

CONTENTS

BIOLOGY AND NATURAL SCIENCES

Beryozkina G.V. Functional Morphology of Male Reproductive System of *Theodoxus fluviatilis* (Linnaeus, 1758) (Gastropoda Pectinibranchia Neritidae).

Guseva M.A., Epova E.Y., Belyakova A.V., Leonovich O.A., Elagina E.M., Shevelev A.B. Multiple Alkaline Protease Gene Expression in Alkalitolerant Yeast *Yarrowia Lipolytica*.

Timoshenko N.V. Mapping and Studying Landscapes for the Plan of Recreation and Tourism Development.

Chasovsky V.I. The Territorial Transformation of Sectoral Structure of Kazakhstan Industry.

Maymusov D.F. East-European Country: Nature, Resources, Ecology.

Vatlina T.V., Solovov V.I., Semkina E.N. Environmental Quality and Oncological Diseases in Smolensk Region.

Vyugina G.V., Vyugin S.M. The Control of Agrocenoses Phytosanitary Condition at Different Levels of Agriculture Intensification.

MATHEMATICS AND TECHNOLOGICAL SCIENCES

Borisov A.V. The Technique for Automated Compiling of Differential Equations of Anthropomorphic Robot Motion.

Bukachev D.S., Rasulov K.M. Four-Element Boundary Value Problem of Riemann Type for Metaanalytical Functions in a Circle.

Dyakonov V.P. The Role of Nonlinearity in the Digital Spectrum Analyzers.

Zuev A.M., Zuev M.F. The Algebras of Binary Relations with Permutations.

Kirjatskij E.G. On the Existence of Function Univalent in Angular Domain with Univalent Derivative of Higher Order.

Kruglov V.V. Application of System MATLAB for Solving Problems of Interval Analysis.

Kryuchin O.V. Development of Artificial Neural Network Training Algorithms Using Parallel Calculation of Criterion Function.

Perelman N.R. On a Three-Element Boundary Value Problem of Karleman Type for Three Analytic Functions in a Circle.

Rasulov K.M., Hrisanfov V.I. On the Solution of the Nonclassical Boundary Value Problem of Dirichlet Type for Generalized Metaanalytical Functions in a Circle.

Khotova F.A. Automatic Peak Finding with the Help of MATLAB Bioinformatics Package.

Shatohin N.L. The Generalized Ternary and Partial Ternary Rings of Hall with Contiguity.

HISTORY

Koshkina M.M. «Fascism under the Cross» – Activities of Charles Edward Coughlin.

Shmidt E.A. Slavs on the Territory between the Dnieper and the Western Dvina in IV–XII Centuries.

Taimasova L.U. Queen, Nun: Life and Death of Marfa Staritsa.

Tikhonova A.V. Swiss «Roots» of Smolensk Noble Families: the Engelhardts and the Ribopiers.

Zabara I.S. The History of Creation and Activity of the Smolensk Province Regional Departments of VChK.

Shamshin R.V. Single Agricultural Tax as a Method of Economical Pressure on Kulaks, 1928–1931 (Based on the Materials of Western Oblast).

PSYCHOLOGY AND PEDAGOGY

Dudnikova O.G. Tutors at Russian Emperors' Court: Qualitative and Quantitative Characteristics.

Belyaeva I.G. Reformation of the Russian System of Art Education in the Late XIXth and Early XXth Centuries.

Nazarova A.I. Moral-Patriotic Traditions in Russian Educational Establishments before the Revolution.

Repina G.A. Pedagogical Techniques for Training 6–7 Years Old Children to Make Mathematical Models.

Korchinskaya T.I. Modern Approaches to the Problem of Students' Academic Achievements Quality Measurement.

Petrov V.A. Sophism, Distractor, Trap?

Evdokimova G.S. The Formation of Stochastic Culture of a Future Teacher in the Educational Process of the University.

Holubeu V.N., Devyatykh S.U. Peculiarities of the Relationship between Parents and Children in the Period of Adolescence.

Savenkov A.N. Mass Media: the Influence of Advertisement on the Youth.

Gunchenkova E.A. Motherhood as Life Value of the HIV-Positive Women.

Koval N.A., Koval M.V. Methodology for Research of Reflexive Interaction in Negotiations.

SCIENTIFIC EVENTS

CONFERENCES

Andreev S.N. The IVth International Congress of the Russian Language Researchers «The Russian Language: Historic Fate and Current Time». Panel Session «Computational and Quantitative Linguistics».

Artemenkov M.N. International Scientific Conference «Sacred Roman Empire, Germany and Russia in European Conflicts of the Early Modern Period».

BOOKS

OUR AUTHORS

SYNOPSIS OF THE JOURNAL

BIOLOGY AND NATURAL SCIENCES

G.V. Beryozkina

**Functional Morphology of Male Reproductive System
of *Theodoxus fluviatilis* (Linnaeus, 1758)
(Gastropoda Pectinibranchia Neritidae)**

Key words: *molluscs; Neritidae; male reproductive system; spermatophore fertilization.*

*The anatomy and histology of different parts of male reproductive system of *Theodoxus fluviatilis* (Linnaeus, 1758) are described in detail; photos of histological sections are presented. On the basis of the research results the author questions moving of sperm by an overflowing on a ciliary groove during copulation. The opinion about spermatophore character of fertilization of these molluscs is supported.*

M.A. Guseva, E.Y. Epova, A.V. Belyakova, O.A. Leonovich, E.M. Elagina, A.B. Shevelev
Multiple Alkaline Protease Gene Expression in Alkalitolerant Yeast *Yarrowia Lipolytica*

Key words: *protease; yeast; alkaline stress; secretion; genome; proteomics; 2D electrophoresis; MALDI-TOF; Yarrowia lipolytica.*

*Alkaline protease gene XPR2 is one of the most studied genes in alkalitolerant yeast *Yarrowia lipolytica* genome. It is assigned the key role in expression of the secreted proteolytic activity in a medium-high pH range. *Y. lipolytica* mutants with disabled XPR2 gene are considered as proteaseless. However, examination of the recently determined whole-genome sequence of *Y. lipolytica* strain CLIB122 exhibited 12 non-XPR2 genes encoding subtilisin-like serine proteases. Using typical *Y. lipolytica* XPR2 null-mutant strains (Po1f and CLIB122) and their recombinant derivatives, bearing XPR2 under the control of a strong semi-synthetic HP4d promoter, we demonstrated that the alternative alkaline protease genes may be expressed at a high level similar with one of the XPR2.*

N.V. Timoshenko

**Mapping and Studying Landscapes for the Plan
of Recreation and Tourism Development**

Key words: *landscape research; recreation and tourism development; mapping landscapes.*

On the basis of landscape research the estimation of natural resources of the administrative area territory for recreation and tourism development is given. The map of landscape-recreational potential is provided.

V.I. Chasovsky

**The Territorial Transformation of Sectoral
Structure of Kazakhstan Industry**

Key words: *the territorial transformation; the sectoral structure of industry; the structural changes; the economic crisis; the compensation rise; the industrial sector; modernization of national economy; the gross internal product; the extractive industry; the manufacturing industry; the interindustry complexes; the industrial specialization; the international division of labour.*

The article deals with structural changes in the industry of the country caused by an economic crisis and then a compensation rise of its economy at the end of the 20th and the beginning of the 21st centuries. Some factors influencing the development of branch structure of the gross internal product are analysed. Much attention is paid to uneven structural proportion of the industrial sectors which is revealed in correlation of the extractive and manufacturing industry as well as within interindustry complexes. The analysis of the changes in the branch structure of the national industry and the volume of industrial production in the country is given.

D.F. Maymusov
East-European Country:
Nature, Resources, Ecology

Key words: *nature; rocks; relief; climate; waters; biota; zonality; landscape; resources; nature management; ecology.*

Following Dokuchaev's paradigm of factors, the author exposes the chief criteria of the stratification of mountain rocks, isolation of the relief, climate, waters and biota.

T.V. Vatlina, V.I. Solovev, E.N. Semkina
Environmental Quality and Oncological Diseases in Smolensk Region

Key-words: *oncological diseases; environmental quality; pollution of the environment; ecological pathology.*

According to modern conceptions oncological diseases have high degree of dependence of environmental pollution and are ecological pathology indicators. Due to this the article investigates some factors which influence environmental quality and geography of oncological diseases.

G.V. Vyugina, S.M. Vyugin
The Control of Agrocenoses Phytosanitary Condition at Different Levels
of Agriculture Intensification

Key words: *agriculture; agrophytocenosis; weeds.*

The article deals with the effect of different combination of soil cultivation, fertilizers and herbicides on general and specific infestation of the cultures of field crop rotation.

MATHEMATICS AND TECHNOLOGICAL SCIENCES

A.V. Borisov

The Technique for Automated Compiling of Differential Equations of Anthropomorphic Robot Motion

Key words: *anthropomorphic robot; differential equations of motion; system of computer mathematics; functions.*

In the article the technique for the automated compiling of differential equations of the anthropomorphic robot motion is reviewed. It is universal and can be used for compiling equations of anthropomorphic gear with an arbitrary quantity of links, and also with different kinds of links – deformable and non-deformable. As the medium of implementation the computer mathematics system «Mathematica» is used.

D.S. Bukachev, K.M. Rasulov

Four-Element Boundary Value Problem of Riemann Type for Metaanalytical Functions in a Circle

Key words: *boundary value problem of Riemann type; metaanalytical function.*

The article is devoted to the investigation of four-element boundary value problem of Riemann type for metaanalytical functions. The conditions under which the problem is Noetherian were discovered and a constructive method for its solution in a circle was found.

V.P. Dyakonov

The Role of Nonlinearity in the Digital Spectrum Analyzers

Key words: *analysis of spectrum; digital analyzers of spectrum; nonlinearity; transfer characteristic; noise; intermodulation distortions; measurement of level.*

The role of nonlinearity in digital analyzers of spectrum is considered. The article presents the reasons of occurrence of nonlinear and intermodulation distortions as well as the results of research of these distortions with the modern digital analyzer of spectrum AKTAKOM AKC-1301.

A.M. Zuev, M.F. Zuev

The Algebras of Binary Relations with Permutations

Key words: *P-group; atomic system; lattice \mathfrak{R} of algebras; interlacing of groups.*

The article deals with the binary relations class of algebras with intransitive permutations groups. We give description of lattice of these algebras with fixed group and describe their centralizers. Proof is not published.

E.G. Kirjatskij

On the Existence of Function Univalent in Angular Domain with Univalent Derivative of Higher Order

Key words: *analytical function; univalent function; angular domain; derivative.*

The article deals with the existence of function univalent in angular domain for which derivative of higher order also is univalent function in angular domain.

V.V. Kruglov

Application of System MATLAB for Solving Problems of Interval Analysis

Key words: *system MATLAB; definition of extremes of scalar function of many arguments; interval uncertainty in values of function parameters; package Optimization Tool.*

The article presents the technique for the least and greatest value of implicitly set scalar function of many arguments definition with interval uncertainty in values of function parameters using a MATLAB tool – package Optimization Tool.

O.V. Kryuchin

Development of Artificial Neural Network Training Algorithms Using Parallel Calculation of Criterion Function

Key words: *artificial neutrals networks; parallel algorithms; cluster systems.*

Algorithm of parallel calculation of critical function value is described in this article. The training of artificial neural networks uses this technology. A priori estimation of these algorithms efficiency and empirical data is also provided.

N.R. Perelman

On a Three-Element Boundary Value Problem of Karleman Type for Three Analytic Functions in a Circle

Key words: *boundary value problem; three analytic functions; Karleman shift.*

The article is devoted to the investigation of three-element boundary value problem of Karleman type for three analytic functions. A constructive method for its solution in a circle was found.

K.M. Rasulov, V.I. Hrisanfov

On the Solution of the Nonclassical Boundary Value Problem of Dirichlet Type for Generalized Metaanalytical Functions in a Circle

Key words: *boundary value problem of Dirichlet type; boundary value problem of Rimann; generalized metaanalytical Function.*

The article investigates unclassical boundary value problem of Dirichlet type for the generalized metaanalytical functions in the single circle. It has been established that if some conditions are fulfilled the solution of the considered problem is reduced to the solution of scalar

problem of Rimann or to the solution of two-element vector-matrix problem of Rimann in the class of sectionally analytical functions whose line of jumps is the single circle.

F.A. Khotova

Automatic Peak Finding with the Help of MATLAB Bioinformatics Package

Key words: *bioinformatics; spectral analysis; peaks of spectrum; wavelets.*

The article deals with an opportunity of automatic peak finding in a spectrum with the help of MATLAB package Bioinformatics Toolbox. Different options of using wavelet denoising in the spectrum of noised signal are considered.

N.L. Shatohin

The Generalized Ternary and Partial Ternary Rings of Hall with Contiguity

Key words: *ternary ring; ternar; contiguity.*

The article presents the concepts of the generalized and partial ternary rings of Hall with contiguity, their elementary properties are described.

HISTORY

M.M. Koshkina

«Fascism under the Cross» – Activities of Charles Edward Coughlin

Key words: *fascism; USA; New Deal; «National Union of Social Justice»; demagogue.*

The article examines the activities of the nationalistic organizations in the USA during the Great Depression using the example of Charles Coughlin's «National Union of Social Justice». The goal is to observe the formation of the program, to analyze the key points, examine the methods of President F. Roosevelt's administration that were used to fight the demagogues and nationalists.

The activities of Charles Coughlin are very interesting because he turned from a supporter of Roosevelt's reforms to a furious opponent of them. Charles Coughlin was supported by other American nationalists. If they had united they could have created problems for the Democratic Party during the presidential elections in the USA of 1936.

E.A. Shmidt

**Slavs on the Territory between the Dnieper and the Western Dvina
in IV–XII Centuries**

Key words: *tribes; the Slavs; the Balts; settling; ethnic genesis; culture; artifacts; convergence; assimilation; the Kriviches; the old Russian people; the Dvina; the Dnieper*

The problem of the ethnic structure of the population on the territory between the Dnieper and the Western Dvina is considered on the basis of archeological sources. Beginning with the IVth century A.D. the Tushemlya archeological culture began to take its form on the

basis of local Balts and other groups of the population which came from the South and were partly connected with Kiev archeological culture which some archeologists regard as belonging to the Slavonic ethnos. The newcomers weren't able to settle down and dominate in the local environment. The Baltic elements were predominant in the Tushemlya culture of the VI–VIIth centuries. At the turn of the VIIth and the VIIIth centuries the Tushemlya culture disappeared. The Baltic tribes of Krieva culture of long burial-mounds came to these territories in the VIIIth century. At the turn of the VIIIth and IXth centuries the stream of Slavonic tribes moved rapidly to these territories and gradually assimilated Krieva though in the IX–Xth centuries two different ethnic groups with their own cultures still coexisted and were called Krivichi. After including this territory into the Old Russian state the Balts gradually lost their ethnic peculiarities and after the middle of the XII-th century became the part of Slavonic, Old Russian culture.

L.U. Taimasova
Queen, Nun: Life and Death of Marfa Staritsa

Key words: *Maria Staritsa; Magnus; Livonia; Stefan Batory; Boris Godunov; J. Gorsey.*

The author presents research results concerning the mystery of two existing dates of death of Maria Vladimirovna of Staritsa. The gravestone says the queen-nun died in June, 1597. Meanwhile she was alive 12 years later, according to written sources. Some historians tried to explain the contradiction by blaming a worker, who changed the date during tomb renovation. However the graphic interpretation for dates was so different, that it was impossible to change it without any traces. The author presumes that the analysis of biographical history of Maria Vladimirovna will help to solve the mystery of her «double death».

A.V. Tikhonova
**Swiss «Roots» of Smolensk Noble Families:
the Engelhardts and the Ribopiers**

Key words: *genealogy of nobility; Smolensk nobility, Russian-Swiss relations, Russia and Switzerland, Suvorov's military campaign in Switzerland, cheese-making, the Engelhardts, the Ribopiers.*

The genealogical issues of well-known longstanding noble families in Smolensk region – the Engelhardts and the Ribopiers – are investigated in this article. These families came from Switzerland. Their representatives' social intercourse with Switzerland was not interrupted in the XIX century and touched upon each of the Russian-Swiss historical events and all-economic issues, the foundation of cheese dairies in Smolensk region in particular.

I.S. Zabara
**The History of Creation and Activity
of the Smolensk Province Regional Departments of VChK**

Key words: *«volcheka»; «Bolsheviks»; rebellion; officials of «Cheka»; counterrevolution; executive committee; shooting; party cell; contribution.*

The article, based on various archive materials, investigates the way of carrying out the directive from the Centre about the creation of regional VChK departments. The chronological frames of this process in Smolensk province, the reasons of the regional «chrezvichaiki»

creation, the degree of Party cells participation in this process, Councils and «gross meetings» of peasants, difficulties and ways of their solving are revealed, the everyday work of «volcheka» and its peculiarities are illustrated. The conclusion is made that the regional «chrezvichaiki» whole activity was directed to the approval of Party dictatorship.

R.V. Shamshin

**Single Agricultural Tax as a Method of Economical Pressure on Kulaks,
1928–1931 (Based on the Materials of Western Oblast)**

Key words: agricultural tax; self taxation; individual taxation; kulak; collectivization; differentiation of taxation.

This research examines the problem of pumping the financial resources out of the agricultural sphere during the opening period of industrialization.

The methods of economical pressure were used in the struggle against kulaks who were in the way: tax and credit policy.

Relying on the analysis of the various sources the author asserts that those economical methods didn't break down the kulak's resistance. The goal of the government – reconstruction of agriculture – wasn't reached. In the context of entire collectivization kulak was doomed to repressive measures.

PSYCHOLOGY AND PEDAGOGY

O.G. Dudnikova

**Tutors at Russian Emperors' Court:
Qualitative and Quantitative Characteristics**

Key words: Russian tsars' children; tutors; private education; the quality of upbringing and education; Russian educational system; Russian tsars and emperors

Qualitative and quantitative characteristics of the institution of tutors at imperial court starting from the second half of XVIIth century to the beginning of XXth century, when the family of Nicholas I was shot, are presented for the first time.

I.G. Belyaeva

**Reformation of the Russian System of Art Education
in the Late XIXth and Early XXth Centuries**

Key words: reformation; Art schools; syllabus; reorganization; manual; Art college; training.

In the article the author examines the period in the development of Russian system of Art education from the second half of the XIXth century till the early XXth century, points out characteristic features using various – first of all archival – sources. A number of educational institutions are analyzed, taking into account their profile and the role they played in the subsequent development of Russian system of Art education in the XXth century. The article contains opinions of contemporaries – Grand Duchess Maria Pavlovna, President of the

Emperor's Academy of Arts, representatives of the Emperor's Court, and references to various works of researchers who studied the history of Art teaching methods of the XXth century.

A.I. Nazarova
**Moral-Patriotic Traditions in Russian Educational Establishments
before the Revolution**

Key words: traditions; everyday life; pre-revolutionary school; gymnasium; theological seminaries; patriotic upbringing; religious holidays; charity.

This study is devoted to organization and implementation of national and religious holidays in Russia before the revolution, participation of pupils in charitable events, the educational meaning of this participation. Traditions in educational process organization and everyday entertainment of students in different schools are analyzed.

G.A. Repina
**Pedagogical Techniques for Training 6–7 Years Old Children
to Make Mathematical Models**

Key words: mathematical modeling; children of 6 to 7; didactic materials; succession; types of tasks; diagnostics.

This article describes pedagogical tools, issues of succession between kindergarten and school in the field of mathematical modeling skills development. Diagnostic potential of materials for mathematical modeling with children of 6 to 7 is examined. The article also includes types of tasks which can be solved by primary school pupils who had acquired skills of mathematical modeling in pre-school.

T.I. Korchinskaya
**Modern Approaches to the Problem of Students' Academic Achievements Quality
Measurement**

Key words: level of academic achievements; qualitology; quality of academic achievements of students; measuring of academic achievements quality; term knowledge.

The article deals with the problem of academic achievements measurement: stages of formation and development, various approaches to determining and evaluation of students' academic progress as well as factors influencing the quality of training.

V.A. Petrov
Sophism, Distractor, Trap?

Key words: university course of Mathematics; tasks with mistakes in reasoning; sophism; distractor; trap; theory of sets.

The article discusses the necessity to include tasks of the type «Is the reasoning free of mistakes?» in the course of Mathematics. The author proves that similar in essence sophism and

distractor do not embrace all the types of such tasks and suggests the term «trap». Examples of traps in theory of sets are given.

G.S. Evdokimova
**The Formation of Stochastic Culture of a Future Teacher
in the Educational Process of the University**

Key words: pedagogy; composition; stochastic culture; thinking; language; degree; possibility; statistics; syntax; semantics; axiomatics; interpretation; classic; frequency; logic; subjective; construction; inferential; statistic conclusion.

The article proves the role and the meaning of stochastic culture for constructing thinking and adequate reflection of the real world. Special attention must be paid to the mathematical theory of possibilities, which is itself a language for discussing a long list of synthetic problems in different ways. As it was shown, studying the theory of possibilities helps to form the stochastic thinking, which allows to use methods of strict logic thinking in situations of uncertainty.

V.N. Holubeu, S.U. Devyatykh
**Peculiarities of the Relationship between Parents and Children
in the Period of Adolescence**

Key words: gender differences; children; parents-children relationship; parents; family socialization; adolescence.

Psychological peculiarities of the relationship between parents and children in the period of adolescence are considered on the basis of empirical studies. It has been found that parents are not able to quickly reorganize their behavior towards growing up children. This leads to the potential conflict among parents and children in the period of adolescence, this potential conflict being of a social-psychological character than social one.

A.N. Savenkov
Mass Media: the Influence of Advertisement on the Youth

Key words: mass media; advertisement; students.

In this article the attention is given to the problem of Mass Media and their influence on the youth using the advertisement influence as an example. The author shows that advertisement nowadays is an integral element of mass-culture. Analysis of modern advertisements is provided, the results of statistical research are given.

E.A. Gunchenkova
Motherhood as Life Value of the HIV-Positive Women

Key words: motherhood; social women roles; ontogenesis of maternal sphere; HIV-positive status; value of a child; centrality on the motherhood; hypocustody; hypercustody; psychological support.

The article presents different points of view on the phenomenon of motherhood both of foreign and Russian authors. The particularities of motherhood of the women being in a hard life situation (specifically, the women with the HIV-status) are considered. The set of the diagnostic methods have been applied and helped to establish the groups of women, who differently relate to the children and to themselves in the mother's role. Different types of psychological help are suggested for the singled out groups, aimed at the support and reinforcement of mother's role as life value and personal resource of the HIV-positive women.

N.A. Koval, M.V. Koval

Methodology for Research of Reflexive Interaction in Negotiations

Key words: reflection; dialogue; interaction; communication; negotiation.

The article deals with the interaction between reflection and dialogue as it is seen in the history of science. Theoretical approaches to the study of the reflection – dialogue interaction are discussed. Principal components of the phenomenon in question are defined.