|  |
| --- |
| УДК 620.19:629.5.023  **O.A. Belov, V.A. Shvetsov, D.P. Yastrebov, O.A. Belavina, D.V. Shunkin**  **INTRODUCTION OF ADVANCED METHOD FOR MONITORING OF PROTECTION SYSTEMS OF STEEL HULL IN KAMCHATKA KRAY**  Under the State Standard 9.056-75 and the manual RZK NK-2001 the efficiency of electrochemical protection systems from corrosion of vessels is provided with its high-quality exploitation. It consists of rework of electrochemical protection system elements during docking and maintenance (scan, regulation and control). The quality procedure includes taking a measurement of potential difference between hull and reference electrode. Crews of Kamchatka fleet don’t practice exploitation of electrochemical protection systems because of objective reasons (absence of required technology) and subjective ones (absence of training). At the same time they consider that the efficiency of electrochemical protection systems remains between dockings. The aim of the investigation consists of proving the expediency of the introduction of the advanced method for monitoring of protection system of steel hull for ship-owners and crew.  **Key words:** corrosion of steel hull, electrochemical protection system from corrosion, protection, potential  of hull.  *DOI: 10.17217/2079-0333-2017-39-6-11*  **Information about the authors**  **Belov Oleg Aleksandrovich** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Candidate of Technical Sciences; Head of Electrical and Radio Equipment of Ships Chair;  boa-1@mail.ru  **Shvetsov Vladimir Alekseevich** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Doctor of Chemical Sciences, Docent, Professor of Electrical and Radio Equipment of Ships Chair  **Belavina Olga Aleksandrovna** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Specialist in Technical and Scientific Information of Science and Innovation Department; oni@kamchatgtu.ru  **Shunkin Dmitry Vladimirovich –** Kamchatka State Technical University; 683003, Russia, Petropavlovsk- Kamchatskу; Postgraduate |
| УДК 621.3.011  **G.A. Pyukke**  **PARAMETER TESTING OF MULTICOMPONENT ELECTRICAL CIRCUITS ON THE BASIS OF SYNTHESIS OF DIAGNOSED STRUCTURE**  The diagnostic model received on the basis of matrix transformations of the equations of electric circuits for potentials is considered. The method of localization of defects in multicomponent resistive electric circuits is offered on the basis of synthesis of the object for diagnosing according to the empirical data received during the diagnostic experiment. The considered procedure is easily formalized when machining the information. It expands opportunities of a developer while solving the problems of identification and diagnosing, with the subsequent designing technical means of diagnosing with new opportunities extending engineering challenges to maintain efficient condition of technical systems and emergency prevention when operating.  **Key words:** matrix, diagnostic attribute, model of diagnosing, test, potential, defect, synthesis, topology, structure, matrix of potentials  *DOI: 10.17217/2079-0333-2017-39-12-24*  **Information about the author**  **Pyukke Georgiy Aleksandrovich –** Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Doctor of Technical Sciences, Docent, Professor of Control Systems Chair; geopyukke@yandex.ru |
| УДК 532.529  **A.N. Shulyupin, A.A. Chermoshentseva**  **SOME ASPECTS OF CRITICAL EXPIRATION OF STEAM-WATER MIXTURE**  In contrast to single-phase medium the expiration of gas-liquid mixture demonstrates non-simultaneous indications of critical regime. Moreover at high steam quality the anomalously high speed, corresponding to the measured pressure in the output cross-section, are observed. Experimental data confirm these specifics falling beyond the existing models. The inhomogeneity of phase distribution in the output cross-section before the critical conditions is revealed by the experiment. It can lead to inhomogeneous distribution of phases, pressure and velocity fields in the output cross-section in the critical regime. The adoption of the hypothesis about the heterogeneity of flow can explain the observed specifics.  **Key words:** steam-water mixture, expiration, critical regime, output cross-section, pressure, velocity, steam quality.  *DOI: 10.17217/2079-0333-2017-39-25-31*  **Information about the authors**  **Shulyupin Aleksandr Nikolaevich** – Mining Institute of Far Eastern Branch of Russian Academy of Sciences; 680000, Russia, Khabarovsk; Doctor of Technical Sciences, Docent, Deputy Director for Science and Innovations; ans714@mail.ru  **Chermoshentseva Alla Anatolevna** – Kamchatka State Technical University; 683003, Petropavlovsk-Kamchatsky; Candidate of Technical Sciences, Associate Professor of Higher Mathematics Chair; allachermoshentseva@mail.ru |
| УДК 553.411.08  **D.V. Shunkin, V.A. Shvetsov, O.A. Belavina, V.V. Pakhomova**  **DEPENDENCE OF ASSAY RESULTS OF QUARTZ GOLD-BEARING ORES**  **ON REDUCER CONTENT IN BATCH**  The results of the assay analysis of quartz gold-bearing ores which have been received using various batches are given in the article: a) with a reducer, b) without a reducer. It is established that using batch without a reducer leads to a systematic understatement of gold assay results. However, this defect of the analysis can be eliminated by means of corrective action in analysis results. It is shown that using batch without a reducer in the assay analysis allows to raise the rapidity of the analysis and to cut expenses on assaying.  **Key words:** assay analysis, assay melting, batch, reducer, bullion, accuracy of analysis results.  *DOI: 10.17217/2079-0333-2017-39-32-36*  **Information about the authors**  **Shunkin Dmitry Vladimirovich –** Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Postgraduate  **Shvetsov Vladimir Alekseevich** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Doctor of Chemical Sciences, Docent, Professor of Electrical and Radio Equipment of Ships Chair  **Belavina Olga Aleksandrovna** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Specialist in Technical and Scientific Information of Science and Innovation Department; [oni@kamchatgtu.ru](mailto:oni@kamchatgtu.ru)  **Pakhomova Vera Vladimirovna** – JSC «Kamchatgeology»; 683016, Russia, Petropavlovsk-Kamchatskу; Head of Central Laboratory |
| УДК 637.04  **O.V. Pasko, E.Y. Tarasova**  **DEVELOPMENT OF FERMENTED MILK-CEREAL PRODUCTS FOR FEEDING STUDENTS USING QFD-METHODOLOGY**  A method of developing fermented milk-cereal products for feeding students with the use of QFD methodology is offered. The steps of QFD-methodology are consistently implemented, market research is conducted, quality house is built and the main requirements for the developed fermented milk-cereal products are formulated.  **Key words:** fermented milk and cereal product, QFD-methodology, marketing research, quality house, feeding students.  *DOI: 10.17217/2079-0333-2017-39-37-45*  **Information about the authors**  **Pasko Olga Vladimirovna** – Russian State Agrarian University – Moscow Timiryazev Agricultural Academy (MTAA named after K.A. Timiryazev); 127550, Russia, Moscow; Doctor of Technical Sciences, Professor, Professor of Quality Management and Production Merchandizing Chair; pasko-olga@mail.ru  **Tarasova Elena Yurevna** – Omsk State Agrarian University named after P.A. Stolypin; 644008, Omsk; Candidate of Technical Sciences, Docent, Associate Professor of Merchandizing, Standardization and Quality Management Chair |
| УДК [ 597.552.511:591.465.31 ](265.53) «2014»  **S.B. Gorodovskaya, A.S. Sushkevich**  **GAMETOGENESIS OF JUVENILE CHUM SALMON DURING THE PERIODS  OF EARLY SEA AND AUTUMN MIGRATION IN THE SEA OF OKHOTSK  AND SOME OVARY HISTOMORPHOLOGIC CHANGES IN 2014**  Based on the histological analysis of ovaries of juvenile chum salmon during the early period of feeding  at sea and the autumn period, the development rate of ovaries in 2014 is shown.  The presence of oocytes with the initial phase of vitellogenesis demonstrates accelerated development  gonads of juvenile chum salmon in open waters of the Sea of Okhotsk. Anomalies in the female reproductive system of juvenile chum salmon are revealed for the first time: there are oocytes with holoschisis, gamete deformation and changes in the vitelline membrane. Ovary abnormality of juvenile chum salmon serves as a criterion of the level of anthropogenous impact and gradually will lead to reducing fertility and as a result decreasing spawning efficiency, reducing the level of natural reproduction of the species.  **Key words:** juvenile chum salmon, oocytes, ovary development rate, early period of feeding at sea and  the autumn period, histomorphologic changes.  *DOI: 10.17217/2079-0333-2017-39-46-54*  **Information about the authors**  **Gorodovskaya** **Sofya Borisovna** – Kamchatka Research Institute of Fisheries and Oceanography (KamchatNIRO), 683000, Russia, Petropavlovsk-Kamchatsky; Candidate of Biological Sciences, Senior Researcher; Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; [gorodovskaya.s.b@kamniro.ru](mailto:gorodovskaya.s.b@kamniro.ru)  **Sushkevich Anastasiya Sergeevna** **–** Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Junior Researcher |
| УДК 594.35:591.5  **T.A. Klochkova, R.W. Kim, G.H. Kim**  **development OF mollusk *Placida babai* under laboratory-controlled conditions (Gastropoda, Opisthobranchia)**  This paper presents the first detailed description of the life cycle of mollusk *Placida babai* (Gastropoda, Opisthobranchia) collected from the coast of Korea. Adult mollusks are synchronous hermaphrodites; individuals become sexually mature when their body size reaches ≥10 mm in length. In laboratory conditions, one adult mollusk can lay eggs 7–10 times, laying 1 or 2 egg ribbons each time. Thereafter, planktotrophic veligers hatched within 8–14 days at temperature 20oC. Feeding experiments showed that veligers feed on the microalgae *Isochrysis galbana* [and](http://en.wikipedia.org/w/index.php?title=Mary_Parke&action=edit&redlink=1) *Tetraselmis suecica.* Bottom larvae that live and feed on the macroalgae *Bryopsis plumosa* develop into juvenile slugs (2–3 mm long) within 1 week.  **Key words:** biology of development,bottom larva,life cycle, molecular identification,planktotrophic veliger, *Placida babai.*  *DOI: 10.17217/2079-0333-2017-39-55-64*  **Information about the authors**  **Klochkova Tatyana Andreevna –** Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Candidate of Biological Sciences, Doctor of Philosophy in Biology (Ph.D.), Associate Professor of Ecology and Nature Management Chair; tatyana\_algae@mail.ru  **Kim Ro Won** – Kongju National University, Department of Biology; 32588, Korea, Kongju; Doctor of Philosophy in Biology (Ph.D.)  **Kim Gwang Hoon** – Kongju National University, Department of Biology; 32588, Korea, Kongju; Doctor of Philosophy in Biology (Ph.D.), Professor, Dean of College of Natural Sciences; ghkim@kongju.ac.kr |
| УДК 596.384.12(265.52)  **N.А. Sedova, S.S. Grigoriev**  **A KEY FOR IDENTIFICATION OF SHRIMP LARVAE FROM THE FAMILY CRANGONIDAE (DECAPODA, CARIDEA) WITH UNABRIDGED DEVELOPMENT FROM NEAR KAMCHATKA WATERS**  An identification key for the genus and the species of shrimp larvae of the family Crangonidae from Kamchatka marine waters is presented. The morphology of larvae of the family is described. The original scheme  of general structure of larvae, as well as drawings of the general form of individual species and larval stages  of development are given. The key is intended for hydrobiologists working with marine plankton.  **Key words:** larvae, stage, Zoea, decapodid, genus, species, abdomen, telson, rostrum, exopodite.  *DOI: 10.17217/2079-0333-2017-39-65-73*  **Information about the authors**  **Sedova Nina Anatolevna** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Candidate of Biological Sciences, Docent, Associate Professor of Water Bioresources, Fishery and Aquaculture Chair; sedova67@bk.ru  **Grigoriev Sergey Sergeevich** – Kamchatka Branch of Pacific Institute of Geography of Far Eastern Branch of Russian Academy of Sciences; 683000, Russia, Petropavlovsk-Kamchatskу; Candidate of Biological Sciences, Docent, Senior Researcher of Hydrobiology Laboratory; sgri@inbox.ru |
| УДК 597.211(591.4)  **O.V. Khusainova, V.I. Karpenko**  **MORPHOLOGICAL FEATURES OF THE KAMCHATKA LAMPREYSOF THE GENUS *LETHENTERON* AND THEIR SPECIES IDENTIFICATION**  On the basis of own materials and published data on the Far East lampreys of the genus *Lethenteron* the main lines of biology, dimensional and some morphological indicators to establish the population and specific distinctions of these animals are analyzed. It is shown that as among lampreys of Kamchatka, and other Far East regions there is a considerable variety which not always allows referring these lampreys to a concrete [species](http://dic.academic.ru/dic.nsf/eng_rus/760506/species); especially as some researchers have noted their joint reproduction. Further more in-depth studies are necessary for the solution of a question of specific or their population accessory.  **Key words:** lampreys, biology, size, morphology, [species](http://dic.academic.ru/dic.nsf/eng_rus/760506/species).  *DOI: 10.17217/2079-0333-2017-39-74-85*  **Information about the authors**  **Khusainova Olga Viktorovna** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatsky; Postgraduate; khusainovaolya@mail.ru  **Karpenko Vladimir Illarionovich** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatsky; Doctor of Biological Sciences, Professor, Professor of Water Bioresources, Fishery and Aquaculture Chair; karpenko\_vi@kamchatgtu.ru |
| УДК 334.021:338.242  **O.N. Artyomova**  **INSTITUTIONAL SUPPORT FOR BUSINESS DEVELOPMENT IN THE REGION**  The importance of institutional support for the effective business development in the region is shown.  The current state of the existing system of business support at the regional level is considered. The main institutional deformations in the system of entrepreneurship support in the region are allocated. The directions to eliminate these deformations are proposed. The necessity of changing the state policy to support entrepreneurship paradigm is proved.  **Key words:** entrepreneurship, governance, institutions, institutional support, institutional deformation.  *DOI: 10.17217/2079-0333-2017-39-86-96*  **Information about the author**  **Artyomova Olga Nikolaevna** – Petropavlovsk-Kamchatskу Branch of Russian Presidential Academy of National Economy and Public Administration; Candidate of Economic Sciences, Associate Professor of Economic, Social and Human Sciences Chair; artona@mail.ru |
| УДК 911:61(571.66)  **A.R. Pogorelov, S.A. Lozovskaya**  **Socio-economic factors and population health  in the Kamchatka region: medical-geographical aspects**  Population health depends on environmental factors. Therefore, medical-geographic researches are being conducted to identify positive and negative factors on health. For the first time there was an attempt to make a comprehensive assessment of the impact of modern social-economic conditions on public health in the Kamchatka region. The article provides an overview of the medical-demographic situation in the Kamchatka region. Also the article reveals the influence of certain social-economic factors on the health of region population. We analyzed the correlation between socio-economic indicators and morbidity. As a result using a cluster analysis we created a territorial typology for the Kamchatka region based on social-economic preconditions of the population health.  **Key words:** socio-economic factors, medical-geographical aspects, health, morbidity, typology, Kamchatka.  *DOI: 10.17217/2079-0333-2017-39-97-105*  **Information about the authors**  **Pogorelov Arthur Ruslanovich** – Far Eastern Federal University; 690091, Russia, Vladivostok; Graduate Student of Geography and Sustainable Development of Geosystems Chair; Pacific Institute of Geography of Far Eastern Branch of Russian Academy of Sciences; 690041, Russia, Vladivostok; Senior Engineer of Social and Medical Geography Laboratory; pogorelov\_ar@mail.ru  **Lozovskaya Svetlana Artemevna**– Pacific Institute of Geography of Far Eastern Branch of Russian Academy of Sciences; 690041, Russia, Vladivostok; Candidate of Biological Sciences, Acting Head of Social and Medical Geography Laboratory; svloz@tig.dvo.ru |
| УДК 330.145  **S.A. Shushpanov** SEPARATION OF ACCOUNTING OBJECTS FOR STATIC AND DYNAMIC CHARACTERISTICS IN CAPITAL CIRCULATION: SYSTEM APPROACH The article investigates the balance theory of accounting from a methodological point of view. The main direction of modern scientific research in this area, in the author's view, should be a systematic approach. The article suggests using a systematic approach toolkit: structuring of accounting elements and modeling of business processes to improve the accounting methodology. It is recommended to classify the definition of accounting objects on the stages of capital circuit, taking into account their dynamic or static characteristics. The research is interdisciplinary in nature.  Key words: business transaction, debit, credit, journal entry, double entry, accounting, capital turnover cycles, systems thinking, systems approach, modeling.  *DOI: 10.17217/2079-0333-2017-39-106-115*  Information about the author  Shushpanov Sergey Anatolevich – Kamchatka State Technical University; 683003, Russia, Petropavlovsk- Kamchatskу; Senior Lecturer of Economics Chair; shoosa@mail.ru |