SUMMARY
ANTIQUE BRONZE SCULPTURE AND THE LAWS OF MECHANICS
Gorgidze D.A., Kokoshashvili G.R., Davitashvili G.R. and Chachanidze Z.Z.
Georgian Technical University
In 1877, during archeological excavations in Kazbegi borough, treasure consisting of bronze, silver and iron items was found. For specialists, this treasure is known as the Kazbegi treasure. One sculpture attracted special attention of specialists. It depicted two men holding left hands. It was thought to depict a cultic action for a long time. There was an alternative idea that the sculpture depicted ritual wrestling. This was indicated by positions of the figures and the image dynamics. By studying the mechanics of Georgian martial arts, it was revealed that one of wrestling techniques and the dynamics of the figures were practically identical.
Keywords: laws of mechanics, sculpture, wrestling.

SUMMARY
APPLIED ASPECTS OF STATISTICAL REGRESSION ANALYSIS
Buadze T.G.
Georgian Technical University
The article discusses some methods of correlation analysis of statistical data, and construction and application of the regressionfunctionforsolution of practical and economic problems.
Keywords: statistical data, arithmetic mean standard deviation, correlation analysis, regression function.

SUMMARY
INVESTIGATION OF THE ELECTRIC FIELD BY A MATHEMATICAL METHOD
Kakauridze A.K., Mardaleishvili N.D., Zivzivadze L.B. and Shalamberidze M.Sh.
Akaki Tsereteli State University, Kutaisi
The paper deals with the investigation of the electric field by a finite difference method. The obtained results are similar to those obtained by the studies of the physical model of the electric field. In addition, for studying the electric field of a slag bath, it is possible to use a mathematical modeling technique.
Keywords: electric field, finite difference method.

SUMMARY
APPLICATION OF BIOMETRIC PARAMETERS OF A PERSON TO ACCESS SYSTEMS IN PREMISES
Iashvili G.N.
Georgian Technical University
Currently the biometric parameters of a person are widely used in access systems in premises. Biometry guarantees that the right of access, of being and moving in premises will be gained by a person with certain biometric parameters, and not a person having a card with PIN code or a special strip, or having a counter or a person knowing the password. Among the biometric parameters, they usually choose a fingerprint, a pattern of the iris or the image of the face, etc.. Sometimes two or more parameters are used.The paper deals with the application of biometric parameters of a person in access systems and its advantages.
Keywords: biometric parameters, access systems, identification.

SUMMARY
DETERMINATION OF OPTIMAL VALUES OF THE BIT ERROR RATE (BER) IN THE KEY DEVICE OF A RECEIVER OF THE DIGITAL FIBER OPTIC TRANSMISSION SYSTEM
Svanidze R.G., Chkhaidze M.T. and Kodalashvili A.D.
Georgian Technical University
The article deals with the determination of optimal values of the bit error rate (BER) in the key device of a receiver of the digital fiber optic transmission system (DFOTS). The optimal valuesof BER are determined by selecting the threshold level based on the methodology of the International Telecommunication Union (ITU).
Keywords: digital fiber optic transmission system, bit error rate, optimal values, threshold level.

SUMMARY
ESTIMMATION OF JITTER IN DIGITAL FIBER OPTIC TRANSMISSION SYSTEMS
Svanidze R.G. and Chkhaidze M.T.
Georgian Technical University
The article discusses the causes of formation of jitter in digital fiber optic transmission systems, the physical essence of jitter and a possible effect of jitter on the quality f transmission.
Keywords: digital fiber optic transmission systems, jitter.

SUMMARY
ASSESSMENT OF THE BIT ERROR RATE (BER) IN DIGITAL FIBER OPTIC TRANSMISSION SYSTEMS WITH CONSIDERATION OF TIME JITTER
Svanidze R.G. and Chkhaidze M.T.
Georgian Technical University
The article discusses the physical essence of the origin of time jitter and its effect on the probability ofbit error rate (BER). Correlation between thepower fine (P_{fine}) formed because of a time jitter effect and complex parameters of jitter and transmission rate of the system are assessed.
Keywords: digital fiber optic transmission system, bit error rate, time jitter, transmission rate. l.

SUMMARY
FORWARD ERROR CORRECTION IN INFORMATION TECHNOLOGY
Lominadze N.N.
Georgian Technical University
The paper discusses use of the forward error correction methods in information technologies. Such an approach is necessary when there is no time for using error correction methods based on the repeated transmission method, or when repeated transmission worsens some characteristics of an application. Reed-Solomon coding is one of the most effective forward error correcting methods, based on the Galois field arithmetic. The paper a possibly simplified expose of underlying theoretical problems and an example of coding is given.
Keywords: forward error correction, hamming code, reed-solomon code, galois field.

SUMMARY
THE IMPACT OF INFORMATION TECHNOLOGIES ON NETWORK APPLICATIONS SPECIFICATIONS
Lominadze N.N. and Khartisvili M.P.
Georgian Technical University
The paper discusses a usage of the possibilities created by Information Technology and Internet in designing of network applications. It is shown that the selection of error detecting and error correcting methods used influence the characteristics of multimedia applications. In the case of datagram transfer in Internet an audio-file is immediately transmitted and played, but the client process must use methods of interpolation of data lost. As to server, it must implement the mode of Push or Pull server. The use of mode of reliable data transmission the transmission process is tied with significant delay, but audio-file is transmitted without errors and, so, high quality of audio signal is achieved.
Keywords: information technology, internet, network applications, client-server interaction, MIME extention, TCP, UDP protocols, error detection and correction.

SUMMARY
TRENDS IN THE DEVELOPMENT OF INFORMATION AND COMMUNICATIONS TECHNOLOGIES IN GEORGIA AND IN THE WORLD
Tsikhistavi T.T. and Svanidze R.G.
Georgian Technical University
The article discusses the main trends in the development of information and communications technologies (ICT) in Georgia and in the world. The dynamics of development and the nearest forecast are given.
Keywords: information and communications technologies, development, trends, forecast.

SUMMARY
THE ROLE OF INFORMATION AND COMMUNICATIONS TECHNOLOGIES (ICT) IN NATIONAL ECONOMY AND THE REGULARITIES OF THEIR DEVELOPMENT
Tsikhistavi T.T. and Svanidze R.G.
Georgian Technical University
The article discusses the role of information and communications technologies (ICT) in national economy and the regularities of their development.
Keywords: information and communications technologies, economy.

SUMMARY
VIRTUALIZATION IN OPERATIONSYSTEMWINDOWS SERVER 2016
Gabashvili T.G., Gabashvili N.V. and Khartishvili M.P.
Georgian Technical University

The paper deals with virtualization in operation system Windows Server 2016. Hyper-V function and the required hardware for installation of Windows Server 2016 are discussed. It is mentioned that VM simplifies the transition from one physical computer to another and also it makes easier managing networkapplications and services.
Keywords: Windows Server 2016, virtualization, Hyper-V function, hardware.

SUMMARY
ABILITIESOF WINDOWS SERVER 2016
Gabashvili N.V., Abuladze I.B. and Gabashvili T.G.
Georgian Technical University
The work deals with the integrated environment and the basic functions of Windows Server 2016. The advantages of the new operation system over previous versions are discussed.
Keywords: Windows Server 2016, integrated environment, functions.

SUMMARY
INFORMATION EFFICIENCY OF SPATIAL MODULATION
Ugrelidze N.A., Akobia D.G., Sordia M.D., Chokhonelidze M.T. and Qurkhulishvili G.D.
Caucasus University
In this paper, we present a method of new system design of spatial modulation, which uses all combinations of active antennas. The spectral efficiency determined by a system of antennas and modulation systems was estimated. The examples for transmitting antennas from 3 to 8 are given.
Keywords: antenna, modulation, signal, bit, transmitter.

SUMMARY
FORMATION OF THE NEURAL NETWORK FOR THE PROCESS OF LEARNING
Verulava O.G., Chkhaidze M.N. and Tavdishvili O.S.
Georgian Technical University
The learning process of formal neuron, error-correction of recognition through the correction of weight coefficients and neuron threshold is considered. Original description of the recognition process by the formal neuron is offered. Recognition procedure via formal neurons is used for the description of patterns, error correction and for the realization of the feature evaluation algorithms. As needed during the learning process the evaluation of the isolated feature or the whole feature space are carried out according to the correct recognition criterion.Iinitial descriptions-templates of patterns are chosen; according to the results of recognition change-correction of initial descriptions take place; if result of recognition is correct, description will not be changed, if recognition is wrong, then the error will be corrected. The Error-correction algorithm is an iterative procedure where every step begins by presenting for recognition of an unknown realization and finishes according to the result of recognition through the procedures of rewarding or non-rewarding. In the beginning of learning Algorithm is performed formation of descriptions for the considered pattern through the realizations of initial descriptions and learning set; then formation of the final descriptions through the descriptions of the other patterns and their realizations is performed.
Key words: Neural Network; Learning; Recognition.

SUMMARY
APPROXIMATION OF EXPERIMENTAL DATA OBTAINED THROUGH JOINT MEASUREMENTS USING MATLAB
Daraselia N.M. and Chokhonelidze M.T.
Georgian Technical University
The paper discusses the possibility of searching for the functional dependence between two physical valuesbased on the Least Squares (PLS) method by using programming package of MATLAB, with an acceptable error and reliable probabilities, by approximation of the experimental data obtained through joint measurements.
Keywords: experimental data, approximation, joint measurements, MATLAB, least squares method.

SUMMARY
THERMAL MICROELECTRONIC SENSORS OF AIR FLOW RATE MEASUREMENT WITH IULSE POWER
Khachidze T.I.
Georgian Technical University

A novel sensor for thermoanemometric flow metering presented. The sensor is 30 μm and can be considered a two-dimensional plate. In the sensor a method of pulse heating is employed. As a result, the flow rate depends on the pulse frequency, and not on the voltage. This, on its turn, facilitates digital processing of the output signal.
Keywords: thermal microelectronic sensor, flow metering, sensor pulse heating.

SUMMARY

STATICS OF ABSOLUTELY FLEXIBLE BARS LOADED WITH CONCENTRATED FORCES IN THE AIR OR A LIQUID FLOW

Arkania Z.M.
Akaki Tsereteli State University, Kutaisi

Wedeveloped an algorithm for solving the problems of statics of absolutely flexible bars loaded with concentrated forces in the air or a liquid flow.By the algorithm, the shape and axial tension of the hose for any direction of the external liquid flow can be determined, as well as thehose strength can be assessed. The algorithm allows solving the problems of the hose statics considering the internal liquid flows in the hose.
Keywords: hose, absolutely flexible bar, concentrated forces.

SUMMARY

SOME ISSUES OF THE ASSESSMENT OF AN ELECTROMAGNETIC SITUATION IN THE RADIO COVERAGE ZONE

Zurabishvili V.I., Svanidze T.S., Laperashvili D.L., Beriashvili D.B. and Peradze L.V.
Georgian Technical University

The issues of the estimation of an electromagnetic situation in the radio coverage zone are discussed. The evaluation is carried out based on practical measurements and theoretical calculations at control points, taking into account the existing background. Plots of the dependence of the flux density on the distance of the reference point to the antenna are constructed.
Keywords: radio coverage, electromagnetic situation, electromagnetic field, electromagnetic background, electromagneticflux density.

CONCEPTUALITY OF THE FIELDS EXISTING IN NATURE

Kadagishvili L.G.
V. Chavchanidze Institute of Cybernetics, Georgian Technical University
Georgian Engineering Academy

Abstract. The paper deals with the conceptuality of the fields existing in nature. The single carrier of the source of all fields existing in nature represents elementary particles, which are themselvesconceptual. There are four states of matter: solids, liquids, gases and elementary particles. To these four states, conceptually adds the vacuum. It turned out that elementary particles emerge from the vacuum. The vacuum is a certain potential state of all kinds of matter. There are two simple notions: the torsion field and the vacuum. Hence the quantum representation of the spin that generates the torsion field affecting only the objects having the spin is confirmed. Similarly, the torsion field is independent and its existence is determined by the spin and depends neither on the mass nor on the charge. It is an independent physical phenomenon in nature. Thus, the fields existing in nature are conceptually interconnected.
Keywords: elementary particles, states of matter, vacuum.

SUMMARY

ECONOMICANALYSIS AND THE PROSPECTS OF DEVELOPMET OF BATUMI SEAPORT

Jijavadze N.O.
Georgian Technical University

Today, due to its history and geopolitics, Georgia as a subject of international law, and an independent and sovereign statehas an opportunity to be completely engaged in economic life of the modern world. Due to its potentialities, Georgia can reach economic well-being and increase the material well-being of citizens. These goals can be achieved only by wide development of maritime infrastructure.
Keywords: seaport, economic analysis, maritime infrastructure

SUMMARY

BASIC REQUIREMENTS TO MODERN CONCRETE MIX DESIGN

Baliashvili G.I., Sarjveladze N.V., Gogolauri I.G. and Katamadze I.I.
G. Tsulukidze Mining Institute

The article considers the characteristics of the components of modern concrete mix, their impact on the properties and cost of the concrete, and on ecology. The issues of concrete mix proportioning are discussed.
Keyword: concrete, concrete mix design, concrete proportioning.

SUMMARY
IMPROVEMENT IN LIGHTWEIGHT CONCRETE TECHNOLOGY
Baliashvili G.I., Sarjveladze N.V., Katamadze I.I. and Jgamaya V.T.
G. Tsulukidze Mining Institute
The article deals with the improvement in the technology of production of lightweight concrete using the local cement and filler.
Keyword: lightweight concrete, cement filler.

SUMMARY
ON THE PHYSICAL ORIGIN OF THE LONG-RANGE EFFECT IN THE PROCESSES OF CRYSTAL NUCLEATION AND GROWTH
Gerasimov A.V., Vepkhvadze M.T., Gorgadze K.M., Shengelia M.A., Khisanishvili Sh.M. and Chiradze G.D.
Georgian Technical University
In the processes of crystallization, the existence of a structuring organizing informational beginning that is a crystal surface is essential. The paper discusses the mechanism of the effect of the crystal surface on crystallization. It is shown that spatial distribution of the probability of finding of a negative binding charge (i.e. density) cannot be considered fixed between the nearest neighboring ion cores. It propagates with decreasing magnitude to other interatomic regions in preferential directions. These directions are determined by electrostatic and electromagnetic fields of atoms ion cores and their valence electrons, which providesthe crystallinity of the deposited substance.
Keywords: long-range effect, crystallization, chemical bonds, amorphous boundary layer, polycrystalline boundary layer.

SUMMARY
RADIOACTIVE WASTE MANAGEMENT IN ACCORDANCE WITH ITS CLASSIFICATION IN GEORGIA
Nabakhtiani G.N., Gorgadze K.M., Tvaliashvili V.Z., Giorgadze I.S. and Khizashvili Sh. M.
Georgian Technical University
The main goal of radioactive waste managementis to protect people and the environment from harmful effects of nuclear waste. At the same time, not only today's effects, but also the events that could occur in the distant future should be taken into consideration. In this connection, it would be expedient to use the classification of radioactive waste. Radioactive sources withdrawn from circulation, the classification of which has not existed in Georgia so far, represent a special type of radioactive waste. Based on a scientific assessment, the article gives the classification of radioactive sources withdrawn from circulation as radioactive waste, which takes into account Georgia's realitiesand completely complies with international classification. Currently, the radioactive waste disposal in Georgia is closed and only safe storage of radioactive waste is carried out. For this purpose, radioactive sources withdrawn from circulation are placed in special containers. The design of such a container for a standard source with consideration of the factor of scattering is presented. The design was performed using software MicroShield.
Keywords: radioactive waste management, radioactive waste classification, radioactive sources withdrawn from calculation.

SUMMARY
WATER HEATING IN VORTEX AND ELECTROHYDRAULIC IMPACT HEAT GENERATORS
Gerasimov A.B., Prangishvili A.I., Vepkhvadze M.T. and Gorgadze K.M.
Georgian Technical University
The paper describes the mechanism of obtaining additional energy by vortex and electrohydraulicimpact heat generators, which guarantees their coefficient of efficiency more than one. In the devices of both types, shock waves are formed and they exert tremendous pressure on water cluster. This pressure is able to deform the chemical bonds of water clusters so that the energy corresponding to room temperature will not be enough for their recovery.In the result, the distance between the levels of deformed chemical bonds decreases and, at room temperature, the intensity of transitions of electrons from lower to upper levels increases. In the result of simultaneous collisions of the clusters with the some molecules having the energy corresponding to room temperature, the molecules transmit this energy to the clusters, i.e. they "cool down", in case their total energy is sufficient for correction of deformed chemical bonds. As heaters are not closed systems and interact with the environment, this cooling will be inconspicuous. Elimination of deformation increases the gap between the levels, and, returning to initial lower layers, the electrons release the total energy obtained from several low-energy molecules. The released energy heats water.
Keywords: vortex heat generators, chemical bonds, coefficient of efficiency, water molecules, energy.

SUMMARY
PROSPECTS OF GEORGIA'S OIL FIELDS
Beridze N.V. and Macharadze M.G.
Georgian Technical University
The article reviews oil prospects of mountainous Kakheti, in particular, of the Vedzebi oil field. The possibility of the existence of an oil reservoir inLiass sediments and of Jurassiic oil collectors in younger sediments above the Liass ones, which could turn out to be large Georgian oil fields, is discussed. It is planned to conduct deep exploration drilling after carrying out 2D and 3D seismic work. According to the authors, industrial oil in Georgia "was, is and will be!"
Keywords: oil, oil field, prospects, exploration drilling.

ONE- STAGE PRODUCTION OF SUPERCONDUCTING MgB_2 AND HYBRID POWER TRANSMISSION LINES BY THE HOT SHOCK-WAVE CONSOLIDATION TECHNOLOGY

Gegechkori T.O., Godibadze B.A., Peikrishvili V.A., Mamniashvili G.I. and. Peikrishvili A.V.
Iv. Javakhishvili Tbilisi State Univerity
G. Tsulukide Mining Institute
F. Tavadze Institute of Metallurgy and Materials Science

Abstract. The rapid development of research of the conductors based on superconducting compound MgB_2 makes realistic a prospect of their technical application at temperatures below 30 K. The technology of development of superconductive materials belongs to traditional powder metallurgy: preparation and compaction of Mg–B powder blends under static conditions with further sintering. Earlier the shock wave consolidation technology was used to fabricate high-density MgB_2 billets with maximum critical temperature T_c = 40K, but sintering after shock wave compression to fabricate high dense MgB_2 billets was additionally required. We used a unique method of hot shock-assisted consolidation combining high temperature with the two-stage explosive process without any further sintering, which produced superconducting materials of high density and integrity. The consolidation of MgB_2 billets was performed at temperatures above the melting point of Mg up to 1000°C with Mg-B blend powders in a partially liquid state. The impact of the isotope B composition on critical temperature and superconductive properties of MgB_2 was evaluated, as well as the first successful application of this method to production of hybrid power transmission lines for simultaneous transport of hydrogen and electric energy was demonstrated.
Keywords: superconducting MgB_2, shock-wave consolidation, B isotopes, hybrid energy lines

SUMMARY
FEASIBILITY OF USE IN BIOTECHNOLOGIES OF HYDROGEN PEROXIDE VAPOR, AN AQUEOUS SOLUTION OF SEA SALT AND AN AQUEOUS SOLUTION OF SODIUM BICARBONATE ($NaHCO_3$) AS PLASMA-FORMING MEDIA WHEN GENERATING THE NON-EQUILIBRIUM PLASMA
Sabashvili Z.V.
Georgian Technical University
Recently, in many countries intense studies on the use of non-equilibrium (cold) low-pressure plasma in biotechnologies have been carried out. In plasma technologies, great attention is paid to the choice of a plasma-forming medium. We propose to use bactericide media such as hydrogen peroxide, and aqueous solutions of sea salt and sodium bicarbonate ($NaHCO_3$) as plasma-forming media. Asaresult, the bactericidal effect of non-equilibrium plasma will enhance, because the mentioned substances contain compounds and ions essential for biological tissues.
Keywords: non-equilibrium plasma, biotechnology, plasma-forming medium, hydrogen peroxide, sea salt, sodium bicarbonate.

SUMMARY
RESEARCH OF THE KINETICS OF GRAPHITE→DIAMOND CATALYTIC CONVERSION
Loladze N.T., Tserodze M.P. and Pkhaladze T.B.
Georgian Technical University
The paper presents experimental data on the kinetics of conversion of graphite to diamond under different dynamic parameters of the process. Based on the data obtained, the authors calculated the activation energy of the process. It is inferred that diamond formation is limited by the diffusion process within a few seconds after the start of the reaction.
Keywords: diamond, catalytic conversion,

SUMMARY

A MATHEMATICAL MODEL OF THE THERMODYNAMIC ESTIMATION ALGORITHM OF HETEROGENEOUS SYSTEMS

Eristavi D.V., Gogishvili A.R., Sarukhanishvili A.V., Gugeshidze M.K., Kerkadze J.V. and Matsaberidze E.L.

Georgian Technical University

The goal was to substantiate the concept of changing the empirical experiments with complex heterogeneous systems by modeling of corresponding thermodynamic processes. There are presented the phase diagrams first plotted by the authors for B-O-N-C and Si-O-N-C systems at 101 kPa of the gaseous phase in the result of thermodynamic analysis. These diagrams enable one to forecast relevant technical processes and to give scientifically grounded representation of their mechanism. The mathematical model of the thermodynamic estimation algorithm of heterogeneous systems with appropriate software can be used not only for thermodynamic studies of thechnogenic systems and establishment of optimal conditins for targeted products, but also for determination of the chemical composition and expected concentrations of pollutants of anthropogenic origin, as well as for assessment and forecast of changes in the environment.

Keywords: thermodynamics, ecology, computer simulation.

ON ONE PROBABILISTIC MODEL OF A CHEMICAL REACTION WITH FINITE LIFETIME

Dochviri B.M., Tkemaladze G.Sh. and Makhashvili K.A.

Georgian Technical University

Iv.Javakhishvili Tbilisi State University, Tbilisi, Georgia

Abstract. A probabilistic model of the single-molecule chemical reaction with finite lifetime was constructed. Explicit formulas of the mathematical expectationof the reagent and the product were obtained.

Keywords: single-molecule chemical reaction, probabilistic model, mathematical expectation.

SUMMARY

MATHEMATICAL-CHEMICAL INVESTIGATION OF HYDROGEN HALIDES

Bregadze M.A., Lobzhanidze L.V. and Gverdtsiteli M.I.

Iv. Beritashvili Experimental Center of Biomedicine

Iv. Javakhishvili Tbilisi State University

Halogen halides were studied within the scope of ANB-matrices method. Four correlation equations of the type "structure-properties" were derived and investigated. The correlations are satisfactory.

Keywords: halogen halides, ANB-matrix, correlation equation

SUMMARY

MATHEMATICAL-CHEMICALSTUDYOFTHESUBGROUPBELEMENTS OF GROUP IVDIOXIDES

Sidamonidze N.N., Koiava N.A. and Gverdtsiteli M.I.

Iv. Javakhishvili Tbilisi State University

Tbilisi State Medical University

The subgroup B elements of group IV dioxides were studied within the scope of the ANB-matrices method. Threecorrelation equations were derived and investigated. The correlations are satisfactory.

Keywords: group IV dioxides, subgroup B, ANB-matrix, correlation equations.

SUMMARY

MATHEMATICAL-CHEMICALINVESTIGATIONOFMONOBASIC SATURATED UNBRANCHED CARBOXYLIC ACIDS

Karchkhadze M.G. and Gverdtsiteli M.I

Iv. Javakhishvili Tbilisi State University

Mathematical-chemical investigation of monobasic saturated unbranched carboxylic acids was carried out within the scope of the $A\tilde{N}B$ -matrices method.Two correlation equations were constructed. Correlations are satisfactory.

Keywords: carboxylic acids, $A\tilde{N}B$ -matrix, correlation equation.

SUMMARY
PROTECTION OF BIODIVERSITY AND ITS ECONOMICAL ASPECTS
Gigineishvili L.V. and Karalashvili N.V.
Georgian Technical University
Bio-diversity is under a serious peril on a world scale. Economic factor plays a considerable role upon its protection and preservation: nowadays it is impossible for humans to abandon completely the exploitation of ecosystems. Therefore, conductingactivities for protection of the environment, the specialists more and more often draw arguments with regard of economic substantiation as to what damage will the environment suffer if this or that project is implemented. For making such an assessment, the methods of ecological economy are used. It is based on economy,ecology and state policy. The main goal of the ecological economyis to establish criteria and techniques for assessment of biological versatility. In this regard, there is a certain progress: genetic, species and economic approaches to the assessment of ecosystems were elaborated. According to the present practice, the benefits obtained from the exploitation of the environment can be divided in direct, indirect, existential and non-consumer values. Biodiversity can also directly affect income: for example, in the devastated environment, flows of tourists will considerably decrease, due to which the income will proportionally money income fall.
Keywords: biodiversity, environmental protection, economical aspects, assessment, ecosystems.

SUMMARY
STUDY OF TANNING AND COLORING SUBSTANCES IN BLACKBERRIES GROWING WILD IN WESTERN GEORGIA
Kipiani A.V. and Gamkrelidze E.A.
Akaki Tsereteli State University, Kutaisi
The paper dwells on the changes in the total amount of tanning and coloring substances existing in the blackberries gro-wing wild in Western Georgiaat different stages of ripeness. It was found that unripe blackberries contain the maximum amount of tanning and coloring substances, which givesthe berries a specific bitter, harsh taste and a respective color. During ripening, the content of the mentioned substances reduces almost by half, but, during full ripeness, their amount reduces to 0.09-0.2%, thus ensuring the improvement in the taste and color due to conversion of catechins and leuco-anthocyanins into the coloring substances. It is reasonable to use blackberries at the stage of full ripeness.
Keywords: wild blackberries, tannins, coloring substances, degree of ripeness.

SUMMARY
BIOLOGICAL SPECIFIC FEATURES OF BLACKBERRY (*Rubusfruticosus*)
Kacharava T.O and Davadze D.E.
Georgian Technical University
The article discusses the genetic resource, biological and chemical specific features, productivity, etc. of blackberries. The possibility of development of the technology of cultivation of industrial plantations and its role in protection of biodiversity of the country is considered.
Keywords: blackberry,biological specific features, technology.

SUMMARY
SCIENTIFIC AND PRACTICAL ASPECTS OF HEALTHY NUTRITION
Tavdidishvili D.R., Lezhava K.S., Mamrikishvili L.G. and Kvirikashvili L.D.
Akaki Tsereteli State University, Kutaisi
The article discusses the role of nutrition in human life,the scientific concept of nutrition, the basic principles of balanced, adequate and healthy nutrition, etc. Modern requirements to the diet are given; the sphere of distribution of functional food products and the feasibility of innovative technologies for their productionand expansion of the product range is analyzed.
Keywords: nutrition, diet, functional products, modern concept.

SUMMARY
***LEPIDEUM SATIVUM* – A RAW MATERIAL FOR PRODUCTION OF FOOD ADDITIVES AND PRODUCTS WITH AN ANTICARCINOGENIC ACTION**
Karchava M.S., Arnania T.G., Berulava I.O., Jinjolia Sh.R. and Kajaia N.Sh.
Akaki Tsereteli State University, Kutaisi

The article discusses the structure of glucosinates of vegetable origin with an anticarcinogenic effect and the prospects of using these glucosinates for production of anticarcinogenicfood products. The possibility of using the dry liophilic concentrate of Georgian broadleaf cress (*Lepideumsativum*) for production of prophylactic anticarcinogenic food products (bread, cake, chocolade, etc.) is considered.
Keywords: food products, anticarcinogenic effect, raw material, broadleaf cress.

SUMMARY
BIOLOGICALLY ACTIVE SUBSTANCES OF PINE POWDER
Karchava M.S., Arnania T.G., Jinjolia Sh.R., Berulava I.O., Khetsuriani G.S. and Kajaia N.Sh.
Akaki Tsereteli State University, Kutaisi
The article discusses the role and possibilities in the struggle against the diseases of modern civilization. To this end, the prospects of use the pine powder are considered. Literature data on the investigation of pine powder of various pine species are analyzed. It is shown that the pine powder contains essential amino acids, vitamins and a complex of essential minerals.Besides, the pine powder contains antioxidants, vegetable steroids, a complete set of phenolic compounds and other essential substances. This is a decisive factor determining antioxidant, antiseptic, antibiotic, anticarcinogenic, biostimulating and antidepression properties of the pine powder.
Keywords: biologically active substances, pine powder, antioxidant effect, anticarcinogenic action, biostimulating activity.

SUMMARY
BIOLOGICALLY ACTIVE SUBSTANCES OF PINE POWDER
Karchava M.S., Arnania T.G., Jinjolia Sh.R., Berulava I.O., Khetsuriani G.S. and Kajaia N.Sh.
Akaki Tsereteli State University, Kutaisi
The article discusses the role and possibilities in the struggle against the diseases of modern civilization. To this end, the prospects of use the pine powder are considered. Literature data on the investigation of pine powder of various pine species are analyzed. It is shown that the pine powder contains essential amino acids, vitamins and a complex of essential minerals.Besides, the pine powder contains antioxidants, vegetable steroids, a complete set of phenolic compounds and other essential substances. This is a decisive factor determining antioxidant, antiseptic, antibiotic, anticarcinogenic, biostimulating and antidepression properties of the pine powder.
Keywords: biologically active substances, pine powder, antioxidant effect, anticarcinogenic action, biostimulating activity.

SUMMARY
PROPERTIES OF NEW TEXTILE FIBER "LONA"
Bakuradze E.I., Zivzivadze B.L., Vadachkoria Z.A., Bakuradze K.E. and Abesadze N.M.
Akaki Tsereteli State University, Kutaisi
The paper describes the results of the study on thetechnological-working properties (temperature and hostile environment resistance, resistance to elasticity, acoustic and sound absorption capacity, stretching resistance) of novel textile fiber "LONA" produced by using industrial technological waste and corrective additive of our country's metallurgical and chemical enterprises based on authorial technologies. By its properties, the fiber, which is a novelty, is far ahead of numerous fibers currently produced and used in the world.
Keywords: textile fiber, technological properties, novelty.

SUMMARY
MULTIPURPOSESMART AND INTERACTIVE TEXTILE
Pailodze N.O., Buadze E.P., Bochorishvili R.I., Festvenidze T.K. and Kikvidze I.O.
Akaki Tsereteli State University, Kutaisi
The article deals with the issues of creating the smart and interactive textiles. Fabrication of a smart textile with modified properties for medical purposes is discussed. The textile is to be used for production of medical tissues, dressings etc. for treatment of various diseases.
Keywords: smart and interactive textiles, medical tissues, modified properties, textiles chemistry.

SUMMARY

SEARCH FOR NEW WAYS OF ASSIMILATIG MEDICINES

Pailodze N.O., Buadze E.P., Bochorishvili R.I., Festvenidze T.K. and Kikvidze I.O.

Akaki Tsereteli State University, Kutaisi

Based on sanitary-hygienic and physical-mechanical properties of non-woven fabrics and textiles allowed for application in medical practice, compositions and types of materials suitable for fabrication of medical products by textile printing technology are to be determined. To this end, it is necessary to carry out the studies on the rheological and printing-technical characteristics of polymers, as well as on the impact of polymers on the rateand completeness of mass transfer of introduced medical preparations. This will allow us to substantiate scientifically the choice of polymers-thickeners for fabrication of medical fabrics by textile printing technology.

Keywords: medical fabrics and textiles, medical preparation, polymer, thickener, textile printing.