residential areas in Azerbaijan. /A. Azizov/. Transactions of Technical University of Georgia. – 2015. – #1(495). – pp. 63-66. – rus.; abs.: rus., geo., eng.

The oil bearing areas, as complex territorial and industrial sections, have been formed under specific urban development, economic and cultural conditions so that their logistical degree, residential districts, the number of residents, the area, etc. are different. Ref. 3.

Auth.

b15.2.1.3. Logistic systems of passengers' transportation. /T. Gorshkovi, N. Butkhuzi/. Transport and Machinebuilding. – 2014. – #3(31). – pp.73-79. – geo.; abs.: geo., rus., eng.

The article considers the structure of logistic systems of passengers' transportation and the functional meaning of management at both the macro and micro level. A scheme of the quality of transport service's perimeters is introduced. The principles, which are needed for design of logistical systems for passengers' transportation and for its creation, are presented. A group of factors defining the relocation of population by transport is considered. An information model that provides differentiation of passengers' demands under the impact of external factors is proposed. Tab. 1, Ref. 4.

Auth.

b15.2.1.4. Methods of increasing visualization of a drawing (I). /T. Beridze, N. Nozadze, M. Dzidziguri/. Transport and Machinebuilding. – 2014. – #3(31). – pp.90-94. – geo.; abs.: geo., rus., eng.

The modern engineer-designer uses various types of graphic images. Perspective image fully reflects the visual impressions that observer gets in real conditions. To achieve this, one of the key issues is correct selection of a point of view for constructing the perspective image. Fig. 9, Ref. 3.

Auth.

b15.2.1.5. Methods of increasing visualization of a drawing (II). /T. Beridze, N. Nozadze, M. Dzidziguri/. Transport and Machinebuilding. – 2014. – #3(31). – pp.135-140. – geo.; abs.: geo., rus., eng.

At the initial stage of designing for the purpose of improved understanding of the drawing the perspective and axonometric images are used together with working drawings. The perspective images of figures allow to verify in the process of designing the planned composition in accordance of scale, constituents and other requirements. Fig. 5, Ref. 3.

Auth.

b15.2.1.6. Selection of road transport using generalized optimization parameters. /D. Pridonashvili, R. Tedoradze/. Transport and Machinebuilding. – 2014. – #3(31). – pp.95-98. – geo.; abs.: geo., rus., eng.

To evaluate the vehicle effectiveness, the article presents the methods based on generalized technical parameters of optimization, the so-called performance efficiency factor. The latter provides for the basic vehicle's performance figures: the average speed and fuel consumption. A recommendation on the assessment and selection of different vehicles by comparing their performance efficiency factor is presented. The proposed methods are specified. Ref. 3.

Auth.

b15.2.1.7. Differentiating the technical readiness coefficient of vehicles according to output. /V. Lekiasvili, N. Baratashvili/. Transport and Machinebuilding. – 2014. – #3(31). – pp.122-126. – geo.; abs.: geo., rus., eng.

The efficiency of motor road transport rolling stock largely depends on the reliability of management principles and methods of improvement. This is the prime characteristic of the complex indicator of reliability - the coefficient of technical readiness. It fully reflects the level of reliability of the vehicle and assesses the magnitude of the idle running caused by technical problems. Based on this position, its optimization should be carried out given the target function of

reduction, which is possible by respective differentiating of the mentioned coefficient throughout the operational period. The method is based on the analysis and assessment of the vehicle reliability indicator, which is a necessary condition for the improvement of efficiency. Fig. 1, Ref. 2.

Auth.

b15.2.1.8. Braking of the car by anti-blocking system of wheels. /V. Kharitonashvili, N. Chichinadze/. Transport and Machinebuilding. – 2014. – #3(31). – pp.176-180. – geo.; abs.: geo., rus., eng.

The anti-blocking ABS system is not a system of automatic braking of the car; its task is to ensure the efficiency of braking and safety. Perfect as the ABS system may be, the guarantor of active traffic safety of the car is still the driver, who is obliged to consider road situations and real structural possibilities of the car. The duty and responsibility for timely braking of the car is conferred on the driver. When studying a road and transport incident, the examination should take into account both the technical condition of the ABS system and paving and the psychophysiological condition of the driver. Ref. 2.

Auth.

b15.2.1.9. On the car maneuver parameter determination. /V. Kharitonashvili, N. Chichinadze/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 77-84. – geo.; abs.: geo., eng., rus.

An option of traffic accident study associated with the driver's technical possibility to avoid the accident is considered. Tab. 1., Fig. 1, Ref. 6.

Auth.

b15.2.1.10. Structure of municipal economy. /V. Kiria/. Gaenati Herald. – 2015. – vol. II, #4. – pp. 10-17. – geo.; abs.: geo., rus., eng.

Municipal economy is the complex of enterprises, organizations and economies, which operates at the territories of cities and urban-type settlements and satisfies vital material-and-cultural and household requirements of humans, who are resident at these territories. During operation the facilities of municipal economy are grouped from the viewpoint of periodicity of rendered services, administrative and territorial features and operations management. Ref. 6.

Auth.

b15.2.1.11. Unmanned ground vehicles modeling and control. /B. Meparishvili, G. Janelidze/. Automated Control Systems. – 2015. – #1(19). – pp.23-29. – eng.; abs.: geo., eng., rus.

The main goal of the paper is the elaboration of new scientific approaches based on collective behavior of social systems. Irrespective of the fact that many target evolutionary algorithms, the modern decision-making procedures are based on multi-agent modeling methods, the approaches developed by the authors can be considered as a new engineering calculation paradigm that is based on the entropy and synergy methods characteristic of dynamic systems. If a complex system is considered as an interactive, multi-agent heterogeneous chaotic system with a multidimensional, complex hierarchical structure, than its modeling will represent the most complicated problem. This is conditioned by existence of both the nonlinear and fuzzy factor, which is correspondingly associated with a rather high degree of behavioral freedom of social systems. Ref.5.

Auth.

b15.2.1.12. Analysis of buildings for dynamic oscillations taking into account the linear strengthening of material. /T. Batsikadze, D. Tabatadze, V. Sokhadze/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 17-22. – geo.; abs.: geo., eng, rus.

The issue of research of the strained state of buildings that within each storey are working on shear is considered. The oscillations result from the impulse displacement of ground, while the load-bearing elements of structures could undergo elastic-plastic displacements. As for the force-displacement relation, it is presented as bi-linear, i.e. the material of load bearing structures is linearly strengthening. The results of two- and sixteen-storey buildings analysis are presented. It is indicated that on a bi-linear diagram the smooth transition from one line to another significantly improves the convergence of iteration process of simultaneous equations solution. Fig. 4, Ref. 3.

Auth.

b15.2.1.13. Maximum molecular water-absorbing capacity as a soil classification indicator. /L. Itriashvili, E. Khosroshvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 115-118. – rus.; abs.: geo., eng., rus.

Soil classification on the basis of the granulometric content is discussed. The discrepancy of this classification with field and laboratory conditions is shown. The classification is proposed based on the existing data analysis, which for its part is based on soil gradation according to the maximum molecular water-absorbing capacity. Tab. 1, Ref. 9.

Auth.

b15.2.1.14. Calculating the systematic horizontal drainage under condition of unsteady movement of ground water. /Sh. Kupreishvili, P. Sichinava, Z. Lobghanidze, K. Dadiani, N. Beraia/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental Protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 136-139. – geo.; abs.: geo., eng., rus.

It has been established that calculation of a distance between drains must be carried out taking into account the unsteady regime of ground water. The water balance equation calculated upon location on the waterproof drain layer is proposed. Fig. 1, Ref. 4.

Auth.

b2.2 Electrical engineering; information engineering

b15.2.2.1. Modern systems of automation for refrigeration equipment. /K. Partskhaladze, G. Kvirikashvili, G. Khachapuridze/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 15-21. – geo.; abs.: geo., eng., rus.

At present, the technical improvement of refrigeration and air conditioning systems passes through the application of the latest achievements in the field of automatic control. Automatics in refrigeration perform the functions of alarm, control, protection, regulation and management. For this, electronic blocks - controllers, which manage the process according to the given algorithm, have been developed and applied. The latest system in this area receives information from multiple controllers on the monitoring server. It keeps logs of the measured parameters, performs signal processing and provides a connection to the system via a modem, local area network or over the Internet. The maintenance of such systems requires special training of staff. Ref. 2.

Auth.

b15.2.2.2. Development of universal system block of automatic regulation for refrigerator trucks. /G. Khachapuridze, K. Partskhaladze/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 22-30. – geo.; abs.: geo., eng., rus.

It is known that some refrigeration units manufactured before 2000, which is the majority of truck refrigerators operating exploited in Georgia, are not equipped with automatic temperature control systems in the cargo section. This conditions increased energy consumption. The proposed automatic temperature control block, developed on the basis of temperature controller ELIWEL 974 provides for a positive effect. Fig. 2, Ref. 1.

Auth.

b15.2.2.3. The issues of information security in automated personnel management systems. /N. Chaduneli/. GEN. – 2014. – #2. – pp. 41-44. – geo.; abs.: eng.

The paper deals with the information security of automated personnel management systems. The problem of guaranteeing such security is analyzed on the basis of a specific character of processing of personal data and a technique of selection of appropriate measures and means. The legal base and standards concerning the information security in the sphere of interest are discussed. Ref. 9.

Auth.

b15.2.2.4. The impact of the pulse-width modulation frequency on the operation and dynamic properties of the transistor converter. /N. Kvrivishvili/. GEN. – 2014. – #2. – pp. 21-25. – eng.; abs.: rus.

By a definite example, the development of a mathematical model of the pulse device approximating the reality by means of frequency links is shown. The emphasis is made on understanding and judgment of the physical essence of dynamic properties and the operation of the modeled pulse device. Without their clear understanding, the objective analysis is impossible. The dependence of the target signal on the frequency of the operating signal was established by the construction of frequency characteristics of the device. The results of this work can be used in designing the control circuits of direct current electric drives, and also various pulse devices. Fig. 5, Ref. 3.

Auth.

b15.2.2.5. The problem of the communication service quality in modern telecommunications. /R. Svanidze, M. Chkhaidze, Z. Gudzuadze/. GEN. – 2014. – #2. – pp. 45-50. – geo.; abs.: eng.

The paper deals with the quality of communication service in modern telecommunication networks. The state of art in Georgia is discussed. There are considered the issues of monitoring and supervision, the organizations involved, a scheme of assessment of the communication quality, approaches to the improvement of the communication quality, the ETSI (European Telecommunications Standardization Institute) model of assessment of the communication service quality, the Service Layer Agreement (SLA), etc. A system for monitoring the telecommunication quality in Georgia was developed, a typical testing complex for mobile communication was composed, etc. The expected results of the monitoring of the communication service in Georgia, in case such monitoring would take place, are assessed. Fig.4, Tab. 1, Ref. 11.

Auth.

b15.2.2.6. Determination of the power of distortion on the basis of the results of expansion of voltage and current curves into fourier series. /T. Museliani, I. Katamadze, M. Bakhtadze/. GEN. – 2014. – #4. – pp. 19-24. – geo.; abs.: eng.

Based on the theory of electric circuits, an expression for calculation of the power of distortion in electric circuits without preliminary determination of total, active and reactive power was derived. This expression allows determining the power of distortion by the results of expansion of voltage and current oscillograms into Fourier series. It makes possible to analyze the processes proceeding in electric circuits. Fig. 1, Ref. 6.

Auth.

b15.2.2.7. Some technological characteristics of a new coated arc-welding electrode. /M. Khutsishvili, A. Sulamanidze, G. Dadianidze, O. Nikolava/. GEN. – 2014. – #4. – pp. 39-43. – geo.; abs.: eng.

New coated electrodes for manual arc welding are characterized of good technological indices. When the non-melted tip of the new coated electrode comes in contact with the basic metal, the loop is readily closed, and the arc is generated, the second initiation of the arc is expected. The slag formed during welding guarantees proper formation of the weld and is easily removed after cooling. The burning-out and splashing losses suit the requirements. There are not observed cracks, peeling or surface pores in the weld. Fig. 3, Ref. 8.

Auth.

b15.2.2.8. Designing of the system board on the basis of an asynchronous serial bus. /A. Benashvili, G. Benashvili, S. Sulkhaniashvili/. GEN. – 2015. – #1. – pp. 57-60. – eng.; abs.: rus.

The paper deals with the issues regarding the modification of the design of the system board based on an asynchronous serial bus. Particularly, the usage of an asynchronous serial bus instead of a synchronous parallel one is proposed. This modification simplifies the design of the motherboard, increases its speed and significantly decreases the consumed power. Fig. 1, Tab. 1, Ref. 5.

Auth.

b15.2.2.9. A new approach to the problem of the semantic theory of information. /G. Lezhava, I. Kamkamidze, Z. Berikishvili, A. Vardosanidze, E. Mkrtichian, T. Dalaqishvili/. GEN. – 2015. – #1. – pp. 114-119. – geo.; abs.: eng.

The paper deals with the processor of an inductive inference as a receiver of information. The possibility of creation and development of the bases of the semantic theory of information is shown. In particular, the new description obtained with the help of sensors according to its content can be attributed to some class fixed in memory, or a new class can be created. The calculation of the quantity of the information of the new description obtained with the help of sensors is possible as well. Ref. 7.

Auth.

b15.2.2.10. Designing of a new tweakable block cipher by using the modified hill's algorithm. /L. Julakidze, Z. Kochladze, T. Kaishauri/. GEN. – 2015. – #1. – pp. 50-56. – geo.; abs.: eng.

A new method of ciphering is proposed. The method was developed by using the Hill's method. A new tweakable block cipher was designed. The algorithm is cryptoresistant to all currently available methods of cryptanalysis. Ref. 7.

Auth.

b15.2.2.11. Questions of planning of information infrastructure in the modern organizations. /I. Kartvelishvili, T. Todua/. Computer Sciences and Telecommunications. – 2014. – #4(44). – pp. 11-14. – geo.; abs.: geo., eng., rus.

The paper presents methods for creation of information infrastructure and the necessary hardware and software tools for this. The paper discusses the role of a local computer network in creation and normal functioning of informational infrastructure. Also discusses the methods and means for information processing and its security. Fig. 1, Ref. 3.

Auth.

b15.2.2.12. Aspects of creation of secure channel of communication on the basis of the virtual private network (VPN). /I. Kartvelishvili, T. Todua/. Computer Sciences and Telecommunications. – 2014. – #4(44). – pp. 15-20. – geo.; abs.: geo., eng., rus.

Information technologies play a crucial role in effective functioning and control for any companies. In the conditions of operational accessibility of necessary information it is possible adequate evaluation of current situation and making timely decision. At the same time, information must be available only to those to whom it is intended and unavailable - to all remaining. After that the different companies and organizations has started actively using computers in their activities, arose a need that these computers were integrated in a united network for fast information transfer and effective interconnection. This connection must be reliable and secure. Proceeding from all the above-mentioned, organizations became interested in possibility of using of Internet channels. However, the principles of building of the Internet give the chance to malefactors, to steal and distort information purposely. Corporate and broadcasting networks which are based on TCP/IP protocols and are constructed on standard Internet applications (E-mail, Web, FTP), have no warranty from invasion of unauthorized persons. In article the technology of creation of the virtual private networks (VPN) which is one of the optimum variants for creation of secure channel of communication is considered. Fig. 1, Ref. 3.

Auth.

b15.2.2.13. Econometric modeling of long-term optimal regulation of electricity transmission tariff. /D. Japaridze, N. Kikabidze/. Computer Sciences and Telecommunications. – 2014. – #2(42). – pp. 21-38. – geo.; abs.: geo., eng., rus.

The article presents formulation of long-term, optimal criteria for regulating transmission tariff of electricity, based on analysis of the world long-term experience. The criteria determine transmission tariff in reflected conditions long-term internal rate of return on invested capital, which is foreseen in the tariff established by regulating authorities for the electricity transmission licensee energy companies, and it includes all the factors reflected on the entire income of the energy company and amount of electricity supplied to the consumers. Based on the criteria is developed a methodology, determining marginal planning indices of economic parameters defining amount of needed income of energy company and amount of electricity supplied to the consumers and econometric modeling of electricity transmission long-term optimal regulating tariff. The proposed methodology is tested on the example of Georgian power system. Research evidence shows that electricity transmission tariffs in Georgia are set unfairly. In fact, the tariff is likely to be more than twice the current rate and for the 5-year period Tariff for electricity transmission shall be between $1.05 \div 1$ tetri / kW. Fig. 3, Tab. 9, Ref. 27.

Auth.

b15.2.2.14. Construction of electronic election system with multimedia databases and client-server architecture. /G. Surguladze, N. Topuria, G. Basiladze, N. Kiviladze, M. Neparidze/. Computer Sciences and Telecommunications. – 2014. – #2(42). – pp. 39-86. – geo.; abs.: geo., eng., rus.

Proposed is the electronic voting system as a complex and large system of modeling, object-oriented software design and implementation issues in process. The problem-solving experience from overseas, the existing methods, architecture, principles and models, which are necessary for the successful introduction of an electronic voting system, are analyzed. The concept of building a state level safe network and its architecture are proposed. The necessary relational multimedia data bases are designed for the electronic voting system. In this point of view the usage of

categorical modeling methods in design and object - oriented CASE - technologies are reviewed. Logically whole client - server architecture and physically separated relational database system is developed, based on object-role modeling principles and appropriate graph-analytical tools. The principles of safe and reliable network operations in the proposed electronic voting system are reviewed for modern communication base facilities. The experimental pilot software versions of the multimedia electronic voting system is implemented on the basis of new information technologies, such as Visual Studio.Net, SQL Server, ORM / ERM, VPN technologies and software packages, used new technologies: Windows Presentation Foundation (WPF) and Windows Communication Foundation (WCF), and Metro Style App. Fig. 25, Tab. 1, Ref. 19.

Auth.

b15.2.2.15. The main means of communication on the internet public relations. /A. Prangishvili, S. Kvirikashvili, O. Namicheishvili/. Automated Control Systems. – 2015. – #1(19). – pp. 7-12. – geo.; abs.: geo., eng., rus.

Widespread communication tools in the history of the development of the modern world Internet constitutes a communication method. Interaction with mass media and the Internet is as important as its traditional relationship and being almost the same scheme. The following factors may contribute to the development of the Union: rising awareness, disposal of materials on its website, on the created by the publication of the article, which will lead the firm's attention, and the idea of the product. Finally, it can be said that the above-mentioned means of effective measures Relations Society, which is so widely practiced in the leading countries and in our country is a modern means of communication. Ref. 3.

Auth.

b15.2.2.16. Nonstandard block-structured symmetrical crypto algorithm. /V. Kutsiava, A. Kutsiava, G. Gogoladze/. Automated Control Systems. – 2015. – #1(19). – pp.30-37. – geo.; abs.: geo., eng., rus.

The paper describes nonstandard block-structured symmetrical crypto algorithm for data encoding, where original method of generating and encoding procedure for the value of the secret key is used. The secret key with the random value is the multiplicity of serial decimal digits. This key is formed as a result of performing certain procedures entailed in the algorithm by the legal subscribers of the corporate network and its value is not known by service personnel. This algorithm enables to encode open text composed from any number of symbols presented by decimal system of ASCII or EBCDIC code. None of the real values of the parameters used in encoding procedures are transmitted through connection line of the corporate network. Presented algorithms are characterized by high crypto durability and speed. Tab. 4, Ref. 3.

Auth.

b15.2.2.17. Design and technological bases of robotization of sewing and shoe production. /T. Uriadmkoheli/. Novation. – 2015. – #15. – pp. 175-178. – geo.; abs.: geo., eng., rus.

The work is devoted to the development of design and technological bases of robotization of sewing and shoemak production. It is shown that the preparation of production for robotization is connected with the following problems: 1) optimization and development of engineering requirements to technological processes, 2) the technological analysis of the objects of robotization, 3) preparation of technical means (machinery and equipment) for implementing the robotization processes, 4) assessment of quality of performance of technological operations and transitions under conditions of robotization of production. Recommendations for practical realization of the robotization of sewing and shoemaking production are formed. Ref. 2.

Auth.

b15.2.2.18. Modeling of real time at management of business processes. /T. Sukhiashvili/. Automated Control Systems. – 2015. – #1(19). – pp.56 - 59. – geo.; abs.: geo., eng., rus.

Automation of management of business processes demands creation of the distributed, multilevel systems which function in real time. Therefore, when developing similar systems significantly representation of temporary restrictions and the situation changes of individual objects in time. At interaction in parallel of the proceeding processes, for development of systems of desirable productivity, it is also necessary to provide temporary restrictions between them. The temporary chart is applied to their modeling in the unified language (UML 2). In article development of the temporary chart for the different cases created in system and on their basis of means of the analysis of system on the basis of UML technology is considered. Fig. 3, Ref. 2.

Auth.

b15.2.2.19. Management of web services coordination via business-process execution language. /E. Turkia, D. Kaliashvili/. Automated Control Systems. – 2015. – #1(19). – pp.60 - 64. – geo.; abs.: geo., eng., rus.

The article presents modeling and implementation of software via modern approaches of information technology. Discussed topics include design of software by service-oriented architecture, business-process automation through web-services, process modeling and Web services coordination management using business processes Execution language. Business Process Execution Language implements the execution of scenarios that are modeled in the Business Process management notation. Practical examples of workflow and court fee payment services in the court system are presented as scenarios. On the basis of those services, remote objects modeling fragments in the horizontal and vertical informational connection case using web services and business process execution language are offered. Fig. 2, Ref. 4.

Auth.

b15.2.2.20. Operating performance of the project management. /G. Nareshelashvili, T. Sherozia, I. Nacvlshvil/. Automated Control Systems. – 2015. – #1(19). – pp.65-68. – geo.; abs.: geo., eng., rus.

The article deals with the duration of the project operational task. The main indicator is the project completion time. In cases where the project predictable completion time will vary predictably, origins need for operational management to

complete the unfinished project. Realization of this action require a certain expense or raises the optimal exposure to the optimal activity. for the effectiveness criteria is used financial features, which are dependent on duration of the project and expenses of the work. The client must take into account the activity of the performer managers and their salary should be coordinated with the client's interests. Such mechanism is used as a material stimulation in the determined systems that operate in the external and internal parameters in full awareness condition. Ref. 4.

Auth.

b15.2.2.21. Review of used modulation equipment in wireless networks and authentication mechanisms. /G. Gamdlishvili, V. Adamia/. Automated Control Systems. – 2015. – #1(19). – pp.69-73. – geo.; abs.: geo., eng., rus.

The article presents flexible mechanisms of wireless network communication, on which basis it is possible to use radio frequencies as transmission media at the physical layer. Also given is how radio frequency may carry data and which technologies are used. Several options of such technology are presented. A number of wireless standards and their corresponding radio frequencies are given. Also considered are the authentication mechanisms. As a result, it is possible to build an efficient wireless network as a platform of efficient, fast and reliable information exchange. Fig. 2, Ref. 3.

Auth.

b15.2.2.22. Modern information security technologies in automated control systems. /S. Pochovyan, O. Gabedava/. Automated Control Systems. – 2015. – #1(19). – pp.79-82. – rus.; abs.: geo., eng., rus.

The modern information security technologies in automated control systems required for efficient functioning of a company are considered. The cloud computing information technology, the intrusion detection and intrusion prevention systems, the client-server technology, the main task of protecting information for the execution of business processes in the company, as well as the structure of the automated control system of information security of automated information management system are described. Fig. 1, Ref. 2.

Auth.

b15.2.2.23. Micro controller in automatic plant watering system. /O. Kartvelishvili/. Automated Control Systems. – 2015. – #1(19). – pp.89-96. – geo.; abs.: geo., eng., rus.

The present document is dedicated to the development of the micro controller based plant watering system. The system is opening water valves with certain time intervals for certain periods in order to supply plants with the necessary water quantity. Watering mode is depending on many parameters, such as soil humidity, air temperature and water pressure in the pipeline. After analysis of existing literature, we determined the exact dependence of the watering mode on the mentioned parameters. The microcontroller *Atmega 128* is used for processing the information received from sensors and for forming control signals. It is connected to different external devices. The microcontroller operation algorithm was developed and program in C language was written. Fig. 2, Ref. 18.

Auth.

b15.2.2.24. Mobile microprocessor devices for the measurement of soil moisture and temperature. /Z. Azmaifarashvili, S. Kolomikovi, V. Padiurashvili, Z. Djoxaridze/. Automated Control Systems. – 2015. – #1(19). – pp.97-100. – geo.; abs.: geo., eng., rus.

A device for measuring soil moisture and temperature is considered. For farmers it is very important to know the humidity, acidity, alkalinity and temperature of the soil of their land to enhance the growth and fertility of plants. The microprocessor "thermohygrometer", an algorithm, a block diagram, wiring mobile microprocessor as well as its strengths and opportunities are presented so that the farmers could in any weather determine the humidity and temperature of the soil. The device has software as a memory chip storing all the information prior to taking the new data. Fig. 3, Ref. 8.

Auth.

b15.2.2.25. Improvements of analytical automated tools for analysis of correlated risk processes. /E. Turkia, N. Morozi/. Automated Control Systems. – 2015. – #1(19). – pp.105-110. – geo.; abs.: geo., eng., rus.

The paper presents research of existing in the organization different risk type correlation accounting and monitoring processes. Out of main risk types special attention is paid to operational risk. By studying this risk different dependent risk subtypes are identified. The functional model of risk analysis system is described, which introduces new automated tools to measure and monitor correlated risks. The result of incident and correlated risk measurement provides data source for risk realization forecast, which makes possible to use forecasting methods. Usually, this type of analysis in operational risk management models losses using Monte-Carlo method, empirical distribution, Poisson, Weibull, Gamma, negative binomial, and other distributions. This approach makes it possible to minimize the unexpected events and provides for high efficiency in decision-making under uncertainty. Fig. 5, Ref. 4.

Auth.

b15.2.2.26. IP-fragmentation of packages and its implementation where the incoming ICMP protocol is prohibited. /N. Bzhalava, L. Cholikidze, K. Ovsianikov/. Automated Control Systems. – 2015. – #1(19). – pp.183-186. – geo.; abs.: geo., eng., rus.

The article shows criteria of fragmentation of packages that are larger than the allowable MTU, its inevitability at the overloaded network, the basic principles of fragmentation and a procedure for realization both in a router and in a source device, in particular sequence of division and the subsequent restoration of the broken pieces of packet by destination device; the negative side of fragmentation by a router is shown. The mechanism of PMTUD and the role of ICMP protocol in the process of fragmentation are described in detail; Ref. 3.

Auth.

b2.3 Mechanical engineering

b15.2.3.1. The effective coefficient of stress concentration effect on the carrying capacity of the shafts by the probabilistic assessment method. /N. Bardzimashvili, G. Chelidze, T. Shukakidze /. Transport and Machinebuilding. – 2014. – #3(31). – pp. 46-50.- geo.; abs.: geo., rus., eng.

The work is devoted to the problem of the reliability of shafts that are responsible elements of mechanical devices. It is proved that the factors affecting the reliability of the shafts have the same physical nature and dimension, which is determined by the corresponding formulas. The effective coefficient of stresses and their distribution density are presented as formulas. Fig. 2, Ref. 2.

Auth.

b15.2.3.2. Dynamic analysis of spherical crank-slider mechanism with clearances applied as a cone crusher drive. /A. Talakvadze/. Transport and Machinebuilding. – 2014. – #3(31). – pp.67-72.- geo.; abs.: geo., rus., eng.

The work presents the advantages of application of a spherical crank-slider mechanism with clearances applied as a cone crusher drive in comparison with other drives and gives a brief analysis of dynamic research. Also considered are the current dynamic processes in spherical mechanisms that take place in the kinematic pairs with clearances. Fig. 2, Ref. 2.

Auth.

b15.2.3.3. On the optimization of production process capability of multiple-head machine tools and machining complexes. /N.Chholariya, T. Mchedlishvili, V. Iobadze, Z. Gviniashvili, M. Kashibadze/. Transport and Machinebuilding. – 2014. – #3(31). – pp.80-86.- rus.; abs.: rus., geo., eng.

In modern mechanical engineering widely applied are machine tools and machining complexes designated for the implementation of multiple-head processing. In connection with the above of much importance are the problems of optimization according to the performance criteria of industrial processes interrelated with the reliability indices of cutting tools as well as mechanisms and devices of operating equipment. The issues associated with the basic regularities and optimization calculations of machine processes are considered. Ref. 6.

Auth.

b15.2.3.4. Development of optimal technology for swing joint of tools with one rigid connection. /T. Chkhaidze, G. Tsirekidze, T. Beridze, M. Dzidziguri/. Transport and Machinebuilding. – 2014. – #3(31). – pp.115-121.- rus.; abs.: rus., geo., eng.

Technology questions of perfecting assembly of swing joint of tools with one rigid connection of tools, ensuring stable quality and durability (patent No. 1332637, issued 22.04.1987, USSR) are considered. The advantage is theoretically grounded using the theory of elasticity and wear. The mathematical theory of elasticity upon resistance to rolling of two bodies developed by N.I. Muskhelishvili is used. Fig. 4, Ref. 5.

Auth.

b15.2.3.5. Determining the critical angle of slope upon slipping down of a self-loading skidder and the soil hardness coefficient. /N. Chelidze-Tkeshelashvili, G. Darakhvelidze, D.Mosulishvili, Z.Balamtsarishvili, R. Tkemaladze/. Transport and Machinebuilding. – 2014. – #3(31). – pp.141-150.- geo.; abs.: geo., rus., eng.

Experimental researches to determine the topsoil reaction force to the movable parts of the skidder and the traction coefficient of the track and the corresponding results are considered. Fig. 4, Ref. 4.

Auth.

b15.2.3.6. Determining the front resistance upon movement of a self-loading skidder. /N. Chelidze-Tkeshelashvili, G.Darakhvelidze, D. Mosulishvili, Z. Balamtsarishvili, R.Tkemaladze/. Transport and Machinebuilding. – 2014. – #3(31). – pp.151-158. – geo.; abs.: geo., rus., eng.

The process of track formation made by a self-loading skidder, the track depth and resistance to tracking are studied. Tables and diagrams illustrating changes in the soil hardness coefficient and the frontal resistance forces depending on the track depth upon the loaded and unloaded state of the tractor are compiled. Tab. 1, Fig. 2, Ref. 4.

Auth.

b15.2.3.7. The realization of inverse transforming mechanism in screen printing devices. /J. Uplisashvili, N. Natbiladze, G. Khatiashvili/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 85-88. – geo.; abs.: geo., eng., rus.

The utility model belongs to the field of polygraphic industry, to screen printing devices in particular. The presented mechanism provides an uneven movement of two props under conditions of one cycle. In particular, it quickly moves when in non-operating condition, while its pressure period during the printing process is sluggish. Fig. 1, Ref. 3.

Auth.

b15.2.3.8. The ream cutter mechanism. /J. Uplisashvili, N. Natbiladze, G. Khatiashvili/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 89-92. – geo.; abs.: geo., eng., rus.

The designed utility model belongs to the branch of polygraphic industry and can be used for cutting reams or cardboard or other or any other non-metal materials. Its technical result lies in the simplification of a design, cutting maintenance costs and a wide range of regulation of cutting knife movements. Fig. 1, Ref. 3.

Auth.

b15.2.3.9. Basics of rotoplaners' circular feed drive design. /O. Rukhadze/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 164-172. – rus.; abs.: geo., eng., rus.

The article briefly describes the design of a circular drive of roto-planers. Based on research and design projects, the alternating cutting forces on a spindle assembly were fixed and a circular feed drive facilitating machining of the heated bimetal blanks under the optimal cutting conditions was designed. As a result of the drive study, the twisting rigidity of the mechanism and the measures of its increase are determined. Tab. 1, Fig. 4, Ref. 4.

Auth.

b15.2.3.10. Design and investigation of the metalwork and foundations for bridge mechanisms. /G. Purtskhvanidze, R. Chabukiani, T. Uriadmopeli, I. Purtseladze/. GEN. – 2014. – #3. – pp. 48-51. – geo.; abs.: eng.

The paper deals with the design of the foundation for the agricultural bridge mechanism and of the metalwork of the horizontal truss for this mechanism. The materials and metalwork which would provide safe and efficient operation of the bridge mechanism during its service are discussed. Fig. 2, Ref. 3.

Auth.

b15.2.3.11. Characteristics of the power sources of bridge mechanism drives and selection of the best version. /G. Purtskhvanidze, R. Chabukiani, I. Purtseladze/. GEN. – 2014. – #3. – pp. 52-54. – geo.; abs.: eng.

The paper deals with the power sources of the drives of agricultural bridge mechanisms. Both renewable and non-renewable power sources are considered. The basic diagram and the operation of the bridge mechanism drive are given. Fig. 2, Ref. 3.

Auth.

b15.2.3.12. Quantitative evaluation of the abrasive wear of a hydraulic turbine and the measures of its control by the example of Racha hydro. /I. Lomidze, G. Khelidze, A. Kantaria/. GEN. – 2014. – #3. – pp. 44-47. – geo.; abs.: eng.

The paper deals with the quantitative evaluation of the abrasive wear by the example of the Francis turbine of Racha Hydro constructed on the River Ritseula (Georgia). The turbine operated for 1,248 hours under the conditions of high concentration (0.788 g/l), hardness (more than 4 units of Mohs' scratch hardness) and content (55%) of solid particles in the water. Based on the instrumental measurements and casts taken, the loss in weight of the metal in the areas subjected to abrasive wear was determined. It made up 31.0 kg at the front cover, 9.23 kg at the back cover and 3.99 kg at the guide vanes, which gave 44.22 kg in total. Comparing the obtained results with the literature data on the results of investigations of the abrasive wear of hydraulic turbines of a number of hydraulic power stations, it was established that the turbine of Racha Hydro worked in a hazardous area from the wear standpoint (in accordance with the head and the concentration of solid particles). These circumstances determined putting the turbine under repair after half a year of its operation. Fig. 1, Tab. 1, Ref. 5.

Auth.

b15.2.3.13. Investigation of the mechanical-technological parameters of the technological module of the bridge mechanism. /G. Purtskhvanidze, I. Purtseladze/. GEN. – 2014. – #4. – pp. 25-28. – geo.; abs.: eng.

The paper deals with the investigation of basic mechanical-technological parameters of the technological module of the bridge mechanism and the basics of design of the corresponding units. Fig. 2, Ref. 4.

Auth.

b15.2.3.14. Automatic machine for processing rod-shaped billets. /N. Sakhanberidze/. Novation. – 2015. – #15. – pp. 62-68. – geo.; abs.: geo., eng., rus.

In modern metallurgical factories, laboriousness of preparatory operations and dimensional treatment depends on the existence of a reserve of billets. Material saving, an increase in productivity, the machined surface quality, the cutting-down of size processing and reuse of waste are achievable by the improvement of preparatory operations. This is especially important for production of titanium, high-temperature, corrosion-resistant and other special steels and alloys. The work, given the above-mentioned conditions, justifies advantages of the designed automatic rod-shaped billet processing machine against the machines working by traditional methods and presents its kinematic scheme. Fig. 1, Ref. 3.

Auth.

b15.2.3.15. Processing of glass-reinforced sheet thermoplastics. /N. Kheladze, Tc. Geguchadze, D. Kiria/. Novation. – 2015. – #15. – pp. 69-72. – rus.; abs.: rus., eng., geo.

The work studies some stages of processing glass-reinforced sheet thermoplastics-cutting, heating, stamping and mechanic processing. Tab. 1, Fig. 1, Ref. 3.

Auth.

b15.2.3.16. Research and development of installations for unloading bulk cargo. /K. Zhumadilov, E. Musaev, A. Yussupov/. Novation. – 2015. – #15. – pp. 204-209. – rus.; abs.: rus., eng., geo.

The article deals with a study of dumpers for unloading bulk cargo. The advantages and disadvantages of existing designs are analyzed a better design of the car dumper developed by the author is proposed. Fig. 4. Ref. 3.

Auth.

b15.2.3.17. A pure plastic bending of circular plates. /V. Sokhadze/. Transactions of Technical University of Georgia. – 2015. – #1(495). – pp. 9-14. – geo.; abs.: geo., eng., rus.

Based on application of the elastic-plastic bending theory of a thin plate, any contour-supported thin plate under action of uniformly distributed load p has been studied. For simplicity, the bending problem of asymmetrically loaded circular plates, whose solution is reduced to an integration of ordinary differential equation is considered. The circumstance that on bending of a circular plate the state on the entire area is pure plastic should also be taken into account. The pure plastic bending of simply contour-fixed and contour-supported plates, on which acts the uniformly distributed on the

entire area load p or the load p uniformly distributed on the radius d circle area. The values of critical load are obtained. The load, during which the pure plastic state is established in the centre of the plate and on the whole plate, is taken as the critical load. Fig. 2, Ref. 3.

Auth.

b2.4. Chemical engineering and technologies

b15.2.4.1. High-temperature oxidation kinetics of the chromium-aluminium stainless steel. /O. Mikadze, I. Nakhutsrishvili, N. Maisuradze, G. Mikadze/. Transactions of Technical University of Georgia. – 2015. – #1(495). – pp.47-50. - geo.; abs.: geo., eng., rus.

The complex parabolic law was found to be the most suitable for describing the high-temperature oxidation behavior of chromium-aluminum stainless steel containing cerium and zirconium. On the basis of the oxide growth equation, the linear and parabolic constants were calculated and high-temperature theoretical curves that can predict the tendency of a real process were constructed. Fig. 2, Ref. 4.

Auth.

b15.2.4.2. Physical and chemical forecast of glass formation from some compositions of the quinary borosilicate systems. /A. Sarukhanishvili, V. Gordeladze, N. Andguladze, L. Ebanoidze/. Transactions of Technical University of Georgia. – 2015. – #1(495). – pp. 51-57. – geo.; abs.: geo., eng., rus.

The study suggests how the tendency of glass formation from $Na_2CO_3 - SrCO_3 - BaCO_3 - H_3BO_3 - SiO_2$ system compositions can be detected by the chemical and physical indicators. Relying on the structural and kinetic theories of the process, the relevant approach to glass formation was defined and tested. The make-up of the compositions was theoretically determined by taking the invariant points of the simple systems included in the quinary one as the reference point. The results of the analysis of the glass-formation trend of the compositions based on the physical and chemical indicators correspond to the experimentally obtained ones. Tab. 2, Ref. 8.

Auth.

b15.2.4.3. A measuring device for chemical micro concentrations in natural waters. /V.Padiurashvili, T. Dzaganian, R. Semionov, K. Makhashvili, A. Dolidze, N. Iashvili/. GEN. – 2014. – #3. – pp. 58-60. – geo.; abs.: eng.

There are the methods of determination of the coagulant in drinking water and appropriate devices that are just for measuring the big doses of the coagulant (or flocculent), i.e. for determination of significant changes in the electroconductivity of drinking water. A new method of determining the micro-concentration of the coagulant in drinking water and the design of the device are offered. The operation of the device is described. Fig.1, Ref. 6.

Auth.

b15.2.4.4. Development of the technology of recovery of heavy metals from the waste waters of the galvanic process. /Ts. Kurtskhalia, N. Ehlukidze, Z. Simonia, M. Nadirashvili, N. Chkhaidze, G. Pavliashvili, K. Makhashvili/. GEN. – 2014. – #4. – pp.62-67. – geo.; abs.: eng.

The paper deals with the recovery of heavy metals from the waste waters of the galvanic process. For this purpose, electro dialysis with ion-exchange membranes and cavitation were used. The developed technology provides: 1. Concentration of metals from the waste waters, the concentrate volume being not more than 7-10% of the water under treatment. 2. Recovery of metals from the concentrate as hydroxides, which represent raw materials for pigment production; their purity degree is 90-97%. The proposed technology is practically waste-free. Fig. 1, Tab. 6, Ref. 1.

Auth.

b15.2.4.5. Optimization of the process of obtaining barium using a laboratory device of periodical action. /V. Rukhadze, I. Kamushadze, M. Kukhalashvili/. Novation. – 2015. – #15. – pp. 192-195. – geo.; abs.: geo., eng., rus.

Based on the findings of the previous studies the main levels of the factors were selected. As a result of checking the playback of the experiments ($G_{Table} 0.96 > G_{0,58}$) dispersion ($S^2_{Exp.} = 0.55$) and realized matrix were calculated. The coefficients of the regression equation have been calculated. The analysis of the regression coefficients shows that production of barium carbonate significantly depends on the duration of the process. The obtained regression equation was checked using Fisher criteria. The adequacy of the model of the abovementioned process was indicated. Tab. 2, Ref. 1.

Auth.

b15.2.4.6. The feature of dyeing modified and unmodified wool by natural pigments. /L.Khivadagiani, K.Goginovi, M. Sharabidze/. Novation. – 2015. – #15. – pp. 196-199. – geo.; abs.: geo., eng., rus.

The features of dyeing modified and unmodified wool by natural pigments are studied. During the dyeing was revealed that color tone, intensity and resistance of colorings to washing, wet and dry friction depend on pH of the environment, temperature and time of dyeing. The analysis of results of dyeing with red and yellow pigments showed that for receiving intensity and saturated coloring dyeing should be carried out in the alkaline environment, at the room temperature within 2 hours. Thus, intensity of coloring and quality of dyeing of the modified wool is better than at not modified fiber. Ref. 4.

Auth.

b2.5. Materials engineering

b15.2.5.1. Sandy-polymeric composites development prospects. /J.Gagoshidze, Z.Bogvelishvili/. Transport and Machinebuilding. – 2014. – #3(31). – pp.159-163. – geo.; abs.: geo., rus., eng.
Production of sand-polymeric materials makes it possible not only to re-enable commercialization of a large amount of plastic waste, but also to renounce the use of scarce cement today. Ref. 2.

Auth.

b15.2.5.2. Study on the fabric surface coated with a bio-composition. /O. Pailodze, O. Metreveli/. GEN. – 2014. – #2. – pp. 123-127. – geo.; abs.: eng.

The paper deals with medicinal tissues coated with bio-compositions. It was revealed that, when the 10% bio-composition was used, the pores were not completely closed. It is important, because, if the pores are completely closed, the greenhouse effect could take place, which will promote the development of undesirable microorganisms under the tissue. The discrete distribution of the bio-composition on the tissue surface makes the tissue. Fig. 9, Tab. 2, Ref. 7.

Auth.

b15.2.5.3. Cleaning of the surface, layers and bottom of water bodies polluted with petroleum and petroleum products. /Z. Molodinashvili, N. Khetsuriani, Q. Goderdzishvili, E. Usharauli, E. Topuria, I. Mchedlishvili, M.Chkhaidze/. GEN. – 2014. – #3. – pp. 55-57. – eng.; abs.: rus.

The paper deals with the development of the technology of simultaneous cleaning of the surface, layers and bottom of water bodies polluted with petroleum and petroleum products, and the obtaining and investigation of a new polymeric composite matrix. For water treatment, a polyacrylamide gel fraction was used. With its help, the sorption of 85% of the petroleum substrate during 168 hours was performed. Fig. 1, Ref. 11.

Auth.

b15.2.5.4. The effect of thickness correlation of weld parts on the spot location. /A. Sulamanidze, M. Kapanadze, A. Metreveli/. GEN. – 2014. – #4. – pp. 44-47. – geo.; abs.: eng.

On the basis of reference sources, the following inference was made: from the moment of imbalance of thickness to a certain value of correlation $\delta_2/\delta_1 > 1$, the liquid core gradually shifts into the thickness of the thick model; and it later forms in the middle of summary thickness of welded samples. With an increasing certain value of thickness correlation, the liquid core returns back and it may come up to the surface of the thin model. Fig. 2, Ref. 4.

Auth.

b15.2.5.5. Investigation of the process of crystallization of fine-dispersed zeolite materials. /N. Dolaberidze, V. Tsitsishvili, M. Nizharadze, N. Mirdzveli, M. Alelishvili/. GEN. – 2015. – #1. – pp. 93-95. – geo.; abs.: eng.

Hydrothermal crystallization in the system of a zeolite-containing rock (AG) and a mineralizable agent (NaOH) were studied. Some regularities of the process of crystallization were established, which provided the basis for a new method of production of a fine-dispersed faugazite-type material. The parameters of the process of crystallization were determined. This provided the formation of a stable crystallization medium and its high reproducibility. Tab. 1, Ref. 4.

Auth.

b15.2.5.6. On the question of profitability of winter concreting technology. /R. Brzhanov/. Novation. – 2015. – #15. – pp. 200-203. – rus.; abs.: rus., eng., geo.

The economic features of winter concreting are considered. The effect of materials and technology on the cost of concrete is demonstrated. Tab. 2, Ref. 2.

Auth.

b2.6. Medical engineering

b15.2.6.1. Hardware security classification level indicator raising in medical engineering. /L. Petriashvili, N. Gogilidze/. Automated Control Systems. – 2015. – #1(19). – pp.83 - 88. – geo.; abs.: geo., eng., rus.

Medical devices play a vital role in the delivery of high quality healthcare. Although recent technological advancements have led to much more reliable and safer medical devices, potential risks of failure and the associated adverse incidents cannot be neglected. Medical device (MD) recalls by manufacturers contribute to the safe function of the devices, in order to avoid incidents that could lead to injuries and deaths. The results reveal that almost half of the medical devices being recalled make use of software for their operation, dictating the growing role of the software in the domain of medical equipment. Furthermore, four out of every ten medical devices incorporating software have failed due to a problem in the software itself, while compared to the total FDA MD recalls this reaches 18.3% of software failures during this period. The present recalls analysis has demonstrated significant increase of MD software failures during the last decade, compared to previous studies. Fig. 1, Ref. 8.

Auth.

b15.2.6.2. The role of ultrasonography diagnosis of acute appendicitis. /T.Ivanishvili, D. Tatanashvili, K. Shapatava, T. Abuladze, D. Makhashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. - pp.87 – 89. – geo.; abs.: eng.

Nowadays acute appendicitis is an actual moot point of surgery. Every year 10% of population gets sick of this pathology. In case of delay in treatment the quantity is 0,2-0,3%. Since 2010 there has been made 7890 appendectomy in Georgia (mortality 0,01).the desired result, in our opinion, successes in acute appendicitis diagnostics – as ultrasonography necessarily engaging, which is quicker, limited research, low price method of treatment. Ultrasound examination result means the next visit to CT and MRI researches. Fig. 2, Ref. 12.

Auth.

b15.2.6.3. Determination of some antipsychotic drugs in human plasma by liquid chromatography – tandem mass spectrometry (LC/MS/MS). /N.Imnadze, K.Sivsvadze, T. Murtazashvili, M. Jokhadze, P. Tushurashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. - pp.89–92. – eng.; abs.: geo.

A selective and sensitive method for simultaneous determination of olanzapine (OLZ) and risperidon (RIP) in human plasma was developed, based on liquid chromatography – tandem mass spectrometry (LC-MS/MS). The method was subsequently applied to in vitro plasma samples. The developed methods give the opportunity of rapid and simultaneous determination of olanzapine and risperidon in forensic investigation of intoxication or postmortem cases. Fig. 3, Ref. 15.

Auth.

b15.2.6.4. Clinical-dermatoscopic parallels in differential diagnostics of actinic keratosis and squamous cell invasive carcinoma. /N. Kiladze, T. Shulaia, A. Katsitadze, M. Matoshvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. - pp.97 – 99. – geo.; abs.: eng.

Dermatoscopy improves the diagnostic accuracy for melanocytic and non-melanocytic pigmented lesions compared with inspection with the unaided eye but for non-pigmented lesions, the description of criteria is still not as advanced as for pigmented lesions. A recent study was focused on study of clinical and dermatoscopic peculiarities of actinic keratosis (36 cases) and squamous cell invasive carcinoma (9 cases) both limited to facial location. Were characterizes the dermatoscopic features of these units in accordance to algorithmic method based on pattern analyze which made possible to differentiate them and plan the proper direction of treatment and prognosis. Ref. 5.

Auth.

b2.7. Environmental engineering

b15.2.7.1. Possibility of CO₂ emission reduction at Kutaisi municipal buildings. /I. Pkhaladze/. Transactions of Technical University of Georgia. – 2015. – #1(495). – pp.27-33. - geo.; abs.: geo., eng., rus.

For slowing down the climate change and improving the ecological conditions in big cities, the European Union launched the covenant of mayors initiative (Com), according to which the local and regional authorities make commitments for reducing Co₂ emissions by 20% for 2020 year by employing Ee and Re technologies. The Kutaisi Municipality became a Com signatory city in 2011. Based on a study results produced under the USAID/EC-Leds Program, as well as by employing energy efficiency measures and introducing effective energy management the annual achievable savings in the Kutaisi building sector can stand at 115 200 000 Kw/H of energy, which is 25,24% (456 300 000 kW/h per/annum) of the baseline energy consumption. Respectively the amount of CO₂ emissions reductions on an annual basis will stand at 20 750 tons, which equals to (82 545 t/a) 25, 14% compared to the baseline year. Tab. 2, Ref. 1.

Auth.

b15.2.7.2. Identification of the models of time series of technical systems of Enguri HPP. /M. Meskhi, S. Piralishvili, R. Inadze/. Transactions of Technical University of Georgia. – 2015. – #1(495). – pp.34-41. - geo.; abs.: geo., eng., rus.

The identification process of models of transmission function of the technical systems of reservoir and dam of Enguri HPP is given on the basis of an analysis of autocorrelation and cross correlation functions of the periodic time series indicators of the water in the reservoir and tiltmeter. The received autoregressive multiplicational type models allow determining the response time of the dam in the reservoir on water level fluctuations. Fig. 3, Ref. 3.

Auth.

b15.2.7.3. Evaluation of parameters and diagnostical examination of adequacy of time series of Enguri HPP technical systems. /M. Meskhi, S. Piralishvili, R. Inadze/. Transactions of Technical University of Georgia. – 2015. – #1(495). – pp.42-46. - geo.; abs.: geo., eng., rus.

Using the least-squares method, the parameters of transmission function's identified model of time series of water level indicators in reservoir and tiltmeter of Enguri dam are established. The diagnostic verification of the multiplicational model of autocorrelation of residual error and χ^2 criterion confirmed the adequacy of the model. Tab. 1, Fig. 1, Ref. 3.

Auth.

b15.2.7.4. On the dynamic synthesis of a multiplanimetric electro-hydraulic servo system. /I. Romanadze, T. Kapanadze, L. Marsagishvili, N. Nakashidze, V.Tkeshelashvili/. Transport and Machinebuilding. – 2014. – #3(31). – pp.15-20.- rus.; abs.: rus., geo., eng.

A functional diagram of the control system of structurally complex electro-hydraulic servo system is given; block diagrams and transfer functions with the included in the structure of the system of successive correcting links are built. The paper considers also the problem of dynamic synthesis associated with the introduction into the structure of a feedback system with parallel correction link. Fig. 1, Ref. 6.

Auth.

b15.2.7.5. The action of a marine consistent grease on its performance attributes. /T. Gelashvili, G. Archvadze, E. Gegeshidze, R. Tskvaradze, I. Chkhetia/. Transport and Machinebuilding. – 2014. – #3(31). – pp. 51-60.- geo.; abs.: geo., rus., eng.

Based on peculiar features of the grease structure, its performance attributes are particularly sensitive to the main components (base oil, thickener, admixtures and modifiers) and the physico-chemical properties of the grease. This creates good prospects for changing the grease properties at a wide range through rational compounding and targeted control of the grease properties. Tab. 4. Ref. 5.

Auth.

b15.2.7.6. Assessment of the readiness index of natural gas regulatory stations based on natural data. /D. Namgaladze, G. Sanikidze/. GEN. – 2014. – #4. – pp. 55-58. – geo.; abs.: eng.

The paper deals with the assessment of the reliability of Gas Regulatory Stations based on natural data. As is known, in the phase of planning as well as during the exploitation, it is crucial to assess the readiness index. In particular, the probability distribution density function for the readiness index is defined for the case of uniform distribution during proper work and normal restoration time. Fig. 2, Ref. 4.

Auth.

b15.2.7.7. The era of synthetic fuels is drawing near. Part I. /A. Porchkhidze/. Novation. – 2015.– #15. – pp. 11-14. – geo.; abs.: geo., eng., rus.

A rather urgent issue of the future of synthetic fuels is considered. The opinions are both apocalyptic and optimistic. The advocates of the former opinion think that mankind will face the oil resource depletion, energy consumption interruption and economic regress; the optimistic experts opine on increasing the share of renewable energy sources. The prospects of using alternative energy sources and gradual transfer to synthetic fuels are considered. Ref. 5.

Auth.

b15.2.7.8. The area of synthetic fuels is drawing near. Part II. /A. Porchkhidze/. Novation. – 2015.– #15. – pp.15-18. – geo.; abs.: geo., eng., rus.

The exothermal reactions ranging as potential energy sources are discussed. By the examples of oxidation reaction of acetylene and some metals it is shown that the thermal effect of the oxidative exothermal reactions is so great that it can cover the expenses. The main effects of the exothermal reactions and the use of synthetic fuels to generate energy are discussed. Ref. 5.

Auth.

b15.2.7.9. Realization of a problem of vibroacoustical diagnostics of technical conditions of hidro power units in MathCad. /N. Kopaliani, O. Zivzivadze, D. Dzadzamia/. Novation. – 2015. – #15. – pp. 232-238. – geo.; abs.: geo.,eng., rus.

In article realization of a problem of vibroacoustic diagnostics of technical states of hydro-power units in MathCad is considered. Given in a general view are a theoretical problem definition, stages of process of diagnosing and the flow chart. The main components are considered: database, knowledge base, decision-making and diagnostics. The structural and investigative model, the table of possible operational defects and the corresponding symptoms are considered, such, for example, as part of the MathCad's document, in which one of diagnosing procedures – decision-making is shown. Tab. 1, Fig. 3, Ref. 11.

Auth.

b2.9. Industrial Biotechnology

b15.2.9.1. Variations of bioactive substances in red wines produced by different technological techniques of enzyme maceration. /N. Ebelashvili, L. Shubladze, I. Kekelidze/. GEN. – 2014. – #3. – pp. 72-74. – eng.; abs.: rus.

Biologically active substances play a crucial role in the evaluation of red wine quality. Their concentration is greatly influenced by the grape variety, grape growing site and the applied technological techniques of enzyme maceration. The authors have elaborated a technological technique of maceration for preparation of red wines enriched with biologically active substances. By using the HPLC method it was established that the application of the technology of production of red wines we offer provides much more extraction of bioactive substances: catechins, phenolcarbonic acids, flavonols, vanillin, non-substituted amino acids, etc., as compared with the existing one. Fig. 1, Tab. 1, Ref. 14.

Auth.

b15.2.9.2. Treatment of skin cancer with 5-fluorouracyl deposited in biodegradable polyesteramide: 1. Fabrication of the bio-composite and study on the controllable release of the medicine. /N. Kublashvili, N. Kupatadze, D. Tugushi, N. Kutsiava, R. Katsarava/. GEN. – 2015. – #1. – pp. 114-119. – geo.; abs.: eng.

The paper deals with the fabrication of the polymeric bio-composite containing an anticarcinogenic preparation 5-FU. The bio-composite was characterized by a calorimetric analysis. The kinetics of release of 5-FU deposited in the composite was studied *in vitro* experiments for both enzyme-free and enzyme (trypsin)-containing preparations. The rate of release of deposited 5-FU was within the acceptable limits for obtaining a desirable therapeutic effect. Fig. 4, Ref. 9.

Auth.

b15.2.9.3. Freezing of biological systems, freezing membranes and cell water. /M. Oziashvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 88-91. – geo.; abs.: geo., eng., rus.

The paper emphasizes the close relations between the responses of cells to freezing and the properties of cell membranes. It is the surface membrane that prevents it from nucleating cell of temperatures above about -10° to -20° C and it is the permeability of that membrane to water that is the main determiner of whether cells will equilibrate by dehydration or by intracellular freezing at lower temperatures. Ref. 4.

Auth.

b15.2.9.4. Ways of bioconversion of vegetable substances. /G. Eliava, T. Tsintsadze, L. Topuria, E. Topuria/. Gaenati Herald. – 2015. – vol. II,#4. – pp. 19-27. – geo.; abs.: geo., rus., eng.

Bioconversion of vegetable substances – cellulose-lignin and starch-containing materials and waste is considered as a major problem. The significant part of vegetable biomass is used only partially. For the purposes of solution of above-mentioned problem various methods are used: application of new, active strains-producers, acid and enzymatic

hydrolysis of cellulose, optimization of hardware that will promote bioconversion of vegetable raw materials into other products. Fig. 2, Ref. 7.

Auth.

b15.2.9.5. Peculiarities of operation of flotation machines in the manufacture of food yeasts. /G. Eliava, T. Buachidze, L. Topuria, E. Topuria/. Gaenati Herald. – 2015. – vol. II, #4. – pp. 28-40. – geo.; abs.: geo., rus., eng.

Among the methods of separation and thickening of yeast cells the flotation method holds a special place. Application of flotation method assists the reduction of capital investments that is essential for high-capacity productions. For enhancement of the effect of flotation separation it is necessary to take measures for expanding the surface area of two contact phases that can be reached by super fine dispersion of the air. It is also necessary to select the race, genus of yeasts, their quality and also an optimization of chemical composition of culture liquid should be made. Raising of efficiency of flotation is a multilateral process, that is why for its improvement it is necessary to perfect the engineering process as well as the quality of biological material and optimize the composition of culture liquid. Fig.2, Ref. 10.

Auth.

b15.2.9.6. Formation of the phenolic compounds in the tissue culture of *Rhododendron caucasicum* Pall. /D. Bagratishvili, R. Jikia/. Bulletin of the Georgian National Academy of Sciences.– 2014. – Vol. 8, #1.– pp. 85–88. – eng.; abs.:eng., geo.

Callus cultures are obtained from the leaf and stem of *Rhododendron caucasicum* PALL. growing at passages. The primary callus was formed in 10-15 days on Heller's modified nutrient medium. For selection of the best conditions of growth for the callus, different concentrations of some nutrient medium components were tested. It was found that 5 and 10mg/l of 2,4D supported tissue growth, while 0.5mg/l suppressed it. Kinetin suppressed growth in both 1 and 5mg/l concentrations. The yeast extract of 1000–2000mg/l and 20mg/l of mioinositol increased the yield of biomass, while 100 mg/ l of yeast extract and 2mg/l of mioinositol decreased it. Three phases of callus growth were identified: monotonous (up to 20 days), linear (20-40 days) and reduced (40-50 days). Besides, the stem callus outstripped the leaf tissue in growth. Preliminary analysis showed that the rhododendron leaf and stem cultures maintain the ability to synthesize biologically active phenolic compounds typical of an intact plant. However, their amount and composition were considerably less in callus tissues, which is characteristic of most cultures. The content of phenolic compounds is 4-5 % of dry weight. Besides, the main part (85-90%) consists of (+) catechin, (-)epicatechin and proanthocyanidines. Fig. 3, Ref. 9.

Auth.

b15.2.9.7. Comparison of antimicrobial activity of green tea catechines. /T. Khutsidze/. Novation. – 2015. – #15. – pp. 210-213. – geo.; abs.: geo., eng., rus.

Sample was compared to green tea and 80% catechine antimicrobial drugs activities. It has been determined that the antimicrobial activity of catechines reveals much more. It indicates that it is the main active compounds in green tea extract antimicrobial agents. Tab. 1, Ref. 8.

Auth.

b15.2.9.8. Getting concentrate from rough and specification tea leaf, by treatment gaseous carbon dioxide pressure in the area. /M. Fruidze, E. Bendeliani, Sh. Chakvetadze/. Novation. – 2015. – #15. – pp. 214-218. – geo.; abs.: geo., eng., rus.

The article deals with the technology of getting a concentrate from rough and specification tea leaf by treatment with gaseous carbon dioxide pressure in the area. Processing of tea leaves produced in the area of 1-3 MPa pressure. Instant falling of pressure on the tea leaves caused the damage of membranes of organelles. All these processes contributed to increase the pressure from tea leaves and the output of extractive substances. Tab. 1, Ref. 6.

Auth.

b15.2.9.9. Optimization for the production of granulated tea with anti-radiation activity. /K. Sirbiladze, G. Gorgodze, N. Tsutskiridze/. Novation. – 2015. – #15. – pp. 228-231. – rus.; abs.: rus., eng., geo.

By using the matrix for central composite rotatable design and Lagrange's method of undetermined multipliers, there are obtained the adequate regression equations for granulation process of plant composition of tea with anti-radiation activity, as well as the optimal values of factors and appropriate optimization parameters influencing the process. Fig. 1. Ref. 3.

Auth.

b15.2.9.10. Round medication *Gymnospermium smirnowii* (Trautv.) takht, (*Leontice smirnowii* Trautv). /N. Tabatadze, B. Tabidze, M. Getia, V. Mshvildadze, G. Dekanosidze/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. - pp.135–138. – geo.; abs.: eng.

Gymnospermium smirnowii (Trautv.) Takht, (*Leontice smirnowii* Trautv)(Fam. Berberidaceae) is an endemic plant of Georgia. The tubers of this plant contain a large amount of alkaloids and triterpen saponins and are well-known in traditional medicine as anti-tuberculosis remedies. The present paper describes the chemical content of crude extracts, the isolation and chemical elucidation of triterpene saponins. Three new glycoside-leonticins I, J and L along with four known ones were isolated from the tubers of the plant. The structures were established by means of spectroscopic methods including 2D NMR experiments (DEPT, gs-COSY, gs-HMQC, gs-HMBC), mass spectrometry (HR-ESI-MS). The aglycon 3 α -hydroxy-30-norolean-12, 20 (29)-dien-28-oic acid was observed for the first time in *Leontice* species. Antifungal, antiprotozoal and cytotoxic activities of the extracts and monodesmosidic compounds were investigated *in vitro* experiments. Fig. 1, Ref. 28.

Auth.

b15.2.9.11. Biological active triterpene glycosides from *Cephalaria gigantea*. /N. Tabatadze, J. Aneli, B. Tabidze, M. Getia, N. Mushkiashvili, V. Mshvildadze, G. Dekanosidze/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. – pp.138 – 141. – geo.; abs.: eng.

Cephalaria gigantea - an endemic plant of Caucasus contains a great variety of biological active compounds: triterpene saponins, alkaloids, phenols and is well-known in traditional medicine as sedative, anti-inflammatory and anticonvulsive remedies. The plant is widespread in different regions of Georgia: Imereti, Ajara, Samtskhe-Javakheti, Kakheti, and there are sufficient stocks of plant material for creating a safe and effective medicinal form. The present paper describes the isolation and chemical elucidation of pharmacologically active triterpene glycosides and alkaloids. 11 individual monodesmosidic and bidesmosidic triterpene saponins have been isolated from the roots of *Cephalaria* using the effective methods of extraction and separation. Their structures were established by means of spectroscopic methods. Antifungal, antiprotozoal, anti-inflammatory, antiplazmodial, cytotoxic and anticonvulsive activities of the extracts and individual compounds were investigated. On the basis of the obtained results a watery extract from the roots of the plant was proposed as a potent anticonvulsive drug form. Fig.1, Ref. 25.

Auth.

b15.2.9.12. Cyclamen - source of triterpen glycosides against of sinusitis. /B. Tabidze, N. Tabatadze, M. Getia, V. Mshvildadze, G. Dekanosidze/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. – pp.141–143. – geo.; abs.: eng.

Cyclamen vernum and *C. adzharicum* are widespread species of Georgian flora, which are characterized with high constituent of triterpen glycosides. In traditional medicine the tubers of cyclamen were used for the treatment of inflammations and sinusitis. The present review article describes isolation and structure elucidation (by using modern spectral methods) of 9 individual glycosides from the tubers of *Cyclamen vernum* and *C. adzharicum*. HPLC method for qualitative and quantitative determination of triterpen saponins was developed; antifungal, antiprotozoal, anti-inflammatory, cytotoxic and antioxidant activities of the extracts and enriched fractions were investigated. The obtained results showed mucolytic and antisinusitis efficiency of the triterpene glycosides from the tubers of *Cyclamen L.* An increased reflective reaction of respiratory mucous membranes and stimulation of the nasal cave's epithelium secretion were indicated. High activities of sero-mucolytic glandules were responsible for intensive drainage of paranasal caves. Ref. 21.

Auth.

b15.2.9.13. Accumulation of copper and zinc by wheat (Tritium) and barley (Hordeum). /A. Rcheulishvili, E. Ginturi, O. Rcheulishvili, L. Tugushi, N. Rcheulishvili, E. Gelagutashvili/. Nano Studies. – 2014. – #10. – pp. 107-110. – geo.

Accumulation of copper and zinc by wheat (Tritium) and barley (Hordeum) and their components in the process of growth were studied, when soil was enriched Cu and Zn. Cu and Zn accumulation in general were observed in roots of these agriculture. Fig. 2, Tab. 2, Ref. 6.

Auth.

b15.2.9.14. Study of some features of accumulation of silver, cadmium and mercury in cellular growth dynamics of algae *Spirulina platensis*. /N. Kuchava/. Nano Studies. – 2014. – #10. – pp. 111-116. – geo.

Features of accumulation of silver, cadmium and mercury are studied in the cellular growth dynamics of algae *Spirulina platensis*. Fig. 6, Ref. 11.

Ed.

b2.10. Nanotechnologies

b15.2.10.1. Distribution of the current carriers in the inversion channel of nanowire based FETs. /F. Gasparyan, S. Vitusevich/. Nano Studies. – 2014. – #10. – pp. 5-10. – eng.

The current carrier distribution in the inversion layer of the nanowire based field-effect transistor is analyzed using classical and quantum-mechanical evaluation of carrier distribution. It is shown, that in the inversion channel of the nanosize FET based bio-chemical sensors, there are significant differences between charge carrier distributions forms in classical and quantum-mechanical approaches. This difference can have strong influence on the carrier transport. In classical approach the charge carrier distribution has maximum at the front oxide-nanowire interface, whereas in the quantum-mechanical approach the maximum displaces away from the interface. The value of the electron concentration increases with increasing of the gate voltage as well as its maximum relocates closer to the front oxide-nanowire interface. Majority of the electrons concentrates near the front oxide surface and occupies the region from 1 to 2nm. This fact should be taken into account for designing submicron devices and sensors. Those results can be useful for deep insight and for accurate qualitative and quantitative description of the physical processes taking place in the electrolyte-gated nanowire FETs based sensors. Classical and quantum-mechanical models of electron charge distribution can be applied to find appropriate description of physical phenomena, which takes place in FETs. Fig. 3, Ref. 21.

Auth.

b15.2.10.2. Phase transitions and multi-layered nature of martensite structures in shape memory alloys. /O. Adiguzel/. Nano Studies. – 2014. – #10. – pp. 11-16. – eng.

Shape memory alloys take place in a class of functional materials by exhibiting a peculiar property called shape memory effect. This property is characterized by the recoverability of desired shape on the material at different conditions. Shape memory effect is based on martensitic transformation, and comprises a reversible transition from product martensite to parent austenitic phase. Martensitic transformation occurs in thermal manner, on cooling the materials from high temperature parent phase region. Thermal induced martensite called self-accommodated martensite or multivariant martensite occurs as multivariant martensite in self-accommodating manner and consists of lattice twins. Shape memory

alloys are deformed in low temperature martensitic phase condition, and deformation proceeds through a martensite variant reorientation. Copper based alloys exhibit this property in metastable β -phase region. Martensitic transformations occur by two or more lattice invariant shears on a $\{110\}$ -type plane of austenite matrix which is basal plane or stacking plane for martensite, as a first step, and the transformed region consists of parallel bands containing alternately two different variant. Lattice invariant shears occur with cooperative movement of atoms less than interatomic distances on $\{110\}$ -type close packed planes of austenite matrix. The lattice invariant shears occurs, in two opposite directions, $\langle 110 \rangle$ -type directions on the $\{110\}$ -type basal planes and this kind of shear can be called as $\{110\} \langle 110 \rangle$ -type mode and has 24 variants in self-accommodating manner. Fig. 4, Ref. 11.

Auth.

b15.2.10.3. Features of changes in electron concentration in n-Si crystals irradiated with high-energy protons. /T. Pagava, L. Chkhartishvili, N. Maisuradze, D. Khocholava, M. Beridze/. Nano Studies. – 2014. – #10. – pp. 17-20. – rus.

There are studied the zone-melting n-Si single crystals with electron concentration of $5 \cdot 10^{13} \text{cm}^{-3}$. These samples were irradiated with 25MeV protons within the dose range $(1.8-9.0) \cdot 10^{11} \text{cm}^{-2}$ at room temperature (300K). The studies were conducted using the Hall measurement method in the temperature range of (77–300)K. It was found that increasing in the electron concentration values within the above specified range with dose of irradiation and reaches values of about 10^{14}cm^{-3} . The increase in electron concentration with increasing in radiation dose seems to be associated with radiation annealing of nanoscale growth defects of vacancy-type and releasing the phosphorus dopant atoms blocked inside these defects. Radiation annealing, i.e. destruction, of growth defects of vacancy-type takes place due to their interaction with interstitial silicon atoms, which together with other point defects are generated during the irradiation. Fig. 1, Ref. 4.

Auth.

b15.2.10.4. On boron nitride coating of metals. /B. Kaftanoglu, N. Dokmetas, A. Ozhan, T. Hacaloglu, M. Kılıcan/. Nano Studies. – 2014. – #10. – pp. 21-28. – eng.

BN coatings are obtained with the method of Radio Frequency (RF) magnetron sputtering technique on different substrates. For RF technique, a Physical Vapor Deposition (PVD) system from target to substrate is used. BN coating formations are investigated on various substrates such as AISI D2 Steel, 316 L steel, optical glasses, Ti implants, aluminum, copper and germanium. Compositional, structural and mechanical measurements and analysis are performed for the characterization of coatings by using CaloTest®, Filmetrics F20 Thin-Film Analyzer Device®, step profilometer, Scratch tester, Tribometer tester, Nanoindentation tester, FTIR, AFM and profilometer. From investigations conducted, it is found that BN films thickness varies from nanometer range to several microns. Also, it is observed that BN coatings are obtained in different allotropes (polymorphs) such as a-BN, e-BN, r-BN, w-BN, t-BN and h-BN structures besides c-BN structures. The effects of microstructural constitution on the tribological properties are investigated. Generally, it is found that there is good adhesion and lower friction because of having more than one structure. According to deposition parameters, in some cases hardness is found to increase or decrease. Fig. 10, Ref. 7.

Auth.

b15.2.10.5. Smart nanotechnology systems as interdependence factor of humans, technology and environment. /M. Janelidze, G. Janelidze, T. Berikashvili, A. Janelidze, G. Loladze/. Nano Studies. – 2014. – #10. – pp. 29-32. – geo.

In spite of other modern scientific achievements, nanotechnologies have substantially changed the approach to the criminalistics and have made it possible the rethinking of the complex phenomena, which serve for the basis of human factor in the system of security studies. Human factor, its adaptation to the conditions characteristic of complex technical systems, and also determination of the human emotional, psychological and behavioral features in extreme conditions belong to class of issues actual for studies. Fig. 2, Ref. 4.

Auth.

b15.2.10.6. Field-induced magnetization in nanostructures with strong spin-orbit interaction. /M. Krupa, A. Korostil/. Nano Studies. – 2014. – #10. – pp. 33-52. – eng.

The field-induced impact on magnetic nanostructures with a large spin-orbit interaction, consisting in magnetization reversal under ultra-short circularly polarized laser pulses or unipolar electric field pulses are studied. Using the magneto-optical method and a pump-probe technique based on the Kerr and Faraday effects, we have established features and conditions of the magnetization reversal in magnetic nanostructures under femtosecond circularly polarized laser pulses. It is shown that mechanisms of such the laser-induced impact is a complex process of laser-induced thermal demagnetization of magnetic sub-lattices with subsequent biasing by internal magnetic fields of different nature. The interfacial voltage-controlled magnetic anisotropy in magnetic nanostructures is studied. In the framework of the model, based on the Stoner magnetization and the Rashba spin-orbit interaction the conditions of the electric control of the perpendicular magnetic anisotropy and the magnetization switching are considered. Fig. 8, Ref. 27.

Auth.

b15.2.10.7. Spiropyran containing liquid crystal systems to create a new type of micellar nanocontainers. /L. Devadze, J. Maisuradze, G. Petriashvili, Ts. Zurabishvili, N. Sepashvili, I. Mzhavanadze/. Nano Studies. – 2014. – #10. – pp. 53-60. – eng.

The spiropyran containing liquid crystal systems useful to create a new type of micellar nanocontainers is described. Fig. 3, Ref. 18.

Ed.

b15.2.10.8. Magneto-optical and optical properties of ion implanted $(\text{YBiCaSm})_3(\text{FeGeSi})_5\text{O}_{12}$ garnet films. /L. Kalandadze/. Nano Studies. – 2014. – #10. – pp. 61-66. – eng.

We have investigated the optical and magneto-optical properties of the ion-implanted (YBiCaSm)₃(FeGeSi)₅O₁₂ garnet films. It has shown that ion implantation influences significantly the magneto-optical properties of the garnet films and practically does not change its optical characteristics. In the proceeding, we have researched the magneto-optical properties of ion-implanted (YBiCaSm)₃(FeGeSi)₅O₁₂ garnet films after it was annealed at 270°C. This kind of the experiment is particularly interesting in the matter of annealing process as it reduces the implantation defects and restores crystalline structure of ferrite-garnet. We have also determined the spectral dependences of the component of the tensor of dielectric permittivity for the surface of the ferrite-garnet films before and after implantation process. These calculations let us evaluate the influence of implantation on an electronic energy structure of the surface layer for the sample. Fig. 6, Ref. 7.

Auth.

b15.2.10.9. Physical properties of conducting diamond like carbon nanostructure films transparent in the visible range of light, deposited on silicon. /Zh. Panosyan, S. Voskanyan, Ye. Yengibaryan, M. Azaryan, A. Sahakyan, H. Yeritsyan, V. Harutyunyan/. Nano Studies. – 2014. – #10. – pp. 67-76. – eng

There is presented a technology of obtaining electrically conductive films transparent in the visible region of light that contain Ta₂O₅ metal oxide nanostructures in the diamond-like-carbon (DLC) dielectric matrix, and the results of studies of their physical properties. In the visible light region the transparency of DLC films constituted 80%, whereas structural studies indicated that the film is comprised of nano-size conductive clusters, the linkage between which leads to increased conductivity. Films deposited on n-Si had electron conductivity (across the film surface), with charge carriers mobility of over 2400cm²/V*s and specific electrical resistance of less than 10⁻³Ohm*cm. In the conductive DLC films about tenfold increase of dielectric parameters and significant frequency dependence in the frequency interval from 30kHz to 1MHz were observed, which is likely Ta₂O₅-DLC structure joints. Fig. 8, Tab. 2, Ref. 15.

Auth.

b15.2.10.10. Research of processes of photo stimulated crystallization of nano dimensional layers of silicon on sapphire films. /Z. Jibuti, S. Avsarkisov, A. Bibilashvili, R. Gulyaev, N. Dolidze, Z. Kushitashvili, N.Zhonzholadze/. Nano Studies. – 2014. – #10. – pp. 77-82. – eng.

The process of transfer of amorphous silicon deposited onto the sapphire substrate into the polycrystalline phase using the method of pulsed photon irradiation is studied. The ionization mechanism of crystallization in semiconductors by the method of pulsed photon irradiation is considered. Fig. 7, Ref. 6.

Auth.

b15.2.10.11. Nanotechnology and semiconductor devices. /T. Laperashvili, O. Kvitsiani, D. Laperashvili, M. Elizbarashvili, A. Chanishvili/. Nano Studies. – 2014. – #10. – pp. 83-88. – eng.

Nanotechnology is defined as the manipulation of matter with at least one dimension sized from 1 to 100 nanometers. Although micro and nanoelectronic are based on the semiconductor devices, which are manufactured measured in nanometers, and advanced processes are taking place below 100nm, in order semiconductor's technology aren't classed as nanotechnology. Because it's clear significant role of the semiconductor nanotechnology for future progress in information and energy technologies, materials research and electronic technology are shown as the main directions of nanotech industry. The object of investigation is ultrathin metallic films on semiconductor. The method electrochemical deposition of metals (in, Ga, Al, Ni, Pt, Pd, Fe) on III-V semiconductor were used for fabricating various semiconductor devices; by the III group metal (in, Ga) depositing on III-V semiconductor GaP following heat treatment in hydrogen were obtained nanostructure layer in xGa_{1-x}P on GaP surface, and theoretically was investigated the possibility of usage of obtained structures for Quantum Dot Solar Cell. Current research is attempt fabricating nanostructure for spinotronic application. It was obtained abrupt interfaces Fe/GaAs by original electrochemical deposition method, and their electrical properties were investigated. Fig. 4, Ref.17.

Auth.

b15.2.10.12. Some types of nanosensors detecting the pathogens. /T. Bzhalava, K. Kapanadze, V. Kvintradze/. Nano Studies. – 2014. – #10. – pp. 89-96. – eng.

Some types of nanosensors detecting biomolecules and pathogenic microorganisms, including viruses are considered. A short review of principles and phenomena based nanosensors is proposed. Nanosensors for bio-medical applications – carbon nanotube, Si nanowire, micro-cantilever, nanowire field-effect transistors (FETs), integrated nanowire sensors are shown schematically. Capability of rapid, selective, sensitive detection of biomolecules/pathogens using nanodevices is considered. Fig. 7, Tab. 2, Ref. 7.

Auth.

b15.2.10.13. Homeopathic nanopharmacology according to the information-energetic holographic theory. /M. Chikava, T. Tsintsadze, M. Nishnianidze/. Nano Studies. – 2014. – #10. – pp. 97-98. – eng.

The use of super-low doses of such medications in homeopathy not gained by means of potentiation will yield no result. Therefore, the specific technology to prepare homeopathic drugs must be strictly observed. Potentiation changes the physical-chemical and quantum-mechanical properties of a substance. As the volume is no significant for the ready homeopathic drug and any part of the drug has the same therapeutic properties, we can assume that the new form of the therapeutic substance behaves in the same way as a hologram. By considering the idea of the homeopathic drugs having a relatively more active source, there is a view suggesting that there is a "contact" point for them in a human body. It seems that such a "contact" point is a similar information-energy field and can be defined as a human's biohologram. In case there is a resonance between the drug and the human body, the physiological systems producing the mechanisms of adaptation with a wide spectrum of further therapeutic effect activate. If no resonance develops in case of incorrect selection of the drug (code), no action will occur. By using this fact, N. K. Semionova developed the

information-energy holographic theory of homeopathy, which is based on the idea of the homeopathic drug and human body, as hologram and resonance between them. Ref. 7.

Auth.

b15.2.10.14. Practical applications of titanium nitride nanostructured coatings. /V. Shulayev, A. Redkokasha, D. Listopad/. Nano Studies. – 2014. – #10. – pp. 99-106. – rus.

Today the multifunctional nanostructured titanium nitride films and coatings remain the first among the strengthening, erosion- and corrosion-resistant, decorative and other coatings used in practice. They are the most commercialized nanostructured films and coatings. They are manufactured by hundreds of companies and firms under dozens of brands in all developed countries. Technologies and equipment for their synthesis are well utilized by the industry. The processes of synthesis of nanostructured titanium nitride coatings are environmentally friendly. The coatings are chemically inert with respect to environmental factors. For example, their use as strengthening and decorative coatings is economically justified. There are formed whole areas in the industry, based on the practical use of titanium nitride coatings, as well as new research directions in physics and technology research. Fig. 3, Ref. 41.

Auth.

b15.2.10.15. Postradiation annealing effect on plastic and optical properties of LiF crystal irradiated by high fluencies of neutrons. /M. Galustashvili, V. Kvachadze, M. Abramishvili, Z. Akhvlediani, D. Driaev/. Nano Studies. – 2014. – #10. – pp. 117-122. – eng.

Optimal conditions of mechanical characteristics recovery for LiF crystals irradiated by high neutron fluencies (10^{17} – 10^{19} n/cm²) were established. It was shown that post-irradiation annealing at comparatively low temperatures (300–400°C) ensures recovery of the initial plasticity level, along with retaining of considerable share of radiation hardening. The mechanism of observed plastification of crystals embrittled by neutron irradiation is proposed. Fig. 7, Tab. 1, Ref. 7.

Auth.

b15.2.10.16. Peculiarities of experimental conditions for adjustment of characteristics of lead selenide nanolayers. /A. Pashaev, O. Davarashvili, M. Erukashvili, Z. Akhvlediani, R. Gulyaev, M. Dzagania, V. Zlomanov/. Nano Studies. – 2014. – #10. – pp. 129-134. – eng.

Lead selenide nanolayers on KCl(100) substrates were fabricated by molecular epitaxy with a “hot wall”. The influence of the temperature of the epitaxy source and the substrate, the geometry of the experiment and the growth duration on the characteristics of layers such as their thickness, tangential lattice constant, deformation, and the size of subgrains and disorientation among them was investigated. The conditions for obtaining the deformation about $1 \cdot 10^{-2}$ at optimal thickness of layers of 50–80nm were established. This thickness range is important when the layers are doped with impurities of variable valence. Fig. 4, Tab. 1, Ref. 8.

Auth.

b15.2.10.17. Polarization-separation method for characterization of phase state in clouds. /K. Tskhakaia, R. Kikvidze/. Nano Studies. – 2014. – #10. – pp. 135-138. – rus.

The possibilities of using of depolarization factor at signal separation are considered for characterization of phase state variation in clouds. Fig. 1, Ref. 4.

Auth.

b15.2.10.18. Growth mechanism and morphology of germanium nitride nanowires. /D. Jishiashvili, L. Chkhartishvili, Z. Shiolashvili, N. Makhatadze, V. Gobronidze, A. Jishiashvili/. Nano Studies. – 2014. – #10. – pp. 139-148. – eng.

The tapered single-crystalline α -Ge₃N₄ nanowires were grown simultaneously on the surfaces of crystalline Ge source and Si substrate located at 2–3mm above it. The growth was performed at 500–560°C in the presence of hydrazine (N₂H₄) vapor containing 3mol.% water. The nanowires were grown through the vapor–liquid–solid mechanism using Ge catalyst. Produced nanowires were tapered. However, the direction of taper was different for nanowires grown on Ge and Si. The difference in tapering was explained by differences in the fluxes of volatile GeO molecules at the beginning of growth process and at the stage of temperature stabilization. It was found that at the surface of Si substrate a part of GeO molecules was reduced to pure Ge due to the presence of hydrogen in the pyrolytic decomposition products of hydrazine. As a result the chain-like Ge nanostructures were formed together with Ge₃N₄ nanowires. Fig. 8, Ref. 21.

Auth.

b15.2.10.19. Short dictionary (Glossary) on nanochemistry and nanotechnology. Part IV. /Ts.Ramishvili, V.Tsitsishvili/. Nano Studies. – 2014. – #10. – pp. 149-162. – eng.

In IV part of “Short dictionary (Glossary) on nanochemistry and nanotechnology” are some terms in English, German, and Russian taken from dictionaries and scientific periodic chemical publications and the corresponding terms in Georgian with appropriate definitions. This part focuses on some nanomaterials. Tab. 1, Ref. 13.

Auth.

b15.2.10.20. Recent studies in nanotechnology. /L. Chkhartishvili/. Nano Studies. – 2014. – #10. – pp. 169-172. – geo.

A review of recent summarizing studies in nanotechnology is given. Fig. 5.

Ed.

b15.2.10.21. Thulium monosulfide nanofilms technology. /Z. Jabua, M. Teteloshvili, A. Gigineishvili/. GEN. – 2014. – #2. – pp. 88-89. – rus.; abs.: eng.

The technology of fabrication of thulium monosulfide nanofilms was developed. The films were fabricated by discrete thermal vacuum evaporation of preliminarily synthesized bulk material. It is shown that the substrate temperature affects the sizes of characteristic particles. When the temperature increased from 930 K to 1115 K, the particle size increased from 18 nm to 48 nm. Fig. 2, Ref. 2.

Auth.

b15.2.10.22. Some aspects of formation of nonpenetrating ohmic contacts to shallow nanoscale silicon layers. / A. Tutunjan/. GEN. – 2014. – #3. – pp. 28-34. – rus.; abs.: eng.

The paper represents a brief review on the formation of nonpenetrating ohmic contacts based on refractory metal silicides to shallow nanoscale silicon layers. The main characteristics of ohmic contacts using titanium, cobalt, nickel and platinum as well as aluminum silicides obtained by various technological methods are assessed. Fig. 2, Tab. 1, Ref. 17.

Auth.

b15.2.10.23. Effect of nanostructured silver on biologically active substances and microbiological processes of dry red wine. /N. Ebelashvili, L. Shublazde, E. Salia, N. Gagelidze, N. Bibiluri/. Bulletin of the Georgian National Academy of Sciences.– 2014. – Vol. 8, #1.– pp. 94–101. – eng.; abs.:eng., geo.

In the present study we investigated the effect of various doses of nanostructured silver on the content of polyphenols, organic acids, main conditional indices, lactic acid bacteria and acetic acid bacteria in biotechnological processes of making dry red wines. Research material was prepared from the red grape variety "Saperavi". Sulfur dioxide – Kadifit, 50 mg/l concentration and various doses of nanostructured silver (0.2; 0.3; 0.4; 0.5; 0.6; 0.7; 0.8 mg/l) were used during the first year of making red wine material for different biotechnological stages: 1) processing of destemmed grape pulp prior to alcoholic fermentation; 2) after malolactic fermentation; 3) at the second and 4) third racking off the lees. Malolactic fermentation of the wine material was conducted after termination of alcoholic fermentation and racking off the yeast lees using lactobacteria of the strain "Extraflora" of *Oenococcus oeni* as starters. Content of catechins, phenolcarboxylic acids, flavanols and organic acids was investigated by means of the HPLC analysis. The main conditional indices were determined using standard international methods. Efficiency of application of nanostructured silver in the wine samples infested with lactic acid bacteria and acetic acid bacteria was evaluated. Nanostructured silver was found in biotechnological processes of making dry red wines to have the effect similar to that of sulfur dioxide. The optimum doses of using nanostructured silver 0.4 mg/l - prior to alcoholic fermentation for the processing of grape pulp; 0.6 mg/l – in the processes of the second and third racking off the lees, for the oxidation of biologically active substances and inhibition of growth of lactic- and acetic acid bacteria were identified. Tab. 4, Fig. 3, Ref. 12.

Auth.

b2.11. Other engineering sciences and technologies

b15.2.11.1. Kinematic analysis of the sheet-correcting mechanism. /J. Uplisashvili, N. Natbiladze, G. Khatiasvili/. Transport and Machinebuilding. – 2014. – #3(31). – pp.33-38.- geo.; abs.: geo., rus., eng.

The thesis describes the necessity of the correct supply of a sheet in the sheet-conductive mechanism of a printing machine for proper conducting the mechanism. Here is represented the constructed mechanism with graphical editors, which increases the accuracy of its correct working. Accordingly, a mathematical research of the mechanism designed by the authors has been carried out of, which is based on the theoretical possibilities of an inverse transformation. On the basis of graphical and mathematical analysis, it was found what magnitude of the angle corresponds to the driven ring at any angle rotation of the basic one. Fig. 2, Ref. 2.

Auth.

b15.2.11.2. The dynamics of changes in terpenes during alcoholic fermentation in the grapes and must of Rkatsiteli Muscat. /T.Kituashvili, M. Khositashvili, G. Buishvili, T. Khositashvili/. GEN. – 2014. – #2. – pp. 93-95. – geo.; abs.: eng.

The paper deals with the dynamics of changes in terpenes during alcoholic fermentation in the grapes and must of Rkatsiteli Muscat. It was revealed that the increase-accumulation of the concentration of all terpene compounds proceeded up to the accumulation of 18 % sugar, then the concentration of terpenes remained unchanged. When the concentration of sugar reached 21-22 %, the concentration of terpenes decreased gradually. The reduction in the total concentration of terpenes was related to the accumulation of spirit in the fermentation area. Fig. 2, Ref. 4.

Auth.

b15.2.11.3. Phenolic compounds in red wines of different types. /I. Kekelidze, N. Ebelashvili, M. Japaridze/. GEN. – 2014. – #3. – pp. 75-79. – eng.; abs.: rus.

The paper deals with the research of phenolic compounds in red wines of different types produced from Saperavi, grape cultivar, and the comparison and assessment of the obtained results. The objects of the study were: dessert, dry table, semi-sweet, liqueur and fortified wine samples from Saperavi (Kindzmarauli area); Alaverdi Monastery and Teliani Valley dry wine samples; Badagoni semi-sweet wine sample. The content of catechins, phenolcarboxylic acids, flavonols, resveratrol and vanillin aldehyde was studied by High Performance Liquid Chromatography (HPLC). It is shown that the objects of the study differ significantly in the content of phenolic compounds. The high content of catechins was found in dry, semi-sweet and dessert wine samples. From flavonols, most of all quercetin glucoside was detected in the samples; while from phenolcarboxylic acids – it was gallic acid. In red wines produced from Saperavi, the content of monomeric phenolic compounds quite high, which explains their antioxidant activity. Tab. 2, Ref. 16.

Auth.

b15.2.11.4. Development of the equipment-production process scheme for the production of muscat fortified wines. /T. Kituashvili, M. Khositashvili, O. Gotsiridze, G. Buishvili, M. Gorgiladze, M. Ardzenadze/. GEN. – 2014. – #3. – pp. 80-81. – geo.; abs.:eng.

The paper deals with the development of the technology of production of fortified wines from the Muscat Rkatsiteli grape variety. The production process scheme was developed. The implementation of this scheme provides the preservation of taste and flavor of the Muscat grape in wine. Fig. 1, Tab. 1, Ref. 3.

Auth.

b15.2.11.5. Non-alcoholic diabetic beverages based on Georgian mineral waters. /M. Karchava, M. Silagadze, I. Berulava, Sh. Jinjolia, N. Pkhakadze/. – GEN. – 2014. – #4. – pp. 76-79. – geo.; abs.: eng.

The paper deals with the prospects of optimization of the diet of people suffering diabetes. The scientific and practical aspects of designing the natural non-alcoholic beverages for diabetics are discussed. The technology of production of natural vitamin-mineral beverages for diabetics was developed. For production of the diabetic non-alcoholic beverages, Georgian mineral waters, cultural and wild-growing fruit and berries and medicinal plants with antidiabetic properties are used. Fig. 3, Ref.2.

Auth.

b15.2.11.6. Evaluation of the quality of alcoholic drinks by constructing the qualimetric models. /Sh. Shatirishvili, G. Zakalashvili, I. Shatirishvili, Ts. Lomtadze/. GEN. – 2014. – #4. – pp. 73-75. – geo.; abs.: eng.

On the basis of defining the carbonic mixture in the consistence of Georgian ordinal brandies, qualimetric models were constructed by the gas chromatography method. This provides a possibility of revealing the effects of different factors on the quality of wine products. Tab. 1, Ref. 3.

Auth.

b15.2.11.7. Chromadistillation method of research of the volatile components of wine materials. /Sh. Shatirishvili, K. Makhashvili, Ts. Lomtadze, M. Kiladze, I. Shatirishvili/. GEN. – 2015. – #1. – pp. 111-113. – geo.; abs.: eng.

The paper deals with the chromadistillation method of studying the aroma-forming volatile components in wine materials. The principal merit of the method while analyzing wine materials is that it can be combined with the chromatographic analysis. Chromadistillation concentration, gas-chromatographic separation and detection are carried out by a single gas scheme, without any loss of the components. Fig. 2, Ref. 3.

Auth.

b15.2.11.8. Qualitative indicators of beer and the factors affecting them. /E. Bendeliani, V. Fruidze/. Novation. – 2015. – #15. – pp. 219-223. – geo.; abs.: geo., eng., rus.

The article discusses the factors affecting beer qualitative indicators. In order to raise the quality of beer can be used for various additives. We used green and black tea extracts. Tea extracts significantly improve important indexes of beer such as content of alcohol and real fermentation degree, also its taste, color, aroma and formation of foam are improved. Tab. 2, Ref. 6.

Auth.

B3. MEDICAL AND HEALTH SCIENCE

b3.1. Basic medicin

b15.3.1.1. Psychics is characterized by the quantum process. /L. Kadagishvili/. GEN. – 2014. – #2. – pp. 38-40. – eng.; abs.: rus.

The article deals with the introduction of the quantum description when considering the perception structure. The link between the psychic conscious and unconscious phenomena is wave-like and can be understood as the relation of the realized information and the source of information to the dynamics of excitation. Only part of the excited energy in the human brain is transformed into the realized information; namely, it is the part, which can concentrate to a certain extent on overcoming the limit of consciousness. The total energy of the unrealized excitation is divided into effective and non-effective types, which can be later realized as portions. Just such an alternation of energy forms the wave-like response in the consciousness. The fact of the psychics being characterized by the quantum process is implied in its manifestation. The spectrum of properties shows that, like it happens in the process of revealing the quantum phenomena, the phenomenon under study is corpuscular and wave-like. As is known, the major property of the quantum process is the concept of a quantum, which is irradiated in separate portions or quanta (is realized in our case). Ref. 3.

Auth.

b15.3.1.2. Transdermal therapeutic systems. /N. Pailodze, E. Buadze, G. Shvangiradze, O. Metreveli, I. Khurtsilava/. GEN. - 2014. – #2. – pp. 119-122. – rus.; abs.: eng.

The paper deals with transdermal therapeutic systems. Their advantages and drawbacks are discussed. It is shown that, for some medicines, the transdermal delivery is the only way of their introduction into the organism. Besides, the transdermal delivery of medicines is much more convenient for the patients suffering chronic diseases, as they need permanent or long-term treatment. However, the transdermal delivery of medicines has a number of drawbacks such as: 1) skin irritation, allergic reaction; 2) takes the medicine longer time to begin its action than the injection; 3) only powerful medicines having certain physicochemical properties can be delivered in this manner. The ways of improving the transdermal therapeutic systems are considered. They include such physical methods as ionophoresis, sonophoresis and electrophoresis. Fig. 1, Ref. 2.

Auth.

b15.3.1.3. On the neurophysiological mechanisms of “preconscious”. /L. Kvirkvelia/. Bulletin of the Georgian National Academy of Sciences.– 2014. – Vol. 8, #1.– pp. 128-131. – eng.; abs.:eng., geo.

In the present paper different forms of electrophysiological activity of hippocampus are discussed from viewpoints of cognitive neuroscience. According to the well-known conceptions, consciousness is a hippocamp-dependent process and unconscious hippocamp-independent. It means that electrophysiological correlate of hippocampal activation in alertness – theta rhythm – accompanies cognitive processing, while EEG desynchronization of hippocampal activity correlates with dysfunction of the structure and unconscious brain activity. In the paper the third form of hippocampal activity, low amplitude theta waves appearing during desynchronization of background activity is analyzed. This intermediate form of hippocampal activation must be correlated with a lowered level of consciousness “preconscious”, which after S. Freud appears during insufficient concentration of attention. Low amplitude theta waves indicate the appearance of weak memory traces. Different forms of hippocampal EEG activity are evoked due to the degrees of excitation of the midbrain reticular formation in humans and animals. Fig. 3, Ref. 12.

Auth.

b15.3.1.4. The effect of lesion of the *n. Ventralis lateralis* of the thalamus on the conditional reflexes of active escape. /N. Sikharulidze/. Modern Issues of Medicine and Management. – 2015. – #2. – pp.50-62. – geo.; abs.: geo., rus.,eng.

Bilateral damage of *n. ventralis lateralis* of the thalamus was found to cause disturbance of conditional reflexes of active escape, manifested in the difficulty to develop conditional reflexes of active escape. Bilateral lesion of *n. ventralis lateralis* also reduces the motor activity of animals. The above-mentioned disturbance can be caused by a damage of the nerve connections between *n. ventralis lateralis*, on the one hand, and *n. mediodorsalis* and *n. ventralis posterior lateralis* on the other, as well as by damaging the nerve pathways connecting *n.ventralis lateralis* with the prefrontal cortex. Fig. 6.

Auth.

b15.3.1.5. Ethnical pathologies in American and Caucasian populations. /M.Chipashvili, E. Abzianidze, C.Gigineishvili, E.Imnadze/. Social, Ecological and Clinical Pediatrics. – 2015. – #17-12-11. – pp. 51-52. – geo.; abs.: geo., eng.

There are certain cases when spreading of the hereditary diseases is associated with family or ethnic traditions. Marriage between close relatives or close ethnicity groups can be a reason for spreading serious diseases in certain ethnic (or religious) groups. Provision of the proper recommendations to the population would save families from the heavy genetic burden, as well as decrease the frequency of hereditary diseases in the population. Ref. 9.

Auth.

b15.3.1.6. Monozygotic twins, discordance and the diseases. /D.Tskhomelidze, M. Abisonashvili, M. Merkviladze/. Social, Ecological and Clinical Pediatrics. – 2015. – #17-12-11. – pp. 52-53. – geo.; abs.: geo., eng.

We established that there is a big discordance rate in monozygotic twins, which we have studied. As concern diseases we have got some interesting results by this direction. For example, in the monozygotic twins (age 26, female) one of them had oophoritis and the other one had not. In another pair of twins, in both boys we discovered the Darwin's tubercle on the left ears. Ref. 2.

Auth.

b15.3.1.7. Nutrigenomics - Influence on genes expression. /M. Chipashvili, E. Imnadze, C. Gigineishvili/. Social, Ecological and Clinical Pediatrics. – 2015. – #17-12-11. – pp. 54-55. – geo.; abs.: geo., eng.

Nutrigenomics studies the influence of food on gene expression. Instead of using drugs for the treatment and prevention of severe and chronic disease, nutrigenomics offers a healthy lifestyle and a personalized diet. Food is the shortest way to regulate gene expression. Ingredients that influence gene expression were identified in 20 types of food and there are about 19 genes that influence proper functioning of internal organs (absorption of antioxidants, tendency for inflammation, and sensitivity to insulin). Food is the shortest way to regulate gene expression. Ref. 8.

Auth.

b15.3.1.8. Dynamics of changes in the immune system during acute viral respiratory infections in children treated with apikor. /N. Topuridze, T. Gongadze, N. Khvtisashvili, N. Pitava, M. Tsulaia/. Social, Ecological and Clinical Pediatrics. – 2015. – #17-12-11. – pp.62-64. – Geo.; Abs.: Geo., Eng.

The purpose of the research was to study the dynamics of changes in the parameters of immune system in children with acute viral respiratory infections treated with *Apikovir*. We enrolled 60 children aged 1 to 5 years with acute viral respiratory infection. The patients were divided into two groups: the first group with 32 patients undergoing symptomatic treatment and the second group with 28 patients getting *Apikor* with other basic treatment. The patients were under the treatment during 20 days. The test for the immunological status was conducted before and after the treatment session. Conclusions: 1. *Apikor* combined with the basic treatment significantly improves the cellular as well as the humoral immune status of the patients with acute viral respiratory infections. 2. Adding *Apikor* in basic treatment contributes to reduction of duration and complications of acute viral respiratory infections. Tab. 3., Ref. 12.

Auth.

b15.3.1.9. Immunological testimonies among the children with bronchopneumonia diseases associated with thymomegalia disease treated with Apipulmo. /K. Chakhunashvili, Ts. Jeladze, M. Gogiashvili, G. Chakhunashvili, T.Gogatishvili, D. Chakhunashvili, T. Kontselidze/. Social, Ecological and Clinical Pediatrics. – 2015. – #17-12-11. – pp.65-67. – Geo.; Abs.: Geo., Eng.

The aim of our trial research was to find immune defenses among children of early age with bronchopneumonia diseases. We studied T-lymphocytes and their subpopulations CD3, CD4, CD8, pyantybodes. The percentage levels of B lymphocytes, the IgG, IgA, IgM, testomonies in serum of blood. The aim of our theme is the investigation of cell and hummoral immune system among the children of early age. Apipulmo combined with basic treatment significantly improves the cellular as well as hummoral Immune status of the patients with bronchopnewmonia diseases. Tab. 1., Ref. 7.

Auth.

b15.3.1.10. Effect of glutargin in blinding function of serum albumin and other indicators of functional state of liver in acute toxic alcoholic hepatitis. /S. Andreychyn, Z. Skirak/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 97-101. – rus.; res.: geo., eng., rus.

Acute toxic alcoholic hepatitis continues to be a topical problem of modern medicine as a result of a significant spread of alcoholism in Ukraine and the world. Aim - to explore the effect if glutargin in blinding function of serum albumin and other indicators of the functional state of liver in acute alcoholic toxic hepatitis in the experiments with white rats. All animals were divided into four groups. The first (control group) consisted of 20 healthy intact animals, second – 17 rats with acute toxic alcoholic hepatitis, which was taken out of the experiment on the second day of its commencement, the third – 16 animals with similarly modeled pathology, which was taken out on the seventh day from the beginning of the experiment, fourth – 20 animals with acute toxic alcoholic hepatitis, which underwent correction of 4.0% solution glutargin during seven days. It was shown that the blinding function of serum albumin reduced under conditions of the studied pathology; pronounced biochemical signs of liver parenchyma occurred. Under the influence of glutargin the studied parameters significantly improved. In acute toxic alcoholic hepatitis significantly disturbing protein-synthetic liver function, occur phenomena cytolysis, suppressed blinding function of serum albumin with maximum expression on the second day of the experiment and with signs of recovery on the seventh day. Under the influence of glutargin indicators of the blinding function of serum albumin: total protein, aminotransferase, alkaline phosphatase, total biliirubinwere upgraded. The activity of serum aspartate aminotransferase normalized and reached the level of control. Tab. 1, Ref. 21.

Auth.

b15.3.1.11. Role of single-nucleotide polymorphism c-1562T of the matrix metaloproteinaza-9 gene in the development of leiomyoma in women with cervical pathology. /I. Savchenko, V. Garbuzova/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 18-22. – rus.; res.: geo., eng., rus.

108 women diagnosed with leiomyoma and 84 women without this disease (control group) were examined during the research. A comparative analysis of the genotypes distribution between women with cervical pathology of different complexity was conducted. The results of the research showed that there was no connection between the C-1562T polymorphism of the MMP-9 gene and the progression of leiomyoma, the course of which is accompanied by false erosion of the cervix (ectopias epithelium) ($p>0,521$). Also was not found any connection between the SNP in women with leiomyoma, who undergo conical electrocauterizing excision treatment because of the dysplastic epithelial changes that are considered to be precancerous ($p>0,280$). Tab. 2, Ref. 12.

Auth.

b15.3.1.12. The role of lactate acidosis in the development and treatment of various neurologic syndromes in children and adolescents. /G. Arveladze, N. Geladze, T. Sanikidze, N. Khachapuridze, S. Bakhtadze/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 69-75. – rus.; res.: geo., eng., rus.

The aim of the study was to detect the role of lactate acidosis, also to find the share of mitochondrial insufficiency in development of various neurologic syndromes in children and adolescents. The detection of cellular energetic metabolism and acid based imbalance is also important for finding the specific method of management. We have studied 200 patients with various degree of neurodevelopment delay with epilepsy and epileptic syndromes, headache, vertigo, early strokes, floppy infant syndrome, atrophy of ophthalmic nerve, cataracta, neurosensory deafness, systemic myopathy, cerebral palsy. In 27% of cases with various Ages we have detected lactate acidosis and increase level of pyruvate. Mitochondrial insufficiency was seen in 8% of cases which gives us opportunity to find the specific method of treatment in this group of patients. Each patient with neurological symptoms requires correction of parameters of energetic and oxidative metabolism. Tab. 4, Ref. 27.

Auth.

b15.3.1.13. Theoretical and methodological bases of pharmaceutical aid formation (review). /Z. Chanturia, T. Chumburidze, B. Eriashvili/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 89-94. – rus.; res.: geo., eng., rus.

Pharmacists are required to ensure the quality of services provided to each patient. Good Pharmacy Practice (GPP) is a tool of clarifying and fulfilling this commitment. The role of International Pharmaceutical Federation (FIP) is to guide the national pharmaceutical organizations, which, in turn, should initiate the establishment of national standards. A key element is the obligation imposed by the profession throughout the world - to promote different activities for the benefit of those we serve. GPP is recommended to be considered as a list of occupational tasks, the implementation of which would serve the interests of patients or customers in the pharmacy. Ultimately, the quality of pharmaceutical care system will help to ensure not only the commercial interests of the pharmacy, but also the security requirements as those services and products, as well as professionals and patients. Fig. 3, Ref. 15.

Auth.

b15.3.1.14. Effects of immunotoxic and electrolytic lesions of medial septal area on spatial short-term memory in rats. /M. Dashniani, L. Kruashvili, Kh. Rusadze, S. Mataradze, G. Beselia/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 98-103. – eng.; res.: geo., eng., rus.

In the present study electrolytic and the immunotoxins (192 igg saporin and GAT1-SAP) lesions of medial septal area (MS) were used to investigate the importance of cholinergic and GABAergic MS neurons in spatial working memory

using spatial alternation task. In our experiments electrolytic lesions destroyed on average 69% of the intact MS. Examination of the AChE stained sections showed that after injections of 192 IgG saporin into the MS, animals exhibited significantly less AChE staining in MS as compared to sections obtained from control animals. Intraseptal GAT1-SAP preferentially reduced GABAergic neurons as compared to cholinergic neurons in the MS. The results of present study indicate that spatial short-term memory is affected only by electrolytic but not 192 IgG saporin or GAT1-SAP lesions. The behavioral testing showed that 192 IgG saporin treated rats, relative to control rats, had a significantly lower level in the number of arms entered during the testing session. However, the groups did not differ in the level of alternation behavior. GAT1-SAP lesioned rats showed that the percent alternation scores and the number of arms that the rat entered in the maze were not significantly different from control rats. These findings indicate that deficits observed after septal electrolytic lesions cannot be accounted solely to the loss of cholinergic or GABAergic septohippocampal projections. To determine more definitively whether septohippocampal projection neurons are required for the spatial short-term memory it would be ideal to produce in future combined lesions of the cholinergic and GABA-ergic septohippocampal projection neurons using 192 IgG-saporin and GAT1-SAP. Fig. 2, Ref. 21.

Auth.

b15.3.1.15. Antinociceptive tolerance to non-steroidal anti-inflammatory drugs microinjected into dorsal hippocampus of rats is due to pharmacological tolerance. /N. Tsiklauri, I. Nozadze, M. Nebieridze, G. Gurtskaia, E. Abzianidze, M.G. Tsagareli/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 108-112. – eng.; res.: geo., eng., rus.

Pain is characterized as a complex experience, dependent not only on the regulation of nociceptive sensory systems, but also on the activation of mechanisms that control emotional processes in limbic brain areas such as the amygdala and the hippocampus. We have recently found that repeated microinjection of non-steroidal anti-inflammatory drugs (NSAIDs) into the dorsal hippocampus of rats for four consecutive days induces antinociceptive tolerance as revealed by a progressive decrease of the latency in the tail-flick and hot plate tests compared to controls treated with saline into the dorsal hippocampus. Here we found that on the first day microinjection of NSAIDs, ketorolac, clodifen and xefocam into the DH produced antinociception as revealed by a latency increase in the TF and HP compared to the baseline control of intact rats and a control group with saline microinjected into the same site as well. Subsequent NSAIDs microinjections, without testing on the second and third days, caused progressively less antinociception, i.e. developed tolerance. After two days resting, by day 7 antinociception was almost completely restored for all the three drugs. Thus we demonstrated that this antinociceptive tolerance is due to pharmacological tolerance to these drugs and not to conditioning by repeating testing or hyperalgesia or other nonspecific mechanisms. Fig. 2, Ref. 25.

Auth.

b15.3.1.16. The study of *in vitro* release of carvedilole from solid dosage forms. /K. Baramidze, N. Megreli, Sh. Namgaladze, T. Chikviladze, M.Jorjikia/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.17 -19. – geo.; abs.: eng.

Examined is the release of solid dosage forms of the medicine *Carvedilole* registered in Georgia. It is established that all of the samples are compliant with monographs USP 36 NF 31 on test "dissolution", as from all samples more than 80% carvedilole is released on 30 minutes. Upon comparison of dissolution profiles, only the samples 2 and 4 were found to be equivalent to the referred one. Regarding the samples #3 and #5, the data *in vitro* studies are not satisfactory and thus require additional *in vivo* studies to determine the therapeutic equivalence (optional). Fig. 2, Tab. 2, Ref. 8.

Auth.

b15.3.1.17. Late senescence and aging of oligodendrocytes. /R. Beriashvili, G. Simonia/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. – pp.31 -34. – geo.; abs.: eng.

The total number of oligodendrocytes decreases during the period of late senescence as in the unit area of pyramidal layer of the cortex, as well as the surrounding white matter. Besides, decrease in the number of oligodendrocytes is being performed at the expense of the decrease of newly created oligodendrocytes, differentiating cells and the number of already differentiated adult cells realizing the specific functions. The physiological death of neurocytes during the late senescence is accompanied by the physiological death and loss of anatomically and functionally related oligodendrocytes, resulted in an increase of share of the apoptotic cells in the total number of oligodendrocytes. The fact that all types of cells including apoptotic cells in the old organisms are smaller in size is expression of gerogenic changes. During apoptosis of smaller cells, aging cells undergo fragmentation into smaller parts in comparison of the relatively large size cells of young organisms. Thus, apoptosis in aging body has its gerogenic characteristics. Fig. 1, Tab. 1, Ref. 10.

Auth.

b15.3.1.18. Features of pharmaceutical market of Georgia. /V. Eriashvili, T. Tchumburidze, N. Dugashvili, N. Iamanidze, G. Zhizhilashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. – pp.60 -62. – geo.; abs.: eng.

The obtained data suggest that more activity from governmental structures is needed to regulate a number of problems, such as high prices of drugs and medical services, quality control of medicines, monopolization of the pharmaceutical market, incorrect prescription and usage of drugs. Pharmacists are facing the problem of choice between commercial interests of a pharmaceutical company (owner of pharmacy) and professional ethics. Fig. 8, Ref. 11.

Auth.

b15.3.1.19. *In vitro* evaluation of antioxidant activity of leaves and buds from *Betula litwinowii* doluch. growing in Georgia. /L. Zardiashvili, M. Jokhadze, J. Kuchukhidze, A. Bozhadze, T. Murtazashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. – pp.74 -76. – eng.; abs.: geo.

The antioxidative potential of different fractions (respective organic fractions of n-hexane, chloroform and ethyl acetate) of methanol extract of vegetative organs (buds and leaves) of *Betula litwinowii* Doluch. was evaluated using free radical-

scavenging activity on DPPH (1,1-diphenyl-2-picrylhydrazyl) assays. The methanol extract of leaves showed significant activities in all antioxidant assays and contained a high level of total phenolic content. It was observed that the level of hydrophilic phenolic content was higher than that of hydrophobics. Among those organic solvent fractions, ethyl acetate fraction exhibited significant activities due to the highest level of total phenolic content and their IC₅₀ values were 0.21 ± 0.02 mg/ml (leaves) and 0.27 ± 0.02 (buds). These activities were superior to those of a commercial natural antioxidants tested. The chloroform and hexane fractions also exhibited significant free radical-scavenging activity (IC₅₀ 0.79±0.04 µg/ml; IC₅₀ 0.91±0.05 µg/ml (leaves) and 0.56±0.03 µg/ml; 0.69±0.03 µg/ml (buds)) attributed to the high amount of hydrophobic phenolics. Tab. 1, Ref. 9.

Auth.

b15.3.1.20. *In vitro* cytotoxic activity of *Betula litwinowii* doluch. growing in Georgia. /L. Zardiashvili, M. Jokhadze, J. Kuchukhidze, T. Murtazashvili, V. Mshvildadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. – pp.76 - 78. – eng.; abs.: geo.

Species of the genus *Betula* that grow in Georgia are not sufficiently studied from the point of view of pharmacognosy. The qualitative and quantitative composition and activity of the polyphenols sum, their fractions and individual substances are not determined. It should be noted that there is a great interest among scientists in the search for natural compounds with antioxidant and cytotoxic effect. Studies have shown that the main pharmacological role of polyphenols is in the treatment of cardiovascular diseases and malignant tumors. Based on the above, the authors have carried out the fractionation of polyphenols of *Betula litwinowii* fam. Betulaceae, using solvents of different polarity by liquid-liquid extraction. The cytotoxic effects of the methanol extract and the organic fractions were studied *in vitro* with WST-1 reagent respectively. Methanol (LC₅₀ 2.08 ± 0.5 µg/ml) and ethyl acetate (LC₅₀ 1.57 ± 0.2 µg/ml) extracts have a high cytotoxic activity. This is due to a high content of polyphenolic compounds. Tab. 1, Ref. 6.

Auth.

b15.3.1.21. Assessment of the immune status and issues of immunotherapy for noninfectious pathology. /B. Korsantia, Nato Korsantia, M. Mamaladze, Nino. Korsantia, A. Katsitadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.102–106. – geo.; abs.: eng.

Conducted clinical and immunological analysis of the literature and our own data in various diseases of non-infectious nature (environmental stress, periodontitis, surgical diseases, physical overload, psoriasis), clearly revealed the direct involvement of the immune system of patients, which was manifested in a fast and deep enough immunosuppression, and which depended on the severity of the pathological process. The use of interferon preparations and/or interferon inducers (in our clinical example – plaferon) in the complex therapy recorded a significant improvement in the condition of patients, reduction of recovery terms, more long-term remission and normalization of immunological parameters. Fig. 8, Ref. 16.

Auth.

b15.3.1.22. Study of *Agregani's* equivalence by the solubility test *in vitro*. /L. Kunchulia, Q. Baramidze, L. Tcheishvili, R. Makharadze, N. Lekishvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.109 – 112. – geo.; abs.: eng.

The pharmaceutical market of Georgia, as one of the component links of the world pharmaceutical market, is represented primarily with generic preparations. In world practice, in most cases the basic and clinical researches of generic preparations are not conducted, which is frequently unjustified. According to the studies of WHO, about 40-60% of generics are found to lack the therapeutic efficacy and safety of the original preparations. The purpose of this study was to determine the therapeutic equivalence of the drug *Agregani* manufactured by the local pharmaceutical company GMP to that of Bayer's Aspirin by means of solubility test *in vitro*. The results of the test are given. Fig. 5, Tab. 1, Ref. 7.

Auth.

b15.3.1.23. Gabapentin concentration monitoring in human saliva. /L. Kunchulia, R. Makharadze, T. Khvingia, N. Imnadze, N. Shengelize/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.112 – 114. – geo.; abs.: eng.

In 1970, the company GOEDELKE (Freiburg, Germany) designed a new program to improve and increase the effectiveness of the treatment of neurological diseases. The program was focused on finding out a universal agent to treat all kinds of epilepsy. For this purpose, selected were 25 analogues of gamma-amino butyric acid (GABA), among which was selected gabapentin with most interesting activity. Gabapentin is a very interesting product from the pharmacokinetic point of view. It does not metabolize in liver and, respectively, has no hepatotoxic activity, does not conjugate to plasma enzymes and is not cardio toxic. The chromatography conditions are as follows: column size - 100×45 mm with solid phase C18, column temperature – 35°C; as mobile phase was used: 0.5% formic acid solution in water and acetonitrile (30:70)(v/v), flow rate of mobile phase is 0.5ml/min; sample volume – 0.5ml; isocratic regime. The UV detection was at 210 nm. The retention time in this condition is 8.5 min. The method sensitivity is 40 ng/ml, the mean error of the method is e = ± 4.8%. The developed method was probated on clinical material. On the basis of the study result could be concluded, that for the purpose of the gabapentin pharmacokinetic monitoring could be successfully used human saliva instead of plasma. It is important that gabapentin determination in human saliva does not require the help of special medicinal personal, does not cause an inconvenience in patients; the method is quite simple and available for each specialized laboratory. Fig. 3, Tab. 1, Ref. 7.

Auth.

b15.3.1.24. Interesting cases of inherited thrombophilia in Georgian population. /N. Pirtskhelani, N. Kochiashvili, L. Makhaldiani, N. Pargalava, K. Kartvelishvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.144 – 147. – geo.; abs.: eng.

Inherited thrombophilia is a genetic predisposition to thrombosis of an individual, caused by mutations in different genes. It is often associated not only with thromboembolism, but also with pregnancy complications. For the identification of

inherited thrombophilia, we have studied mutations of the blood coagulation factor V gene (G1691A), prothrombin gene (G20210A) and MTHFR gene (C677T) by the modern methods of molecular-genetic study. Polymerase Chain Reaction (PCR) and Single Nucleotide Primer Extension Enzyme-Linked Immunosorbent Assay (ELISA) were used for genetic studies. In respect to thrombophilia, from examined patients, two cases were found particularly interesting and significant, where as a result of genetic research, patients were diagnosed as carriers of the mentioned mutations. This allowed us not only to identify the causes of thrombosis and select adequate treatment, but also to prevent recurrent episodes of thrombosis and possible development of related life-threatening complications. Ref. 15.

Auth.

b15.3.1.25. Toxicology aspects of the globally harmonized system of classification, labeling and packaging of chemicals (GHS/CLP) and perspectives of its implementation in Georgia. /I. Gvineria, M. Zhuruli, V. Saakadze, T. Oniani, R. Kverenchkhiladze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.147 – 148. – geo.; abs.: eng.

The CLP Regulation (EC) 1272/2008 on the Classification, Labelling and Packaging of Chemicals and Mixtures is highlighted. According to this regulation, hazards evaluate for 28 categories: 16 - physical, 10 - health and 2 - environment. Implementation of this classification in Georgia and perspectives to develop National Guideline on this issue are considered. Ref. 11.

Auth.

b15.3.1.26. Use of a dissolution test to evaluate the bio-equivalence of generics containing claritromycine. /T. Chikviladze, K. Baramidze, N. Koberidze, L. Tefnadze, T. Otashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.151 – 153. – geo.; abs.: eng.

The work aims at comparative studying of the release of active substance from the solid dosage forms containing claritromycine registered in Georgia. It is established that all of the samples are compliant with monographs USP 36 NF 31 on test "dissolution", as from all samples more than 80% claritromycine is released in 30 minutes. Upon comparison of the dissolution profiles, the samples 2 and 5 were found to comply with the referred one and, consequently, these samples equal the referred medications. As for the samples nos. 3 and 4, the data in vitro studies are not satisfactory and thus establishment of the therapeutic equivalence requires additional *in vivo* studies. Fig. 2, Tab. 2, Ref. 7.

Auth.

b15.3.1.27. Epigenetics of genomic imprinting. /M. Chipashvili, Ts. Gigineishvili, E. Imnadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.164 – 165. – geo.; abs.: eng.

Genomic imprinting is caused by the epigenetic factors that act during different stages of development and direct it in an evolutionary conserved manner. These factors are: methylation, acetylation and phosphorylation. It has also been established that factors as IV drugs, certain medications, toxins, pesticides, food supplements, radiation, etc., influence the individual's epigenome both in prenatal and postnatal periods and may be a cause of various hereditary diseases. Ref. 7.

Auth.

b15.3.1.28. Standardization of the Zo-20 (Simvastatine) 20 mg tablets. /M. Jorjikia, T. Noniashvili, B. Chumburidze, T. Chikviladze, H. Ioramasvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.180 – 183. – geo.; abs.: eng.

The purpose of research was standardization of Zo-20 20 mg tablets containing simvastatine by polarimetric, infrared spectroscopy and high-pressure liquid chromatography methods. It is established that the Simvastatin drug substance complies with the reference standards of the European Pharmacopoeia. Fig. 4, Tab. 4, Ref. 8.

Auth.

b15.3.1.29. Autoimmune mechanisms toward type I collagen during catarrhal and ulcer gingivitis. /L. Jashi, M. Ivereli, N. Abashidze, N. Gogebashvili, Kh. Gogishvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.177 – 180. – geo.; abs.: eng.

The article presents original data about autoimmune mechanisms according to the severity of the process during the catarrhal and ulcer gingivitis. The medical examination of 80 patients with different forms of gingivitis demonstrated that during gingivitis the synthesis and re-synthesis of type I Collagen is negatively affected and as a result, type I Collagen concentration in the blood serum raises. In addition, the selection of antigen reactive lymphocytes increases toward Type I Collagen, which in turn boosts their quantity in blood and also stimulates the creation of auto-antibodies toward Type I Collagen. This is reflected by the increased quantity of auto-antibodies in the blood serum. The intensity of these processes amplifies as the periodontitis inflammation becomes more severe. These results demonstrate that the autoimmune process develops toward Type I Collagen during catarrhal and ulcer gingivitis and its intensity reflects the severity of the pathological processes in periodontitis. Tab. 1, Ref. 9.

Auth.

b15.3.1.30. Communication peculiarities of pharmacist and patient. /N. Kvizhinadze, E. Mirvelashvili, S. Gokadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.94 – 96. – geo.; abs.: eng.

The study analyzed the relationship between the pharmacist and the patient. It is very important in the process to determine what factors lead to more effective relations with the pharmacy facility. Patient-oriented approach changes the role of the pharmacist, the growth of the recommendations of the person, responsibility, which, in turn, leads to its professionalization. Pharmacists and doctors are supposed to improve the condition of the patient, so the ethics of medical and pharmaceutical ethics has a lot in common, but the pharmaceutical ethics in relations in patient communications has some particular characteristics. Pharmacist's task is to ensure optimal and efficient use of the medicines to be the most effective drug regimens. It shall also individually control the patient's medication use. The task is very important not only for

consumers, but also to increase its professional authority. The profession of pharmacist should be directed to the public and specifically to the patients. Fig. 2, Ref. 5.

Auth.

b15.3.1.31. The role of pharmacist in health care system. /N. Kvizhinadze, N. Bukhrikidze, N. Dugashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.96 – 97. – geo.; abs.: eng.

The development of the health sector in the footsteps of pharmacy expanded the role of the pharmacist, as well as the essence of its activities, the destination. Pharmacy today is perceived as a patient-oriented science, and pharmacists in the health care system are one of the most important subjects, whose professional role not only selling the drug to a patient, but qualified counsel as well. The pharmacists, who have the ability and the opportunity to implement patient-centered services, can improve their image, as health care professionals. Patient-centered approach changes the role of the pharmacist, his growth as a person responsible for issuing the recommendations, which in turn leads to its professionalization. The pharmacist's role in health care is very diverse and in all cases should be focused on the customer/patient. Ref. 6.

Auth.

b15.3.1.32. An overview of ethnic and gender differences in pain sensation. /I. Kvachadze, M.Tsagareli, Z. Dumbadze/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 102-108. – eng.; res.: geo., eng., rus.

Increasing amounts of clinical and experimental evidence show differences in pain responses between different ethnic groups. At the same time, the experience of pain is characterized by immense inter-individual and group variability with one likely contributing factor being ethnicity. Synergistically, pain and ethnicity are multidimensional, malleable and shaped by culture. Although there is no consensus regarding the underlying mechanisms, ethnic group differences inevitably reflect a holistic influence of biological, psychological and socio-cultural factors. Numerous studies, investigating a wide variety of painful conditions, have also suggested gender differences in pain perception. Particularly, epidemiologic and clinical findings clearly demonstrate that women are at increased risk for chronic pain and some data suggest that women may experience more severe clinical pain. Studies of experimentally induced pain have produced a very consistent pattern of results, with women exhibiting greater pain sensitivity, enhanced pain facilitation and reduced pain inhibition compared with men, though the magnitude of these sex differences varies across studies. Fig. 2, Ref. 61.

Auth.

b3.2 Clinical medicine

b15.3.2.1. Modern strategic course of pediatric cardio-rheumatology. /G. Chakhunashvili, N. Jobava, K. Chakhunashvili, D. Chakhunashvili, D. Tabutsadze, K. Chakhunashvili/. Pediatric Cardiology. – 2015. – #9. – pp.11-15. - geo.; abs.: rus., geo., eng.

Georgian Pediatric Cardiology Association Modern management for pediatric cardio-rheumatology incorporates early detection of cardiovascular system diseases (rheumatic, non-rheumatic, inflammatory, non-inflammatory) and prevention of those diseases. Georgian pediatric cardiology association over years of work has developed action-program, which substantially determines strategy of 21st century pediatric cardio-rheumatology: "Risk factors, etiology, clinical presentation features based on age and sex of atherosclerosis and cardiovascular ischemic diseases; Determining treating strategy using new bioactive substances and the role of genetic markers in epidemiologic data for prevention". Realization of the project has already started and the effective outcome depends only on united efforts of governmental and non-governmental institutions. Ref. 36.

Auth.

b3.2.2. Effect of laser irradiation and some drugs on the course of experimental atherosclerosis. /T. Tavkhelidze/. Modern Issues of Medicine and Management. – 2015. – #2. – pp. 15–31. – geo.; abs.: geo., rus.,eng.

Atherosclerosis is a common disorder. the disease mainly affects the large arteries. Severe complications of atherosclerosis are myocardial infarction, cerebral stroke, gangrene of the lower limbs, etc. Not one study devoted to this problem, many authors. Both at an atherosclerosis of the person, and at an experimental atherosclerosis the important place occupy cholesterol and β -lipoprotein. An important role in this disease is owned and platelets. Numerous works devoted to the prevention and treatment of atherosclerosis. To this end, among other means, has been used by several authors as Helium-neon laser. Nevertheless, still is over what to work. the purpose of our study, this time, was to study the effect of Trental, aspirin, and helium-neon laser on experimental atherosclerosis and in these circumstances the definition of the functional state of platelet morphometry lipid inclusions aortic intima, electron microscopic examination of the aortic wall, setting the number of neutral and acid mucopolysaccharides in the walls of the aorta. on the basis of the spent researches, we consider, that growth of lipid inclusions aorta intims at an experimental atherosclerosis increases, not only because of increase in the general cholesterol and β -lipoprotein in blood whey, but also for the account of such factors, as deterioration of a functional condition of platelets, negative ultrastructural changes in an aorta wall (increase in quantity of lipid drops and vacuoles in endothelial cells, a considerable quantity of so-called foamy cells, elastic fibres with the lost cross-striated banding and a fragmentation). Besides growing of collagenic fibres into a subendothelial layer, into an adventitia is observed change of a microcirculating channel is marked, the increase in quantity of neutral and sour mucopolysaccharides etc. All it, eventually, promotes adjournment of lipids in an aorta intim. on this background the preparations used by us (Aspirin, Trental), and also an irradiation Helium-neon the laser, especially their complex, cause considerable improvement of a situation in an aorta intim, i.e. braking of development of atherosclerotic process that is caused by normalisation of a metabolism of a wall of an aorta. Tab. 6, Fig.10, Ref. 14.

Auth.

b15.3.2.3. Substantiation of algorithm of management of patients with partial absence of teeth, using removable dentures. /E. Mamphoria/. Modern Issues of Medicine and Management. – 2015. – #2. – pp.32-40. – geo.; abs.: geo., rus., eng.

Based on obtained data the algorithm of management of patients with different terms of using removable plate and clasp dentures. During the period of using the removable dentures for partial absence of teeth, it is necessary to timely detect changes in the underlying tissues of the prosthetic bed, and carry out measures that contribute to the increase of terms of using removable dentures and decrease of incidence of complications.

Auth.

b15.3.2.4. Reasons related to intolerance of dental materials. /E. Mamphoria/. Modern Issues of Medicine and Management. – 2015. – #2. – pp. 41-50. – rus.; abs.: geo., rus., eng.

Based on these data revealed that the intolerance of prosthetic materials can be caused by various conditions that involve different mechanisms of disease. Such symptoms may be in the formulation in the mouth not only the prosthesis and filling materials, but the design of the fastening means (cements, adhesives and the like), and can also be called candidiasis. An important role in the development of intolerance play endogenous infections. Therefore, the problem of intolerance to dental materials in each patient requires an analysis of all these reasons together dentist and immunological laboratory.

Auth.

b15.3.2.5. Eliner – esthetic dentistry. /T. Gagoshidze/. Modern Issues of Medicine and Management. – 2015. – #2. – pp.62-66. – geo.; abs.: geo., rus.,eng.

The work deals with a removable orthodontic device, Eliner's popularity and development. the work is relevant and provides jaw-dental system anomalies correction, the latest technologies, such as Easyliner. Fig. 3, Ref. 2.

Auth.

b15.3.2.6. Indicators of adaptation complete dentures in applying polypropylene, clear acrylic base. /L. Aladashvily, M. Djervalidze, I. Taboridze/. Modern Issues of Medicine and Management. – 2015. – #2. – pp.73-86. – geo.; abs.: geo., rus.,eng.

To study features of adaptation to complete dentures with the use of polypropylene and acrylic bases, taking into account the microbiological and immune system and psycho-neurological type. We observed 55 patients aged 45 to 75 years of contingent dental clinic "Leader-dent", who underwent complete removable prosthesis on polypropylene basis. The control group consisted of 50 patients of the same age who had a prosthesis on acrylic basis. It was an open, non-randomized, prospective study. Adapting to complete dentures depends on the patient's psychological type. Previously, all adapted sanguine later all - melancholic. Long-term adaptation reveals a significant negative correlation to the psychological type of sanguine and phlegmatic (respectively $r=-0,6632$, $p < 0,0000$ and $r=0,1293$, $p < 0,4662$). and negative - to the psychological type of melancholic ($r=0,8145$, $p < 0,0000$), the quality of life associated psychological sanguine type ($r=0,3349$, $p < 0,0124$), and a significant negative correlation detects a "psychological type melancholic" ($r=-0,5889$, $p < 0,0000$). Tab. 3, Fig. 1, Ref. 8.

Auth.

b15.3.2.7. Risk-factors for development of suppurative-inflammatory infections in puerperas. /D. Kobeshavidze, D. Chikviladze, Kh. Gachechiladze., M. Mikeladze/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 18-23. – rus.; res.: geo., eng., rus.

The article deals with an epidemiological analysis of parturition cases (analysis is performed using the descriptive and evaluative method) for detection of potential risk factors for development of suppurative-inflammatory infections in puerperas. Study was performed in the obstetric hospital *Imedis Klinika* in 2014. 3248 parturition cases were analyzed, among them 2373 (73.06% cases of physiological birth and 875 (26.99%) caesarian operation cases. From all the cases were detected only 296 (9.211%) cases complicated with basic forms of suppurative-inflammatory infections. Also was performed an analysis of post-parturition complications, dependent on anamnesis of pregnant. As a result, it was detected that most significant risk factors for development of suppurative-inflammatory infections in puerperas with physiological birth were genitourinary inflammatory diseases, while pregnancy prolonged (more than 6 hours) parturition period. In the cases with caesarian operation, such factors, apart from operation itself, were genitourinary inflammatory diseases, while pregnancy prolonged (for more than 5 hours) the waterless period, tribal activities before operation, tribal activities for more than 5 hours, the operation duration longer than 30 minutes and huge hemorrhage while surgery. Fig. 4, Tab. 2, Ref. 13.

Auth.

b15.3.2.8. Gynecology operations combined with hernioplasty. /N. Kintraia, B. Mosidze, L. Melia, R. Sulukhia/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 24-27. – rus.; res.: geo., eng., rus.

Hernioplasty is one of the most widespread planned simultaneous operations in practice of obstetrics and gynecology. Rising trend of such interventions has been steadily increasing in these latter days. We have conducted 64 gynecology operations combined with hernioplasty. 5 operations were conducted in an expedited manner; 59 interventions were planned. Age of our patients ranged from 24 to 57. Duration of the surgical interventions was 129 minutes as average; duration of hospital stay days – 4 ± 2 days, which didn't extend terms of stay at the stationary of the patients with separately conducted operations. Expressed pain syndrome was assessed with the amount of the used analgesics. Tension free hernioplasty by using reticulated polypropylene implants, on simultaneous operations, including hernioplasty combined with the gynecological components, gives good functional results and esthetic effect, excluding a possibility of serious complications in the postoperative period. Fig. 1, Tab. 1, Ref. 12.

Auth.

b15.3.2.9. Diagnostic features of polycystic ovary syndrome in adolescents (review). /K. Beltadze, L. Barbakadze/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 32-34. – eng.; res.: geo., eng., rus.

The problem of Polycystic Ovary Syndrome (PCOS) is of a special importance due to its connection with not only medical but with psychosocial factors. PCOS is the most common endocrine cause of an ovulatory infertility. It is a major factor for the metabolic syndrome, cardiovascular disease, type 2 diabetes mellitus (T2DM). Clinical symptoms of PCOS such as acne, hirsutism, obesity, alopecia represent psychological problem, especially for the adolescents. Many women who have PCOS have the onset of symptoms during adolescence. Early diagnosis and treatment of PCOS are important for preventing of the above mentioned long-term consequences associated with this condition. Adolescent patients often have diagnostic problems because the features of normal puberty are similar with symptoms of PCOS. This article reviews the diagnostic and differential diagnostic characteristics of PCOS in adolescents. In conclusion, consensus statement in adolescent patients is still waiting. Our data suggest that it may be prudent to define adolescent PCOS according to the Carmina modified Rotterdam criteria. The increase rate of metabolic syndrome in adolescents with PCOS emphasizes the importance of regular screening due to the high cardiometabolic disorders risk. Ref. 16.

Auth.

b15.3.2.10. The maxillary second molar – anatomical variations (case report). /E. Beshkenadze, N. Chipashvili/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 35-38. – eng.; res.: geo., eng., rus.

To be acquainted with dental anatomical specificity is of great importance for dental endodontic treatment algorithm. The subject of present publication is 2 clinical cases of upper second molars, detailed characterization of, which is considered very important for enrichment of anatomical knowledge about dental anatomical variations. In one case, the reason for admission to the clinic of a 38-year-old woman was complains as of esthetic character as well as functional misbalance (disturbance of chewing function due to the damage of orthopedic construction). The patient indicated to the existence of coronary defects of large size aesthetic discomforts, damage and discoloration of old orthopedic construction (denture) in maxillary right molar area. According to the data obtained after clinical and visiographical examinations, chronic periodontitis of 17 teeth was identified as a result of incomplete endodontic treatment. According to the data obtained after clinical and visiographical examinations, the diagnosis of chronic periodontitis of 17 teeth was identified, tooth 17 with 2 roots and 2 canals. In the second clinical case, the reason for admission to the clinic of a 39-year-old woman was severe pain in the upper right molar area. The patient indicated to the caries on the tooth 17. After completion of proper survey clinical and visiographical examinations, acute pulpitis (K04.00) – with three roots and 4 canals was diagnosed. In both cases after the proper examinations and agreement with the patients a treatment plan envisaging: 17 teeth endodontic treatment, filling of caries defects and their preparation on one hand for orthopedic construction (denture) and on the other hand for restoration of anatomical integrity by light-cured composite, was scheduled. The present study is designed to prevent complications of endodontic treatment of the second molar, to optimize diagnosis and treatment algorithm, once again proving reliable information indicating to the individuality of treatment tactics. Fig. 2, Ref. 16.

Auth.

b15.3.2.11. Implication of laparoscopy in diagnostics of genital TB among women through cytohistological testing of bioptic specimen. /G. Lortkipanidze, L. Vashakidze, T. Mamaladze, N. Gujabidze/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 39-45. – rus.; res.: geo., eng., rus.

Diagnostics of genital TB among women is a serious challenge because of the absence of specific clinical manifestation and difficulty to obtain material for bacteriological verification of the pathogen. All the cases with ascites and masses in pelvic cavity must undergo thorough testing to exclude tuberculosis. The present article describes 14 suspect cases of genital TB, where along with the mandatory clinical diagnostic studies (including PCR of ascites and bacteriological testing for TB, also on carcinoma of CA-125 ovary) they have conducted laparoscopy, with further cytological and bacteriological testing of bioptic sample. This method allowed us to diagnose genital and abdominal tuberculosis among women in 85,7% of cases through cytologic and histologic testing and to exclude ovarian carcinoma. Effectiveness of laparoscopy has been confirmed in diagnostics of genital and abdominal TB. Fig. 2, Tab. 2, Ref. 19.

Auth.

b15.3.2.12. Clinical course of acute coronary syndrome in dependence on containing of homocystein and C677T methylenetetrahydrofolate reductase gene polymorphism. /L. Prystupa, A. Grek, Y. Ataman, A. Orlovskiy, N. Opolonska/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 46-49. – rus.; res.: geo., eng., rus.

Nowadays to a numerous factors of IHD development risks hyperhomocysteinemia (HHc), C-reactive protein, fibrogen, as well as genetic disorders are relating. With development of IHD and its complications associated methylenetetrahydrofolate reductase gene mutation of C677T polymorphism. The purpose of the investigation was studying the connection between acute coronary syndrome severity (ACS) in dependence on plasma homocysteine containing and genotype by C677T polymorphism MTHFR gene. Examined: 161 patients with ACS and 87 almost healthy people. Identification of 4th exon allelic polymorphism MTHFR C677T gene (rs1801133) was conducted with method of polymerase chain reaction, the investigation of homocysteine containing with immunoenzymated method. The statistic analyze was performed with using of SPSS – 17 programme. According to results of study patients with ACS of homozygote by minor allele T C677T MTHFR gene polymorphism by main allele C and heterozygote were associated with high homocysteine containing in plasma. While frequencies of T/T genotype was reliably higher in patients with ACS with segment ST elevation and complicated course compare with patients with ACS with segment ST elevation and non-complicated course and ACS without climbs of segment ST. Also, statistically reliable difference in genotypes distribution by C677T MTHFR gene polymorphism in dependence on homocysteine plasma level and clinical course of ACS severity were established. Tab. 3, Ref. 12.

Auth.

b15.3.2.13. Dermatoscopic features of pigmented and non-pigmented basal cell carcinoma. /N. Kiladze, T. Shulaia, A. Bulinska, L. Abrahamovych/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 50-53. – eng.; res.: geo., eng., rus.

Basal cell carcinoma (BCC) is one of the most common malignant tumors, which accounts for about 75% of all skin cancers, its early diagnosis is crucial for proper treatment. In recent years, an increasingly important role in the early and differential diagnosis of skin tumors plays dermatoscopy, making possible to improve the diagnosis of pigmented and nonpigmented skin lesions, especially in the early stages of development. The aim of this work is to study the dermatoscopic criteria for pigmented and non-pigmented BCC using the algorithm of H. Kittler. Were studied 78 cases of different clinical types of BCC, diagnosis was based on clinical and dermatoscopic picture with further confirmation by cytology. The obtained data show that for pigmented BCC are characteristic five major signs of dermatoscopy - lines, dots, clods, circles and pseudopodia, whereas for non-pigmented form - pattern of blood vessels and, as an additional feature, structureless areas. Further studies are needed to evaluate specific dermoscopic hallmarks regarding different categories of BCC and sensitivity of these dermatoscopic features. Tab. 1, Ref. 10.

Auth.

b15.3.2.14. The method of estimation of endothelium functional condition in patients with essential arterial hypertension in combination with diabetes mellitus type 2. /M. Kochueva, Y. Radzishavska, A. Linska, E. Radzishavska, E. Stepanets/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 53-60. – rus.; res.: geo., eng., rus.

The method of estimation of endothelium-dependent vasodilatation (EDVD) of the brachial artery has been elaborated to the patients with essential arterial hypertension stage II in combination with diabetes mellitus type 2 using the method of multivariate regression analysis as an alternative to the reactive hyperemia test using high-resolution ultrasound. The method allows estimating of EDVD of the brachial artery on the basis of five traditional parameters of ultrasound diagnostics without special equipment. This simplifies the diagnosis, significantly reduces its duration and might have widespread use in the primary diagnosis. Fig. 3, Tab. 2, Ref. 13.

Auth.

b15.3.2.15. New markers of progression of chronic heart failure in patients with myocardial infarction, type 2 diabetes and obesity. /P. Kravchun, O. Kadykova, T. Gabisoniya/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 60-64. – rus.; res.: geo., eng., rus.

Currently identified have been a large number of biomarkers that are closely linked with the development of chronic heart failure, some of which are clusterin and fractalkine. Accordingly, the purpose of our study was - to evaluate the role of clusterin and fractalkine in progression of chronic heart failure in patients with postinfarction cardiosclerosis, type 2 diabetes and obesity. We investigated 71 patients with post-infarction cardiosclerosis, type 2 diabetes and obesity. All patients with postinfarction cardiosclerosis, diabetes and obesity were divided into groups according to the functional class of chronic heart failure (CHF). It was found that an increase in the level of fractalkine and reduced clusterin leads due to the development of systolic dysfunction and heart failure progression in patients with post-infarction cardiosclerosis, type 2 diabetes and obesity. Fractalkine and clusterin play an important role in progression of the heart failure in patients with post-infarction cardiosclerosis, diabetes type 2 and obesity, and this gives them the right to be considered indicators of the severity of CHF. Fig. 1, Tab. 1, Ref. 15.

Auth.

b15.3.2.16. Atrial fibrillation after mitral valve replacement. /V. Tseluyko, A. Zhadan, E. Zedginidze/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 65-69. – rus.; res.: geo., eng., rus.

Atrial fibrillation at patients with mitral valve disease is a common complication, both before and after surgery. The analysis of factors associated with the risk of atrial fibrillation in patients with mitral valvular disease was performed. It has been established that the conduct of surgery in patients with mitral valve contributes not only to improve the clinical course of the disease, but also the restoration of sinus rhythm. Tab. 7, Ref. 7.

Auth.

b15.3.2.17. Nonspecific ulcerative colitis in combination with rheumatoid arthritis (case report). /A. Toleuova, Zh. Beysenbekova, D. Tayzhanova, Z. Tauesheva, Z. Guseinova/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 70-72. – rus.; res.: geo., eng., rus.

The rheumatoid arthritis in the structure of rheumatological diseases occupies about 10% and is one of the most widespread inflammatory diseases of joints. The joint damage often meeting by the nonspecific ulcerative colitis, but combination of rheumatoid arthritis with nonspecific ulcerative colitis is rare. The article describes a case of the nonspecific ulcerative colitis associated with rheumatoid arthritis, in which arthritis occurred 8 years before the onset of nonspecific ulcerative colitis. Ref. 3.

Auth.

b15.3.2.18. IGE-mediated food allergy – current problems and future perspectives (review). /N. Lomidze, T. Gotua, M. Gotua/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 73-78. – eng.; res.: geo., eng., rus.

The incidence and prevalence of FA have changed over time, and many studies have indeed suggested a true rise in prevalence over the past 10–20 years. Recent studies showed that prevalence of self-reported food allergy is 17, 3%, versus challenged confirmed - 0.9%. The majority of allergic reactions to foods, particularly in children, are suggested to be caused primarily by eight foods, namely cow's milk, egg, wheat, soy, peanut, tree nuts, fish, and shellfish. Clinical symptoms of FA include skin, gastrointestinal and systemic reaction anaphylaxis that might be life-threatening and cause fatal reaction. Diagnosis of food allergy is based on SPT, sIgE measurements, component resolved diagnostics (CRD) and double-blind placebo-controlled food challenge (DBPCFC) tests. The primary therapy for food allergy is strict avoidance of the causal foods. Patients should be provided an emergency action plan, including how to administer an epinephrine autoinjector. It is recommended that all infants be exclusively breast-fed, without maternal diet restriction of allergens, until 4 to 6 months of age. Recent studies have shown that oral immunotherapy (OIT) can induce desensitization and modulate allergen-specific immune responses. Further work to evaluate the long-term effectiveness and safety of this therapy is ongoing and needed before they are used in the main-stream care of children or adults with food allergy. Ref. 42.

Auth.

b15.3.2.19. Possible mechanism of hyperemia in the skin caused by non-painful mechanical pressure. /T. Basiladze, G. Bekaia, N. Gongadze, N. Mitagvaria/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 83-89. – rus.; res.: geo., eng., rus.

It is believed that hyperemia in the skin, resulting from applied weak mechanical pressure delays the development of ischemia, and that it is a defensive neurovascular reaction against the local pressure, which can be considered as a critical point in terms of prevention of ischemia and, respectively, the risk for development of bedsores. Taking into account that nitric oxide can be released from autonomic nerves and make a significant contribution to the functioning of the mechanism of neurogenic vasodilation in different tissues, and the fact that the same role can also play the calcitonin gene-related peptide, the aim of this study was to clarify the role of each of these factors in the development of local hyperemia caused by non-painful, mechanical pressure on the skin. In experiments on white rats with a quantitative measurement of the intensity of skin blood flow, it was confirmed that in case of non-painful pressure acting on the skin, two-phase reaction of local blood flow appears – at first there is an increase in its level, and then an exponential decrease with stabilization at a level below the initial one. Analysis of received data allow to make conclusion that in realization of this phenomenon the role of trigger element belongs to nitric oxide, and the role of the executing unit - to calcitonin gene-related peptide. The effectiveness of this combined mechanism is limited by development of dominance of pressure-induced mechanical compression of cutaneous vessels over its vasodilator effect. Fig. 4, Ref. 12.

Auth.

b15.3.2.20. The influence of extracorporeal laser radiation on structural indices of erythrocytes. /R. Khetsuriani, L. Aladashvili, M. Arabuli, D. Tophuria, N. Tchlikadze/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 94-97. – rus.; res.: geo., eng., rus.

Object of the research was to study the diffractometric indices of erythrocytes, while 1 ml of the blood of the experimental animals was irradiated extracorporeally by helium-neon laser. For this purpose 1 ml blood was taken from normal weight, (1200 gr) grown up chinchilla rabbits, that we divided into 7 groups and irradiated with 10 vat helium-neon laser during 0.5-1 minutes. After irradiation blood was injected back to the organism of rabbits. After 2-6 hours from irradiation blood was taken from veins, to study by electronic microscope and later to be processed by diffractometric analysis method. The examinations testify that after extracorporeal irradiation diffractometric characteristics of erythrocytes' membranes are lower than after general irradiation, which indicates to the different energetic possibilities of laser. The extracorporeal irradiation, performed by laser and input of radiated blood back to organism is considered to be a shock therapy from the side of erythrocytes, which promote the defense function of the organism itself. The base for the shock therapy should be important factors such as homeostasis, compensative-adaptive mechanisms and so on. Exactly this above mentioned should be manifested after the sensitized cells are led back to the body (1 ml of blood) and with their existence they should promote display of the defense mechanisms. Tab. 1, Ref. 6.

Auth.

b15.3.2.21. Immediate and long-term results of surgical treatment of benign breast disease. /A. Yazikov, V. Leonov, V. Andryushchenko, I. Lukavenko/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 11-18. – rus.; res.: geo., eng., rus.

Sector resection of the breast is the standard surgical treatment of benign breast disease, but often it has unsatisfactory outcomes. The aim of the study was a comparative analysis of the effectiveness of surgical treatment of patients with benign breast diseases after sector resection and after modification of the procedure. Classical sector resection was performed on 45 women, 106 - underwent operations with using of plastic surgery elements. The effectiveness of treatment was defined by the presence of complications in the early postoperative period; the quality of life was studied using questionnaires – the Short Form Medical Study (SF-36) and the Breast Evaluation Questionnaire (BEQ) – before surgery and after 3 and 12 months after surgery. After sector resection was 44% of the complications in the early postoperative period, after the developed techniques - 17%. 3 months after the operation quality of life and aesthetic satisfaction of breast in patients of both groups decreased. 1 year after sector resection the rates of satisfaction of breast aesthetic appearance were significantly lower than the preoperative level. In patients after modified operations at 1 year was observed a significant improvement in well-being and satisfaction of aesthetic appearance of breast. The method of sector resection has a greater number of complications; it leads to deterioration of the aesthetic appearance of the breast in 1 year after surgery. Surgery techniques with elements of mammoplasty have fewer complications and improve quality of life after surgery. Tab. 6, Ref. 23.

Auth.

b15.3.2.22. Periodontal diseases in patients with vitamin D-resistant rickets. /N. Japaridze, V. Margvelashvili, M. Shengelia, T. Chigladze, M. Kalandadze/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 23-26. – eng.; res.: geo., eng., rus.

Objective is to define the risk of development of periodontal diseases at vitamin D-resistant rickets. The material for the study was based on the data from 13 children of 0-18 years with vitamin D-resistant rickets (I group), 68 children with vitamin D-dependent rickets (II group), and the control group included 61 children of the same ages. The patients were divided into 3 age groups: I group of 0-5 years (deciduous/milk teeth occlusion), II group of 6-12 of years (mixed bite), III group of 13-18 years (permanent occlusion). For the qualitative data the differences between the groups were detected by using F criteria but for the quantitative data the differences between the groups were detected by Student's t test for independent selection. Mathematical processing was performed using statistical software SPSS-22 in all three groups the gingivitis of mild and moderate forms were fixed, among them acute course was revealed only in the group of vitamin D-resistant rickets. The rate of chronic, local, catarrhal and generalized gingivitis in the group of vitamin D-resistant rickets was reliably higher in comparison with both vitamin D-dependent rickets and control groups. In addition, a mild form of periodontitis with chronic course was revealed in all three groups the rate of which was reliably higher in the group of vitamin D-resistant rickets comparing with the ones of vitamin D-dependent rickets and control groups. The rate of inflammatory periodontal diseases in children with vitamin D-resistant rickets is higher than in children with vitamin D-dependent rickets and the control groups. Fig. 1, Tab. 2, Ref. 14.

Auth.

b15.3.2.23. Influence of smoking on audiological characteristics of hearing function. /Kh. Gegenava, Sh. Japaridze, Z. Kevanishvili, L. Lomidze, T. Khechinashvili/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 27-31. – eng.; res.: geo., eng., rus.

Cigarette smoking and related diseases are global problem of health. Discussion regarding influence of smoking on hearing function has been continued about 20 years. The aim of our study was estimation of relation between smoking and development of cochlear neuritis. Research was conducted at Ltd. National Centre of ENT - Japaridze-Kevanishvili clinic and Ltd. Audiology National Center. The data were collected from September 2011 to December 2013. Cross-sectional observational study was carried out. 600 persons (mean age - 45.4 ± 10.4) were enrolled in the research. After filling the informed consent persons were divided into two groups: smokers (300 smokers, apparently healthy persons, mean age 44.3 ± 10.6 years) and control group (300 healthy non-smoker persons, mean age 46.5 ± 10.2 years). All persons completed a questionnaire, which includes questions about smoking status too. The inclusion criterion in smokers group was a smoking habit during 5 years at least 10 cigarettes per day. Otoscopy and Acoustic impedance test (timpanometry, reflexometry, testing for Eustachian tube conductivity) were used for verification of outer and middle-ear normality. Pure Tone Audiometry was performed for hearing measure and identifies hearing nerve condition. Obtained results were statistically treated by the student's *t*-distribution. For minimal level of significance was taken $p < 0.05$. In smokers group hearing loss was proved in 31.33% (94 persons) and in control group - in 17.34% (52 persons). Hearing-loss vs. normal-hearing ratio amounted hence to 0.46 ($P < 0.01$) in the smokers group and to 0.21 ($P < 0.01$) in the nonsmokers'. Hearing loss in smokers may be provided by different pathological mechanisms. Fig. 1, Ref. 26.

Auth.

b15.3.2.24. Current status on the pathogenesis of progressive myopia. /I. Tserediani/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 31-35. – rus.; res.: geo., eng., rus.

In the article shown is the modern diagnostic method of progressive myopia pathogenesis. Establishment of possible myopia progress using the ultrasonographic biometry while looking into and into and down contact equator at one and the same point. The research goal is to study the residual deformative changes developed as a result of sclera distraction during reading. We have researched 150 patients. The patients were split in three groups according to the age and myopia type: Group I included patients of the age of 5-12 years; Group II had patients of the age of 13-19 years; Group III – patients above the 19 years. The used age differentiation is based on the eye anatomic growth criteria. The research was held by the following scheme: all the researches patients underwent the preliminary anesthesia drops instillation; the ultrasonographic biometry catheter was put using one and the same equator point. In the first position they established the front and back axis size, in the second one – the eye size was established in the medial look regime; in the third position - the eye size was established in the reading regime. The data obtained are as follows: among the first group patients, aged from 5 to 12 years, in reading regime the eye size was increased in 93% cases; among the second group patients, aged from 13 to 19 years, in reading regime the eye size was increased in 90% cases; among the third group patients, aged above 19 years - 91% cases. The reason why the sclera capsule distraction during reading regime is that of the extraocular muscles and growth of the intraocular pressure influence the process. Because the sclera is fibrotic membrane, it is characterized with well-marked elasticity, stronger accommodation and the sighth load in the near distance causes sclera capsule distraction. After the contraction the residual deformation stays there. Accumulation of such residual deformations causes the sclera weakness and formation of myopia as a disease. According to the data obtained, it is necessary to work out the certain recommendations, from the sclera nutrition and other medical preparations standpoint. Improvement of the sclera nutrition will slacken the residual changes in sclera, and this will significantly decrease the myopic disease advancing. Fig. 3, Ref. 24.

Auth.

b15.3.2.25. Aberrant expression of Fcγ-receptors and toll like receptor CD180 on monocytes from patients with chronic lymphocytic leukaemia. /T. Tsertsvadze, N. Mitskevich, D. Ghirdaladze, N. Porakishvili/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 35-38. – eng.; res.: geo., eng., rus.

Chronic lymphocytic leukemia (CLL) is the most common leukaemia in the US and in Europe, including Georgia. Patients with CLL are susceptible to infectious diseases as a result of both, the disease progression and chemotherapy that indicates deficiency of immune responses to pathogens, including innate immunity, mediated by monocytes. Monocytes are also often recruited by monoclonal antibodies (mAbs) which express anti-tumor toxicity through Fcγ-receptor

(Fc γ R)-mediated phagocytosis of opsonized leukemic cells. In this paper we address of monocytes functional status through assessment of the patterns of expression of Fc γ receptors CD64, CD32, CD16 and CD180 receptor on monocytes from CLL patients and healthy individuals using specific mAbs and flow cytometry. Our data demonstrate that monocytes from peripheral blood of CLL patients lack expression of CD64 and CD16 as well as CD180 that would substantially undermine their ability to contribute to anti-bacterial immune responses. In addition, aberrant expression of CD64 would negatively affect the efficiency of antibody-mediated immunotherapies. Fig. 4, Ref. 10.

Auth.

b15.3.2.26. The effectiveness of empirical antibiotic therapy of pyelonephritis in patients with type 2 diabetes and without depending on the availability of plasmid-mediated resistance genes. /O. Chub, A. Bilchenko/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 39-43. – rus.; res.: geo., eng., rus.

Multi-drug resistance has been increasing in the treatment of urinary tract infections, especially complicated. The prevalence of plasmid-mediated resistance genes among urinary pathogens has neither been studied in Ukraine. So, the aim of our study was to identify the plasmid-mediated resistance genes and to determine their impact on the efficacy of the treatment. A total of 105 adult patients with chronic pyelonephritis were included in the study. Among them, 32 patients were diagnosed with type 2 diabetes mellitus. The diagnosis of pyelonephritis was verified according to the criteria EAU, 2013. Plasmid-mediated resistance genes were determined by polymerase chain reaction (PCR). The prevalence of plasmid-mediated resistance mechanisms among patients with pyelonephritis were 44.4%. ESBLs was the most common isolated genes. Favorable clinical response was seen in 11/31 (35.5%) infected with ESBL-producing organisms compared with 59/74 (79.7%) patients with non-ESBL-producing organisms ($p < 0.05$). In 16% of patients with resistance organisms antimicrobial agent was changed. Antibiotic efficiency was reduced in patients with complicated pyelonephritis due to presence of plasmid-mediated resistance genes. Therefore, proper management for prescription of antibiotics and also identification of ESBL-producing bacteria in communities are important for prevention. Fig. 4, Ref. 14.00

Auth.

b15.3.2.27. Early repolarization as a predictor of premature ventricular beats. /Z. Matoshvili, Sh. Petriashvili, A. Archvadze, I. Azaladze/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 44-47. – eng.; res.: geo., eng., rus.

Early repolarization pattern (ERP) is a common ECG variant, characterized by J point elevation manifested either as terminal QRS slurring (the transition from the QRS segment to the ST segment) or notching (a positive deflection inscribed on terminal QRS complex) associated with concave upward ST-segment elevation and prominent T waves in at least two contiguous leads. Aim of this observational study was to compare number of premature ventricular beats in the different groups of patients with early repolarization. The result of this observational study shows that there are: 1.74 fold higher number of premature ventricular beats in 41-74 year subgroup VS 19-40 year subgroup; 1.31 fold higher number of premature ventricular beats in male subgroup VS female subgroup (But this difference is not statistically significant, because $t=1.49$, $p=0.141$); 2.85 fold higher number of premature ventricular beats in CAD+ERP subgroup VS ERP without CAD subgroup; 1.74 fold higher number of premature ventricular beats in HF+ERP subgroup VS ERP without HF subgroup; 1.81 fold higher number of premature ventricular beats in CAD+ERP subgroup VS CAD without ERP subgroup; 1.58 fold higher number of premature ventricular beats in HF+ERP subgroup VS HF without ERP subgroup; So, CAD+ERP is very arrhythmogenic condition, after this is HF+ERP, Then Age. This study shows that ERP independently increase number of PVB in different groups (CAD, HF). This is principally new and very important result. Also the number of patients is enough to make this conclusion. Tab. 7, Ref. 14.

Auth.

b15.3.2.28. Study of CK-MB activity in patients with acute myocardial infarction after percutaneous coronary intervention. /N. Emukhvari, E. Tsetskladze, Kh. Khijakadze, I. Mamatsashvili, R. Napetvaridze/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 47-51. – eng.; res.: geo., eng., rus.

The research has been carried out in patients of TSMU Cardiovascular Department of A. Aladashvili University Clinic. 105 patients with acute myocardial infarction have been involved in the study, which undergoing percutaneous coronary intervention (PCI). For several years coronary angioplasty has been proposed to be an effective method, but in spite of its well-developed technique, probability of myocardial injury is still high which appears to have no clinical or electrocardiographic manifestations and is diagnosed only by elevation of cardiac marker level. According to our study data after successful PCI elevation of CK-MB mass was observed in 34.4% patients, majority of those patients had STEMI. In II group the age of patients was higher compared to I group. There were more patients with diabetes mellitus (38.8%), dyslipidemia (86.1%) and patients with low left ventricular ejection fraction (50%). Also there were more patients with previous MI and damage of 3 coronary arteries. Hence age, diabetes mellitus, dyslipidemia, left ventricular ejection fraction $< 40\%$, number of damaged coronaries might be considered as predictors of CK-MB elevation after successful PCI. Solid elevation of CK-MB after procedure was also associated with increased hospital complications rate, 30-day and 6 months hospitalization rate and 6 months mortality rate. It should be noted that from 36 patients who developed solid (24 h) elevation of CK-MB after PCI CK-MB mass was increased in all cases, while the concentration was elevated only in 16 cases. It proves that CK-MB mass is more significant criteria of myocardial injury. Tab. 2, Ref. 8.

Auth.

b15.3.2.29. Clinical efficacy of calcium channel blockers slow the third generation of lercanidipine in the treatment of patients with arterial hypertension and metabolic disorders (review). /G. Tabidze, T. Kezeli, T. Tsiabadze, N. Dolidze/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 51-56. – rus.; res.: geo., eng., rus.

Arterial hypertension is the most common risk factor in patients with metabolic disorders. In the selection of antihypertensive therapy it is necessary to consider not only the anti-hypertensive and organoprotective effects of drugs and their metabolic effects, which has prognostic value. Calcium antagonists along with Lercanidipine related to the third generation dihydropyridine calcium antagonist, have been much more selective for the so-called slow calcium channels of

vascular smooth muscle cells, which is associated with a good hypertensive, organo and metabolic action. Combination therapy with an ACE inhibitor and a calcium channel blocker is also a justified tactic for the management of patients with high-risk cardiovascular and metabolic disorders. Attention is paid new fixed combinations, including angiotensin converting enzyme inhibitors and calcium antagonists. Ref. 41.

Auth.

b15.3.2.30. Vasoplegia in septic shock (review). /M. Gamkrelidze, N. Intskirveli, K. Vardosanidze, Kh. Chikhladze, L. Goliadze, L. Ratiani/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 56-62. – eng.; res.: geo., eng., rus.

Vasoplegia is considered as a key factor responsible for the death of patients with septic shock, due to persistent and irreversible hypotension. The latter associated with vascular hyporeactivity to vasoconstrictors is a significant independent prognostic factor of mortality in severe sepsis. Loss of control of the vascular tone occurs through the complex, multifactorial mechanism and implicates deeply disrupted balance between vasoconstrictors and vasodilators. the aim of this review is to discuss in detail the recent suggested alternative mechanisms of vasoplegia in severe sepsis: Overproduction of nitric oxide (NO) by activation of inducible form of nitric oxide synthase (iNOS); up-regulation of prostacyclin (PG12); vasopressin deficiency; significantly elevated levels of circulating endothelin; increased concentrations of vasodilator peptides such as adrenomedulin (AM) and calcitonin gene-related peptide (CGRP); oxidative stress inducing endothelial dysfunction and vascular hyporeactivity to vasoconstrictors; inactivation of catecholamines by oxidation; over-activation of ATP-sensitive potassium channels (K_{ATP} channels) during septic shock and their involvement in vascular dysfunction. The review also discusses some therapeutic approaches based on pathogenetic mechanisms of severe sepsis and their efficacy in treatment of patients with septic shock. The loss of vascular tone control occurs through the complex, multifactorial mechanism and implicates deeply disrupted balance between vasoconstrictors and vasodilators in the pathogenesis of septic shock. Overproduction of nitric oxide (NO) by the inducible form of nitric oxide synthase (iNOS); up-regulation of prostacyclin (PG12); vasopressin deficiency; elevated levels of circulating endothelin; increased concentrations of vasodilator peptides such as adrenomedulin (AM) and calcitonin gene-related peptide (CGRP); oxidative stress inducing endothelial dysfunction and vascular hyporeactivity to vasoconstrictors; inactivation of catecholamines by oxidation; over-activation of ATP-sensitive potassium channels (K_{ATP} channels) and their involvement in vascular dysfunction – all these factors combined together lead to steady refractory shock with the lethal outcome in patients. Ref. 45.

Auth.

b15.3.2.31. Abdominal organ donation: surgical aspects and recommended practice guidelines for controlled donation of brain-dead donor. /E. Matevossian, D. Kordzaia, Z. Chkhaidze, N. Khodeli, J. Partsakhashvili, Z. Khachiperadze, D. Doll, G. Lobzhanidze/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 81-89. – eng.; res.: geo., eng., rus.

The shortage of organ donors along with the increased number of waiting recipients have created the need for new strategies to expand the organ pool from donations after brain death. Organ procurement from brain-dead deceased donors is a complex task. Multiple, complicated operations are performed simultaneously. Very often, this involves numerous physicians and transplant coordinators. An extensive coordination between the thoracic and abdominal surgical teams is crucial for the successful procurement of all suitable organs. the quality of donor organs and the successful recovery therefore depends on a good communication. Organ procurement for transplantation should generally be performed in a calm and dignified atmosphere. the last wishes of the organ donor itself or the relatives must be respected unconditionally. In general, a dignified and respectful treatment of the organ donor is a condition sine qua non for each person involved in the process of organ procurement. The purpose of this article was to focus on the surgical aspects of organ donation after brain death. the proposed recommendations, in cases where they are applicable, are acceptable, however, one should never forget the importance of the ethical side of the issue with respect to the doctor-donating side relationship. Fig. 8, Ref. 12.

Auth.

b15.3.2.32. Skin defect modeling in experimental animals. /A. Oleshko, V. Kornienko, Tu. Tkachenko, V. Kurganskaya/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 103-108. – rus.; res.: geo., eng., rus.

To assess the skin regeneration and explore new medical devices for the treatment of skin defects is necessary to conduct long-term experiments using laboratory animals. Currently, there are many methods for skin trauma modeling but most of them have disadvantages that limit their use. The purpose of this work - the development of an experimental model of the formation of skin defect of various etiologies with the specified parameters of depth and area of damage to the absence of systemic effects on the animal's body. We have developed an installation that allows us to form a skin defect of mechanical, thermal and chemical etiology with area from 1.76 cm² to 2.0 cm². The experiment was conducted on 18 male laboratory rats to examine the effectiveness of current method and control the depth and area of the defect. As a result of the new methodology, we were able to carry out simulation skin injuries of different etiology on laboratory animals in the short term and reduce the severity of injuries to extend the life span of animals to monitor the repair processes, as well as to standardize the modeling of injuries according to the criteria of area and depth of the defect. Fig. 2, Ref. 17.

Auth.

b15.3.2.33. Microbial structure of postoperative infectious complications, after hip replacement and osteosynthesis of long bones. /N. Avazashvili, I. Mchedlishvili, D. Chikviladze, Kh. Gachechiladze, M. Mikeladze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 3-5. – geo.; abs.: eng.

In this article, there are given data of microbiological research, which was performed in patients with postoperative infectious complications after hip replacement and osteosynthesis of long bones. Research was performed in traumatology department during 2014. The study found that microbial structure of infectious complications after both types of surgical interventions are similar, and in both cases gram-positive microflora nearly 1,5 times prevailed over gram-negative

flora. Also, it was found out, that the formation of complications themselves is caused by separate microbes as monoinfection, and also by some microbial associations. Tab. 2, Ref. 9.

Auth.

b15.3.2.34. Rare location of gallstones in acute cholecystitis. /G. Azmaiparashvili, G. Tomadze, A. Megreladze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 7-9. – geo.; abs.: eng.

Gallstones may cause no symptoms and are occasionally discovered as an incidental finding when abdominal imaging is carried out for some other reason. 1-4% of asymptomatic patients in the adult Western world develop symptoms annually. the most common presentations are biliary colic (56%) and acute cholecystitis (36%). 10-15% of people in the adult Western world develop gallstones. in the presented article rare localization of gallstones in case of acute cholecystitis has been described. 61 years old female was admitted in our clinic as emergency case complaining on pain in RUQ, nausea, vomiting. Ultrasound revealed acute obstructive cholecystitis with multiple stones in the gallbladder. The patients underwent the laparoscopic removal of gallbladder. Postoperative exploration of gallbladder revealed just one impacted in the cystic duct stones vs multiple stones found preoperatively by ultrasound. Further survey revealed multiple small stones impacted in the wall of gallbladder and covered by mucous layer. the presented case is interesting because of rare location of gallstones in the wall of gallbladder. Fig. 1, Ref. 11.

Auth.

b15.3.2.35. Vaginal hysterectomy – the 21st century approach. /T. Asatiani, A. Tarashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.11 -15. – geo.; abs.: eng.

The vaginal route is a safe, feasible and patient friendly method of performing a hysterectomy. It is a 21-st Century approach, thanks to tools, techniques and other refinements form the fields of obstetrics and gynecology. Vaginal hysterectomy with surgical advances can be used more frequently. Tab. 3, Ref. 11

Auth.

b15.3.2.36. Role of lipid metabolism in pathogenesis of skin aging. /K. Berianidze, M. Papava, A. Katsitadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.25 -27. – geo.; abs.: eng.

The purpose of the study was establishment of role of dyslipidemia in the pathogenesis of skin aging in menopausal women. Qualitative assessment of the women's skin was investigated by device ARAMO SG[®], in venous blood lipid metabolism parameters (LDL-cholesterol, HDL-cholesterol, triglycerides and total cholesterol) was studied. in menopausal women the pigmentation level was increased, in some cases the small dark brown spots on the neck and eye area was revealed. in menopausal women blood estradiol level decreased, while LDL-cholesterol and total cholesterol content increased significantly in comparison with the same parameters of women of reproductive age. Positive correlation between pigmentation level and spots distribution on the skin and blood LDL-cholesterol, total cholesterol and triglyceride content was revealed ($r = 0.423$, $p = 0.0016$; $r = 0.564$, $p = 0.002$; $r = 0.486$, $p = 0.05$, respectively). It was concluded that spots on the women skin are more frequently associated with menopause and the development of dyslipidemia. Our research gives possibility to propose that aging spots on the women's skin can be a marker of dyslipidemia and atherosclerosis. Tab. 2, Ref. 13.

Auth.

b15.3.2.37. Somatic and cancer stem cells and their markers in female reproductive system. /R. Beriashvili, G. Burkadze, N. Kikalishvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.27 -31. – geo.; abs.: eng.

Stem cells play a pivotal role in the physiology of the normal Female Reproductive System and are likely to be involved in the response of these tissues to injury and disease. Many studies have provided strong evidence for the existence of stem cells in the human endometrium and ovary. Normal stem cells are capable of regenerating themselves, produce a progeny of cells that differentiate and maintain tissue architecture and functional characteristics, and respond to homeostatic controls. Complete characterization of these stem/progenitor cells will improve our understanding of the mechanisms supporting physiological regeneration of the reproductive system. Additionally, further investigations are needed to evaluate the clinical correlation between cancer stem cells population features, poor prognosis and progression free survival. Moreover, is important to establish the functional relationship between markers, since it is known that some are also widely expressed and shared by normal tissues and stem cells. It is described a number of studies supporting the existence of somatic stem cells in the normal tissues and cancer stem cells in tumors of the human female reproductive system. Ref. 15.

Auth.

b15.3.2.38. Data of lipid metabolism in hypertensive women of reproductive and postmenopausal age. /M. Buleishvili, N. Lobjanidze, N. Chavchanidze, T. Giorgobiani/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.37-38. – geo.; abs.: eng.

Purpose of research was determination the role of lipid metabolism in the pathogenesis of hypertension in menopausal women. The study was conducted on postmenopausal and of reproductive aged women with a diagnosis of hypertension. In women data of clinical history were collected, in women blood samples lipid metabolism parameters (LDL, HDL, VLDL total cholesterol and triglycerides) were determined. Based on the results of study it was concluded that in postmenopausal women estrogen-dependent changes in markers of lipid metabolism were detected. in particular, the LDL-cholesterol level increased by 28% ($p < .001$), triglycerides - by 16% ($p < .005$) and total cholesterol - by 58% ($p < .001$), the antiatherogenic lipid HDL content to decreased. in reproductive women prevailed in the first stage of hypertension (JNC-7 classification) and in postmenopausal women - the center of gravity is distributed on the second stage. in women with genetic predisposition to cardiovascular diseases dyslipidemia revealed in as reproductive also postmenopausal aged women, a positive correlation between VLDL- cholesterol, total cholesterol, triglycerides level and

negative correlation between HDL-cholesterol content and severity of arterial hypertension was detected both reproductive and postmenopausal age. Tab. 3, Ref. 5.

Auth.

b15.3.2.39. Hypoglycemic conditions in diabetes mellitus in the elderly. /D. Gabunia, M. Burduli, M. Jibladze, N. Begishvili, N. Gogokhia/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.41 -43. – geo.; abs.: eng.

We investigated type 2 diabetes mellitus 42 geriatric patients with a variety of causes and severity of hypoglycemia. Despite the severity of hypoglycemia, no typical symptoms were detected (sweating, tremor, tachycardia). Common observed symptoms were weakness, aggression, irritability, nightmares, dizziness, and temporary episodes of memory loss transient amnesia. In severe cases seizures and psycho-motor agitation. Hypoglycemia also revealed links to family conflicts, limitation of cognitive functions, frustration, social isolation and other consequences. Fear of hypoglycemia has not been shown in the majority of patients (36), as far as atypical symptoms were not associated with lower blood glucose levels. This should be an explanation to long lasting and frequent episodes of hypoglycemia in this group of patients. To avoid this complication in elderly and for improvement of quality of life needed permanent contact with doctor, motivational therapy, sessions and individual case management inclusive informing the patient and family members. Ref. 12.

Auth.

b15.3.2.40. The use of Lazolex during complex treatment of chronic recurrent aphthous stomatitis. /M.Gogotishvili, N. Abashidze, M. Iverieli, Kh. Gogishvili, N. Gogebashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 51-53. – geo.; abs.: eng.

The aim of our research was to study efficiency of applying the new national gelLazolex (5%) during the treatment of chronic recurrent aphthous stomatitis. To achieve this aim we examined and treated 19-55 years old 54 patients. The patients were divided into two groups. Each group included 27-27 patients. We used the same treatment in both groups, but in the first group during the local treatment we applied the gel Lazolex and in the second group we used the ointment zovirax(5%). Studies of our examination showed that the 19 patients (70,37±0,42%) from the first group 27(50±50) had important improvement, 6 patients (22,22±1,87%) had improvement. there was no efficiency in 2 patients (7,41±1,87%) with grave forms of chronic recurrent aphthous stomatitis. in the second group after applying Zovirax only five patients from 27 (50±0,5%) had important improvement with the easy forms of chronic recurrent aphthous stomatitis (18,52±0,9%) improvement was shown with 15 patients (55,6±0,8%). 7 patients (26,16±1,67%) from which 2 had grave forms and 5 had medium forms of disease had no efficiency. It is concluded that applying of national gel Lazolex (5%) accelerates the epithelisation on lips and skin and growth the remission process of disease. It does not have side effects. Thus, it is recommended to apply Lazolex during the treatment of chronic recurrent aphthous stomatitis. Tab. 2, Ref. 11.

Auth.

b15.3.2.41. The antiviral treatment of HCV chronic patients with pegilated interferon A-2a (pegteron) and ribavirin (copegus). /E. Vashakidze, T. Gegeshidze, Jangavadze, M. Kvitashvili /. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.62-65. – geo.; abs.: eng.

C Hepatitis is trigger of such severe disease like is liver Cirrhosis and hepatocellular carcinoma. According to nonexact statistical figures of 2010 year 46, 4 new cases were found on 100 000 population. That is alarming data. Up to date only 100-200 patients took antiviral treatment annually, because of expensive prices. Since 2014 of July 1 in Georgia started the program of antiviral therapy of HCV with financial support of Government. Due to this program the treatment became available for the large population. the purpose of research represented to find out the effectiveness of combined antiviral therapy of HCV. The patients' data are analyzed according to their gender, age, genotype of HCV, the level of fibrotic damage of liver. 67 patients were under the investigation: 53 (79.1%) – men, 14 (20.9%) – women. the middle age of patients was 40-60 years. Majority were men. The level of liver damage was more severe in men. According to genotypes the 16 and 3 genotypes are dominants. The combined genotype 1b/2k was revealed through 3 patients. The rapid viral response was quite high –8(61.5%), but earlier viral response was 50 (84.7%). At the end of treatment after 24 weeks the viral response was 100% – HCV RNA was undetectable, though the elimination C virus will show the final result of PCR test after 24 weeks from the finishing of treatment. Tab. 2, Ref. 8.

Auth.

b15.3.2.42. Predictors of hemorrhagic colitis complicated by HUS. /E. Vashakidze, T. Megrelishvili, E. Pachkoria/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.65-67. – geo.; abs.: eng.

The aim of the study was: Study of hemorrhagic colitis clinical features and causative agents peculiarities. Manifestation of clinical predictors of HUS by detection of Shiga-toxin of EHEC at the early stage of the disease. Based on our findings we were able to reveal predictors of complications of hemorrhagic colitis by HUS. They include Predictors of complications of hemorrhagic colitis by HUS: the middle age females; Delayed hospitalization; Low-grade fever at the early stage of the disease; Manifestation of bloody diarrhea on the second day of the disease; Leukocytosis in hemogram; Hypoalbuminemia; Proteinuria; Development of Ascites; frequent vomiting; slight leucocystosis on coprology; Self -treatment with antibiotics. Ref. 6.

Auth.

b15.3.2.43. Clinical and laboratory features of Crimean-Congo hemorrhagic fever: predictors of fatality. /E. Vashakidze, I. Mikadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.67- 69. – geo.; abs.: eng.

Crimean-Congo hemorrhagic fever (CCHF) virus transmitted to humans by Hyalomma ticks or by direct contact with the blood of infected humans or domestic animals. the most common clinical signs of CCHF are fever, nausea, headache, diarrhea, myalgia, petechial rash, and bleeding. CCHF is a severe disease in humans with a fatality rate up to 15- 85%. This study was undertaken to determine the predictors of fatality among patients with CCHF based on epidemiological,

clinical, and laboratory findings. 34 patients were enrolled in the study, 2 of them were fatal cases. Most of them were from the Shua (Inner) Kartli: Khashuri, Gori and Kaspi districts, involved in farming livestock and the history of tick bite was present in most of patients. The results of our study show the most cardinal clinical and laboratory features of Crimean-Congo hemorrhagic fever are - acute beginning of disease, high fever, intoxication and hemorrhagic symptoms, thrombocytopenia, high level of aminotransferases and creatine. Predictors of fatality are: an altered mental status, in early stage of disease dramatic decreased thrombocytes count and significantly high level of aspartate aminotransferase, also longer the mean prothrombin time and INR. Tab.1, Ref. 9.

Auth.

b15.3.2.44. Diagnosis and management of the undercortex localization intracerebral hemorrhages. /I. Verulashvili, T. Goletiani, M. Kortushvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.69-71. – geo.; abs.: eng.

In TSMU University Clinic's Stroke unit and "DKC" Neurology department the complex examination (CT, MRI, digital EEG, EKG) and complex treatment of 54 patients with intracerebral hemorrhages of undercortex localization at acute stage of disease and in the dynamics (1-3, 8-10 and 18-21 days) has been carried out. Thirty-three patients (61.1%) diagnosed lateral hemorrhages, 5 (9.3 %) – medial and 16 patients (29.6 %) have mixed hemorrhages. the assessment of motive and speech disorders and their dynamics in process of treatment was investigated and discharged by scores according NIHSS scale. the patients were separated in two equipollent randomized groups with identical complex treatment (hemostatics, angioprotectors, diuretics, antispasmodics and etc.) except one moment in first group was added antioxidante mexibat. Our study showed that the intramuscular admission of mexibat (2 ml twice per day) in complex therapy of intracerebral hemorrhages was more successfully in improving of movement and gnostic disorders, against the patients, who didn't take this medicine. So, in cases of intracerebral hemorrhages of undercortex localization the early administration of antioxidants significantly increased the good outcome of stroke. Tab. 1, Ref. 9.

Auth.

b15.3.2.45. Diagnosis and management of women with stroke during pregnancy/postpartum: the recorded data review of European and US neurologic centers (2008-2013). /I. Verulashvili, M. Kortushvili, T. Goletiani/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. - pp.71-74. – eng.; abs.: geo.

Pregnancy is a unique situation in that both the mother and the fetus must be taken into account. Cerebrovascular disorders in pregnancy have been associated with increased maternal morbidity as well as with increased perinatal morbidity and mortality. The studies suggest that there is a strong association between hypertensive disorders and both cerebral hemorrhage and cerebral infarction. However, it must be emphasized that the presence of hypertension may be a result of the findings of stroke similar to those of pre-eclampsia/eclampsia. The history and physical examination are an extremely important part of the diagnostic procedure. MRI and MRI angiography are usually the next step in diagnosis. MRI has several advantages, including its ability to image the posterior fossa and brain stem reliably. It is also quicker to identify ischemic changes (within 45 minutes) than CT scans. MRI, than CT scans, does not appear to be associated with short-term risk to the fetus. Once a diagnosis is made, management depends on the cause and should proceed in a multidisciplinary fashion. the treatment of cerebral stroke during pregnancy should focus on four main imperatives: 1) protect the salvageable brain tissue; 2) control physiologic factors, such as blood pressure; 3) prevent further complications (as aspiration, cardiovascular insufficiency, etc.); 4) facilitate physical rehabilitation. Although the incidence of stroke is extremely low, the complications are serious (maternal mortality to be as high as 26%). So, it is important for practitioner doctors, and not only for neurologists to be aware of the causes, diagnostic techniques and management strategies for stroke in order to achieve the best outcome for the mother and fetus. Tab. 4, Ref. 12.

Auth.

b15.3.2.46. Procalcitonin for the early prediction of renal parenchymal involvement in children with UTI. /B. Zenaishvili, G. Chitaia, N. Manjavidze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. - pp.78–80. – geo.; abs.: eng.

A low PCT value at admission indicates a low risk of long term renal scarring. Increased PCT values at admission correlate with the presence of scars. PCT values have proved to be more specific than CRP and leukocyte count for identifying patients who might develop renal damage. This parameter is correlated with the severity of renal involvement at the time of diagnosis of febrile UTI and also with the risk of permanent scarring. Therefore, PCT measurements could be a valuable tool for the treatment of children with febrile UTIs. Fig. 2, Tab. 1, Ref. 20.

Auth.

b15.3.2.47. The role of magnesium in development of cardiovascular system diseases. /R. Tabukashvili, V. Kapetivadze, N. Gegeshidze, Kh. Tchaava/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. - pp.80 – 84. – geo.; abs.: eng.

For many diseases of cardiovascular system are characterized by deficiency of magnesium, this cause endothelial dysfunction and endothelial NO deficiency, which develop dyslipidemia and atherosclerosis, and consequently result in development of ischemic heart disease and essential hypertension. As one of its features magnesium can be used as an anti-arrhythmic substance, it can antagonize action of calcium, it is membrane stabilizing, prevents cellular loss of potassium and prolongation of Q-T interval on ECG.in ischemic heart disease, addition of magnesium to the standard therapy, normalized lipid profile, improved rheological features of blood and transportation of formed elements by decreasing platelet aggregating capacity. in the medical literature it was suggested that in mitral prolapse addition of magnesium to the treatment could decrease the severity of mitral prolapse and degree of mitral regurgitation. Ref. 30.

Auth.

b15.3.2.48. Two rare congenital anomalies of gallbladder. /G. Tomadze, A. Megreladze, G. Azmaiparashvili, G. Danelia/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. - pp.84 – 86. – geo.; abs.: eng.

Variations of the gallbladder anatomy, cystic duct and its point of union with the common hepatic duct are surgically important. The classic description of the extrahepatic biliary tree and its arteries applies only in about one third of patients. The gallbladder may have abnormal positions, be intrahepatic, be rudimentary, have anomalous forms, or be duplicated. Isolated congenital absence of the gallbladder is rare. Duplication of the gallbladder with two separate cavities and two separate cystic ducts has an incidence of about one in every 4000 persons. A partial or totally intrahepatic gallbladder is associated with an increased incidence of cholelithiasis. Small ducts (of Luschka) may drain directly from the liver into the body of the gallbladder. If present, but not recognized at the time of a cholecystectomy, a bile leak with accumulation of bile (biloma) may occur in the abdomen. An accessory right hepatic duct occurs in about 5 percent of patients. Anomalies of the hepatic artery and the cystic artery are quite common, occurring in as many as 50 percent of patients. In the presented article we described two rare cases of gallbladder anomaly. In the first case gallbladder was divided into two independent spaces and independent cystic ducts joining and forming "common cystic duct". In the second case gallbladder's cavity was partially divided into two parts just only in its fundal area. Presented cases are interesting because of their rarity. Fig. 1, Ref. 14.

Auth.

b15.3.2.49. Assessment of fine motor development using Denver II and parent's questionnaire. /E. Kandelaki, N. Kavlashvili, M. Kherkheulidze, I. Chkhaidze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. - pp.92 – 94. – geo.; abs.: eng.

The early detection of developmental problems in children is essential for primary health care. It leads to timely referral in case of problems and effective interventions. The success of early identification depends on instruments used by skilled clinicians. Parents are the valuable sources of information. The doubts of parents about their children's development should be considered. Parent's Evaluation of Developmental Status (PEDS) is used to bring out parents concern which is the useful and widely used tool for developmental screening. DENVER II is another widely used assessment tool for clinician. Assess effectiveness of developmental assessment of fine motor skills in 5 years children group with PEDS and DENVER II. A total of 249 parent-child pairs were recruited in the Child developmental center at M. Iashvili Central Children Hospital in 2012-2013 years. The Parents Evaluations of Developmental Status (PEDS) was completed by interview. The developmental screening test was administered by using Denver II. The items of fine motor skills were compared in both screening tools. Parents certain concern in developmental delay was 39 % and suspected Denver II was 10%. 55% of parents were satisfied with children's fine motor development. DENVER II assessment does not revealed problem in 51%. The agreement of PEDS and Denver II was 0.24 (Kappa = 0.24). PEDS could play a role in detection of developmental problems but was not a good tool in primary screening. Therefore, significant concerns of parents about their children's development are the decisive information for referral to have further administration. In other words, parents concerns could have far more advantage than the screening test in revealing child's problems in fine motor development. Tab. 3, Ref. 5.

Auth.

b15.3.2.50. Long term transbronchial catheterization in the management of acute and chronic lung abscess. /D. Magalashvili, N. Lomidze, L. Akhmeteli, N. Khotenashvili, L. Saginashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. - pp.119 – 120. – geo.; abs.: eng.

The long term transnasal, transbronchial catheterization of abscess cavity in the treatment of 33 patient with acute and chronic lung abscess in addition to conventional methods had been used. Antibiotics and proteolytic drugs were injected into the abscess cavity in frequency, which is necessary for effective impact on flora and adequate sanitation and drainage of the abscess. Used method improves the results of treatment, reduces its time and cost. In addition, mentioned approach can avoid frequent usage of invasive and expensive manipulation - bronchoscopy. Based on above mentioned, transnasal, transbronchial long term catheterization of abscess cavity is advisable in the treatment of lung abscess. Ref. 6.

Auth.

b15.3.2.51. Atypical manifestation of peptic ulcer perforation. /A. Megreladze, G. Tomadze, G. Azmaiparashvili, E. Ardia/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. - pp.121 – 123. – geo.; abs.: eng.

Peptic ulcers may present with a wide variety of symptoms, or may be completely asymptomatic, sometimes until complications such as hemorrhage or perforation occur. The "classic" symptoms of duodenal ulcer occur when acid is secreted in the absence of a food buffer. Classic ulcer symptoms occur two to five hours after meals or on an empty stomach. Symptoms also occur at night. Gastric ulcer has classically been associated with more severe pain occurring soon after meals, with less frequent relief by Antacids or Food. Discomfort occurs in the epigastrium in about two-thirds of symptomatic patients, but may occasionally localize to the right or left upper quadrants or the hypochondrium. Radiation of pain to the back may occur, but primary back pain is atypical. 20 to 50 percent of complicated ulcers present without heralding symptoms; this "silent" presentation is more frequent in elderly patients and individuals consuming NSAIDs. A case of atypical presentation of peptic ulcer perforation is described in the article. The 63 years old male patient had perforation of post-bulbar ulcer. Duodenal ulcers are generally located in the duodenal bulb within 2 to 3 cm of the pylorus. Ulcers distal to the duodenal bulb are called post-bulbar ulcers and were found in 10 percent of cases in a necropsy series. No clinical features clearly distinguish post-bulbar ulcers, although a higher rate of complications has been reported. In presented case pain had been started from the back, fever. Patient was treated as urological problem. Just after 24 hours pain was shifted to the right part of abdomen and peptic ulcer perforation was diagnosed. Late operation was the reason of postoperative complication and reoperation. The presented case is interesting because of atypical manifestation of perforation. Ref. 9.

Auth.

b15.3.2.52. Sleep position in infants. /N. Kavlashvili, M. Kherkheulidze, E. Kandelaki, I. Chkhaidze, N. Manjavidze, N. Adamia/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. - pp.149 – 151. – geo.; abs.: eng.

The American Academy of Pediatrics (AAP) recommends that infants should be placed for sleep in a supine position (on the back). Side sleeping is not as safe as supine sleeping and is not recommended as well. the back position is the safest and most preferred, it prevents development of SIDS. Bed sharing with parents also increases risk of SIDS. the aim of our study was assessment of sleep position in infants using special questionnaire for parents. To fulfill this aim we interviewed 58 parents of infants who admitted to Child Development Center at Iashvili Children's Central Hospital. Inclusion criteria were – child age 1-6 month and parents' informed consent. Parents were chosen by simple randomization method. 2 questionnaires weren't fully filled, so only 56 were analyzed using SPSS 16 program. the results of our study showed that most of infants (96%) slept in parents' room, only 4% - in separate room. 43% are sleeping in a supine position (on the back), 21% prone position (on the stomach) and the rest 36% in a side position. the one third of infants share bed with parents. Most of infants sleep in unsafe position, it is known that bed sharing as well as sleeping on stomach or side increases risk of SIDS. No differences in the use bed sharing were observed by mother's age, education, residential setting, or parity. Young mothers were significantly more likely to use safe sleep position. Mothers with high education used mainly supine sleep position for their infants. Mothers from rural region put their infants for sleep on side. Parity also correlated with sleep position, first infants mainly were put to sleep in safe position, while mothers who have more than 1 child used side or prone position. As the results of our study showed, most of mothers are not aware of safe sleep positions for their infants. Primary health care staff should encourage parents to place their babies to sleep on their backs in their own bed. Fig. 1, Tab. 1, Ref. 23.

Auth.

b15.3.2.53. Features of psycho-adaptive mechanisms in patients with vitiligo. /N. Tsiskarishvili, A. Katsitadze, E. Chkonia, N.I. Tsiskarishvili, Ts. Tsiskarishvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. - pp.158 – 160. – eng.; abs.: geo.

Despite of some progress in the study of the vitiligo achieved in recent years, many questions concerning the pathogenesis and treatment of this dermatosis remain either highly controversial or unsolved. Among these less clear problems we can name the role of psychological and personality traits that depend on neurochemical changes mediating the effect of stress in the patient's. An Information about the role of psychological characteristics in formation of the various forms of vitiligo is inhomogeneous and sometimes contradictory, similar can be said about the nature and role of premorbid psychological characteristics in genesis of dermatosis. The aim of the study was to identify the role of psychological characteristics in the pathogenesis of vitiligo in patients with a stress in anamnesis. in accordance with the aims of this study we conducted psychological testing of all 50 patients and on the same number of healthy individuals. the method of fixed attitude is based on creation in persons the illusion of perception in the areas of volume (haptic, optical, motor, auditory and verbal), which emphasizes its considerable versatility. Most informative for clinical use is an area in which the illusion is more pronounced. Such is the haptic area, on which is based the classic MFA. Personality typology by MFA is based on the principle of taking into account the extinction of the old illusion of the test and the development of an adequate perception of the new situation. According to the theory we can distinguish the following basic attitude types: dynamic, variable and static. Results and Discussion Thus the predominant type of fixed attitude in vitiligo patients is variable type. This parameter is a constant and does not depend on the clinical form and duration of the disease. Among healthy individuals dominates the dynamic type of a fixed attitude. Variable type may be considered as a risk factor for development of vitiligo in patients with stress in anamnesis. Ref. 9.

Auth.

b15.3.2.54. ICU hospitalization length in surgical pediatric patients with severe sepsis receiving plasmapheresis as add-on to standard treatment. /R. Khetsuriani, G. Adamashvili, H. Shvangiradze, A. Shukakidze, O. Tavadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. - pp.168 – 170. – geo.; abs.: eng.

Determination of ICU hospitalization length in surgical pediatric patients with severe sepsis receiving plasmapheresis as add-on to standard treatment, as compared with the patients receiving only the standard treatment. Design: Prospective, randomized controlled clinical trial. Setting: Intensive Care Unit at Pediatric Clinic of Tbilisi State Medical University. Patients: Surgical pediatric patients with severe sepsis, septic shock and MODS. Interventions: 157 patients randomized to receive either standard sepsis treatment or an add-on treatment - plasmapheresis. Measurements: ICU Hospitalization length in days and statistical significance of results were measured in plasmapheresis and control groups. Reduction of ICU hospitalization length is emphasized and statistically significant in infants and patients under 3 years old receiving plasmapheresis. Conclusions: Plasmapheresis as add-on to standard treatment of severe surgical sepsis could shorten ICU hospitalization length in pediatric patients from different age groups. Tab. 2, Ref. 6.

Auth.

b15.3.2.55. Comparative characteristic of different theories on mechanism of development of atherosclerosis. /D. Gabunia, G. Eliava, T. Tsintsadze, L. Topuria, R. Mzhavanadze/. Gaenati Herald. – 2015. – vol. II, #4. – pp. 42-57. – geo.; abs.: geo., rus., eng.

Based on the fact that a lot of factors of various origin promote the development of atherosclerosis and, respectively, different developmental mechanisms underlie it, a differentiated approach should be used during its treatment. In case of autoimmune origin of atherosclerosis a pathogenic treatment should be focused on rehabilitation of endothelial cover of blood vessel wall and on normalization of lipid peroxidation. As far as there is a linkage between inflammation and acute and chronic phases of ischemic heart disease, a timely identification of inflammation markers will promote prevention of diseases of cardiac and cerebral vessels. During the action of *C. pneumoniae* activator a treatment should be oriented not only against primary infection and decrease in risk of thrombus formation, but also on recovery of disordered

functions of 7 airways, since the latter may become itself the reason of change in blood vessels structure and development of atherosclerotic changes. Ref. 17.

Auth.

b15.3.2.56. Effect of different factors on coronary circulation during physical load. /M. Jashi, G. Eliava, T. Tsintsadze, R. Mzhavanadze/. Gaenati Herald. – 2015. – vol. II, #4. – pp. 58-65. – geo.; abs.: geo., rus., eng.

Elaboration of substantiated physiological approach to determination of adequacy of coronary circulation is necessary for following reasonable pathogenetic therapy. Normal heart metabolism is almost aerobic process, which is ensured by adequate coronary circulation. Coronary circulation regulation occurs by means of metabolic, neurohumoral and physical mechanisms. Heavy physical loads, pathological conditions and nasal breathing disorder create risk-factors, which provoke deterioration of coronary circulation in the subendocardial layer left ventricle. Ref. 10.

Auth.

b3.3 Health sciences

b15.3.3.1. Pathogenesis of sportsmen's feet traumas. /M. Grdzeldze, M. Shalamberidze/. GEN. – 2014. – #2. – pp. 132-133. – geo.; abs.: eng.

The character of motion typical of the kind of particular sport affects significantly the sportsman's locomotor apparatus. The anthropodynamic diagnostics of sportsman's feet and the pathogenesis of their morphological peculiarities are the bases for designing the footwear for sportsmen corresponding to international standards. Fig. 1, Ref. 3.

Auth.

b15.3.3.2. Etiology of the sportsman's foot deformation. /M. Grdzeldze, M. Shalamberidze/. GEN. – 2014. – #2. – pp. 134-135. – geo.; abs.: eng.

The data on foot biomechanics, motions and dynamic load, the kind of sport, the etiology of sports traumas and the way of their prevention, etc. are the bases for designing and production of the footwear comfortable for sportsmen. This is essential for providing their amortization and steady equilibrium with the aim to protect their feet and prevent feet deformations. Fig. 2, Ref. 2.

Auth.

b15.3.3.3. Etiological structure of infectious diarrheas at the modern stage in Georgia. /T. Megrelishvili, E. Pachkoria/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.123–124. – geo.; abs.: eng.

Acute diarrhea is one of the most common causes of morbidity and mortality in children and adults. Furthermore, the prevalence of hemorrhagic colitis increased 2-3 times in 2011-2013 years in Georgia. Etiological structure of infectious diarrheas consists of various pathogens. By the adoption of new modern diagnostic methods identification of non- O157 E.coli strains has significantly increased in Georgia. The aim of the research was: identification and evaluation of etiological structure of acute non-bloody diarrheas and hemorrhagic colitis at the modern stage in Georgia. the diagnosis was established by bacteriological method-culture isolation, identification of molecular markers of shigatoxin (Stx1, Stx2, eae, ehy) in feces by PCR and ImmunoCard. Thus, the etiological structure of hemorrhagic colitis was identified in 40.14 % (where the leading place had STEC strains) and etiology of non-bloody diarrhea in 16.79% of cases (where the rate of Salmonellosis was highest). These above mentioned investigations increased the diagnosis of STEC infection at the early stage of the disease. Ref. 6.

Auth.

b15.3.3.4. Dynamics of the etiological structure of vaginites 2010-2014. /E. Mirvelashvili, M. Dzagnidze, A. Dedabrishvili, T. Charkviani, N. Kvizhinadze, E. Kikacheishvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.124–126. – geo.; abs.: eng.

Aim of the study was to investigate the etiological structure of vaginitis dynamic 2010-2014. Vaginal flora in 350 females during the inflammatory vaginitis was investigated by bacteriological analysis. By the rate of excretion, staphylococci came the first, the second was T. vaginalis, C.albicans being the third. Two-thirds of the microorganisms were detected in a form of monocultures, third-fourth associations, the most frequent combinations among which were: T.vaginalis+S.aureus, S.epidermidis+T.vaginalis, T.vaginalis+C.albicans. Tab. 2, Ref. 10.

Auth.

b15.3.3.5. Case report of community acquired pneumonia, involving right lung, caused by toxocara. /Ts. Zakaraia, N. Iashvili, M. Ghughunishvili/. Actual Problems of Parasitology in Georgia. XII Intern. Scient. Conf. Tbilisi. – 2014. – v. XII. – pp. 75-82. – geo.; abs.: geo., rus., eng.

451 patients were screened for toxocara in 2012/14 at Institute of parasitology and tropical medicine. 174 of patients were found to have antibodies against Toxocara. Seropositive patients lived both in eastern and western Georgia. 40% lived in Tbilisi. Although all age group were involved, 29% of patients where age 15 or younger. This article describes community acquired pneumonia of the right lung caused by Toxocara. Patient 54 years old had symptoms of cough, shortness of breath and 54% eosinophilya on blood tests for 4 months. in 11.11.2013 diagnosis of pneumonia was made. in 23.12.2013 after testing – positive for Ig against Toxocara; Treatment with Albendaole was started. Patients condition improved rapidly. Authors suggest expanding serological (immunological) research and considering Toxocariasis in differential diagnosis of Pneumonia. Ref. 5.

Auth.

b15.3.3.6. Retrospective analysis of echinococcosis cases (2006-2013 years). /O. Zenaishvili, M. Murusidze, N. Iashvili/. Actual Problems of Parasitology in Georgia. XII Intern. Scient. Conf. Tbilisi. – 2014. – v. XII. – pp. 83-90. – geo.; abs.: geo., rus., eng.

Cystic echinococcosis continues to be an actual problem in Georgia. According to the data from S.Virsaladze Research Institute of Medical Parasitology and Tropical Medicine 589 cases of the disease were revealed in 2006-2013 years. This statistics indicate that there is an evidence of echinococcosis disease rising tendency. for example, in 2006 only 50 cases of echinococcosis were registered, in 2013 the number of the disease reached 125. the increase of incidence is to some extent connected with the improvement of diagnostic and referral services. Data analyses showed that most of the cases are registered in Eastern Georgia (75%), the basic contingent of patients is represented by people at the age of 18 to 60 (70%), number of women slightly exceeds the number of men. According to our data the definite correlation with profession was not revealed. The most common clinical form of echinococcosis is liver echinococcosis. Treatment with Albendazole significantly decreases the frequency of relapses, that's why it is recommended to prescribe Albendazole in post-surgery period. in addition, the monitoring of side-effects, associated with prolonged Albendazole therapy is necessary. Fig. 1, Ref. 5.

Auth.

b15.3.3.7. Ultrasound (US) monitoring features of postoperative hepatic echinococcosis. /Kh. Melia, M. Mandjgaladze, T. Kelbakiani-Kvinihkidze/. Actual Problems of Parasitology in Georgia. XII Intern. Scient. Conf. Tbilisi. – 2014. – v. XII. – pp. 90-98. – geo.; abs.: geo., rus., eng.

Echinococcosis is a widespread parasitic disease which is mainly found in East Georgia. At the Institute we investigated 50 patients. They have got post – operational anti-parasite recurrence treatment. On the basis of making clinical analysis we can conclude: 1.US reveals significant criteria of result of counter recurrent anti parasitic therapy echinococcosis of liver in post-operative period. 2. During the monitoring at 94,5% of the beneficiary positive dynamics of disease flow is revealed, at 5 %-of case toxic hepatitis with septic after-effect of the disease emerged, and at 0,5 %- disease relapse is revealed. 3. As at all patients in parenchyma of hepatic echoarchitectonics it was characterized non-uniform structure and a non- uniform dissemination echo wave possibly is index development of connecting fabric in the liver that it is the subject of further studying. 4. Control and monitoring of patients in the postoperative period echinococcosis with appropriate antirelapse antiparasitic therapy should be held not less than 1-3-5 years. Fig. 13, Ref. 5.

Auth.

b15.3.3.8. Parasitofauna of amphibians, reptiles and terrestrial mollusks in Guria region. /L. Murvanidze, K. Nikolaishvili, Ts. Lomidze/. Actual Problems of Parasitology in Georgia. XII Intern. Scient. Conf. Tbilisi. – 2014. – v. XII. – pp. 144-153. – geo.; abs.: geo., rus., eng.

The results of two zoological expeditions provided in 2012 showed that during the last decades, the fauna of Guria region has impoverished. Faunal diversity of parasites is also low. High anthropogenic pressure caused transformation of environmental conditions and disturbed formation of parasite fauna. Three species of protozoan were revealed in *Phelophilax ridibundus*. 15 species of helminthes were found in lake frog and reptiles. In terrestrial mollusks larval forms of the trematodes and nematodes were registered. Extensity of invasions in amphibians reaches 92,5%, in reptiles – 60% and in mollusks – 50%. All species of helminthes found in reptiles, are new for the region and blind worm is a new host for nematode *Oswaldocruzia filiformis*. Eggs of echinostomes found in eyes of *P. ridibundus*, indicate water pollution and invasion of aquatic birds by echinostomes. Infection of terrestrial mollusks by metacercarians – *Brachylaemidae* indicate the distribution of this helminthes on the investigated territory. Ref. 8.

Auth.

b15.3.3.9. The results of the parasitological (coprological) investigation of mammals of the Tbilisi zoological garden. /L. Murvanidze, L. Arabuli/. Actual Problems of Parasitology in Georgia. XII Intern. Scient. Conf. Tbilisi. – 2014. – v. XII. – pp. 154-162. – geo.; abs.: geo., rus., eng.

Coprological-parasitological investigations of mammals of the Tbilisi Zoological garden were provided with participation of seven students of 10th study year of 155 Tbilisi public schools. the list of the registered parasites is provided: ungulates: yak, lama, Caucasian tur – oocysts of coccidians; horses of Przewalskii, Barbary sheep and Caucasian tur – eggs of the Trematoda *Dicrocoelium lanceatum*; predators: wolf, lion, leopard and jaguar – eggs of *Toxascaris leonina*; primates: baboon – eggs of *Trichocephalus trichiurus*. in terrestrial mollusks found nearby cages, cercarians of the *Dicrocoelium* are found, indicating the presence of pesthole of this helminthoses in the zoo. Fig. 5, Ref. 7.

Auth.

b15.3.3.10. Some questions of epizootology of intestine strongylatosis and parascaridosis of odd-toed ungulate animals in Georgia. /Sh. Potskhveria, L. Avaliani/. Actual Problems of Parasitology in Georgia. XII Intern. Scient. Conf. Tbilisi. – 2014. – v. XII. – pp. 201-217. – geo.; abs.: geo., rus., eng.

In Georgia we mainly meet intestine strongylatosis and parascaridosis of odd-toed ungulate animals. Their causative agents infect 70,5% and 18,9% of the horse correspondingly and 80,5% and 11,5% of the donkey. Among other invasive diseases we observe separate cases of infestation of horses with causative agents of oxyuriasis, dictyocaulosis, anoplocephalosis, piroplasmosis and gastrophilosis. In Kulari horse-breeding farm (Marneuly district, East Georgia) by intestine strongylates are infected 64,1% horses of all ages, by parascaris – 24,5%. Infestation of foals with intestine strongylates and parascaris starts at an early age. At the age of 7-18 months they are infested with the above helminths by 71,7% and 32,2% correspondingly. Strongylatosis is mainly revealed in winter (65,5-87,7%) and summer (78,9-91,8%) months, while cases of parascaridosis are observed in April-May (48,1-60,4%). Favourable conditions on pastures for strongylates and parascaris invasion are created in April-November. in July and August (average monthly air temperature – 23,5 and 23,4°C correspondingly) strongylate larvae and parascaris eggs reach the invasive stage in 5-6 and 8-9 days correspondingly. in winter the invasive contagion winters on pastures and in April when the temperature exceeds 8-10°C, it renews or starts to develop. In July-August due to high temperature and dry weather non-invasive

larvae of strongylates and parascaris eggs die on pastures. Invasive larvae migrate into soil at 5-10 cm depth and dwell on plant roots. In September they migrate to grass at 5-10 cm height. In stables the feeders, particularly of mares are infested with the invasive contagion of strongylates all year round, with parascaris – during the first half of the year. The feeders become infested via cleaning devices. Infestation with intestine strongylates is even more intense on pastures where invasive contagion accumulates in considerable amount in spring and autumn. Intensive infestation with parascaris takes place in stables in the first half of the year. In epizootic process of strongylatosis, feeders and pastures are major carriers of disease, while in case of parascaris it is only feeders. Tab. 1, Ref. 7.

Auth.

b15.3.3.11. About the questions of epidemiological risks of helminthosis of dogs in Tbilisi. /Sh. Potskhveria, M. Gogoberishvili/. Actual Problems of Parasitology in Georgia. XII Intern. Scient. Conf. Tbilisi. – 2014. – v. XII. – pp. 218-228. – geo.; abs.: geo., rus., eng.

Eight helminthosis of dogs are spread in Tbilisi. By the causative agents of these helminthosis are infected 57,4% of dogs of all ages. Among the most hazardous zoonotic helminthosis to human are detected: Multiceptosis (0,6%), Echinococcosis (1,3%), Toxocariasis (26,7%), Toxascaridosis (24,4%) and Uncinariosis (3,9%). By the causative agent of Toxocariasis mostly are infected puppies in the age of up to seven months (55,4%), by Toxascaridosis – young growth in the age of 7-12 months (37,2 %). Toxocariasis is mostly manifested in the spring (April – 29,8%) and at the end of summer (August – 51,2 %), Toxascaridosis – in the spring (March – 35,7%) and at the beginning of autumn (September – 30,4%). The soil of parks and alleys in Tbilisi is infected by the causative agents of six helminthosis of dogs - Toxocariasis (20,9%), Toxascaridosis (18,2%), Ankylostomiasis (4,5%), Dipilidiosis (4,1%), Uncinariosis (2,7%) and Echinococcosis (0,9%). The soil is contaminated with viable invading pathogens of these helminthosis during all year that maintains to worsening of epidemiological situation regarding these diseases, especially in summer months. It results in increase of danger to human health. Ref. 10.

Auth.

b15.3.3.12. Distribution and biocenology of scale coccids (Arthropoda, Insecta, Homoptera, Coccoidea) in Georgia. /M. Lobzhanidze/. Actual Problems of Parasitology in Georgia. XII Intern. Scient. Conf. Tbilisi. – 2014. – v. XII. – pp. 229-237. – geo.; abs.: geo., rus., eng.

As a result of the long researches conducted by us, it is confirmed that armored scales and false armored scales (Arthropoda, Insecta, Homoptera Coccoidea) are very serious wreckers for many fruit cultures, herbs, forest and decorative plants. Their harmfulness is increased due to their variety, wide polyphagia and along with the active eating they also harm plants indirectly (by covering of an assimilatory surface and fruits of plants with saprophyte fungus-conidium mycelium). All this together often cause the death of a plant. To decrease a number and injuriousness of coccids – bioagents should be applied ecologically safe actions of fight, in particular the useful local and already well acclimatized in Georgia fauna. It is necessary to process the occupied by coccids surfaces of plants by mineral oils (2-4%) in the late fall or in the early spring. Ref. 5.

Auth.

b15.3.3.13. Materials for studying of parasites of *galanthus woronowii* Losin. /M. Beruashvili, N. Goginashvili, N. Chkhaidze, M. Kereselidze/. Actual Problems of Parasitology in Georgia. XII Intern. Scient. Conf. Tbilisi. – 2014. – v. XII. – pp. 237-243. – geo.; abs.: geo., rus., eng.

Georgia is rich with the unique representatives of Flora. Among them *Galanthus woronowii* Losin must be mentioned. As a result of investigation in field and pot conditions in Tbilisi and Guria region the pathogenic fungus *Fusarium sp.* and parasite nematodes from genus *Ditylenchus* were revealed. They cause turning leaves into yellow, darkening of stem and its thinning close to root, damage of bulbs and drying of plant. Fig. 4, Ref.3.

Auth.

b15.3.3.14. Susceptibility of salmonella strains to antibiotics and R-plasmids profiling. /T. Gabisonia, M. Loladze, T. Katamadze, G. Melashvili, K. Didebulidze, N. Tamarashvili/. Bulletin of the Georgian National Academy of Sciences. – 2014. – Vol. 8, #1. – pp. 114-117. – eng.; abs.: eng., geo.

At present, gram-negative bacteria start to take up leading position in common structure of zoonotic infections, displacing other infections to the sideline. This study was conducted to investigate the occurrence of Salmonella sp., to determine their susceptibility to antibiotics and plasmid profiling. In this research, the material for bacteriological investigation was taken out of tracheae of the chickens from two poultry farms. A total of 72 Salmonella sp. were isolated from samples, from which 48 strains were serotyped as *S. typhimurium* and 24 strains – as *S. enteritidis*. It has been established that isolated salmonella strains are characterized by high resistance to antibiotics of broad spectrum. Their antimicrobial susceptibility was tested to 9 antibiotics. All salmonella strains were found to be resistant to penicillin, ampicillin, erythromycin, whereas, they were susceptible to streptomycin, chloramphenicol and slightly susceptible to kanamycin and gentamicin. Plasmids determining resistance to streptomycin, chloramphenicol, tetracycline, gentamicin, carbenicillin, kanamycin and belonging to the incompatibility groups T, I, M, N were revealed by the methods of elimination and conjunction. Salmonella strains contain also plasmids of group IncPI having wide spectrum of hosts. Tab. 3, Ref. 4.

Auth.

b15.3.3.15. Lambliosis in young children, etiology, clinic and the aspects of modern treatment. /D. Khachapuridze, M. Gabelashvili/. Novation. – 2015. – #15. – pp. 19-23. – geo.; abs.: geo., eng., rus.

The aim of the research was to find out the frequency of lambliosis in children in Imereti region and some aspects of modern treatment. We have studied 39 cases of lambliosis in children between 2 and 14 in Imereti region in 2013. The diagnostics was held at Scientific Research Institute of Allergology, Asthma and Clinical Immunology of Georgian

Academy of Sciences using immune enzymatic ELASTA apparatus. We have distinguished patients with low, medium and high risks. In patients with low and medium risk, only one course of macmiror treatment was enough, but in patients with high risk (5 patients), one course of macmiror treatment was not enough and they were given another course based on their laboratory examination and complaints. Tab. 2. Ref. 5.

Auth.

b15.3.3.16. Once again about group A streptococcus infections. /T. Tskaroveli/. Pediatric Cardiology. – 2015. – #9. – pp.39-42. – geo.; abs.: rus., geo., eng.

Once again etiopathogenesis, signs, modern ways of treatment and prevention of group A streptococcus infections will be analyzed in this article. Tab. 1, Ref. 5.

Auth.

b15.3.3.17. Urinary tract infection in children. /B. Zenaishvili, M. Tsanova, N. Kvirkvelia, D. Kvirkvelia, T. Abuladze, G. Chitaia/. Social, Ecological and Clinical Pediatrics. – 2015. – #17-12-11. – pp. 55-57. – geo.; abs.: geo., eng.

Despite the recognition that underlying renal anomalies may be the cause of renal scarring previously attributed to infection, the prevention of renal scarring remains the goal of all therapies for childhood UTI. Although new data has questioned previous “dogmas” re: urinary tract imaging, parenteral therapy of pyelonephritis, and use of antimicrobial prophylaxis, the clinician must be vigilant in recognizing children at risk for complications from UTI. Such high risk children (those under the age of 6 months with high fever, those with abnormal GU anatomy, and those with a septic presentation at any age) should be treated and investigated aggressively. There cognition of antenatal urinary abnormalities, improved imaging strategies, better understanding of the molecular and cellular pathophysiology of renal scarring, and the development of new, pharmacogenomically-derived individualized antimicrobial treatment regimens offers the hope of reducing renal scarring and its complications. Ref. 20.

Auth.

b15.3.3.18. Anthropometric, physical and functional features of sportsmen under the effect of apihepati. /G. Chakunashvili, N. Badriashvili, N. Topuridze, N. Jobava, C. Chakhunashvili/. Social, Ecological and Clinical Pediatrics. – 2015. – #17-12-11. – pp. 67-70. – geo.; abs.: geo., eng.

The physical development of organism is defined as complex process of morphofunctional peculiarity changes in human organism. It obeys the rules of biology and represents basic origins of growth and development. Apihepati improves ability to work, enhances adaptive mechanisms during exercising and competitions; Fastens restoration processes after intensive physical load. Tab. 2, Ref. 10.

Auth.

b15.3.3.19. Structure of postoperative infectious complications while hip replacement operations and osteosynthesis of long bones. /N. Avazashvili, I. Mchedlishvili, T. Nozadze/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 7-12. – rus.; res.: geo., eng., rus.

In this article, there are given data of 1523 case histories for detection of postoperative infectious complications. Among them 653 cases were hip replacement surgeries and 870 cases were osteosynthesis of long bones. All of these operations were performed in department of traumatology in 2010-2014 years. with use of descriptive epidemiological method of research, for both types of surgical interventions were detected: most often reasons and indications for surgical treatment, prevalence of patients gender and age, incidence of early and late (both deep and superficial) postoperative infectious complications of surgical site, and also forms and incidence of common inflammatory diseases and statistically significant risk factors of their appearance. Fig. 2, Tab. 4, Ref. 13.

Auth.

b15.3.3.20. Blood pressure patterns in urban and rural children and adolescents of the Kakheti Region (East Georgia). /M. Kharabadze, R. Khetsuriani, M. Betaneli, S. Kandelaki, L. Khutsishvili/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 79-83. – eng.; res.: geo., eng., rus.

Research was conducted in urban and rural areas of the city Telavi in 2012-2013. 493 public school pupils aged 6-18 were studied (267-urban resident, 226-rural resident). Results are grouped separately for all (13) aging clusters. This indicator is compared to each other by sex and living area (urban/rural) and received results are then grouped for 3 aging groups: I - early childhood 6-8 years of age n=136 (boys - 71, girls - 65); II - middle childhood 9 - 11 years of age n=147 (boys - 82, girls - 65) and III - adolescence 12-18 years of age n=213 (boys - 98, girls - 115). Measurements were taken on the right arm, three times with 3 minutes intervals. Both rural and urban area resident children's (boys, girls) SAP/DAP was evaluated. Data was processed statistically by “ANOVA”. To determine correlation between different study groups, parametric and nonparametric methods were used. Significance was determined with 95% of variability. Results of the comparison of systolic and diastolic blood pressure for boys and girls living in rural and urban areas demonstrated: There seems to be no significant difference between boys and girls living in urban and rural areas. the biggest difference was identified in: 1) Boys in Aging Group I – SAP rural pupil boys averagely is 5.7 mm/Hg higher compared to urban resident boys; 2) for girls in Aging Group III of rural residents, SAP is averagely 3mm/Hg higher compared to same group of urban residents. Same difference was identified in girls considering DAP data. This may be due to several reasons, such as: 1) village inhabitants are more physically active. 2) BMI of the residents living in the rural areas is lower compared to the residents living in the city. Our findings are in line with the results obtained in Iraq and Russia. Fig. 2, Tab. 2, Ref. 19.

Auth.

b15.3.3.21. The current knowledge of clinical manifestations of measles. /R. Begaydarova, Y. Starikov, H. Devdariani, G. Alshynbekova, A. Dyusembaeva/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 63-69. – rus.; res.: geo., eng., rus.

A comparative study was carried out in children with measles aged 1 month to 18 years. They were admitted to the regional infectious diseases hospital in Karaganda during a measles outbreak in 2014 in Central Kazakhstan. 209 children were included into the study, 66 children were under the age of 1 year and 143 children were aged from 1 year to 18 years. the clinical diagnosis of "measles" was diagnosed according to clinical and epidemiological and serological data. in a comparative study of measles in age aspect, it was found that the highest incidence was in age from 1 year to 3 years and from 11 to 18 years. Measles in children older than 1 year were more severe compared with infants due to severe symptoms of intoxication and catarrhal syndrome. the symptom Bielsko-Filatova and measles enanthema the valuable diagnostic and differential diagnostic symptoms, as a pigmentation remains an important retrospective feature of having had measles before. Fig. 3, Tab. 1, Ref. 12.

Auth.

b15.3.3.22. On mechanism of functional changes in the organism of teenagers at different levels of locomotor activity. /F. Mindubaeva, F. Shukurov, Y. Salikhova, Y. Niyazova, A. Ramazanov/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 75-81. – rus.; res.: geo., eng., rus.

Comprehensive study of the cardiovascular system functional condition of 15-16 teenagers while in normal daily locomotor activity and in the mode of regular moderate physical activity was performed. The features of cerebral circulation and myocardium functional condition of teenagers are studied depending on initial tonus of the autonomic nervous system and locomotor activity level in the process of continuous step physical activity on treadmill. the condition of regulatory mechanisms, providing adaptation of teenagers in the conditions of modern school was studied. Research results showed, that elasticity of cerebrum arterial vessels, veins tone, venous outflow for teenagers not having regular physical activity, considerably mionectic. More adequate reaction of coronary blood flow in the process of physical activity is educed for the trained teenagers with the balanced autonomic regulation of cardiac rhythm. This group showed a higher level and regulation quality of organism reserve possibilities. Tab. 3, Ref. 21.

Auth.

b15.3.3.23. Genetic factors and salt-consumption effects on arterial hypertension in ethnically homogenous (Svanetian) population of Georgia. /I. Andronikashvili, G. Simonia, G. Abesadze, T. Petriashvili, R. Beriashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 7-9. – geo.; abs.: eng.

Up to now the exact mechanism of salt-sensitivity and salt-sensitive hypertension remains unclear. In recent years, researchers have a special interest in the genetic basics of these processes. the overall **goal** of our study was to determine in Svanetian ethnically homogenous families the salt- sensitivity and genetic factors predisposing to salt-sensitive hypertension. 40 ethnic Svans (essential hypertension stage I (JNC VII)) and their families, in total 120 subjects (53 males and 67 females, aged form 15 to 75 years) were tested for salt-sensitivity using a high salt/low salt protocol. Our results show that virtually all hypertensives and their family members consumed high amount of salt and these data are considerably higher than the international rates. Genetic testing revealed a high frequency of CYP3A5 polymorphism and its significant positive correlation to salt-sensitivity. All of the above makes possible to identify high risk groups for hypertension through identification of relevant genes and makes possible implementation of primary prevention and treatment of hypertension. Fig. 2, Ref. 7.

Auth.

b15.3.3.24. Hygienic assessment of professional risk for employees' health in silicomanganese manufacturing. /M. Arabidze, A. Chikovani, M. Kvatadze, G. Kverenchkiladze, M. Rizhinashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 9-11. – geo.; abs.: eng.

Based on the hygienic classification of acting labor conditions is hygienically assessed employees' labor condition in Zestaponi Ferroalloy Factory of silicomanganese manufacturing. There are established professions (workplaces), which labor conditions belong to harmful and dangerous classes (high-risk group): steel melter, loader, blast furnace man, machinist of column crane, machinist of breaking. There is developed enhancement measures of employees labor condition, which includes separate stages modernization of technological process, correct organization of workplaces, improving efficiency of the local and general ventilation systems, control establishment of collective and individual protection in correct use, using principle in time, previously (professional selection) and further properly carrying out periodic medical examination. Ref. 5.

Auth.

b15.3.3.25. Skin diseases in the coal industry. /R. Baratashvili, A. Chikovani, M. Gvichiani, T. Svanidze, N. Khachapuridze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.15 -16. – geo.; abs.: eng.

On the cases of studying the industry of coal dust emissions in the working air of Tkibuli Mindeli coal mains. It was established the cases of dermatitis and skin folliculitis among workers. Dermatitis in coal-miners involves most frequently the lower legs and the thighs and groins and less often the hands and forearms compared with 70-90% involvement of hands and forearms in most other industries. The patterns of dermatitis encountered in miners are consistent with the hypothesis that physical factors - heat, maceration with water, dust, small coal, and trauma - play major roles in their provocation and perpetuation. Soiled and dirty clothes may be important in association. Secondary infection is common and probably of clinical significance. Ref. 3.

Auth.

b15.3.3.26. The results of development of hygienic classification of working conditions of chemical industry of Georgia. /L. Bakradze, R. Kverenchkiladze, M. Tsimakuridze, G. Kverenchkiladze, S. Nozadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.19-22. – geo.; abs.: eng.

Complex researches for hygienic classification of work of the main professional groups of priority branches of the chemical industry (arsenic and its preparations producing, cyanic sodium producing and nitrate fertilizer producing) of

Georgia in the conditions of the combined action of professional factors on the basis of the relevant normative document are conducted. It is established that work of the majority of the main professional groups of these enterprises belongs on harm to 3.1 and 3.2 classes, on difficulty to 3.2 and 2 classes and on intensity to 2, 3.1 and 3.2 classes. The conducted complex researches formed the basis for development of actions for improvement of working conditions of employees of the studied enterprises of the chemical industry of Georgia. Tab. 1, Ref. 8.

Auth.

b15.3.3.27. Prevalence of active and passive smoking among the students of Tbilisi State Medical University. /N. Begishvili, D. Gabunia, M. Jibladze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 22-25. – geo.; abs.: eng.

An anonymous survey was conducted among 492 students (162 male and 330 female) of the Tbilisi State Medical University to identify the number of active and passive tobacco smokers and smoking status. Total of the active smokers is 13%, passive smokers 21%; out of total male smokers are 28, 4%, female smokers are 5, 2%. Smoking index and index pack/years were calculated to assess the intensity of smoking. Depending on the risk of COPD occurrence (smoking index >140) the smokers were divided into the risk-negative and the risk-positive subgroups. 2nd subgroup risk-positive (67%) -average smoking index 221, index pack/years 4, 6, among those 79% had respiratory symptoms. 1st subgroup risk-negative (33%) smoking index 85, index pack/years 1,5, among those 33% had respiratory symptoms. 41% of smokers refused to quit smoking. They do not acknowledge that they are tobacco addicted. Students depending on the risk of COPD occurrence need spirometer exam and should be observed in dynamics. Tab. 2, Ref. 11.

Auth.

b15.3.3.28. Dental status of HIV/AIDS infected patients in Georgia in 2013. /E. Bukhnikashvili, M. Tsintsadze, N. Abashidze, N. Didbaridze, Kh. Gogishvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.38-40. – geo.; abs.: eng.

The aims of this study were to determine the pattern and frequency of oral lesions and to compare the prevalence of HIV-related oral manifestations in HIV/AIDS infected patients in Georgia 2013. At this time in Georgia was revealed 490 new cases of HIV infection. In 370 (75.5±0.57%) of cases were men and 120(24.5±1.76%) – women. the main way of spreading diseases was unprotected heterosexual contacts 233 (47.55±1.05%), the next was injection drug use – 184 (37.55±1.29%), after homo/bisexual contacts – 66 (13.5±2.53%), hemotransfusion - 2(0.4±15.78%), vertical way (from mother to child) - 4 (0.8±11.14%), and unknown case was just 1(0.2±22.34%). the diseases in HIV-infected patients designated on different stage: Acute HIV-infection, asymptomatic, symptomatic non-AIDS and AIDS. From the HIV/AIDS infected patients in Georgia 2013, AIDS were developed in 273 (55.7±0.89%) of cases, asymptomatic – in 104(21,2±1,93%) of cases, symptomatic non-AIDS - in 102(20,8±0.62%) of cases and acute HIV infection had 11(2,25±6,59%) patients. From the 490 new cases just 254 (51.8±0.97%) patients had different kinds of oral manifestation. Mainly there were oral candidiasis – 153 (60.2±0.81%), herpetic gingivostomatitis - 126 (49,6±1,01%), Non-Hodgkin's lymphoma and Kaposi's sarcoma was detected in just one case (0,39±15,98%). So, as a result of our research, we can conclude that oral manifestations may occur bot at a late stage and early stage of diseases. It is very important to recognize of AIDS indicative diseases by dentists. Early diagnosis and prompt treatment is important both, for patient's health and for a public health too. Fig. 4, Ref. 8.

Auth.

b15.3.3.29. Nutrigenomics – new treatment strategy for the diseases. /Ts. Gigineishvili, M. Chipashvili, E. Imnadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 46-47. – geo.; abs.: eng.

Nutrigenomics studies the influence of food on gene expression. Instead of using drugs for the treatment and prevention of severe and chronic disease, it offers healthy lifestyle and personalized diet. Food is the shortest way to regulate gene expression. Ingredients that influence gene expression were identified in 20 types of food and there are about 19 genes that influence proper functioning of internal organs (absorption of antioxidants, tendency for inflammation, sensitivity to insulin). Food is the shortest way to regulate gene expression. Properly chosen food can activate the expression of the undamaged gene and correct disturbances caused by the mutant gene. Thus, food directly influences gene expression and, consequently, our health. Although the possibility of developing a treatment or discovering preventative measures of these diseases is exciting, the current knowledge in nutritional epigenetics is limited, and further studies are needed to expand the available resources and better understand the use of nutrients or bioactive food components for maintaining our health and preventing diseases through modifiable epigenetic mechanisms. Ref. 9.

Auth.

b15.3.3.30. Effect of family environment on child's physical and social development. /K. Gogberashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.47-50. – geo.; abs.: eng.

The work is aimed at assessing the physical and social development of abandoned children after 12 months of deinstitutionalization. The cohort study in Tbilisi Infant's House was performed. We studied 3 groups of healthy children up to 3 years. Group I consisted of 24-deinstitutionalised children living in foster families, Group II of 24 children who stayed in infant's house and III group of 24 children from full families (control group). Children's physical growth, motor and social developments with Denver II Screening Test were studied. For statistics, the Developmental Quotient (K) was calculated: $K = \text{developmental age by Denver II Screening Test} / \text{child's chronologic age} \times 100$. According to received data, the significant improvement in physical and psychomotor development was observed in the deinstitutionalized children even after 5-6 months of project period. After 12 months of deinstitutionalization the children's developmental quotient went closer to the children from control group – developmental "catch up". Our investigations confirmed the advantages of foster care and reintegration for children's health state. The early the abandoned child is be moved to the family environment, the outcome for development will be better. Tab. 2, Ref. 11.

Auth.

b15.3.3.31. Influence of environmental factors on the emotional status formation in children. /K. Gogberashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 50 -51. – geo.; abs.: eng. Maternal deprivation is known as an important factor for establishment of the child's behavior and stress responsiveness. The aim of the present research was to show how the early maternal deprivation influences the emotional status of children. Emotional status was assessed by Leusher's Color Test in a group of healthy institutionalized children at age from 3 to 6 years from Tskneti Orphanage. Received data was compared to control (healthy children the same age from family environment). Results revealed among 21% of children from institution high level of anxiety, in 11% - very high level, in 30% - mild and in 38% - low level of anxiety. It was in contrast to control group, where 59% of children had very low or no signs of anxiety and only 13% revealed high and very high level of anxiety. The results suggest that early maternal deprivation may contribute to long-term regulatory problems of the stress-responsive system that may be resulted in altered emotionality and behavior in deprived children. Thus, it seems reasonable to direct the effort to the prevention of children's institutionalization and support their deinstitutionalization by reintegration with birth families or fosterage. Ref. 10.

Auth.

b15.3.3.32. Organization of children nutrition in preschool institutions: problems and ways of their solving. /T. Darsania, Sh. Zarnadze, B. Kurashvili, I. Zarnadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 53-55. – geo.; abs.: eng.

Solving the problem of children's nourishment/nutrition is especially significant for the health of the entire nation. Hence we decided to study whether the state implements control of children's nourishment and if the care about future generations is its priority. For this reason we studied the quality and safety of foodstuffs utilized in preschool institutions. We selectively studied 10 Tbilisi preschool institutions, evaluated composition of used foodstuffs, portions of animal fat and oil and food additives. Existing Georgian legislation establishes norms and regulations for guaranteeing adequate nourishment in children's institutions. It covers an enumeration/list of unauthorized products in preschool institutions. The obtained results show that norms of rational and safe nourishment are violated in children's preschool institutions. Ref. 7.

Auth.

b15.3.3.33. The importance of eating behavior on the development of a back pain. /T. Darsania, Sh. Zarnadze, B. Kurashvili, I. Zarnadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 55-58. – geo.; abs.: eng.

Spinal pain is an important health issue for adolescents resulting in functional limitations for many and increasing the risk of spinal pain in adulthood. The objective of this exploratory case-control study was to evaluate associations between diet and adolescent spinal pain. Eating behavior was studied by a questionnaire. The back or neck pain were experienced by around half of the adolescents, with females more likely to experience spinal pain. Nutrition differed between sexes and deviated from the optimal intakes. Vitamin B12, eggs, cereals and meat consumption were related to spinal pain in sex specific multivariate analyses including primary career education level and adolescent waist girth and smoking. This study found that many Georgian adolescents had non-optimal diets. The findings of this study suggest that certain aspects of diet may have an association with spinal pain in adolescence. These results provide important initial evidence that diet and adolescent spinal pain may be associated, but further work is needed to explore potential relationships and mechanisms. Tab. 2, Ref. 9.

Auth.

b15.3.3.34. Epidemiological characteristics of meningococcal infection in Georgia. /I. Mchedlishvili, M. Eloshvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 130–131. – geo.; abs.: eng.

Based on the data analysis, during the period of 2006-2013, epidemiological characteristics of the meningococcal infection were estimated in Georgia. To detect a long-term tendency of disease, the incidence rate over the 1987-2013 period was reviewed. It was found that the tendency of disease has decreased recently. The highest rate of disease 1.7 per 100000 population was fixed in 1997, while in 2013 it made 0.34. This infection does not have a similar distribution in different regions of Georgia, the highest incidence being revealed in Adjara. The meningococcal infection mainly occurs among children. About 82.3% of all the cases were detected under the age of 14 years. The incidence rate is especially high among infants (under one year)- 8.4 per 100000; The incidence rates are eventually decreasing in following age groups and the lowest rates, 0.06 per 100000 occur over 60. Estimation of etiological structure of disease revealed that only B and C serotypes of N. meningitidis are circulating in the country. Tab. 2, Ref. 6.

Auth.

b15.3.3.35. Medical rehabilitation of adolescent athletes with scoliosis. /Z. Sopromadze, N. Chabashvili, T. Svanishvili, E. Tataradze, M. Sopromadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 133–135. – geo.; abs.: eng.

The purpose of the study was to evaluate the treatment process of adolescent athletes suffering from various degrees of scoliosis, using medical rehabilitation complexes designed by us. We observed 52 male athletes (26 tennis players and 26 water poloists), aged from 13 to 15 years, suffering from 1st and 2nd degree scoliosis. The athletes with the 1st degree scoliosis required a 20-day course of treatment, and athletes with the 2nd degree scoliosis required two a 20-day course of treatment with a 10-day interval of rest. Ref. 9.

Auth.

b15.3.3.36. Analysis of some morbidity indicators of Zestafoni Ferroalloy Plant workers. /N. Chkhaidze, T. Todua, O. Gvaberidze, N. Rukhadze, M. Tsimakuridze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 154–156. – geo.; abs.: eng.

The Zestafoni Ferroalloy Plant worker's morbidity was studied by diseases, sex, age and occupation. According to E.L. Notkin's international classification, the morbidity rate of the plant workers was assessed as moderate. A wave-like

changes in the general morbidity rate were registered among workers with an increase in age. The action of various industrial factors of the state of health and development of occupational diseases is analyzed. Fig. 2, Tab. 1, Ref. 3.

Auth.

b15.3.337. Epidemiologic survey of the workers of JSC Locomotive Works. /N. Chkhaidze, M. Turmanauli, T. Todua, M. Mamulashvili, M. Tsimakuridze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 156–158. – geo.; abs.: eng.

A descriptive epidemiologic survey by the face-to-face interview method was carried out in JSC Locomotive Works. As a result, it was found that the occupational hazard class 3 was noted for the highest 2 and 3 degrees. Under the effect of these factors many occupational and work-related diseases are prone to develop. Many respondents use alcohol and smoke, which might serve as additional risk factors among the workers of Georgian Locomotive Manufacturer Factory. Fig. 13, Ref. 4.

b15.3.338. The peculiarities of drinking mineral water “Udabno” in treatment of patients with noncalculous cholecystitis. /I. Chabashvili, T. Chilingarishvili, N. Saakashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 160–162. – geo.; abs.: eng.

Chronic cholecystitis is characterized of a recurrent process; it mainly damages young and middle age able-bodied population. Currently chronic disease of biliary system is deemed as a century disease. Goal of research: scientific study of *Udabno* mineral water. *Udabno*, the health resort (spa) is located in 5 km from Sairme. *Udabno* is a mineral water of weak mineralization (0,3 mg/l) rich in sulphate-calcium-sodium and Mn, Cu, Ti trace elements. Researches were conducted under stationary conditions over 40 patients ill with chronic cholecystitis. The *Udabno* mineral water has a beneficial effect upon the individuals ill with chronic cholecystitis; it has an anti-inflammatory action duly expressed in normalization of motor-evacuation function of gallbladder as well as improvement of the chemical composition of gall. Study of effectiveness of the mineral water proved its priority importance in case of hyperkinetic dyskinesia of biliary channels. This mineral water is a natural diuretic, major feature of which is the stimulation of artificial diuresis; it results in discharge of autolysis products of tissues from the organism without changing significantly secretion of the stomach. *Udabno*, the mineral water, unique and tenderly influencing therapeutic mean is recognized with its high effectiveness, it has no negative effects and its ecological purity enables to be applied the water as for medicinal so prevention purposes. Ref. 5.

Auth.

b15.3.339. Treatment of chronic gastroduodenitis by natural factors. /I. Cahabshvili, T. Chilingarishvili, N. Saakashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 162-164. – geo.; abs.: eng.

For normal functioning of the body, the conservation of microelements balance, which can be achieved by means of mineral water, is very important. For the first time, the effect of the high mineralization (17,9 g/dm³) carbonic acid hydrocarbonate, sodium chloride mineral water “*Vardzia*” on 60 patients with chronic gastroduodenitis was studied. The unique physicochemical, organoleptic features, as well as the high curative properties of the mineral water “*Vardzia*” make it usable for treating not only gastrointestinal disorders, but also for preventing siderotic anemia and atherosclerosis. Ref. 5.

Auth.

b15.3.340. The level of physical activity and growth parameters in children aged 5-6. /M. Kherkheulidze, N. Kavlashvili, E. Kandelaki, I. Chkhaidze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 165-168. – geo.; abs.: eng.

The aim of our study was to evaluate the growth and physical activity in children aged 5-6. The study was conducted throughout Georgia. Parents of 1498 5-6-year children selected by the stratified cluster methodology were surveyed. The survey involved the demographic, socio-economic characteristics, prenatal and postnatal history, growth parameters, time spent on physical activity, etc. The survey revealed that most children's weight and height are normal. According to age and weight and height and BMI standards underweight is met in 2.4 %, overweight in 16.7%, obesity – 15.5%, heavy obesity - in 11.9% cases. According to our study, there no significant correlation was found between the birth weight, gestational age and anthropometric data of 5-6-year old children. Our study does not reveal a correlation between sex and overweight or obesity. The study shows that overweight is significantly higher in urban areas than in rural areas and highlands. Due to high prevalence of overweight and obesity in small children's population it is important to start implementing the healthy nutrition and obesity prevention strategies from the early years. Fig. 4, Tab. 2, Ref. 9.

Auth.

b15.3.341. Hygienic and ergonomic characteristics of labor process of Chiatura manganese mine workers. /K. Khvadagiani, N. Patiashvili, N. Tatalashvili, L. Bakradze, M. Qvatadze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 171-172. – geo.; abs.: eng.

The research objective is the hygienic and ergonomic characteristic of labor process of Chiatura manganese mine workers. The major psycho-physiological factors of labor process and features of the work-rest schedule of working leading professions have been studied. The standard physiological and ergonomic methods of researches are applied. It is established that the labor process of Chiatura manganese mine workers is characterized by a complex of unfavorable factors, among which high density of working day (73.4-90.0%), labor process' intensity and hardness (2.0–3.3 class), brachial muscle overwork are notable. The level of mechanization and automation of the production has a certain effect on the production. On the basis of the received results, relevant sanitation measures have been developed. Ref. 4.

Auth.

b15.3.3.42. Occupational health and safety problems in Georgia. /R. Javakhadze, N. Rukhadze, M. Tsereteli, O. Gvaberidze, M. Tsimakuridze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp.172-175. – geo.; abs.: eng.

Within the framework of the state program “Prevention of Occupational Diseases”, which is being implemented at N. Makhviladze Research Scientific Institute of Labor Medicine and Ecology, a comprehensive study of the main Georgian industries (hygienic, toxicological, epidemiological and clinical) was conducted. The received data and results will serve as a basis for improving the occupational health and safety systems and working out the labor medicine standards for different branches of national economy in accordance with the recommendations and demands of WHO and ILO. It gives a possibility to create and revise the current sanitary-hygienic and epidemiological normative documents and harmonize them with the EU standards (directives). Ref. 5.

Auth.

b15.3.3.43. Manganese and its compounds influence on the health of industry workers. /D. Javakhadze, N. Khatiashvili, Kh. Chigogidze, Shubladze Kh., D.Zurashvili/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 175-177. – geo.; abs.: eng.

Environmental pollution and its negative influence on human health cause meaningful anxiety of the world. Safe environment factors aim to reduce harmful factors and provide the constitutional right - to live and work in a safe environment. Under conditions of a socio-economic crisis in the country the sanitation and hygienic protection system collapsed at all levels, which made the creation of safe environment for the health of the employed population necessary. This problem is the most urgent for the worker's health engaged in various fields of industries, especially in manganese mining and processing. To solve the problem, the following tasks are necessary: estimation the harmful risk-factors, systematization and unification of national economy development taking into consideration the industry and work specificity, clinical and hygienic factors. Fig.2, lit. 11.

Auth.

b3.4. Health biotechnology

15.3.4.1. Galectins as new therapeutic targets for galactose-containing polysaccharides. /A.Klyosov/. Bulletin of the Georgian National Academy of Sciences.– 2014. – Vol. 8, #1.– pp. 5-17. – eng.; abs.:eng.,geo.

The Galectin protein family includes 15 members that are characterized by galactose binding domains and are widely expressed in diverse cell types. Galectins are found in multiple intracellular compartments and are secreted into the extracellular space. There has been an explosion in information on these fascinating proteins in pathological states, particularly inflammation, fibrosis, and cancer. This Review summarizes attempts to cover the key areas of galectin-dependent disease and discusses the approaches to developing galectin blockers for treatment. the time is right for major efforts to advance galectin-based therapies into multiple human diseases. Tab.1, Fig.3, Ref. 67.

Auth.

b15.3.4.2. The influence of smitin on fermentative activity of actomyosin in different area conditions. /N. Gachechiladze, J. Gogorishvili, R. Kupatadze, K. Kuridze, T. Eristavi, M. Zaalishvili/. Bulletin of the Georgian National Academy of Sciences.– 2014. – Vol. 8, #1.– pp. 89-93. – eng.; abs.:eng., geo.

The influence of smitin (C-titin) on Mg^{2+} -activated ATPase activity of chicken smooth muscle (stomach) actomyosin in different area conditions (ionic strength, pH, and different concentrations of smitin) was studied. It was shown that smitin, likewise titin, causes the increasing of Mg^{2+} -activated ATPase activity of actomyosin. Mg^{2+} -activated ATPase activity in the presence of smitin has maximal value in 30mM KCl and minimal - in 100mM KCl. Mg^{2+} -activated ATPase activity of actomyosin in the presence of smitin reaches maximal value at pH 8 and at pH 9 it decreases. ATPase activity increases according to the growth of smitin concentration and is maximal when it makes up 40% of myosin by weight. Obtained results confirm that in smooth muscle smitin has the same effect on actomyosin ATPase activity as titin has on skeletal muscle ATPase activity. Smitin stipulates muscle elastic properties, on the one hand, and on the other hand it is the “scaffold” for the proteins participating in muscle contraction, forming the supermolecular complex with these proteins. TAb. 1, Fig. 3, Ref. 20.

Auth.

b15.3.4.3. Behavioral study of TRPA1 and TRPV1 channels relationship in rats. /I. Nozadze, N. Tsiklauri, G.Gurtskaia, M.Tsagareli/. Bulletin of the Georgian National Academy of Sciences.– 2014. – Vol. 8, #1. – pp. 122-127. – eng.; abs.:eng., geo.

A number of temperature-sensitive transient receptor potential (TRP) ion channels are studied as nociceptors that respond to extreme temperatures and harmful chemicals. Among them there is a family of six thermo-TRP channels (TRPA1, TRPM8, TRPV1, TRPV2, TRPV3, and TRPV4) that exhibit sensitivity to increases or decreases in temperature, as well as to chemical substances eliciting the respective hot or cold sensations. In this study, we used behavioral method of cold plate test to investigate whether allylthiocyanate (AITC), a natural compound of mustard oil, and capsaicin affect the sensitivity to innocuous and noxious cold stimuli in male rats. Obtained results indicate that TRPA1 and TRPV1 channels are clearly involved in pain reactions, and the TRPA1 and TRPV1 agonists AITC and capsaicin enhance the cold pain sensitivity modulating TRPA1 channels co-expressed in nociceptors with TRPV1. Our data support the role of thermosensitive TRPA1 and TRPV1 channels in pain modulation and show that these two thermo receptor channels are in synergistic and/or conditional relationship to innocuous and noxious cold cutaneous stimulation. Fig. 1, Ref. 43.

Auth.

b15.3.4.4. Natural antibiotics. /K. Gabunia/. Novation. – 2015. – #15. – pp. 224-227. – geo.; abs.: geo., eng., rus.

In recent years the antibiotics' improper use has achieved such scales that microorganisms became resistant to them. Therefore the use of natural antibiotics became more popular. Differing from synthetic antibiotics, natural antibiotics act tenderly and strengthen the immune system. They do not provoke the risks of development of drug-induced diseases, no microorganisms resistance is developed against them which is the greatest problem of medicine today. We consider that knowledge of antibiotic nature of medical plants will help the person to protect him and children from various infectious diseases. Ref. 7.

Auth.

b15.3.4.5. The clinical significance of PVULL polymorphism estradiol receptor alpha gene to improve diagnosis of proliferative forms of benign breast dysplasia. /I. Lukavenko, V. Andryushchenko, V. Garbuzova, A. Yazikov/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 12-17. – rus.; res.: geo., eng., rus.

The aim - to determine the role of single nucleotide polymorphism PvuII of the gene EsR α as an indicator of proliferative activity in benign breast dysplasia (BBD) and its effect on receptor status of breast tissue for expression EsR α . Defined genotype PvuII polymorphism EsR α , the expression level in remote EsR α among patients with BBD. for these patients, and morphological parameters samples are divided into groups and compared. It is shown that there is a connection between the PvuII-gene polymorphism EsR α with the degree of proliferation ($\chi^2=43,142$; $p<0,0001$) and the expression level EsR α ($\chi^2=51,041$; $p<0,0001$) in breast tissue at BBD in patients with homozygous (C/C) polymorphism PvuII of the gene EsR α . Addition to the standard morphological study justified immunohistochemical study with the definition of the expression level of EsR α due to the fact that the increase in the level of expression associated with an increase in cell proliferation in tumors with BBD ($\chi^2=7,370$; $p=0,007$). An algorithm for the diagnosis of proliferative forms BBD. Fig. 1, Tab. 3, Ref. 12.

Auth.

b15.3.4.6. Ovarian reserve in the women of late reproductive age after conservative treatment of polycystic ovary syndrome in adolescence. /K. Beltadze, L. Barbakadze/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 27-31. – eng.; res.: geo., eng., rus.

the aim of the present study was to assess the ovarian reserve of the women of late reproductive age after the conservative treatment of polycystic ovary syndrome in adolescence. A total of 67 women of late reproductive age with confirmed primary PCOS in adolescence and 70 age-matched controls were included in the study. the patients with PCOS underwent clinical investigation and conservative treatment with antiandrogens and oral contraceptive pills (OCPs) between 1984 and 1990 and at the time of original diagnosis they were 13-18 years. The patients were collected via analysis of histories at primary diagnosis of PCOS in adolescence and at the time of the follow-up investigation of reproductive hormones was conducted. Data were compared between the study and control groups. After conservative treatment PCOS patients had higher levels of anti-Müllerian hormone and greater number of antral follicles than controls ($p<0.01$ and $p<0.05$, respectively). Our data suggest that PCOS patients who underwent conservative treatment with OCPs in adolescence have the better ovarian reserve in late reproductive age compared with age-matched controls. Tab. 1, Ref. 17.

Auth.

b15.3.4.7. Computed tomographic evaluation of the healing of experimental defect of a long bone of the skeleton after implantation into its cavity osteoplastic material «CERABONE®». /A. Korenkov, V. Sikora/. Georgian Medical News (GMN). – 2015. – #1(238). – pp. 89-93. – rus.; res.: geo., eng., rus.

Described in the literature properties of osteoplastic material «Cerabone®» have been obtained from studies in the maxilla and cancellous bone. The lack of data on the impact of «Cerabone®» on the dynamics of the healing of defects of compact substance of the long bones of the skeleton dictates the need for such studies. Implantation of osteoplastic material «Cerabone®» was performed into the defect of rat femoral shaft followed by computer-tomographic analysis of its healing. Starting from the 30th day until the end of the experiment (120th day) there were found faint signs of rarefaction in the distal part adjacent to the defect of parent bone, with no signs of bone resorption in its proximal part. There was identified an extremely high density of the implantation site «Cerabone®», no visible radiographic evidence of resorption of osteoplastic material and ensuring by the latter the stability of volume of the defect in cortical bone at all stages of the experiment. Fig. 4, Ref. 19.

Auth.

b15.3.4.8. Clinical use of a new method of inguinal hernia repair. /I. Shkvarkovskiy, O. Moskaliuk, V. Grebeniuk, S. Yakobchuk, O. Rusak/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 7-10. – rus.; res.: geo., eng., rus.

Surgery is the only treatment for inguinal hernias. The use of allografts has reduced the number recurrences of hernias to 3-14%. However, in any form of alloplasty around implant develops tissue reaction that causes a number of specific complications. At present, researchers found that in 45-59% of cases of inguinal allogernioplasty leads to a significant disruption of spermatogenic and hormonal functions of the testicle. On the basis of the Surgical Department #1 (Chernivtsi Emergency Hospital) 61 patients (main group) underwent surgery according to the proposed method (patent of Ukraine for useful model # 81728). The control group included 63 male patients from 19 to 61 years old who underwent inguinal hernia repair by I.L.Lichtenstein. Postoperative recovery periods examined basal activity and disability, pain intensity, the presence of specific complications, length of postoperative hospital stay days, recurrences of hernias. in order to assess reproductive disorders studied the state of blood circulation to the testicular arteries, testicular volume and the level of sex hormones. The prevention of polymeric implant to contact with the components of the spermatic cord reduces the inflammatory response to the structure of the inguinal canal, and the reproductive organs, which leads to a reduction of pain. Also accelerated social and labor rehabilitation of patients; blood circulation is preserved in the testicle and male hormones in the postoperative period. The proposed method prevents the

development of recurrences of hernias through the elimination of the deep inguinal ring as one of the weaknesses of the anterior abdominal wall. Ref. 11.

Auth.

b15.3.4.9. Usage of genetic markers to determine the impact of radiation on the human body. /A. Zedginidze, E. Namchevadze, T. Nikuradze, G. Zalinyan, G. Parsadanyan/. Georgian Medical News (GMN). – 2015. – #2(239). – pp. 94-98. – rus.; res.: geo., eng., rus.

The timely determination of the fact of radiation impact on the organism is extremely important for preventive and curative interventions. Despite the fact that so far cytogenetic violations are considered to be the best biomarkers to determine the impact of ionizing radiation on the organism, actual problem is to find the optimal combination of different biomarkers. The aim of the work was investigation of the extended set of biomarkers in distant periods of exposure in people previously assigned to the radiation risk group, as well as the identification of genetic disorders in the process of radiotherapy. The object of the study were 37 residents of districts, where at the beginning of this century radioactive sources were discovered, and 6 oncology patients in the course of radiotherapy. Chromosome disorders, the overall level of DNA cells single-stranded damage by comet-assay method and a method of level detection of buccal micronuclei in were investigated. The results showed heterogeneity of different organism response to irradiation. Determination of absorbed dose, identification of various genetic disorders in individuals exposed to identical doses of radiation, offers the opportunity to judge the individual biological effect and is very important for individual preventive activities. Tab. 1, Ref. 17.

Auth.

b15.3.4.10. Role of nitric oxide (NO) in microcirculation changes during Crush syndrome. /N. Gamkrelidze, T. Sanikidze, N. Pavliashvili, N. Kipiani, M. Namoradze/. Tbilisi State Medical University. Collection of Scientific Works. – 2014. – v. XLVIII. – pp. 43-45. – geo.; abs.: eng.

Crush Syndrome is severe form of traumatic injury that develops due to soft tissues, mainly muscular tissue alterations, especially at post compression period. The purpose of the research was to study FeS-NO and Free Nitric Oxide (NO) changes in microcirculation during crush syndrome. The experiments were carried out on laboratory rats with the use of crush syndrome standard modeling methods during different regimens of compression and post compression periods. Free NO was investigated by electronic-paramagnetic resonance (EPR) method, - with the use of spin traps. Reliability of the results was determined with the use of variational statistics - Student's t-test method. the results indicate that FeS-NO and free NO is increased (due to eNOS activation) in compression. FeS-NO remains nearly the same, free NO is relatively decreased in post compression (due to eNOS deactivation). The results contribute to NO role determination in microcirculation disorders during crush syndrome. Tab. 1, Ref. 26.

Auth.

B4. AGRARIAN SCIENCES

b4.1. Agriculture, forestry and fishery

b15.4.1.1. Problems of monitoring forests in Georgia and ways of their solutions. /L. Gigineishvili, Z. Chitidze/. Transport and Machinebuilding. – 2014. – #3(31). – pp.21-26. – geo.; abs.: geo., rus., eng.

Taking care of and preservation of versatility of forests is impossible without their monitoring and periodical inventory-accounting. Traditional methods: measuring of areas occupied by different species of forest vegetation, taxation of trees, fixation of diseases and centers of other harmful influences have proved to be insufficient. Due to the climate change, global warming and anthropogenic pollution of environment, the forest, as the nature's biggest ecosystem, has fallen into the gravest conditions. For improving the system of monitoring, it became necessary to utilize geographical-informational system – GIS, global-positioning system – GPS, DZ technologies for remote earth-probing and analysis. According to the decision of the government, the Georgian Technical University was assigned a big and ambitious mission to create a Faculty of Agrarian Sciences and Bio-systems Engineering. Within the frames of partnership between the Forest-Technical Department and a Belarus company Belinvestels a project has been launched for creation of geo-informational system (GIS) Formap professional for Android and iOS operation system mobile phones, smartphones and iPads. It will be possible to monitor the forest areas on the basis of powers of local forestry with following the FAO standards. Students accepted in the Forest-Agrarian Sector of the Technical University will acquire international level scientific-practical skills without a tuition fee. Ref. 3.

Auth.

b15.4.1.2. Definition of morphological, basic chemical and physical properties of distributed in Zelkova common area soils. /J. Lomidze, M. Gogotishvili/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 138-141. – geo.; abs.: geo., eng., rus.

In this paper are considered the morphological, mechanical and some chemical and physical properties of soils formed under Zelkova. It is defined that the considered soils, which are set forth in the loess loams, dealluvial sedimentary rocks, belong to medium and light loams. The large content of sediment fractions in these soils is stipulated due high content of sediment fractions in soil-forming rocks – in clay-slates, sandstones and loessial deposits. According to the humus content, they belong to humic weak soils. Soil reaction (PH) at the top horizon of soil is neutral, in lower horizon – soils are characterized by alkaline reaction. Soils are characterized by a high content of carbonates. Tab. 2, Ref. 4.

Auth.

b15.4.1.3. The dynamics of changes in terpenes during alcoholic fermentation in the grapes and must of Rkatsiteli Muscat. /T.Kituashvili, M. Khositashvili, G. Buishvili, T. Khositashvili/. GEN. – 2014. – #2. – pp. 96-98. – geo.; abs.: eng.

The paper deals with the dynamics of changes in terpenes during alcoholic fermentation in the grapes and must of Rkatsiteli Muscat. It was revealed that an increase in the concentration of all terpene compounds proceeded up to the accumulation of 18% sugar, following which the concentration of terpenes remained unchanged. When the concentration of sugar reached 21-22%, the concentration of terpenes decreased gradually. The reduction in the total concentration of terpenes was related to the accumulation of spirit in the fermentation area. Tab. 1, Ref. 3.

Auth.

b15.4.1.4. Accumulation and distribution of Cd, Zn, Cu and Mn in barley. /O. Rcheulishvili, N. Metreveli, T. Kalabegishvili, A. Rcheulishvili, N. Rcheulishvili, T. Korpela, L. Tugushi, A. Abashidze/. GEN. – 2014. – #3. – pp. 61-66. – eng.; abs.: rus.

The paper deals with the accumulation and distribution of chemical elements in edible plants. The edible plants growing in the polluted environment absorb large amounts of chemical elements and accumulate them in different organs. Such plants could be a hazard to people's health when they are used as food. Hence it is of great importance to study the concentrations of various elements in edible plants. In this work, the accumulation and distribution of Cd, Zn, Cu and Mn in barley was studied. The average concentrations of these elements in the roots, stems and leaves of the plant were determined at different stages of its growth. The obtained results allow assessing the risks associated with consuming the plants grown in the polluted environment. Fig. 2, Tab. 6, Ref. 15.

Auth.

b15.4.1.5. Fruit diseases during the storage. /Sh. Kanchaveli/. GEN. – 2014. – #4. – pp. 84-87. – rus.; abs.: eng.

Basic fruit diseases during storage are discussed, stating the primary ecological requirements for each pathogen. It was established that fruit is damaged in storage by a great deal of parasites; the number of kinds of fungi registered under these conditions exceeds 50. The main ones are the representatives of genera: *Monilia*, *Penicillium*, *Fusicladium*, *Gloeosporium*, *Botrytis*, *Fusarium*, *Alternaria*, *Sporotrichum*, *Gloeodes*, *Leptothyrium* etc. It is shown that during the fruit storage, the temperature rate is of great importance. The temperature of fruit storage must be about 2–3°C with a slight variation. Humidity in the storage must be relatively high (75 – 80%). Ref. 3.

Auth.

b15.4.1.6. Unfavorable environmental factors influence the Imereti tangerine populations. /N. Kipiani, N. Chachkhiani-Anasashvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 99-102. – geo.; abs.: geo., eng., rus.

Broad-leaved mandarin Unshiu populations are widely spread in Imereti region. They are relatively productive and high-quality fruits. In addition to varietal characteristics, the plant and harvest are influenced by a complex biochemical and physiological processes that are going to plant vegetation process, as well as environmental factors (drought, frost, humidity, excessive rainfall), and malignant diseases. We have studied unfavorable environmental factors (drought) on the yield of mandarin populations. It is established that for mandarin long-term dry winds and high temperature is harmful. Drought reduces the harvest, as well as the quality, because citrus leaves have the ability to take away moisture from fruits, which leads to dropping, less resistance to disease and loss. Fig. 3, Tab. 2, Ref. 3.

Auth.

b15.4.1.7. Regulatory of mutual influence of saturated groundwater and flow patterns. /D. Gubeladze/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 103-106. – geo.; abs.: geo., eng., rus.

The paper deals with the issue of underground streaming movement in the ground. The induced (filtration) streaming dependence on streaming hydraulic opposition is revealed. The dependence is established between determination of integral characters and capacity. Ref. 5.

Auth.

b15.4.1.8. Grinding of dried species. /N. Alkhanashvili, M. Demeniya/. Agrarian-economic Science and Technologies. 2015. – #3. – pp. 25-29. - geo.; abs.: geo., eng.

The final processes in the technological cycle of dried mono-species are drying and grinding. To dry the spicy-aromatic raw materials we have offered the natural as well as the artificial drying. The natural drying is recommended for farmer economies with small productivity, having no drying equipment. The natural drying makes it possible to dry the raw materials according to the natural humidity level - this under conditions of non-regulated parameters for the spicy-aromatic raw materials constitutes 12-14%. For quality grinding of dried mono-species, with minimal energy expenses, the spicy-aromatic semi-fabricate humidity must be no more than 8-10%. Because of the mentioned, we have offered to produce the herbaceous spicy-aromatic production with intermissive cycle, during it in the direct planting place in the farmer field they will be dried to 14-20%. Further processing of the semi-fabricates, produced in different regions and farms (drying to 8-10% humidity and grinding) will be implemented directly in the central production of the species, equipped with drying devices for the semi-fabricates drying and grinding machines. Tab. 1, fig. 1.

Auth.

b15.4.1.9. Significance of new technologies in plants selection. /V. Kobalia/. Novation. – 2015. – #5. – pp. 37-41. – geo.; abs.: geo., eng., rus.

In the development phase of the plants selection its efficient to use new technologies as are: clonal micro-reproduction of the plants, callus and haploids crops, somatic hybridization, suspension crops, cellular selection and genetic engineering which give opportunity of making basic material and reproduction means for plants selection. In recent years, in Georgia, there were established first commercial biotechnological laboratories where practical activities together with specific

researches are held. In the future in agrarian universities and research establishments it is essential to be created laboratories and to be solved the problems faced in the agriculture, including selection of subtropical plants by in vitro technologies. Ref. 7.

Auth.

b15.4.1.10. Bases of permanent commerce and business of citrus. /G. Geladze, I. Kapanadze, G. Getsdze, Sh. Kapanadze/. Novation. – 2015. – #15. – pp. 42-45. – geo.; abs.: geo., eng., rus.

Permanent commerce and business of citrus requires the existence of commercial grades and populations in each period of the year. In particular, winter grades should include: tangerine Unshiu (*C. unshiu* Marc.) and naval orange varieties Thomson and Drim (*C. sinensis* os. var. Tomson navel, Dream navel), Caucasian citrus (*C. Caucasus* kap.), pumpkin-like citrus (*C. pomelo* Lush.), Duncan grapefruit, grapefruit Koroliok (*C. grandis* var. redpulp), spring grades and populations: Natsudaikai (*C. natsudaikai* Tan.) and Pompelmus seedless (Grapefruit var. marsh seedless), summer genera and populations: lemon Sipibay (*C. limonia* var. sipibay shlicow). Ref. 4.

Auth.

b15.4.1.11. Influence of methods of bilberry extract preparation on the biologically active extracts. /N. Sinauridze, N. Gogishvili, Chokhoniidze, G. Gorgodze/. Novation. – 2015. – #15. – pp. 46-51. – geo.; abs.: geo., eng., rus.

The obtained results of experimental studies show that the methods of raw materials pretreatment and approaches to it influence both the yield of biologically active hydrophilic extracting substances and antioxidant activity of the produced extracts. It has been established that under conditions of using the wet weight or vacuum it is preferable, as far as possible, to use the dried-up raw materials. The use of the dried-up raw materials is comparatively ineffective at the temperature of 60 °C. The extraction efficiency is significantly reduced under conditions of raw materials pretreatment at high temperature. Tab. 1. Fig. 5. Ref. 6.

Auth.

b15.4.1.12. Research of agro-ecological landscape for vineyards on Imereti humus-calcareous soils. /R. Lortkipanidze, N. Avalishvili/. Novation. – 2015. – #15. – pp. 52-55. – geo.; abs.: geo., eng., rus.

The typical and alkali soils are distinguished in the type of humus-calcareous soils. According to the nature of the soil-forming rocks, limestone (developed on limestone) and merger (developed on merger) families are distinguished in the typical subtype. These soils are characterized by high economic value. Sand in the soil bears positive impact on soil watery, airy and thermal properties. At present, a large number of these soils are used for annual and perennial crops in Imereti region. The results of the research confirm that due to winegrowing purposes the Imereti region's humus-calcareous soils are the best agro-ecological landscape base for vine planting. Tab. 2, Ref. 2.

Auth.

b15.4.1.13. The agrarian sector is an important field of the economy of Georgia. /D. Silagadze/. Novation. – 2015. – #15. – pp. 92-95. – geo.; abs.: geo., eng., rus.

The article highlights the agrarian sector as an important field of economy. Agriculture has always held an important role in the economy of Georgia. In 1990, the share of agriculture in GDP was 29.7%, but the ruin of Soviet Union paralyzed the sector. Production significantly decreased. The work aimed at studying the situation in agriculture and highlighting the impediments in its development, its normal functioning, also considering new approaches on the part of the government which should support the strengthening of the agrarian sector and revival of Georgian village in the future. In the period of research we used statistic showings, strategic development plan of 2014-2015 and found internet materials. We have determined the basic directions to be implemented in the future, especially given the current priority course of agriculture in the country. Ref. 4.

Auth.

b15.4.1.14. Black chokeberry. /M. Meladze/. Novation. – 2015. – #15. – pp. 161-166. – geo.; abs.: geo., eng., rus.

The article is devoted to a brief botanical description and biological features of the black chokeberry, its use for some orchard crops in the form of a rootstock, in particular for pears, workers and green development professionals serving the resort area. Also noted is the medicinal value and properties of chokeberry fruits, their biochemical composition, indicating the therapeutic use. The article is intended for a wide range of readers, farmers and nature lovers. Ref. 3.

Auth.

b15.4.1.15. Growth and development of blue cranberries in Baghdati District. /M. Tabagari, I. Skhiladze/. Novation. – 2015. – #15. – pp. 134-137. – geo.; abs.: eng., rus.

The article describes the growth and development of cranberry according to varieties (Toro, Bluegold, Chandler, Blueray), that are in the soil and climatic conditions of the Baghdati area. In experimental plants are clearly seen indicators of plant growth, of the volume of the crown, the number of branches and leaves, as well as of growth and development. As a result of phenological observations, the best growth and development are characterized of the varieties - Chandler and Blueray. Ref 2.

Auth.

b15.4.1.16. Agro-environmental monitoring of intermediate crops in a young hazelnut plantation. /R. Lordkipanidze, M. Kheladze/. Novation. – 2015. – #15. – pp. 138-142. – geo.; abs.: geo., eng., rus.

On the basis of agro-environmental monitoring it was found how grow up hazelnuts on alluvial soils poor in nutritious elements following their corresponding cultivation, in particular, by intercropping in a young hazelnut plantation. For the purpose of increasing fertility of the soil, it is best of all to use one-year intermediate legumes (soybean, alfalfa, vetch, etc.) as they develop root nodes inhabited by bacteria that are fixing atmospheric nitrogen and the biologically pure nitrogen is accumulated in the soil as it takes place in a case of applying manure and nitrogen fertilizers. Tab. 2. Ref. 1.

Auth.

b15.4.1.17. The risk assessment indicator systems and main criteria in farms. /M. Shalamberize/. Novation. – 2015. – #15. – pp. 143-146. – geo.; abs.: geo., eng., rus.

The problem of economic risk in Georgia is particularly urgent on farms and its proper assessment and management is mainly dependent on the economic growth of the whole process. Generally, agricultural risk assessment and management by different researchers is defined differently. The risk is expressed as a free action, a possible threat, any activity related to the production and marketing process, less income, losses, etc. Accordingly, farmers are regarded as indicators of risk assessment systems, which is expected to significantly decrease the risk of adverse outcomes. Therefore, the manager will be required to ensure a high scientific-practical level of governance decisions. Ref. 3.

Auth.

b15.4.1.18. Impact of different form of plants on frost-resistance of Georgian lemon. /N. Kipiani/. Novation. – 2015. – #15. – pp. 151-154. – geo.; abs.: geo., eng., rus.

The work highlights results of the impact of different plants on frost-resistance of Georgian lemon. The industrial spread of the crop is mostly restricted due to unprofitable extreme factors of environment; namely, due to periodical low temperature plants are often damaged. In some cases many of them die. Frost-resistance is a physiological property of the plant, which can be conditioned by such biological originality thereof as the starting and ending period of vegetation. From the results of damage of Georgian lemon grafted to different plants it is shown that trifoliolate, early fruiting plants and ordinary trifoliolate plants are better than citrus plants. Tab. 1. Fig. 1. Ref. 2.

Auth.

b15.4.1.19. The agrotechnology of chokeberry aronia. /M. Meladze/. Novation. – 2015. – #15. – pp. 155-160. – geo.; abs.: geo., eng., rus.

The paper deals with different methods of breeding chokeberry, the planting periods and techniques. Considered in detail are also the questions of obtaining planting material in breeding seedlings of softwood cuttings in order to preserve the posterity valuable economic properties of the parent plant; advantages of this method of reproduction, its high efficiency, performance technique works, the use of greenhouses and poly-tunnels in obtaining seedlings. The paper presents and other reproductions chokeberry aronia quite woody cuttings, grafting, horizontal and vertical layering, root shoots, dividing the bush, by micro cloning (in vitro). Ref. 4.

Auth.

b15.4.1.20. The agricultural policymakers in Georgia, problems, opportunities and alternatives. /N. Rukhaia-Mosemgvdlishvili/. Economics. – 2015. – #5-6. – pp. 6-16. – geo.; abs.: geo., eng.

Georgian agricultural sector is in such a condition that only the thoughtful and properly selected comprehensive agrarian policies can stimulate its development. Agricultural policy is carried out as a result of a cooperation of the hierarchical and network agents in the market. Their proper coordination is necessary for developing the effective policies and action plans. The governmental regulations must encourage businesses to invest in the agricultural sector, indicating about the growth of export volume with legislative, taxation and subsidy policies. The “network of economic agents”- commodity exchanges, consulting and marketing organizations - should be established to ensure a market coordination and promotion of relations with foreign investors or partners. The article describes the current model of Georgian agricultural policy management and coordination problems that exist between the various structures involved. The aim of the article is to discuss the ways of reduction of the negative consequences of a low coordination level between the various governmental and non-governmental structures. There is the schematic model of agricultural policy management, in which there is provided the platform for a coordinated cooperation of the central government, regional governments and business. Fig. 1, Ref. 4.

Auth.

b15.4.1.21. Mulching – soil conversation tool. /F. Lortkipanidze, E. Kechkhoshvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 161-165. – geo.; abs.: geo., eng., rus.

Mulching issues are discussed in the article. It is estimated that mulching is an important method for maintaining moisture in soil and reducing the weed control costs. Introduction of organic mulch improves soil structure and enriches its organic matter. Ref. 5.

Auth.

b15.4.1.22. Forecasting origin of wave in small depth flows during linear soil erosion. /O. Natishvili, T. Urushadze, G. Gavardashvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental protection, Architecture and Construction. Tbilisi. – July 16-19. – 2015. – pp. 203-213. – rus.; abs.: geo., eng., rus.

The paper is dedicated to the problem, which has not studied yet by scientists and highlights impact of waves upon the intensity of soil erosion in the case of forming the shallow flows on slopes. Methods, forecasting origin of waves on the free surface of slope runoff both in the water and sediment flows, are offered. According to the theoretical study, influence of wave formation on the soil erosion intensity should be considered in existing computational dependencies using the correction coefficient $V_{\theta} = 1,5V$ for average flow velocity in cross section. Ref. 18.

Auth.

b15.4.1.23. Renewed checklist of bees (hymenoptera, apoidea) from Georgia. /G. Kirkitadze, G. Japoshvili/. Annals of Agrarian Science. – 2015. – vol. 13. – #1. – pp. 20-32. – eng.; abs.: eng., rus.

Bees are one of the most diverse insect groups in the world. Bees have a special importance for ecosystems. Almost 75% of agricultural production depends on pollination intensity. Many of bees are used in green houses for increasing yield. Bees are not well protected against influence of different factors, which can affect their number decline. For conservation of bees the knowledge of their importance, their distributional data completeness are very important. During last 30 years taxonomic status of bees distributed in Georgia had not been revised. Complete list of Georgian bees was incorporated in the list of Caucasus bees in 1981. Since that time we made a first complete list of all bees distributed in Georgia, with taxonomic changes had been done during last 33 years. Totally it made 356 species belonging to 46 different genera and 6 families. We made more than 150 changes in the names of families, genera and species recorded and published from Georgia. The most abundant family was family *Apidae* with 107 species. It must be noted that 41 species of *Bombus* have been registered in Georgia, which are composing *Bombus* fauna of Caucasus with additional 3 species. We were not able to find validity of *Bombus georgicus* Vogt. Therefore we did not include this species in the list. Ref. 37.

Auth.

b15.4.1.24. Intermediate crops in a young feijoa plantation on Imereti alluvial soils. N.Santeladze/. Annals of Agrarian Science. – 2015. – vol. 13. – #1. – pp. 43-45. – eng.; abs.: eng., rus.

The intermediate legume crops increase soil productivity, improve structure, positively effect the soil microflora, suppress weeds. They are sources of enrichment of the low productive soil with organic substances and are used as a green fertilizer. In plantation of the young feijoa, sowing maize and soya between lines rises soil fertility and at intensive land use additional yield is obtained without damaging basic crop. In addition, author receive additional yield from interim crops. The significance of sowing interim crops is that they protect feijoa plants from high temperature and winds. Well-grown soya plant does not allow weeds to grow which is important for farming and nature protection. After planting feijoa on a pilot land author have considered the above mentioned and made the test according to the following schedule: control (without intermediate crops), maize for seed, soya for seed, maize+ soya mixed, Soya as a green fertilizer and for tilling in the soil in the stage of florescence In autumn, according to the following versions of harvesting, we have taken sample of the soil in the depth of 0-20, 20-40, 40-60. After relevant preparing of the soil we have determined humus % and number of feeding elements in order to know what kind of influence the intermediate crops have done on chemical composition of the soil. In the period of testing we have been done phonological observation on growing and development of intermediate crops. According to the above mentioned author can make a report that by sowing intermediate crops (maize, soya) author have received additional harvest; fertility of the ground will be grown that may increase harvest of feijoa crop; alternative of mineral nitrogen can be made in the form of green fertilizer. Tab. 2. Ref. 2.

Auth.

b15.4.1.25. Microscopic fungi – *aspergillus versicolor* D1 – the active producer of protein. A. Dzalamidze, N. Zakariashvili, L. Kutateladze, T. Urushadze, R. Khvedelidze, I.Khokhashvili, T.Aleksidze/. Annals of Agrarian Science. – 2015. – vol. 13. – #1. – pp. 67-70. – eng.; abs.: eng., rus.

On the earth biomass resources which generally consist of cellulose are evaluated at $7,2 \cdot 10^{11}$ tons. At the same time, a serious obstacle to start using plant cellulose containing raw materials widely is their insolubility, absence of cheap and available utilization technology of cellulose substances. To create a technology of enzyme hydrolysis of plant waste can be a way to solve the problem. However, creation of such technologies is currently slowed down because of low activity and high cost of cellulose enzyme preparations. Thus to create cheap and active cellulose enzyme preparations which would keep their stability in a wide pH as well as temperature range is of the most important concern. To receive protein-rich biomass under submerged fermentation conditions, screening of microscopic fungi cultures has been performed. Thermophilic strain of *Aspergillus versicolor* D1, the active producer of cellulase was selected. Due to established nontoxicity of the strain, possibility of its biomass application as a food additive has been demonstrated. To reach maximum content of protein in biomass, optimization of cultivation conditions for *A. versicolor* D-1 was performed. Optimal parameters for cultivation – duration, temperature, initial pH of nutrient medium and inoculum age – were established. Performed experiments enabled to receive protein-rich, non-toxic biomass (12%) under submerged fermentation conditions of *A. versicolor* D-1 on wheat bran, which may be used as food additive in cattle breeding. Fig. 4, Tab. 1. Ref. 4.

Auth.

b15.4.1.26. Urban and peri-urban forests of Tbilisi. T. Patarkalashvili/. Annals of Agrarian Science. – 2015. – vol. 13. – #1. – pp. 79-83. – eng.; abs.: eng., rus.

The present-day condition of urban and peri-urban forests and other green spaces of Tbilisi has been considered in the article. Historical documents assert that Tbilisi and its outskirts were covered with forests but most of them were destroyed in early and middle ages by foreign invaders. The destruction was continued at the early stage of capitalism development in Georgia. To satisfy the increased demand for wood materials, clear cuttings took place in peri-urban forests of Tbilisi. In this extensive exploitation of local forests local as well as foreign capitalists took part who never troubled to keep reasonable principles of forest cuttings. They cut trees mainly near roads, villages and rivers. The extensive exploitation continued later too as there was no other source of energy in the country. People used wood for heating and cooking. After such aggressive exploitation most of peri-urban forest became degraded and by scientific assessment are of 4th-5th growth with low growth capacity. But in spite of degraded condition these forests have very important socio-ecological importance for the city such as: soil protection and water regulation, recreational and other useful functions. All Tbilisi urban and peri-urban forests need reconstruction by indigenous Georgian oak-trees of seed origin. The ecological situation in the city is very hard, especially in the centre. The air is polluted with constantly increasing number of cars. Most of them are old and do not satisfy minimal ecological standards. Comparatively large green spaces are located in the suburbs and have very limited influence on the central, most polluted part of the city. In the sixties of the 20th century Tbilisi took the 15th place among 16 Soviet Republic with 12,5 m² green space per citizen.

From that time the population of the city nearly doubled, but the total amount of green spaces remained the same. It is underlined in the article that decisive measures must be taken by city authorities to improve the situation. Ref. 15.

Auth.

b15.4.1.27. Botanical diversity of forest ecosystem of the lower part of the Enguri Basin (Upper Svaneti). /Sh. Shetekauri/. Annals of Agrarian Science. – 2015. – vol. 13. – #1. – pp. 84-89. – eng.; abs.: eng., rus.

Botanical diversity of forest ecosystem of the lower part of the Enguri Basin (Upper Svaneti) has been studied. The relief types and historical-climatic factors underline specific, genetic, ecosystemic diversity and distribution of vertical belts. Natural environment of the study area has been under the increasing anthropogenic impact for a long time. The phytolandscape of this area is formed mainly by mixed deciduous and dark coniferous forests. In the lower part of the forest belt broad-leaved forests predominate. Relatively dry and sunny slopes are occupied by oak forests (*Quercus iberica*), hornbeam-oak forests (*Carpinus caucasica*, *Quercus iberica*) and oriental hornbeam-oak forests (*Carpinus orientalis*, *Quercus iberica*); relatively less sunny slopes are under chestnut forests (*Castanea sativa*), hornbeam - chestnut forests (*Carpinus caucasica*, *Castanea sativa*), beech-hornbeam-chestnut forests (*Fagus orientalis*, *Carpinus caucasica*, *Castanea sativa*) with Colchis evergreen underwood (Black Sea holly - *Ilex colchica*, common rhododendron – *Rhododendron ponticum*, cherry laurel – *Laurocerasus officinalis*); in moist habitats beech forests dominate mixed with chestnut and boxtree (*Buxus colchica*) with calcareous weathered soils in places. High mountain oak forest (*Quercus macranthera*) hemixerophilous formation in Svaneti is presented only on small areas (the Mulkhura and Dolra gorges, surroundings of the villages Kala and Guli). Enguri bellflower (*Campanula engurensis*), a local endemic species of Svaneti, is found on the rocks located on the right side of the Enguri River (near and between the tunnels - N42.57.879; EO42.12.226; and H=620-630 m). This species was recorded in this area in 1938. The following rare endemic species of the Caucasus are found on the rocks: valerian (*Valerianajelenevskyi*), ragwort (*Senecio massagetovii*), saxifrage (*Saxifragasub verticillata*). For this area *Phytolacca americana*, *Elsholtzia aciliata*, *Siegesbeckia orientalis*, and *Acalypha australis* should be considered as so-called neophytic plants. Their presence indicates an expansion of eurytopic plants at the mentioned section of the Enguri River. Ref. 22.

Auth.

b5.4.1.28. Peculiarities of andosols of the Adjara-Trialeti Range. /T. Urushadze, T. Kvrivishvili/. Annals of Agrarian Science. – 2015. – vol. 13. – #2. – pp. 44-51. – eng.; abs.: eng., rus.

The research aimed at identifying the correlation between some of the soils in the volcanic zone of high mountains and one of the groups of WRB – andosols. The paper gives the description of andosols spread in volcanic zones of The Adjara-Trialeti Mountains. Andosols areal involves mountain-meadow soils which are formed on andesitebasalts, andesites and diabases. Volcanic rocks formed on andosols, like their world analogues, are characterized by the upper of the dark (sometimes black) color, well-expressed grain structure, loose structure, light texture and > 10% of sediment fractions content, acidic reaction, deep humification, in the upper horizons mostly 5% humus content, high absorption capacity and unsaturation of bases. The study confirmed the identification of mountain-meadow soils with andosols by andik / vitrik recorded in their profiles. According to WRB diagnostic criteria, vitric properties prevail in the studied soils, evidenced by the volume weight, oxalate soluble one and a half rust, phosphorus detention and organic carbon quantitative indicators. Ecological, morphological, physical, physical-chemical and chemical properties of the studied soils correlate with one of WRB group of soils -andosols. Tab. 3. Ref. 21.

Auth.

b5.4.1.29. Evaluation of organic carbon stock in soils of beech forests of Eastern Georgia. /G. Vachnadze, G. Tsereteli, Z. Tiginashvili, B. Aptsiauri, E. Nakaidze/. Annals of Agrarian Science. – 2015. – vol. 13. – #2. – pp. 81-88. – eng.; abs.: eng., rus.

The soil is the main reservoir of carbon in the biosphere. To determine general biomass of groves with dominating beech widely-spread in Eastern Georgia and accumulated in them carbon stock, stock of organic substances in soil we have selected pilot regions with different locations – Shida Kakheti and Kvemo Kartli. In beech forests of Eastern Georgia soil depth is 0,60-0,65 m on average, where the composition of humus is about 181,98 t/hectare, and of carbon -105,36 t/hectare. The total area of beech forests of Eastern Georgia makes 456 709 hectares, the general stock of humus in soil makes about 83,11×106 ton, in it 48,12 ×106tons of carbon is accumulated, that corresponds to176,46×106 tons of carbon dioxide adsorbed from the atmosphere. Ringens poisons were isolated from sick and dead rabbits' appendix and gut squeeze and 24-hour bacterial culture. Serological types of *Clostridium perfringens* were taken from sick with contagious enterotoxaemia as well as dead rabbits and their pathology has been determined through immune-biological and neutralizing methods. The immune and biological experiment has revealed, that the vitality of mice processed by serological type A was preserved by 75%, but those processed by D and C types- by 10-15%. Resulting from neutralization experiment the white mice from the experimental group injected with a mixture of « A » anti-toxic serum and the similar soluble antigen, have survived by 85%, as the serological antibodies have reliably neutralized the bacterial soluble toxins, but in case of D and C- by only 10,2% and 5,3 %. It's noteworthy that *Clostridium perfringens* serological type A has a dramatic role in the system of rabbits infection pathology and causes mass murrain, which makes from 38-42%. Tab. 3. Ref. 32.

Auth.

b15.4.1.30. For the stimulation of the cooperative process in a village. /P. Koguashvili/. Annals of Agrarian Science. – 2015. – vol. 13. – #2. – pp. 98-101. – eng.; abs.: eng., rus.

The work concerns the development of voluntary cooperative relations and inter-branch integration and also the technological settlement in rural areas. Under the aegis of the community unions, the most important locally available resources of the intellectual, economic and organizational arrangement will be fully highlighted as well as a single cycle of production, processing and marketing of agricultural products will be created. Based on social solidarity the cooperative community population will be in full ownership of the income from sales of the final product and it will itself

decide on earmarking the respective funds for reproduction and/or handling of common social problems. Implementation of the Community Entrepreneurial Mobilization Program will bring forth a substantial growth of incomes of the major portion of the country's population and dynamic improvement of its socio-economic situation. Ref. 5.

Auth

b4.2. Animal and dairy science

b15.4.2.1. The problems of improvement of industrial wool production in Georgia. /T. Kavtaradze/. *Ekonomisti (Economist)* – 2014. – #6. – pp. 40-49. – geo.; abs.: geo., eng., rus.

The article studies the problems of sheep breeding development in Georgia. Exists the opinion that sheep-breeding development in Georgia is connected with complex decision of many problems. It is stated that as a result of successful measures, it is possible in Georgia to breed two or more million sheep and produce 7-8 tone wool of high quality. Nowadays in Georgia there is about million sheep and are produced nearly two thousand tone wool. Raw wool produced in Georgia because of its low quality is not of industrial significance. It is not demanded and its market price is very low in the country. In the article the first time proposes to create wool laboratory and with regard for production of industrial wool, international standard of wool purchase must be introduced. Ref. 7.

Auth.

b15.4.2.2. Composition of the rabbit meat and its significance in human nutrition. /M. Tsintsadze, N. Natroshvili/. *Metsniereba da Tskhovreba.* – 2015. – #1(11). – pp. 94-97. – geo.; abs.: geo., eng., rus.

Animal meat is one of the most important components in human nutrition and contains the main source of animal proteins and fats. with its chemical composition meat of rabbits surpasses meat of other species of animals. It is considered to be a dietary product since in composition of meat proteins is involved almost half of its quantity, whereas fats are moderately distributed. The article presents the methods of storage of rabbit meat as well as chemical composition of meat of various species of animals. Tab. 1, Ref. 2.

Auth.

b15.4.2.3. Efficient improvement of rabbit fur against the background of wastes application. /M. Tsintsadze, N. Natroshvili/. *Metsniereba da Tskhovreba.* – 2015. – #1(11). – pp. 97-99. – geo.; abs.: geo., eng., rus.

As it is known in the world market the fur of valuable animals are in great demand. However the population of these animals has sharply reduced recently. The high body weight and the fur quality are in primary dependence with the quality of feeding regime. As a result of studies, we have found out that addition of silkworm larvae flour into the rabbits diet reduces the feed costs by 5%. The article presents details of the chemical composition of flour and quality of rabbit fur. Tab. 2, Ref. 2.

Auth.

b15.4.2.4. Content of heavy metals in animal hair and its relation with ecological state of the pastures in Tetrtskaro Municipality of Georgia. /T. Chelidze, L. Enukidze, M. Chankashvili, T. Loladze/. *Annals of Agrarian Science.* – 2015. – vol. 13. – #2. – pp. 67-71. – eng.; abs.: eng., rus.

The work is dedicated to the treatment of the heavy metals (copper, lead, zinc and cadmium) in animals hair quantitative determination of their content in scalp hear of cow from the one of the regions of Georgia at two different stages of year – in spring and autumn. Bio-monitoring of chemical pollutants becomes more and more important in various countries. This will allow discussing simultaneously the concentration of toxic compounds in living organism as well as ecological quality of the pastures. These animals are in the same living space as men and eat the grass from the pastures. The investigations will be performed by differential-pulse polarographic methods, which shows that each of four investigated microelements gives a sharp peak at a certain very specific value of potential, namely, the value corresponding to the half-wave potential of the given microelement. Cu = -0,2 V; Pb = -0,5 V; Cd = -0,7 V; Zn = -1,05 V. It is shown that quantitative concentration of the trace elements (Cu, Pb, Zn, Cd) in the hair of cow as such as plants is characterized by decreasing the concentration from spring to autumn, and of course, their concentration depends on the purity of pastures and environmental factors. Depending on our investigations it was established that the percentage toxic metal in the five deferent age cows scalp hair (cows belonged to the farmer D.Gogishvili, village – Manglisi, Tetrtskaro Municipality) was maximal in spring and reduced concentrations in autumn 1.5–2 times, but does not exceed the limits allowed by international standards. This fact is explain that, on the one hand, in winter months they eat hay and other try foods, whilst, on the other hand, in spring they eat growing grass. The latter, they eat adult grass which contains of heavy metals significantly lass then in the spring. Consequently, in this region there is not any need to plan of any works concerning cleaning the soil in spite of the fact, that this region is located near the Bolnisi Municipality, where soil is very polluted by heavy metals. Ref. 18.

Auth.

b4.4. Agricultural biotechnologies

b15.4.4.1. Higher basidial fungi isolated from different zones of Georgia – producers of lignocellulosic enzymes. /N. Tsiklauri, R. Khvedelidze, N. Zakariashvili, T. Aleksidze, M. Bakradze-Guruli, E. Kvesitadze/. *Bulletin of the Georgian National Academy of Sciences.* – 2014. – Vol. 8, #1.– pp. 102-108. – eng.; abs.:eng., geo.

Great interest in basidiomycetes for targeted technological treatment of agro-industrial plant substrates is conditioned by their ability to produce lignocellulosic enzymes. The samples of wood-degrading basidiomycetes were collected from different taxonomic niches of

Georgia to study biochemistry and physiology of wood-degrading basidiomycetes. 36 strains were obtained as pure cultures and 29 ones were identified. Producers of lignocellulosic enzymes were revealed among the test fungi under solid-state and submerged cultivation conditions. *Pleurotus ostreatus* GV12, *Pleurotus ostreatus* GK10 and *Fomes*.sp. KA20 were found to be the best producers of cellulose enzymes using orange peel, wheat straw and wheat bran as substrates, and *Ganoderma* sp. GM 04 – the best producer of laccase during cultivation on orange peel waste. The influence of lignocellulose on accumulation of the enzymes laccase, xylanase and filter paper assay was studied. Tab. 3, Fig. 3, Ref. 25.

Auth.

b15.4.4.2. Chemical composition and functional role of oil extracted from seeds of Saperavi grape variety (*Vitis vinifera* L.). /T. Mchedluri, D. Margalitashvili, N. Aleksidze/. Bulletin of the Georgian National Academy of Sciences.– 2014. – Vol. 8. – #1.– pp. 110-113. – eng.; abs.:eng., geo.

Chemical composition of oil, extracted from the seeds of Saperavi grape variety, in particular, quantitative content of fatty acids, biogenic amines and amino acids and their influence on physiological activity of white Wistar rats were investigated. Constituents of grape seed oil were separated using the method of high-pressure liquid chromatography (WATTERS, USA) on Nova-Pak column C18 (100 mm, 83.2 mm) and determined on a fluorescent detector (at 270 nm). Effects of extracted solutions on emotional state of adult Wistar rats were tested in special experiments and evaluated using Irvin's scale. Saturated and unsaturated fatty acids (lauric, myristic, palmitic, stearic, oleic, linolenic and arachidonic acids), biogenic amines (serotonin, dopamine, noradrenaline, adrenaline) and amino acids (aspartic and glutamic acids, asparagine, phenylalanine, tyrosine, threonine, tryptophane, leucine, methionine, proline, alanine, glycine) were found to improve functional state of white rats and, as a result, to alleviate aggressive behavior. Application of grape seed oil in medical practice for curative purposes seems to be very prospective. Tab. 3, Ref. 12.

Auth.

B5. SOCIAL SCIENCES

b5.2. Economics and business

b15.5.2.1. Dialogue management using cooperative knowledge. /R. Kutateladze, A. Kobiashvili, K. Kutateladze/. Transactions of Technical University of Georgia. – 2015. – #1(495). – pp. 67-73. – geo.; abs.: geo., eng., rus.

A model of dialogue management in knowledge-based systems and the ways of supporting mutual understanding between dialogue participants are shown. Means of Identification and limiting of the utterances of a dialogue are considered. The approaches to building a dialogue are shown. Ref. 3.

Auth.

b15.5.2.2. The role of electronic calculations in commercial banks and the ways of reducing cybercrimes. /L. Gochitashvili, M. Kiknadze, I. Aptsiauri, M. Shiukashvili/. Transactions of Technical University of Georgia. - 2015. – #1(495). – pp. 74-78. – geo.; abs.: geo., eng., rus.

General issues related to the notion of electronic payment systems, their risks and preventive measures are shown. The role of electronic commerce in Georgian leading banks and financial organizations is highlighted. The features of payment systems in the segment of Internet and request of their security are discussed. Ref. 4.

Auth.

b15.5.2.3. Electronic money, electronic wallet and systems of online payment. /L. Gochitashvili, I. Aptsiauri/. Transactions of Technical University of Georgia. - 2015. – #1(495). – pp. 79-84. – geo.; abs.: geo., eng., rus.

General issues related to the notion of "electronic money" are discussed. A review of electronic scheme on the basis of payment of electronic money is given. A short description of electronic wallets (E-money, Unipay, Mobipay, Biometric Wallet) met in Georgia is given. Ref. 34.

Auth.

b15.5.2.4. Forming of conditions increasing the innovative activity in modern Russian production. /A Kuprin, A.Sobolev/. Transport and Machinebuilding. – 2014. – #3(31). – pp.27-32.- rus.; abs.: rus., geo., eng.

The article describes the current stage of development and integration of economic entities, where scientific and technological innovations determine the level of competitiveness. The most significant problem becomes the forming of mechanism of state supporting and stimulating in development of innovative activity of modern Russian production. Ref. 5.

Auth.

b15.5.2.5. The prospect of creation of logistics centers in the Seaport of Batumi. /I. Amanatashvili, T. Diasamidze/. Transport and Machinebuilding. – 2014. – #3(31). – pp.39-45.– geo.; abs.: geo., rus., eng.

Because of Georgia's geopolitical situation the Black Sea ports have always played an important role in the socio-economic development of the country. Of particular mention is their function in the long-term increase in cargo traffic under modern conditions. Given the importance of seaports and goal of increasing turnover in the Trans-Caucasian highway, the setting up of logistics centers is required. A logistics center will provide a fractional relationship between shippers and freight forwarders. The article deals with the question of the establishment of logistics centers in the seaport of Batumi. Tab. 3, Ref.5.

Auth.

b15.5.2.6. Project management and its importance. /M. Lomidze, K. Keldishvili/. Transport and Machinebuilding. – 2014. – #3(31). – pp.61-66.– geo.; abs.: geo., rus., eng.

The considered in article technologies of projects and programs planning and management are not fundamentally different and methods are basically the same, but there are the stages through which every project is going with a certain intensity. As has already been mentioned, the government' political will is of much importance in the structural reform process in Georgia and it is directly proportional to the possibility of success of the reforms. Ref. 5.

Auth.

b15.5.2.7. Issues of growth of export potential and customs relations. /S. Maisuradze, T. Kamkhadze, Ts. Elgendarashvili/. Transport and Machinebuilding. – 2014. – #3(31). – pp.103-108.– geo.; abs.: geo., rus., eng.

The paper considers the importance of carrying out foreign trade and economic relations in a proper manner that in turn is related with customs. The activation of customs activities contributes to the reduction of smuggling and enforcement of the state budget revenue. In recent years, Georgia's main export products include cars (re-export), ferro-alloys, mineral water, fertilizers and some agricultural products. The growth of export potential and integration on the European market is essential to a fulfillment of deep and comprehensive free trade agreement with the EU that provides for the strengthening of the country's economy. Tab. 2, Ref. 5.

Auth.

b15.5.2.8. Ways of small and medium business development in Georgia. /G. Maisuradze, T. Matsiashvili, Z. Kupatadze/. Transport and Machinebuilding. – 2014. – #3(31). – pp.109-114.– geo.; abs.: geo., rus., eng.

The article considers the current market-based economic transformations, whose goal is to establish regularity of the successful functioning of small and medium business formations. On the basis of the made analysis, the ways of successful implementation of the support of small and medium businesses, as a driving force for economic development, are discussed. Tab. 1, Ref. 3.

Auth.

b15.5.2.9. Features of optimal management of Georgian seaports. /I. Amanatashvili, T. Diasamidze/. Transport and Machinebuilding. – 2014. – #3(31). – pp.128-134.– geo.; abs.: geo., rus., eng.

For a long time, the South Caucasus has served as a bridge between the East and the West. The Silk Road that linked Europe to India and China passed through the South Caucasus. Since the end of the last century the South Caucasus is regarded as one of the alternative routes between Europe and Asia. Over the past 15 years the oil pipelines: Baku-Tbilisi-Ceyhan and Baku-Supsa, Baku-Tbilisi-Erzurum gas pipeline have been put into operation; a marine terminal for oil and oil products in Kulevi was constructed; the Baku-Tbilisi-Akhalkalaki-Kars railway is under way. The peculiarities of Georgian sea ports management and the possibilities of the transport infrastructure and ways of their improvement are analyzed. Ref. 7.

Auth.

b15.5.2.10. Issues of recent investments forecast in Georgia. /M. Lomidze, R. Keldishvili/. Transport and Machinebuilding. – 2015. – #1(32). - pp. 40-47. – geo.; abs.: geo., eng., rus.

The article considers conditions for attracting investments in such fields, the development of which will promote economic advancement of the country. The promising fields require the state support that should be expressed in the creation of a flexible legislative framework and tax system, also in the introduction of certain incentives to attract investment in these sectors. Fig. 1, Ref. 6.

Auth.

b15.5.2.11. The value of an analytic function of marketing in companies. /T. Kiladze, N. Didishvili/. Transport and Machinebuilding. – 2015. – #1(32). - pp. 118-123. – geo.; abs.: geo., eng., rus.

The financial success of an organization often depends on its marketing activities. Finance, manufacturing, accounting, and other aspects of the company are less important in the case where there is sufficient demand for products and services. The marketing analytic function, sometimes called research, is the basis of marketing activities. Ref. 2.

Auth.

b15.5.2.12. Role of production competitiveness and strategies for crisis management in enterprises. /I. Gigauri, G. Tkeshelashvili, T. Kiladze/. Transport and Machinebuilding. – 2015. – #1(32). - pp. 124-130. – geo.; abs.: geo., eng., rus.

The importance of analysis of the micro and macro environmental factors and the setting of definite recommendations and strategies in the anti-crisis management of enterprises on their basis is mentioned, in particular in the raising the production competitiveness. Ref. 3.

Auth.

b15.5.2.13. Directions of anti-crisis management of enterprises and improvement of competitiveness of production in Georgia. /I. Gigauri/. Transport and Machinebuilding. – 2015. – #1(32). - pp. 131-136. – geo.; abs.: geo., eng., rus.

Analysis shows that production competitiveness is influenced by the four main components: designation of goods, their quality, price and efficiency of use or exploitation. It should be noted association of market prospects of goods with production quality and costs is not sufficient. The commodity's success or failure can be caused by other (non-commodity) factors. Therefore, topical today is the development of methodology and specific recommendations for the anti-crisis management of enterprises to improve the competitiveness of production. Tab. 1, Ref. 3.

Auth.

b15.5.2.14. Profit Indicators' analysis and the ways for its' improvements in residential development companies. /N. Lomidze/. Accounting. – 2015. – #9. – pp. 34-41. – geo.; abs.: geo., eng.

The article deals with the profit indicators' analysis and its' improvements in residential development companies. The analysis was conducted based on consolidated statements of comprehensive income of two well-known residential developers: JSC M2 Real Estate Group" and Axis Ltd. Tab. 3, Ref. 9.

Auth.

b15.5.2.15. Agro-insurance development prospects in Georgia. /S. Pavliashvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 12-17. – geo.; abs.: geo., eng., rus.

The paper noted that the ownership transformation of land has made it necessary to develop agro-insurance agriculture. This is the starting point for the development of farming. This is why it is important to know what actions the government will do and how consistent will be in this regard. There was discusses the features of agro-insurance development in Georgia, its possible options for the implementation. There are given proposals and recommendations. It is concluded that the development of insurance products and development of related insurance and credit institutions and their implementation is an important factor in the development of agricultural sector and defining the profitability of agricultural activities. Consequently, agro-insurance will promote the development of agro-sector, which is a precondition for increasing the export and competitiveness in local markets. Ref. 6.

Auth.

b15.5.2.16. International tourism and global economy. /D. Jangulashvili, G. Nadirashvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 17-30. – geo.; abs.: geo., eng., rus.

The article explores the formation and development of the International Tourism as the biggest industry of the world economy. Under the conditions of the formation of social tendencies and new sectorial structures of the world economy, the role and significance of International Tourism are highlighted. Tab. 3, Ref. 8.

Auth.

b15.5.2.17. Euro integration requirements and challenges of Georgia in the field of trade. /R. Javakhishvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 30-34. – geo.; abs.: geo., eng., rus.

In the EU-Georgia association process, establishing democratic values in the country, the economy of Georgia faces great challenges in the field of the development and improvement of trade relations. The article emphasizes that on the way to EU association the country will need a great effort to overcome the tariff, also non-tariff, first of all the technical, sanitary and phytosanitary barriers in order to improve customs, tax and legislative systems, to make them closer to the EU standards and regulations. Ref. 4.

Auth.

b15.5.2.18. The world economic forecast for 2015 year. /M. Tetrushvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp.34-38. – geo.; abs.: geo., eng., rus.

What prospects will the world economy face for 2015? The result of the analysis done by the International Monetary Fund (IMF) can be characterized as "not so bad" on the basis of other several forecasts. Though there are many risks and some of them are quite essential. According to the forecasts of the International Monetary Fund, 3.8% global rise is expected in 2015 in comparison with 3.3% in 2014. It is true that we cannot call such rise an "economic boom", but it is a fact that such indicator has not been observed since 2011. Ref. 5.

Auth.

b15.5.2.19. Theoretical aspects of the of state fiscal policy problems. /G. Tsaava/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 38-42. – geo.; abs.: geo., eng., rus.

The contradictions between the state interests and the interests of tax payers expressed in their "Anti fiscal" behavior and legal nihilism in the payment of taxes, which is one of the reasons for the formation of the shadow economy. The taxation on the income of individuals with an uneven load distribution undermines the "tax fairness" of the population. The current fiscal policy is forcing economic entities to invest financial resources and build balance not economic, but for tax reasons, which negatively affects the structure of the investment and allocation of resources. Fundamentals of economics are now subject to revision and adjustment in the light of contemporary realities and gain the results and research over the past decade. Ref. 10.

Auth.

b15.5.2.20. Peculiarities and challenges of trade and economic relations between Georgia and Ukraine. /B. Kitsmarishvili, A. Somkhishvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 42-46. – geo.; abs.: geo., eng., rus.

Ukraine is the largest trading partner of Georgia from among the CIS member states. For many years, Ukraine has been one of the ten most important trading partners of Georgia as for imports and exports of goods. Increase in trade and economic relations with Ukraine became particularly important after the introduction of trade restrictions by Russia in 2006. Further escalation of the Russian-Ukrainian crisis puts the Georgian economy to new challenges - for traditional Georgian exports of goods (wine, mineral water, fruit, citrus, etc.) is significantly narrowed at Ukrainian and Russian market. Georgian businessmen and exporters should be actively engaged in the expansion of existing and the search for alternative markets for domestic products. Ref. 3.

Auth.

b15.5.2.21. Monitoring trends for the commercial bank's credit portfolio. /G. Khantadze/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 46-52. – geo.; abs.: geo., eng., rus.

Assessment and review of a credit portfolio and a credit function of a bank are the most important factors which should be discussed while assessing the quality and financial condition of the bank asset. The largest part of a credit risk arising in bank is mostly connected with the credit portfolio. with a few exceptions existing problems in credit portfolio causes the bank's failure as a result of a weak management or some other provisions. Assessment of credit portfolio is a more global task than a review of individual loans. Reasonable management and administration of the gross debt accounts including loan disbursement and its recovery policy are too important for a satisfactory functioning of a bank. Ref. 4.

Auth.

b15.5.2.22. Ways of improving the monitoring of the implementation of regional development programs of tourism. /N. Ghvedashvili, O. Gabedava /. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 52-56. – geo.; abs.: geo., eng., rus.

Information collected through the monitoring about the condition of the tourism in the region is the basis for the further development of this field. Monitoring of the development of tourism in the region provides full information about the condition of this field to regional governing bodies, as well as about the ongoing processes and the social and ecological situations formed with the development of this field in the region. Ref. 5.

Auth.

b15.5.2.23. Management of personal finances. /G. Nanuashvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 56-61. – geo.; abs.: geo., eng., rus.

The management of personal finances is a person's affair, which is carried out for the purpose of personal wealth maximization by regulating the income flows. The aim of the management of personal finances is the forming of human capital of a concrete individual, realization of assets profit, rational realization of current expenses, and management of social and financial risks. Management in the sphere of personal finances has its peculiarities. Tab. 1, Ref. 4.

Auth.

b15.5.2.24. Policy of modern hotel as a means of its "survival". /L. Dolikashvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 61-64. – geo.; abs.: geo., eng., rus.

The hotel industry is growing rapidly and dynamically. There are modern hotel complexes in the tourism market which meet the international requirements. Today good hotels are no longer enough. They have almost the same material composition but they should be able to provide services with international standards and introduce new ones to withstand the competition among them. This paper discusses the various means introduced in many countries to attract foreign tourists. The human personality is the key to success as shown by the achievements of the world hotels. Ref. 4.

Auth.

b15.5.2.25. Problems of development of securities market in Georgia. /V. Svanadze/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 64-69. – geo.; abs.: geo., eng., rus.

The article is dedicated to the very important aspect of economic development of Georgia, in particular, formation of the supportive infrastructure for attracting portfolio investments to the country. The article presents the importance of the liquid securities market and the analysis of the essence and causes of the problems created during the last 20 years of its development. It emphasizes the legislative and regulatory issues of the securities market, as well as the negative influence of the banking sector domination over the development of the infrastructure. The article sets the main measures, which have to be taken for the development of the securities market which mostly includes the implementation of the recommendations about the legal norms given by the American experts, as well as introduction of the mechanism of public offering of securities and retirement savings system. Ref. 5.

Auth.

b15.5.2.26. Singapore's economic model. /I. Tetrushvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 69-72. – geo.; abs.: geo., eng., rus.

The economic model of Singapore is unique, on and to partnership of private and public sector. The state is controlled the enterprises which create more than a half of gross domestic product. In the development, Singapore is right to a free trade regime, to export stimulation, to open economy which was directed on attraction multinational to a komrani. Ref. 3.

Auth.

15.5.2.27. Comparison of fixed and floating currency exchange rates. /G. Menaphire/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 72-77. – geo.; abs.: geo., eng., rus.

Stability of national currency for the economy and its exchange rate towards the international currencies is of vital importance. The paper deals with the fixed and floating currency exchange rates, their content and administration system in detail. Positive and negative sides and comparative analysis, essence of stable currency is defined in the paper. Examples from dynamics of exchange rate of Georgian national currency are also reviewed. Stability of Georgian currency is discussed as well. Fig. 1, Ref. 5.

Auth.

b15.5.2.28. Feature of anti-crisis management of state regulation of commercial banks under modern conditions. /L. Jangulashvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 77-79. – geo.; abs.: geo., eng., rus.

As a result of the economic research done by the International Monetary Fund (IMF) in 2009 the recession process connected with the financial crisis is going on in the most complicated and long-lasting period and is developing simultaneously in some countries. There are many regulatory actions made in world practice, though the confidence seems to be the most hindrance factor. Modern crisis is also called a confidence crisis which implies that the banks and clients do not trust each other. Ref. 3.

Auth.

b15.5.2.29. The problems of the quality development of tourism production. /I. Vatsadze/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 79-84. – geo.; abs.: geo., eng., rus.

In this article the views of the famous scientists over tourism as a complex social phenomenon of the contemporary world, over problems to assess and certify the quality of tourism production are discussed. To solve the above-mentioned problems is the necessary condition for the integration of Georgia in the space of the world tourism. Ref. 3.

Auth.

b15.5.2.30. Banking system development and prospects in some regions of the country. /O. Keshelashvili/. Agrarian-economic Science and Technologies. 2015. – #3. – pp. 18-24. – geo.; abs.: geo., eng.

The annual rate of growth of lending to the Adjara banking institutions amounted to 77.9%, resulting in a credit portfolio reached 393.7 million, including the amount of loans increased by 113%, while foreign currency loans increased by 62%. Its share of the total credit investment is 62.2%. Adjara region's total country's bank loans is 6.4%. Issued loans amounted for GEL 760.9 per capita. Significantly expanded the long-term loans. As for short-term loans, their volume increased by 24.6%, and overdue loans decreased by 27.4%. Imereti commercial banks in the economy by branches and service centers loans 191.176 million GEL. In this country, the regions of the total issued loans of about 6.26 percent in the segment. In the region, where per capita average, 382.35 Lari credit is issued. Along with the growth of loans improved lending conditions. The introduction of new banking products. Imereti 11 districts of the city, (in addition to) A bank credits to the amount of 36.4 million. Vegetables and greens credited Imereti manufacturing factories, farmers who produce milk and dairy products, bakeries and small enterprises Iomonatis tap. Run, especially should be encouraged to develop micro-finance system, which aims to set up small enterprises in the country, especially in rural areas, efficient and dynamic system; Stimulate the production of beginner farmers by granting preferential credits. Microfinancing should solve the following tasks: Encourage the expansion of banking clients, as clients of microfinance institutions have been formed over time a credit history to apply for services; Non-bank institutions, usually complement and expand the banking system, to facilitate the introduction of non-cash payments in small business and small business customers to bring up.

Auth.

b15.5.2.31. Problems of use of the international system of units in science and everyday life. /J. Katsitadze, N. Karkashadze, K. Katsitadze/. Agrarian-economic Science and Technologies. 2015. – #3. – pp. 30-34. – geo.; abs.: geo., eng.

The article presents the state of the use of the international system of units in Georgia and it is proved that outdated system of units have been so far applied in scientific publications as well as in educational institutions, technology, economics, business and daily life. For the purpose of expediting the process of integration into the Euro-Atlantic area, it is necessary that an urgent transition should be made to the international system, for which specific recommendations have been made.

Auth.

b15.5.2.32. Using cloud computing technology in marketing. /O. Gabedava, S. Pochovyan N. Gabedava, G. Sebiskveradze/. Automated Control Systems. – 2015. – #1(19). – pp.74-78. – geo.; abs.: geo., eng., rus.

The article describes the approach and presentation of the formation of high-tech marketing sales based on cloud technology. The concept of creation of IT infrastructure in the form of IT services marketing approach creation of cloud services. Described comparison of cloud computing technology with traditional information technology, resulting in cloud technologies are modern and convenient tool of marketing activity. There are four basic models for cloud services and cloud computing architecture. Fig.2, Ref. 3.

Auth.

b15.5.2.33. Technology of staff recruitment and determination of competence in the company. /G. Janelidze, B. Meparishvili, T. Meparishvili/. Automated Control Systems. – 2015. – #1(19). – pp.111-115. – geo.; abs.: geo., eng., rus.

Success of the company is significantly depended on the fact, how efficient is every worker in his/her own position. When number of errors is large in the appointment process and the company has to pay too dear for every mistake, recruitment is an important element of personnel policy. The article resents a modern approach of personnel recruitment and determination of their competence. There is given some recommendations, which will help the business for stable organizing. Here are studied the techniques and methods, that are used in the company not only for satisfying the demand of selection of qualified personnel, but also for evaluating them effectively. All of it will promote to detect the problem-solving skill of the personnel in the company. with this approach, the staff will develop a new vision of strategic priorities, which will cause evolutionary transformation of the company and not a spontaneous reorganization. Ref. 4.

Auth.

b15.5.2.34. Management of delegation of power and responsibility in company. /G. Janelidze, K. Meparishvili/. Automated Control Systems. – 2015. – #1(19). – pp.116- 120. – geo.; abs.: geo., eng., rus.

Competitiveness of the organization significantly depends on the efficient delegation of power by levels. The leader of the company has the right to make decisions about any issue, but in many cases he/she has not enough competence or time and power in order to make effective decisions, that, in itself, defines the necessity of delegation of power. The given article presents the different models of delegation. Also reviewed are the issues about clearly defining of range of delegation and regulation of responsibility. Are analyzed ordinary and special cases of delegation of power and responsibility. Ref. 4.

Auth.

b15.5.2.35. Models and methods for assessing organizational-technical level and credit risks of a manufacturing company. /G. Surguladze, T. Pkhakadze/. Automated Control Systems. – 2015. – #1(19). – pp.128-142. – geo.; abs.: geo., eng., rus.

Designing a model for determining a manufacturing company's organizational-technical level based on expert evaluation methods is discussed, as well as its connection with financial and bank system for the purpose of obtaining a credit. Identification of requirements to the system of automation of credit risk managers' analytical business processes is given using UML technology. An algorithm of calculating credit risk of a firm by bank audit using the system is proposed based on Altman and Fulmer models. Concept of organizing processes of information interchange between an organization and a bank within the tandem automated system is discussed based on service-oriented approach. Modern technologies of hybrid programming (WPF and WCF packages) are used in Visual Studio.NET Framework 4.0/4.5 environment. Fig. 8, Tab. 5, Ref. 15.

Auth.

b15.5.2.36. Engineering of the fee payment process in the court system based on business-rules modeling language. /E. Turkia, D. Kaliashvili/. Automated Control Systems. – 2015. – #1(19). – pp.143-147. – geo.; abs.: geo., eng., rus.

The article presents development and creation of business relations simplification services in the court system between court clerks, citizens, and institutions based on modern information technologies. To simplify business relationships, issues of document flow process and fee payment services are discussed. The court fee payment process is described. The sub-processes and appropriate legislations rules of this process is presented in form of business-rules modeling language as well. Process engineering based on business-rules modeling allows to form flexibly constraints, assumptions, and regulations on the system implementation stage (both database and user-application side). Fig. 4, Ref. 4.

Auth.

b15.5.2.37. Automating business processes on the bases of sharepoint designer. /N.Topuria, M. Lomidze, N. Rapava/. Automated Control Systems. – 2015. – #1(19). – pp.156-160. – geo.; abs.: geo., eng., rus.

Microsoft SharePoint - one of the most effective platforms for automating and managing business processes across the enterprise. An additional automation of business processes will significantly expand the capabilities. The most convenient and effective tools such visual designers is Microsoft Share Point Designer. The article considers the steps of business process automation of "Holiday Request ". Designed corresponding ER-model, output form, shows a scenario of filling variables. Fig. 9, Ref. 3.

Auth.

b15.5.2.38. Agricultural labor employment problems and their solutions. /M. Shalamberize/. Novation. – 2015. – #15. – pp. 147-150. – geo.; abs.: geo., eng., rus.

The article deals with the problems of labor employment in the agricultural sector depending on the season, production intensity and a number of other related factors. Proposals and recommendations on the handling the labor problems in agriculture are offered and discussed. Ref . 2.

Auth.

b15.5.2.39. Georgian pension reform's goals and strategy. /Kh. Todua/. Novation. – 2015. – #15. – pp. 167-170. – geo.; abs.: geo., eng., rus.

The viability of current pension scheme of Georgia casts serious doubts, since the World Bank concluded that the demographic trends of the coming years will be difficult for the existing pension liabilities due to the fact that people around the world, including Georgia, are aging, and therefore, the retirement age population is increasing, resulting in an increase of state obligations in this regard. Therefore, experts believe that the pension system is facing serious reform needs. The purpose of the study is to analyze the condition of the pension system in Georgia and its development trends, also to identify the key characteristics that will enable us to better understand the problems and to find the ways for their solution. On the basis of this work, we can conclude, that the pension system in Georgia is in need of serious reform, thus, it is more expedient implementation of an accumulative pension scheme. Ref . 3.

Auth.

b15.5.2.40. Ways of efficiency gain of productions of light industry. /T. Uriadmokheli/. Novation. – 2015. – #15. – pp. 171-174. – eng.; abs.: eng., geo., rus.

The paper discusses issues related to decision-making on the optimal solution for increasing productivity of light industrial processes; it is shown that the duration of the production cycle of manufacturing, and hence, the production process and performance depend not only on the duration of each technological processing operations products but also on the various breaks in the implementation of these operations. Suggested are the ways and methods of reducing production cycle based on the optimization of composite manufacturing operations and processes. Fig. 1. Ref. 3.

Auth.

b15.5.2.41. Features of accounting of intangible assets. /Z. Akhaladze, M. Gigolashvili/. Novation. – 2015. – #15. – pp. 179-184. – geo.; abs.: geo., eng., rus.

The article deals with the topical problems of accounting of intangible assets under conditions of a market economy. It discusses their peculiarities and proposes the ways of their solving. Fig. 2. Ref. 3.

Auth.

b15.5.2.42. Efficiency of small enterprises in agriculture. /Z. Akhaladze/. Novation. – 2015. – #15. – pp. 185-191. – geo.; abs.: geo., eng., rus.

The article deals with the problems of efficiency of small agricultural enterprises and focusses on the measures to be taken for improving the effective operation of them. Tab. 3. Fig. 1. Ref. 3.

Auth.

b15.5.2.43. The theoretical problems and institutional programs for the Internationalization of SMEs. /B. Koberidze/. Economics. – 2015. – # 3-4/ - pp. 4-15. – geo.; abs.: geo., eng.

The paper deals with the basic barriers of internationalization of SMEs. According to the author, theoretical trends of internationalization are based on a complex system of different concepts, which characterize the relationship between the functional structures of the enterprises, as well as their behavior and settings of resources. The features of Internationalization of the program in European countries are described and, stating that they are focused on the small and medium businesses to mitigate the inherent weaknesses in the process of international market integration and development. Ref. 10.

Auth.

b15.5.2.44. Investment for people and not only for the investor and the elite. /R. Shengelia, Zh. Tsiklauri, N. Shengelia/. Economics. – 2015. – # 3-4. - pp. 16-30. – geo.; abs.: geo., eng.

Overcoming an investment crisis, and, consequently, increasing the volume of foreign investments is impossible without the recovery and activation of the domestic investment activity. Therefore, we need to deal with the problems not just of foreign investors (to create a desired investment environment at the regional and company's level), but also of a recipient country, (the readiness of Georgian companies to accept foreign capital and its effective usage; Provision of the country's economic security and correspondingly a reduction of risks). At the same time while solving these problems, it is necessary to coincide, balance the interests of investors, the recipient, and, most importantly, of the society. Furthermore, we should develop such kind of methods that will be acceptable not only for both foreign and domestic investors, but also for the local residents. For the activation of investment activities, investors (both foreign and local) should be given the benefit of customs, generally taxes, if they will make investments in: the priority fields of the recipient country (for example in fixed capital); Material wealth and social welfare producing priority areas ; in the depressed backward regions, etc. Ref. 4.

Auth.

b15.5.2.45. Risk management in commercial banks. /D.Pituriashvili/. Economics. – 2015. – # 3-4. - pp. 50-58. – geo.; abs.: geo., eng.

Nowadays the growing number of banking operations cause proportionally a growth of the complex risks connected with such operations. Because of the above mentioned situation, risk management in commercial banks became a popular question. This article examines already the existing politics connected with risk management in Georgian commercial banks. Here are given the answers to the following questions: What kind of nature do the risks have? How do they classify? What kind of methodology should the banks use to manage risks? What is the main scheme for functioning the banking risks? What kind of situation do we have in Georgia in the field of managing commercial risks politics? the main purpose of the article is to study the main risk management categories in Georgian commercial banks and to determine the several recommendations for improving their management. As a result of examining commercial banks politics, it was cleared out that they don't make public their own structure of managing commercial risks. Ref. 4.

Auth.

b15.5.2.46. The methodological approaches to the problem of decision-making in modern conditions. /E. Baratashvili, I. Makharashvili, M. Maridashvili, D. Kavtaradze /. Economics. – 2015. – # 3-4. - pp. 125-139. – geo.; abs.: geo., eng.'

The article deals one of the main problems in the management - the decision-making process and its improvement, which was proposed by psychologists. They include the main strategy that is known as "decomposition of the problem". In addition, managerial decisions are grouped into two types: programmed and non- programmed; There are the details of the decision-making process and specific characteristics of it in several countries. Moreover, in the article there are separated the characteristics of decision-making features in public and private bodies. Tab. 1, Ref. 12.

Auth.

b15.5.2.47. The expected socio-economic results of devaluation of the national currency in Georgia. /Z. Beshkenadze, Sh. Lominashvili/. Economics. – 2015. – #5-6. – pp. 73-89. – geo.; abs.: geo., eng.

The article analyzes several theoretical aspects of dropping in rate of the currency. The positive and negative results which cause and presumably will cause a devaluation of the national currency are demonstrated. Among the negative results are distinguished: inflation, reduction of the home market purchasing capacity; reduction of supply and deceleration of economic growth; increasing the dollarization quality of economics; deterioration of a trading situation; growing budgetary deficiency; development of debt and financial crisis; impoverishment of the population and aggravation of social popularization. In positive results there are distinguished: ability to acquire the competitive advantages for import-alternate enterprises in the home market, and growing competitiveness in the foreign market. It is substantiated that social and economic results of scaling devaluation of the national currency is negative in general. Therefore, the stabilization of the currency is advisable and the complex arrangements should be taken for this purpose. Ref. 5.

Auth.

b15.5.2.48. "Regional clusters"- the best way for Georgian farmers to adapt to the requirements of the European market. /N. Rukhaia-Mosemghvdlishvili/. Economics. – 2015. – #5-6. – pp. 90-99. – geo.; abs.: geo., eng.

Georgia has always been considered as an agricultural country. Nowadays over half of the population live in regions and are depended on the income from the agricultural sector. International trade laws and a liberal tax range, which is currently presented in Georgia, make it necessary to identify the new market niche where the Georgian products will be competitive. In our opinion, one such niche is the high-income segment of the European market, where there is a demand for high-quality, organic products. We understand that this is a very ambitious proposal and it requires solving a lot of problems in achieving this goal. The aim of the article is to discuss the ways of reduction of the negative consequences of the most difficult agricultural problem in Georgian agricultural field - highly fragmented lands and very small farmers. There is the model of the farmers' association, which will have the opportunity to produce the competitive products and to establish themselves in the international market. Fig. 1, Ref. 4.

Auth.

b15.5.2.49. About the railway carriage-repair holding company in Georgia. /N. Kirvalidze/. Economics. – 2015. – #5-6. – pp. 100-111. – geo.; abs.: geo., eng.

This article discusses the production dynamics, production export, price formation and trends in the range structure development of the railway carriage-repair holding company in Georgia. The measures to be taken for overcoming existing problems are discussed. Tab. 3, Ref. 5.

Auth.

b15.5.2.50. Economic interests and their role in corporate relations. /T. Kiladze, I. Tedeevi/. Economics. – 2015. – #5-6. – pp. 119-129. – geo.; abs.: geo., eng.

The article discusses the relationship between economic needs and interests, economic interests of business entities, their hierarchy and the specifics in overbearing and administrative market conditions. As the interaction of economic interests is implemented at all stages of industrial and economic relations it follows the task of an optimal agreement. In any company the internal economic ties generate the interests in groups and between groups. Therefore, the interests of participants of corporate governance are discussed from the position of corporation's owners and hired managers. The attention is paid to the "owner-agent" problem, which is an integral part of the corporate relations. The manager-agents' activity should serve to shareholders' well-being, however, in practice, we often see the opposite actions. The disagreement of interests leads to the collapse of the organization, so for successful activities and progress it is needed to move from the condition of the corporate conflict to the balance of interests. Fig. 3, Ref. 4.

Auth.

b15.5.2.51. The influence of the industrialization process on the development of the economic potential of the transitional countries. /G. Khidsheli, G. Lobjanidze, G. Berdzenishvili/. Economics. – 2015. – #5-6. – pp. 138-145. – geo.; abs.: geo., eng.

The article discusses the discourse of the industrialization in the post-soviet countries, what obstacles they faced and what kind of consequences it all had. Therefore, the hypothesis is the following: if the government has the proper policy towards the industrialization, the economic potential of the country will boost regardless the different kind of hurdles. We will try to answer all the questions through the empirical findings and analysis of the field researchers. Because of the number and homogeneity of the post-soviet countries the article will have a case study design and focus on the example of Poland, describe its industrialization processes and the results that followed. Ref. 7.

Auth.

b15.5.2.52. The calculation of the amortization of productive funds of reclamation maintenance organizations of Georgia. /M. Vartanov, E. Kechkhoshvili, G. Mekhrishvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental protection, Architecture and Construction. Tbilisi. - July 16-19. – 2015. – pp. 86-90. – rus.; abs.: geo., eng., rus.

The article deals with the issue of the depreciation of productive funds of reclamation maintenance organizations of Georgia. with the transition to a market economy it has become an objective necessity to implement the Independent investment policy according to water management organizations. The organizations injected the accumulated depreciation fund and finally got the opportunity to plan and implement independently the changes the worn-out parts into the new, more effective machinery and equipment. In that connection, the issue about choosing the calculation methods is getting more important. From our point of view, the most interesting is the method for annuities, when the amortization funds are accumulated in the special reserve to be used later on buying some new machinery, mechanisms, equipment and new buildings instead of old ones. Moreover, this amount will accrue interest on reserve. Tab. 1, Ref. 3.

Auth.

b15.5.2.53. Ways to enhance the effectiveness of the economic operation of irrigation systems. /G. Mekhrishvili/. V International Scientific and Technical Conference. Modern Problems of Water Management, Environmental protection, Architecture and Construction. Tbilisi. - July 16-19. – 2015. – pp. 188-191. – rus.; abs.: geo., eng., rus.

The article provides irrigation water reclamation systems wired Service classification. The costs of production values and orientation of working time are given in the work, as well as the reclamation and restoration current infrastructure (capital) costs of repair standards. Ref. 2.

Auth.

b15.5.2.54. Development of the innovation and medical service organization. /R. Kutateladze/. Modern Issues of Medicine and Management. – 2015. – #2. – pp.107-117. – geo.; abs.: geo., rus.,eng.

The paper analyzes the documents adopted by the government to increase the effectiveness of innovation in Georgia. Measures taken for the development of information and innovation in the advanced countries of Germany, USA, etc. are discussed together with their role in enhancing the competitiveness and in the development of the global healthcare market. The possibility of sharing this experience in Georgia is considered. Ref.6 .

Auth.

b15.5.2.55. Usefulness of priorities of motivation principles in healthcare. /A. Katukia, V. Khurtsidze/. Modern Issues of Medicine and Management. – 2015. – #2. – pp.147-165. – geo.; abs.: geo., rus.,eng.

The paper gives the application and explores new approaches to the market economy, the role and importance of motivation in the strategic development of a company, the implementation of significant changes and the development of recommendations. The theoretical, methodological and practical issues aimed at the study of the staff motivation are analyzed in the paper in a systemic way. Fig.3, Ref. 11.

Auth.

b15.5.2.56. Investments, investment policy and investment climate in Georgia. /M. Lomsadze-Kuchava/. Modern Issues of Medicine and Management. – 2015. – #2. – pp.166-174. – geo.; abs.: geo., rus.,eng.

The article analyzes the investment environment and investment policy in Georgia. The double definition of an investment is given – the economic or essential one, according to which the investment is an act of satisfaction of future needs at the increased volume and the technical one, under which the investment is the sum of expenses. Both of these aspects are closely interrelated and determine each other. The paper presents aspects of proper management of the investment policy and the appropriate recommendations. Fig. 1, Ref. 8.

Auth.

b15.5.2.57. Strategic management of innovations in an enterprise. /L. Gvajaia/. Modern Issues of Medicine and Management. – 2015. – #2. – pp.196-206. – geo.; abs.: geo., rus.,eng.

The article considers the problems of economic significance of strategic management of innovative activities of enterprise under conditions of a market economy. The problems of formulation of the strategic goal and development of enterprise concept are underlined. The types of strategies and techniques of their development are considered. The significance of the strategic goal for long-term efficient operation of enterprise is underlined. Fig.1, Ref. 2.

Auth.

b15.5.2.58. Competition politics in Georgia and overview of oil market. /N. Giorgishvili/. Modern Issues of Medicine and Management. – 2015. – #2. – pp.207-221. – geo.; abs.: geo., rus.,eng.

The advantages of competition, the competition policy in Georgia, the disadvantages of the legislative framework and the measures to be taken are discussed. The most topical theme in Georgian economy – the oil market analysis – is considered. Fig. 7, Ref. 9.

Auth.

b5.3. Educational sciences

b15.5.3.1. Some aspects of the use of electronic facilities for the management of learning process. /L. Imnaishvili,

Z. Matsaberidze, N. Kirkitadze/. Automated Control Systems. – 2015. – #1(19). – pp.50 - 55. – geo.; abs.: geo., eng., rus.

The article discusses the organizational problems and their solutions of learning processes management on the basis of modern information technologies in such objects of higher educational systems, as large scale public and private universities. Developed are some aspects of automation of the educational process management of these types of universities. For automation management of the learning process, it is divided into three stages. At each stage, the promising spheres in terms of automation are highlighted. A particular attention is paid to the systemic Issues of the formation of timetables. The advantages and disadvantages of the using of computer technologies for the automation of learning process management are analyzed. It is shown that the existing systems improve the quantitative and qualitative indicators of the educational process. Ref. 5.

Auth.

b15.5.3.2. The Maple software capacities and its use in teaching of mathematics. /M. Kevkhashvili, E. Kamkamidze, L. Gachechiladze/. Automated Control Systems. – 2015. – #1(19). – pp.121-124. – geo.; abs.: geo., eng., rus.

The article is about the use of IT at mathematics lessons. It establishes the necessity of the use of different modern types of software in the process of teaching mathematics. The Maple software is particularly noteworthy in this context. The article demonstrates that the development and use of new IT enables to increase significantly the quality of knowledge, expand the possibilities of transfer of information and control the knowledge of pupils in the course of the training. Ref. 3.

Auth.

b15.5.3.3. Development of software simulator for training matrix-vector multiplication. /L. Gachechiladze/. Automated Control Systems. – 2015. – #1(19). – pp.125-127. – geo.; abs.: geo., eng., rus.

In article the program training system, developed for improvement of process of teaching the higher mathematics, is offered. on the basis of integration of methods program and active teaching, the training system shows process of training of multiplication of a matrix on a vector. Such approach allows the student at each level of program teaching as much as possible to reveal the opportunities, to change parameters of any task and solve it, etc. Use of training system considerably increases quality of training of the higher mathematics and makes easier for the student learning this discipline. Such approach can be successfully applied for effective training of different sections of the higher mathematics, for example, derivatives, differentials, integral calculus, mathematical logic, matrix calculation, etc. The developed approach also can be applied successfully for training of such subjects as chemistry, physics, etc. Fig. 1, Ref. 2.

Auth

b15.5.3.4. Production of the monitoring samples for inter-laboratory tests. /N. Abelashvili, N. Abelashvili/. Automated Control Systems. – 2015. – #1(19). – pp. 161-167. – geo.; abs.: geo., eng., rus.

The technique of research control sample during laboratory trials to establish criteria for the frequency and its physical values for participating laboratories in proficiency testing conformity assessment are discussed. During the inter-laboratory tests, the establishment of their mutual compliance is carried out by finding the difference between the average and variance in the results of observations of arithmetic, where, together with Pearson's criteria Student's criteria can be also used. Tab. 2, Ref. 4.

Auth.

b15.5.3.5. Complex systems management. /D. Kavtaradze/. Economics. – 2015. – # 3-4. - pp. 106-124. – geo.; abs.: geo., eng.

To solve the problem of education in complex systems management, special several steps of modeling were elaborated. The System dynamics models, as educational devices, were grouped in several unites, each with following different levels of complexity. The ability to manage successfully each group of models was put into accordance with a new mode of measurement "competence". In the article "0" level means that specialist is basing his imagination on non-true vision of system thinking elements and managements in given problem area. The second step – "1" of competence evaluates a situation of non-existing imagination of system thinking elements and managements in given problem area at all. Level "2" means that specialist correctly determines a complexity of given complex area and suggests the possible decisions to implement them in management. Level "3" confirms that the specialist, in the problem management area, suggests implement innovation, and is ready to participate in group discussion of problem solving. Level "4" means that specialist manages practically the system of given complexity with using usual innovations in solving problems with tutor participation. Level "5" means that trainee is ready to manage complex system (with tutor consulting) on all possible scale of system behavior, to apply the managerial innovative technologies, to suggest the working hypothesis and to forecast the system and human behavior. on the level "6" the specialist is capable to forecast the results of his own management in all possible conditions of the given system and is able to define the modes and directions of the managerial technologies and participants' functions and relations. The highest level – "7" confirms the specialist's ability to educate students and his colleagues to implement the simulation models and system approach in his educational and managerial activity. In the proposed module more than 40 different exercises, models and simulation games are available at the Moscow State University. The evaluation of the results is available in direct way of self-evaluation, group discussion and is not a subject of the professor formal estimation. The Practical education is based on individual and group research, multidisciplinary consulting and discussion and open huge possibilities to common decision making, obtain elements of system thinking and conflict in advance recognizing, avoiding, solving. The participation of assistance, group psychology specialist is highly recommended. The achieved level of participant competence in complex system management could be important to each person as group evaluation that make it more valid. Fig. 1, Tab. 1, Ref.9.

Auth.

b5.4. Sociology

b15.5.4.1. Evaluation of relative value of jobs and some aspects of its automation. /G. Dzidziguri, Z. Zurabishvili, Sh. Gongladze, N. Chaduneli/. Transactions of Technical University of Georgia. - 2015. – #1(495). – Pp. 85-91. – geo.; abs.: geo., eng., rus.

The importance and role of job evaluation in the process of introduction of an organization's human resources management system, as well as some of the approaches and methods of job evaluation are considered. Some aspects of automation of this process are discussed; a procedure of job evaluation within the organization is proposed. Ref. 4.

Auth.

b15.5.4.2. Motivational function of the personnel assessment at JSC "Unicredit Bulbank". /V. Slavianska/. Ekonomisti (Economist) – 2014. – #6. – pp. 17-23. – eng.; abs.: geo., eng., rus.

Performance appraisal is one of the most important motivational mechanisms and respectively instruments for human resource management in the organization. Its great importance provoked the research interest exactly to the process of personnel assessment as a practical realization and generated motivational effects in the biggest Bulgarian bank, and namely – JSC *UniCredit Bulbank*. The paper presents results of a study conducted at several offices of the bank, situated in Burgas. Ref. 1.

Auth.

b15.5.4.3. Ecopolis urbsoecium: past, present & future. /G. Jolia/. Economics. – 2015. – # 3-4. - pp. 68-105. – geo.; abs.: geo., eng.

The mass inhabitation of population in the cities and negligent attitude towards nature made the ecological situation very critical. Many projects for city constructions have been collaborated (e.g. "UN-Habitat"), the solving ways for many global ecological problems have been determined (e.g. UN concept of sustainable development), resources for cities have been evaluated, regional unions have been strengthened the ecological requirements for the long-term strategy, etc. Despite this fact, the growth and development of cities in the modern world and the current situation are very alarming and require universal attention. Ref. 16.

Auth.

b15.5.4.4. The political and economic organization basis of blood heredity in the country is to maintain the continuity of the paternal family permanently. /E. Takalandze/. Economics. – 2015. – #5-6. – pp. 17-46. – geo.; abs.: geo., eng.

The article highlights the relevance of the traditional form (Virginity Institute) of family management and social justice of the Supreme Astrophysical laws. It is proved that this institution is based on the understanding of the development of masculine social management requirements. In the upcoming 2nd Millennium it should be reflected constitutionally in socio-political and economic system; This article deals with the fact of ignoring from the government for the need of changing capitalist political-economic system into National Democratic; it is grounded the objective necessity of constructing the political-economic system on the national-democratic ideology in Georgia, for enforcement the Georgian national-universal mission. In this new work (the Christian-Orthodox religion, based on the information-scientific source) it has been investigated the threshold values of Astro-physically identified national human spiritual characteristics in upcoming 2nd Millennium. It is justified the gradual transition of the quality of democracy and civic consciousness to a new stage (from 5th to 6th) in country and social requirements with regard to the nationalities and the whole mankind. Fig. 1, Ref. 9.

Auth.

b5.5. Law

b15.5.5.1. Family crime and violence in family. /D. Julukhadze/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 111-115. – geo.; abs.: geo., eng., rus.

The article deals with the most actual problem – criminal aspects of family crime. Legal nature of Article 11¹ in the Criminal Code and some opinions are expressed about the removal of it from the Criminal Code because it has no criminal nature and has only statistical meaning. Ref. 6.

Auth.

b15.5.5.2. Compensation of the harm caused by medical institution. /R. Tsintsadze/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 115-121. – geo.; abs.: geo., eng., rus.

By analysis of the basis and volume of the responsibility of medical institutions it is found out that both in the case of medical institution and in other cases of tortious liability, in the corresponding clause of general character (Article 992) only a part of the bases of the responsibility that is wrong and is a subject to elimination is pointed out. For this purpose, Article 992 of the Civil Code of Georgia should be supplemented with a reference to two more bases of the responsibility - the «actually caused harm » and «a causal relationship between the caused harm and illegal act». Also the duty of tortfeasor to compensate for the harm caused to persons, which maintenance was assigned to the victim in case of death of the victim, is analyzed. Questions of euthanasia, remoteness, etc. are also considered. Ref. 10.

Auth.

b15.5.5.3. Some problems of criminal liability for a swindle. /V. Abakelia/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 125-131. – geo.; abs.: geo., eng., rus.

Basically, *corpus delicti* of a swindle is defined from each action in Western countries, e.g. casuistic definition of swindle is defined separately unlike in the Georgian Criminal Code, where it is not defined separately. Definition of Article 180 of the Criminal Code of Georgia is more similar to that of Russian Code, though it is more refined. The authors think the in the *corpus delicti* of swindle, swindle proper should be more clearly distinguished as a tool of cheating from the the abuse of trust. Ref. 17.

Auth.

b15.5.5.4. Verdict of jury trial. /K. Koberidze/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 132-136. – geo.; abs.: geo., eng., rus.

The introduction of jury trials in Georgia immediately triggered public reaction. Lawyers, and not only they, denote the undoubtedly positive side of jury trial - public participation in the administration of justice, however, almost everybody notes that there are a number of problems related to the establishment of this institution. One of the issues disputed is the validity of a jury verdict, which is reviewed in the article, in addition to the Georgian legislation and some of the resolutions by European Court of Human Rights. Ref. 5.

Auth.

b15.5.5.5. Violation of securities market as an economic crime and its legal construction. /O. Mindadze/. Professional's Voice. – 2015. – #2-3(5). – pp. 21-25. – geo.; abs.:geo., eng., rus.

The article deals with one of the types of economic crime -the violation of securities market and its legal construction. The target of this crime is those public relations which regulate securities market, i.e. monetary system as well as investors' interests and statutory rules of business activities. The subject of the crime is securities prospectus. In other words it can be de fined as a written notice, electronic or printed message offering securities for sale. The objective aspect of the crime is: 1) Public offering of securities without the proper permit and the prospectus. 2) Suspended prospectus. Obviously, these actions should cause significant harm. Public offering of securities is the issuer's offer of direct or indirect sales of securities to at least 100 people or pre-unspecified amount of individuals. The issuer has the right to enter into agreement with the securities brokerage company about placing securities. Georgia Securities Market is regulated by the National Commission which is a legal entity and independent in its activities. Ref. 8.

Auth.

b15.5.5.6. Protection of Intellectual property rights and related problems in Georgia. /T. Menabde/. Automated Control Systems. – 2015. – #1(19). – pp.101-104. – geo.; abs.: geo., eng., rus.

The problems of intellectual property rights protection in Georgia are discussed. The role of a trademark in terms of commercial designation, also the problems of using piratic and fabricated production are presented. The article covers a number of issues associated with intellectual property. Ref. 6.

Auth.

b15.5.5.7. Juridical aspects of the organization of the pharmaceutical activity. /N. Dugashvili, N. Kvizhinadze, N. Nemsitsveridze, T. Chumburidze, T. Kovaliova/. Tbilisi State Medical University. Collection of Scientific Works. – 2015. – v. XLVIII. - pp.58-60. – geo.; abs.: eng.

The article deals with a number of problems the pharmaceutical activity meets in Georgia. The relevant Georgian legislation is discussed as well as the ways to overcome them. Fig. 6, Ref. 5.

Auth.

b5.6. Political Science

b15.5.6.1. The essence of state integral management and method of legal regulation. /N. Maisuradze/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 122-125. – geo.; abs.: geo., eng., rus.

The article carefully deals with the essence of the integral management of the state and methods of legal regulation such as: free decision-making, responsibility, respect, confidence, and sincerity, methods of legal transformation and overcoming of requirements. Bank loans and their delay are also discussed. Ref. 5.

Auth.

b15.5.6.2. Reward for leadership. /O. Shurghaia/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp.159-163. – geo.; abs.: geo., eng., rus.

The author discusses the features that a real leader should possess, as well as the problems associated with leadership and being a leader. Ref. 8.

Auth.

b15.5.6.3. Classical approach to management and its core principles. /N. Kakauridze/. Professional's Voice. – 2015. – #2-3(5). – pp. 31-37. – geo.; abs.:geo., eng., rus.

Some thoughts on management as a significant factor in production and society development are reviewed. Some reasons about the classical approach by known experts in management are stated. It is noted that within classical approach the attention is paid to establishment of the purposes, as to premises of any organizational works. The extreme attention is given to a thought that determination of the purposes helps with establishment of priorities in management. In particular, it gives the chance to de fine the main so-called key divisions and activities, and those divisions and activities demand special attention. The reasons proved by practice are given that if there are no officially allocated key divisions and activities the attention of management in focused on trifles. Some principles of management in the 21stcentury are given in the conclusion of article. Ref. 6.

Auth.

b15.5.6.4. Conflict in the process of personnel management. /M. Samadashvili/. Economics. – 2015. – #5-6. – pp. 112-118. – geo.; abs.: geo., eng.

Conflict involves defiance between the opposed forces, clashes between their interests and views. Studying and solving the conflict depends on both theoretical and methodical approaches which should be chosen correctly. Forthcoming results greatly depend on conflict management. People don't often take the problem serious so they don't take any measures to eliminate the conflict. This is directly reflected on the efficiency of their work. Conflict in the organization is the consequence of a non-efficient work or bad management. It should be immediately solved using the structural methods. The process of conflict solution involves: analysis and evaluation of the situation, selecting the strategy for a conflict solution, elaborating a plan of arrangement and realization. The elimination of the conflict depends on how the opposing side takes into consideration the factors defining the conflict solution. Thus, the effective management of conflict process defines the conflict results (constructive and destructive) that can give rise to another conflict or eliminate the causes of the conflict. Ref. 3.

Auth.

b15.5.6.5. The training methods for improving top-level managers' skills in the process of personnel management. /M. Samadashvili, E. Gobejishvili/. Economics. – 2015. – #5-6. – pp. 130-137. – geo.; abs.: geo., eng.

Business must direct the process of a manager's professional development. It should also decide what kind of qualification the manager should have in order to achieve strategic aims, how to select managers and help them develop their career. Even in case of self-development business should give directions and indicate the ways of development. The article considers the basic methods of personnel qualification improvement (official and non-official), as well as the competence based on a qualification improvement strategy. The organizational skills to develop and fulfil its business strategy, in the light of main factors for business success, greatly depend on the manager's abilities. The business success is based on innovations, qualities and leadership. All this is stipulated by the certain business requirements and conditions. The mechanic or traditional bureaucratic type of organization considers the programmed method, which is created beforehand. This program includes the result-oriented checking system, a lot of courses, renovation schemes, etc. As for the organic type of organization which is oriented on the introduction of innovations, uses the methods of paying more attention to the managers' skills development, supplying them with recommendations and probable prospects. Ref. 3.

Auth.

b5.7. Social and economic geography

b15.5.7.1. Aspects of traffic safety in Georgia. /V. Kharitonashvili, H. Shishinadze/. Transport and Machinebuilding. – 2014. – #3(31). – pp.164-175.– geo.; abs.: geo., rus., eng.

The aspects of safety of a vehicle that is the subject of technical and legal studies and the dependence of its improvement upon improvement of technical and legal standards regulating it are discussed. Ref. 11.

Auth.

b15.5.7.2. Status of Kutaisi civil transport service and measures of its improvement. /N. Navadze, M. Navadze/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 5-14. – geo.; abs.: geo., eng., rus.

Transport service of Kutaisi population carries out only municipal motor transport; the total length of the city bus network is 155 km, the average length of routes is 15 km, while the average travel length for one passenger is 6-7 km approximately. The number of minibuses per 40 routes is over 300, 10 passenger cars servicing 5 routes. The annual number of transported passengers amounts to about 32 million. Kutaisi's geopolitical location received special meaning as a transport passageway between Europe and Asian countries on the one hand and East and West Georgia on the other hand. Fig. 2, Ref. 3.

Auth.

b15.5.7.3. Formation of regulatory mechanisms (bodies) of safety of the railway transport sector. /L. Lomsadze/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 48-56. – geo.; abs.: geo., eng., rus.

The article discusses one of the railway sector duties determined by "the Association Agreement"- main aspects of the formation of a safety regulatory body in the European Union. The institutional frame of existing regulatory bodies in the European Union is analyzed. The review of the frame showed that the type and organizational models of regulatory bodies are diverse. Consequently, effectiveness of the mentioned regulatory bodies varies considerably from country to country since everybody has different characteristics in terms of authority, financial resources and staff. The effectiveness of a multi-industry model of the regulatory body is determined, providing high quality of independence. Fig. 2, Ref. 6.

Auth.

b15.5.7.4. Developing "Unified method for assessing risks to ensure safety on European railways". /L. Lomsadze, T. Moniava, Z. Goletiani/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 57-66. – geo.; abs.: geo., eng., rus.

The article reviews current issue of traffic safety control system formation and actual problems of developing new method of assessing traffic safety. The article analyzes the project of developing a unified method for assessing risks to ensure safety on European railways. In our opinion, the proposed algorithm is a lot advanced; also its functions are more extended from "risk assessment" to "risk management". In probabilistic simulation the Monte-Carlo method is used very originally, advantage of which is that instead of describing the process with use of analytical equipment (differential or algebraic equations), random event is simulated with specially organized procedures. Fig. 4, Ref. 5.

Auth.

b15.5.7.5. Assessment of economic efficiency of the motor transport taking into account outer effects. /V. Kharitonashvili, N. Chichinadze/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 67-76. – geo.; abs.: geo., eng., rus.

On the basis of analysis of the outer negative effects influencing economic efficiency of the motor transport, the possibility of decreasing these effects by formation of a motor transport depot with high operational quality vehicles proved that it will decrease the probability of emergence of road and transport accidents and the volume of harmful substances in exhaust gases. A methodical approach provides assessment of economic efficiency of the motor transport taking into account ecological damage and objectivity and reliability of assessment of economic efficiency, and also definition of real tariffs for service. Tab. 2, Ref. 5.

Auth.

b15.5.7.6. The principle of choice of a vehicle on passenger traffic by logistic services. /V. Kharitonashvili, D. Pridonashvili, G. Mgebrishvili/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 93-97. – geo.; abs.: geo., eng., rus.

A classification of the factors defining satisfaction of consumer requirements to passenger traffic by logistic service is given. An optimal method of selecting a passenger vehicle given safety, comfort and reliability of service by method of using the principle of a flexible priority which is based on tasks of quantitative characteristics of a priority of criteria in the form of weight coefficients is given. Tab. 1, Fig. 1, Ref. 2.

Auth.

b15.5.7.7. Perspectives of connection of European and post-soviet railways. /M. Chikhladze/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 102-106. – geo.; abs.: geo., eng., rus.

The Baku-Tbilisi-Kars new railway line construction project was nominated among the world's 100 global projects. The project represents a regional and international initiative. The Baku-Tbilisi-Kars new railway line will facilitate growth of railway transportation, especially container transportation, support country economy growth and deepen trade opportunities with European and Asian countries as well. Ref. 6.

Auth.

b15.5.7.8. Containerization and multimodal transport operator. /M. Chikhladze/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 107-111. – geo.; abs.: geo., eng., rus.

The process of containerization is in progress both regionally and globally. Based on the above, the legal environment and the relevant legislative harmonization are necessary to ensure the establishment of a unified transport network, attraction of new cargo flows and sustainable development of economy in Georgia and the corridor countries. Ref. 3.

Auth.

b15.5.7.9. Road development challenges and perspectives in Georgia. /M. Chikhladze/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 112-117. – geo.; abs.: geo., eng., rus.

The construction of an east-east highway is a priority task for our country, enabling the connection of regional transport corridor with the Black Sea ports and supporting an increase in the transit potential of the country, international trade and tourism development. Of vital importance is the elaboration of an effective approach, implying their introduction of tolling systems and performance-based contracts. Ref. 8.

Auth.

b15.5.7.10. On the equipment of automobile gas filling compressor stations working on natural gas. /A. Bezhanishvili, J. Iosebidge, D. Aladashvili, G. Mikadze/. Transport and Machinebuilding. – 2015. – #1(32). – pp. 173-184. – geo.; abs.: geo., eng., rus.

General requirements to the equipping of automobile gas filling compressor stations working on natural gas are considered; succession of individual tests of technical equipment (stop, control, safety fittings; instrumentation and means of automation), as well as succession of individual hydraulic and pneumatic tests on strength and leak-proofness of technological gas pipelines are described. A procedure of complex inspection of the station's whole technological system, requirements of measures and safety rules for keeping the gas filling compressor station in operational condition are given. Problems, concerning technical maintenance and repair of compressor station are considered. Ref.

Auth.

b15.5.7.11. Culture as an institution in the context of socio-economic development of country and international business. /G. Bedianashvili/. Ekonomisti (Economist) – 2014. – #6. – pp. 6-16. – geo.; abs.: geo., eng., rus.

The essence and significance of socio-cultural factors in terms of socio-economic development and international business in the current globalized world are considered. The features of the main existing approaches to measuring cultural values, presented the possibility of using indicators of economic freedom with the purpose to reflect the cultural component in the international business issues. Fig.4, Ref. 41.

Auth.

b15.5.7.12. Some aspects of the companies' financial efficiency evaluation. /L. Gvenetadze, M. Kapanadze/. Ekonomisti (Economist) – 2014. – #6. – pp. 24-32. – geo.; abs.: geo., eng., rus.

The evaluation of the companies' financial efficiency maintains the constant importance. The analysis in the article is concentrated around the producers of alcoholic beverages. In the article, based on financial statements, determined are the company's liquidity, profitability level and extent of usage of financial leverages. Based on the research, the existing problems in the financial accounting that hinder the effective management of the companies are considered. Tab. 3. Ref. 4.

Auth.

b15.5.7.13. Insurance and investments. /I. Mamaladze/. Ekonomisti (Economist) – 2014. – #6. – pp. 33-39. – geo.; abs.: geo., eng., rus.

The investment potential of insurance companies and their insurance activity are discussed. It is noted that the insurance companies' activity is most evident in the USA and other developed countries, although it is also becomes noticeable in developing countries. As regards the Georgian insurance market, the government has a strong market position, namely in medical insurance sector. This conditions the strengthening of research interest of the mentioned sector. Ref. 7.

Auth.

b15.5.7.14. Influence of progress of time on Georgian economy under conditions of globalization. /R. Sarchimelia, N. Davlasheridze/. Ekonomisti (Economist) – 2014. – #6. – pp. 50-55. – geo.; abs.: geo., eng., rus.

The effect of progressive changes of time on the Georgian economy under conditions of globalization is considered. The attitude of the academician Ilia Vekua to the prospects of economic science and the necessity of research of economy in math-cybernetics direction in Georgia is discussed. Ref. 7.

Auth.

b15.5.7.15. Peculiarities of statistical accounting of economics and law violation. /M. Sarchimelia/. Ekonomisti (Economist) – 2014. – #6. – pp. 56-63. – geo.; abs.: geo., eng., rus.

The issues of methodological improvement of statistical accounting of economic information on law violation and controversial results of law violation punishment toughening under conditions of shadow economy related to privatization are discussed. Controversies in economic evaluations of toughening of punishment of offenders are discussed. Efficiency of using semantic modeling for the purpose of speeding up economic forecasting and the problem of law toughening on the minimization of surcharges are advanced. Ref. 15.

Auth.

b15.5.7.16. The role of innovations in the development of service sphere. /N. Kistauri, M. Melashvili/. Ekonomisti (Economist) – 2014. – #6. – pp. 64-72. – geo.; abs.: geo., eng., rus.

The article discusses the significance of innovations in general, also the role of innovative management its aim in the development of service sphere and the growth of its efficiency. Also emphasized are the difficulties and the crisis situation in Georgia in this aspect, beginning from the first days of transition to market economy. The role of government in choosing the right innovative policy in the service sphere and in the economic advance of Georgia is also mentioned. Ref. 4.

Auth.

b15.5.7.17. The essence, role and significance of strategic marketing in the functioning of a firm. /T. Gogokhia/. Ekonomisti (Economist) – 2014. – #6. – pp. 73-82. – geo.; abs.: geo., eng., rus.

The article discusses the essence, role and significance of strategic marketing of a firm on the basis of marketing literature review. Ref. 19.

Auth.

b15.5.7.18. Migration and cultural diversity. /L. Ratiani/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp.173-177. – ger.; abs.: ger., geo., eng., rus.

Migration research is a sphere of operation of non-disciplinary science and a component of research of spatial mobility. As a rule, it studies spatial mobility of the individual and groups of people out of limits of borders for a certain time /beyond the administrative boundary/ by crossing border through a certain period of time, or at least a long period of time. Migration is considered as a universal phenomenon and the person as *homo migrans*; therefrom comes the increasing mobility of certain people within globalization, in connection with individualization and pluralism, which allows the individual to cross territorial, social, and cultural boundaries. Under the spatial mobility is implied a change in all the positions of an individual between different units of the spatial system and does not depend on the range of movement and its frequency. The paper discusses the 2012-2014 data of the Statistical Service of Georgia. Fig.1, Tab. 1, Ref. 8.

Auth.

b15.5.7.19. The role of environmental monitoring in a healthy and safe environment. /N. Kashia/. Professional's Voice. – 2015. – #2-3(5). – pp. 26-30. – geo.; abs.:geo., eng., rus.

The future of humanity depends on preserving natural objects in such state that maintain the ecological balance without endangering human life and health. For this reason, the role of environmental monitoring is rather important. It includes the collection of information about changes in the environment and estimation and prediction of future process. The article mentions the importance of legislation on the environmental protection and nuclear and radiation effects. Among the most negative effects is mentioned the contamination caused by motor transport. Ref. 6.

Auth.

b5.8 Media and communications

b15.5.8.1. Problems of spoken language. /L. Menteshashvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 137-140. – geo.; abs.: geo., eng., rus.

It is difficult to imagine our existence without speech and thinking. Speech forms a man as personality, as an active member of society. Speech must be clear and not complicated artificially. The standard of speech, first of all, is expressed in person's culture, education and erudition. Today we hear fluent Georgian less and less. To eradicate blanks in spoken language, we must pay attention to teaching the Georgian language and literature at schools; there must be more hours in standards of Georgian writing at universities. Ref. 5.

Auth.

b15.5.8.2. Standard of speech and writing in the modern Georgian language. /G. Iakobashvili, L. Sutidze/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp.146-150. – geo.; abs.: geo., eng., rus.

The article deals with a rapid inflow of foreign terms in the Georgian language and other problems associated with correct and standard speaking and writing. Ref. 2.

Auth.

b5.9 Other social sciences

b15.5.9.1. Influence of technological change on moral development of man (according to the novel of Mary Shelley "Frankenstein"). /T. Jangulashvili/. Metsniereba da Tskhovreba. – 2015. – #1(11). – pp. 140-142. – geo.; abs.: geo., eng., rus.

The article deals with the influence of technological change in the context of modern technology. Mary Shelley's "Frankenstein" focuses on man versus nature, particularly, the theme of scientific development and its contrast to nature. The article shows relations between men and technology and invasion of technology in modern life. The author deals with the issues concerning the usage of knowledge for good or evil design and the inevitability of technological progress in the future. Ref. 4.

Auth.