|  |
| --- |
| УДК628.16.067.1  **A.E. Brovkin, V.V. Potapov**  **CLEANING OF NATURAL WATER FROM COLOR AND TURBIDITY**  **USING NANOFILTRATION MEMBRANES**  The experiments to determine permeability, selectivity for color and for turbidity of the nanofiltration membrane were carried out. In the range of initial water pressure in front of the nanofiltration membrane of 0,26-0,44 MPa and the water temperature of 21°C, the filtrate flow is in the range of 0,175-0,434 m3 / h, the permeability is 0,022–0,055 m3/m2∙h. When filtering the natural water from the surface source of Krutoberegovo-1 in Petropavlovsk-Kamchatsky through a nanofiltration membrane element at the water temperature of 8–11°С, the selectivity for color was 73–93%, the selectivity for turbidity was 100%.  **Key words:** membrane filtration, nanofiltration membrane, selectivity of nanofiltration membrane, selectivity for color of nanofiltration membrane, permeability of nanofiltration membrane.  *DOI: 10.17217/2079-0333-2017-41-6-14*  **Information about the authors**  **Brovkin Aleksey Evgenevich** – Kamchatka State Unitary Enterprise “Kamchatsky Vodokanal”; 683009, Russia, Petropavlovsk-Kamchatskу; Foreman of Water Supply System; brovkin120371@mail.ru  **Potapov Vadim Vadimovich** – Research Geotechnological Centre FEB RAS; 683014, Russia, Petropavlovsk-Kamchatskу; Doctor of Technical Sciences, Professor, Head of Silica Chemistry in Modern Hydrothermal Processes Laboratory; vadim\_p@inbox.ru |
| УДК 519.6:551.510.413.5:550.388  **O.V. Mandrikova, Y.A. Polozov, N.V. Fetisova**  **ANALYSIS OF IONOSPHERIC PARAMETERS BY  THE SOFTWARE SYSTEM “AURORA”**  The paper presents the methods of modeling and analysis of ionospheric parameters realized in the program system of complex analysis of geophysical parameters “Aurora”. The methods allow to analyze characteristic changes in the ionospheric parameters and allocate anomalous features during the periods of ionospheric disturbances. The algorithm parameters are adapted for analyzing the ionospheric data of the Paratunka station (Kamchatka) and based on the results of estimates (station data of Yakutsk, Gakona, etc. were analyzed). The methods can be applied for the mid-latitude region. The system is implemented in the public domain (http://aurorasa.ikir.ru:8580).  The research was supported by RSF Grant, project № 14-11-00194.  **Key words:** ionosphere, software system, data analysis, anomalies.  *DOI: 10.17217/2079-0333-2017-41-15-25*  **Information about the authors**  **Mandrikova Oksana Viktorovna** – Kamchatka State Technical University, 683003, Russia, Petropavlovsk-Kamchatsky; Doctor of Technical Sciences, Docent, Professor of the Control Systems Chair; Institute of Cosmophysical Research and Radio Wave Propagation FEB RAS; 684034, Kamchatka region, Elizovsky district, Paratunka; Head of System Analysis Laboratory; oksanam1@mail.ru  **Polozov Yury Aleksandrovich** – Institute of Cosmophysical Research and Radio Wave Propagation FEB RAS; 684034 Kamchatka region, Elizovsky district, Paratunka; Candidate of Technical Sciences, Senior Researcher of System Analysis Laboratory; up\_agent@mail.ru  **Fetisova Nadezhda Vladimirovna** – Institute of Cosmophysical Research and Radio Wave Propagation FEB RAS; 684034, Kamchatka region, Elizovsky district, Paratunka; Researcher of System Analysis Laboratory; nv.glushkova@yandex.ru |
| УДК 553.08  **D.V. Shunkin, V.А. Shvetsov, О.А. Belavina, V.V. Pakhomova**  **DEVELOPMENT OF PROCEDURES TO CONTROL** **CUPEL QUALITY  AND TO ASSESS QUALIFICATION OF ROUTINE ASSAY ANALYSIS OPERATORS**  Assay test is still the basic method for finding gold and silver in ores and products produced of them. The main disadvantages of the assay analysis are: complexity of its implementation by routine analysis operators, high cost of the analysis. Pursuant to the effective regulatory documents (RD) quality control of operator performance is conducted during performance of checkup analysis by him (internal and external control). Expensive material of auriferous state and industrial standard samples (SSS and ISS) is used for this purpose. However, it is impossible to decrease the assay analysis cost under such approach.  Simple procedures for internal or external control of cupel quality and estimation of operator performance of routine assay analysis when carrying out operations of batch mixing and lead alloy cupellation are suggested in the paper. It is demonstrated that through simple mathematical processing of blank tests results the operator can assess quality of the following analytical operations performed by him: batch mixing; lead alloy cupellation. This will help the routine analysis operator to assess his own qualification without additional costs. Moreover the operator can assess cupel quality. The conclusions are drawn on the basis of the result analysis of three selected blank tests performed during the routine analysis by the assay analysis operators of the Central laboratory of Joint-Stock Company “Kamchatgeology” for the period from 01.11.2016 to 20.03.2017. It is effectually to use the authors’ procedure for quality control of assay analysis operator performance in the production laboratories.  **Key words:** assay analysis, batch, batch mixing, lead reservoir (lead button), lead button cupellation, precision of analysis results.  *DOI: 10.17217/2079-0333-2017-41-26-32*  **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  **Pakhomova Vera Vladimirovna** – JSC “Kamchatgeology”; 683016, Russia, Petropavlovsk-Kamchatskу; Head of Central Laboratory |
| УДК 664.8/.9:604  **D.E. Bykov, N.V. Makarova, A.V. Demidova, N.B. Eremeeva**  **COMBINATIONAL APPROACH TO THE DEVELOPMENT OF BIODEGRADABLE EDIBLE FILM BASED ON APPLESAUCE**  The paper deals with the technique of creating double edible film based on apple puree with the addition of the plasticizer “gelatin” in one of the layers. The aim of the study is to investigate the influence of composition of double edible film on organoleptic properties, structure, water absorption, strength characteristics. 7 samples of double edible film have been obtained. Edible films have a yellowish tint, characteristic of applesauce. Double film with gelatin in the first layer and with CMC in the second layer has the most acceptable taste properties. Microscopic examination of samples has been performed. Water absorption ability has been defined for all edible films: samples withstand only immersion in distilled water at 23 °C for 30 min. High rates of water absorption of gelatin and carageenan films provide their good prouniversity and easy digestibility. Tests have been conducted to stretch double edible film materials. It has been found that the combination of gelatin in the first layer and carageenan in the second layer helps to increase their mechanical strength. Further research on creating and studying the properties of double edible film is promising.  **Key words:** double edible film, applesauce, gelatin.  *DOI: 10.17217/2079-0333-2017-41-33-39*  **Information about the authors**  **Bykov Dmitry Evgenevich** – Samara State Technical University; 443100, Russia, Samara; Doctor of Technical Sciences, Professor, Rector of Samara State Technical University; rector@samgtu.ru  **Makarova Nadezhda Viktorovna –** Samara State Technical University; 443100, Russia, Samara; Doctor of Chemical Sciences, Professor, Head of Technology and Organization of Public Catering Chair; makarovanv1969@yandex.ru  **Demidova Anna Vladimirovna –** Samara State Technical University; 443100, Russia, Samara; Postgraduate of Department of Technology and Organization of Public Catering; demianna23@gmail.com  **Eremeeva Natalya Borisovna –** Samara State Technical University; 443100, Russia, Samara; Postgraduate of Department of Technology and Organization of Public Catering; rmvnatasha@rambler.ru |
| УДК 664  **I.A. Kustova, N.V. Makarova, V.V. Stulin**  **Multi-criteria OPTIMIZATION OF GRAPE POMACE EXTRACTION**  **WITH MAXIMUM ANTIOXIDANT EFFECT**  An important trend in the food industry is the production of domestic food products of mass consumption with a high content of biologically active substances for different population groups. Numerous works provide the data on beneficial properties of grape pomace, however its processing in the wine manufacture is far from the full using of grapes. In real conditions of production the under-utilization of waste, which leads to losses of valuable substances in grapes, do not exclude. In this regard, it is proposed to explore the influence of technological parameters on antioxidant properties of products. Secondary products of the wine industry are used as research objects. A mathematical model describing the effect of these parameters on product properties is created. In this paper we propose a special method of processing databases, which uses interpolation and approximation by choosing the appropriate algebraic polynomials and other analytic dependences. This method makes it possible to solve certain problems of statistical and extreme grip. The work is financially supported by the Ministry of Education and Science of the Russian Federation within the basic part of the government task No. 2014/ 199 of “Samara State Technical University” 974 code.  **Key words:** grape pomace, antioxidant activity, phenols, extraction, interpolation, approximation, mathematical model.  *DOI: 10.17217/2079-0333-2017-41-40-48*  **Information about the authors**  **Kustova Irina Andreevna** – Samara State Technical University; 443069, Samara, Russia; Candidate of Technical Sciences, Senior Lecturer of Technology and Organization of Public Catering Chair; batkova\_ira7@mail.ru  **Makarova Nadezhda Viktorovna** – Samara State Technical University; 443069, Russia, Samara, Doctor of Chemical Sciences, Professor, Head of Technology and Organization of Public Catering Chair; samara.pitanie@gmail.com  **Stulin Vladimir Vasilevich** – Samara State Technical University; 443069, Russia, Samara; Candidate of Technical Sciences, Professor of Mathematics and Applied Computer Science Chair |
| УДК 639.371  **V.G. Krymov, S.I. Vershinin, I.R. Tletseruk, N.A. Yurina, D.A. Yurin, E.A. Maxim,  N.L. Machneva, I.A. Perepelitsa**  **SOME RESULTS OF MONITORING THE DYNAMICS OF CHANGES IN THE SEX RATIO IN WASTE OF STURGEON AND THEIR HYBRID FORMS WHEN CHANGING STOCKING DENSITY IN THE PROCESS OF INDUSTRIAL COMMERCIAL GROWING ON THE BASIS OF CLOSED WATER SUPPLY INSTALLATIONS (CWSI)**  In this scientific work the authors present some generalized results of observations conducted at different seasons of the year for several years in production and laboratory conditions on the basis of closed water supply installations (CWSI). As a result of the study, the stocking density of the object in the CWSI and the level of elimination of males and females have been correlated. It has been found that when the object is kept in conditions of low density, males predominate in the waste, and when there is higher density stocking the ratio of sexes  in the waste changes in the direction of increasing the mortality rate of females. The main factor in changing the sex ratio in waste in favor of females with increasing the stocking density is presumably the deficiency of dissolved oxygen in water on the basis of closed water supply systems, which arises due to an increase in its consumption on the background of an increase in water temperature, which presupposes the elimination, mainly,  of individuals with higher growth rate and a greater probability of occurrence of females in this group.  **Key words:** close water supply installation, size and weight characteristics, males and females of sturgeon, hydrological regime, stocking density, elimination.  *DOI: 10.17217/2079-0333-2017-41-49-61*  **Information about the authors**  **Krymov Vladimir Grigorevich –** Maikop State Technological University; 385000, Maikop, Republic of Adygea; Postgraduate; info@mkgtu.ru  **Vershinin Sergey Ivanovich** – Glavrybvod; 115114, Russia, Moscow; Leading Fish Breeder; fishlab@rambler.ru  **Tletseruk Irina Rashidovna** – Maikop State Technological University; 385000, Maikop, Republic of Adygea; Candidate of Agricultural Sciences; Associate Professor of Land Management Chair; info@mkgtu.ru  **Yurina Natalya Aleksandrovna** – North Caucasus Research Institute of Animal Husbandry; 350055, Russia, Krasnodar; Doctor of Agricultural Sciences, Leading Researcher of Feeding and Physiology of Farm Animals Laboratory; skniig@skniig.ru  **Yurin Denis Anatolevich** – North Caucasus Research Institute of Animal Husbandry; 350055, Russia, Krasnodar; Candidate of Agricultural Sciences, Senior Researcher of Livestock Technology Department; 4806144@mail.ru  **Maxim Ekaterina Aleksandrovna** – North Caucasus Research Institute of Animal Husbandry; 350055, Russia, Krasnodar; Candidate of Biological Sciences  **Machneva Nadezhda Leonidovna** – Kuban State Agrarian University; 350044, Russia, Krasnodar; Candidate of Biological Sciences, Senior Lecturer of Biotechnology, Biochemistry and Biophysics Chair; machneva1982@mail.ru  **Perepelitsa Inna Aleksandrovna** – Kuban State Agrarian University; 350044, Russia, Krasnodar; Student of Processing Technologies Faculty; mail@kubsau.ru |
| УДК [593.95+593.96](571.645)  **E.G. Panina, V.G. Stepanov, N.P. Sanamyan, K.E. Sanamyan**  **SEA URCHINS AND SEA CUCUMBERS FROM MATUA ISLAND (KURIL ISLANDS)**  The paper presents the first information on sea urchins (Echinoidea) and holothurians (Holothurioidea) collected around Matua Island (middle group of Kuril Islands) during the 20-th Kamchatka-Kuril expedition that was organized by Russian Geographic Society in 2016 and held with the support of Russian Ministry of Defense. Specimens were collected using SCUBA diving. Two species of sea urchins belonging to the genus *Strongylocentrotus* and seven species of holothurians were collected. Four species of holothurians, including *Havelockia obunca*, *Pseudocnus pusillus*, *Scoliorhapis* sp.and *Taeniogyrus inexpectatus* are reported for the first time for Matua Island and species *Echinopsolus* sp. is recorded for fauna of Russian Far Eastern seas for the first time.  **Key words:** holothurian, sea cucumber, sea urchins, Holothurioidea, Echinoidea, list of species, distribution, Matua, Kuril Islands  *DOI: 10.17217/2079-0333-2017-41-62-71*  **Information about the authors**  **Panina Elena Grigorevna** – Kamchatka Branch of Pacific Geographical Institute FEB RAS; 683000, Russia, Petropavlovsk-Kamchatsky; Candidate of Biological Sciences, Researcher of Hydrobiology Laboratory; panina1968@mail.ru  **Stepanov Vadim Georgievich** – Kamchatka Branch of Pacific Geographical Institute FEB RAS; 683000, Russia, Petropavlovsk-Kamchatsky; Candidate of Biological Sciences, Researcher of Hydrobiology Laboratory; vgstepanov@inbox.ru  **Sanamyan Nadezhda Pavlovna** – Kamchatka Branch of Pacific Geographical Institute FEB RAS; 683000, Russia, Petropavlovsk-Kamchatsky; Candidate of Biological Sciences, Senior Researcher of Hydrobiology Laboratory; actiniaria @sanamyan.com  **Sanamyan Karen Eduardovich** – Kamchatka Branch of Pacific Geographical Institute FEB RAS; 683000, Russia, Petropavlovsk-Kamchatsky; Senior Researcher of Hydrobiology Laboratory; ascidiacea@sanamyan.com |
| УДК [593.95+593.96](571.645)  **K.E. Sanamyan, N.P. Sanamyan, E.G. Panina**  **FIRST INFORMATION ON THE FAUNA OF SPONGES (PORIFERA) OF COASTAL WATERS AROUND MATUA ISLAND (MIDDLE KURIL ISLANDS)**  **The first data on sponges (Porifera) from** shallow **waters** around Matua Island, Middle Kuril group of Islands, NW Pacific **are presented in the article. The work is performed on own collecting. In the collected material 19** species of **sponges belonging to three classes (from four classes of modern sponges) and 16 families are identified.** Most species**, with a few exceptions, are** recorded **for the first time for the Central Kuril Islands.** For each species we give a brief description of its appearance in live – many of the recorded species were known previously only from preserved specimens and information on their appearance in live was unknown**.**  **Key words: systematics, fauna, biogeography, sponges, Kuril Islands, Matua Island.**  *DOI: 10.17217/2079-0333-2017-41-72-82*  **Information about the authors**  **Sanamyan Karen Eduardovich** – Kamchatka Branch of Pacific Geographical Institute FEB RAS; 683000, Russia, Petropavlovsk-Kamchatsky; Senior Researcher of Hydrobiology Laboratory; ascidiacea@sanamyan.com  **Sanamyan Nadezhda Pavlovna** – Kamchatka Branch of Pacific Geographical Institute FEB RAS; 683000, Russia, Petropavlovsk-Kamchatsky; Candidate of Biological Sciences, Senior Researcher of Hydrobiology Laboratory; actiniaria @sanamyan.com  **Panina Elena Grigorevna** – Kamchatka Branch of Pacific Geographical Institute FEB RAS; 683000, Russia, Petropavlovsk-Kamchatsky; Candidate of Biological Sciences, Researcher of Hydrobiology Laboratory; panina1968@mail.ru |
| УДК [599.742.21: 591.4](571.66+571.642)  **I.V. Seryodkin, J. Paczkowski, W.B. Leacock, V.V. Zhakov, A.P. Nikanorov, D.V. Lisitsyn**  **MAIN MORPHOMETRIC CHARACTERISTICS OF BROWN BEARS  IN KAMCHATKA AND SAKHALIN**  Brown bear (*Ursus arctos*) in the Russian Far East is an object of trophy hunting. Morphometric characteristics were collected from 58 individuals from Kamchatka and 11 from Sakhalin caught for marking in 1997–2014, body measurements were taken and weights were determined. Average weight and body lengths of the Kamchatka bears were 268,7 kg and 216,7 cm for adult males and 174,9 kg and 194,5 cm for adult females respectively, which is higher than in other regions of Eurasia. On Sakhalin, bear sizes were slightly lower than in Kamchatka, but higher than in most other regions. Brown bears in the Far East have high trophy qualities, which is promising for the development of trophy hunting and tourism. The findings are important for managing the brown bear populations in Kamchatka and Sakhalin.  **Keywords**: brown bear, morphometry, wildlife management, trophy hunting, *Ursus arctos*.  *DOI: 10.17217/2079-0333-2017-41-83-92*  **Information about the authors**  **Seryodkin Ivan Vladimirovich** – Pacific Geographical Institute FEB RAS; 690041, Russia, Vladivostok; Candidate of Biological Sciences; Docent, Head of Animal Ecology and Conservation Laboratory; seryodkinivan@inbox.ru  **Paczkowski John** – Alberta Environment and Parks, Parks Division; 201, Canada, Canmore; Park Ecologist; john.paczkowski@gov.ab.ca  **Leacock William Blake** – Kodiak National Wildlife Refuge; 99615, USA, Kodiak; Wildlife Biologist; william\_leacock@fws.gov  **Zhakov Vladimir Vladimirovich** – Kamchatka Branch of Pacific Geographical Institute FEB RAS; 683000, Russia, Petropavlovsk-Kamchatsky; Junior Researcher of Ecology of Superior Vertebrates Laboratory; zhakov\_kam@mail.ru  **Nikanorov Aleksander Petrovich** – Kronotsky State Nature Biosphere Reserve; 684000, Russia, Elizovo; Consultant of Scientific Department; kishten@mail.ru  **Lisitsyn Dmitry Vasilevich** – Nongovernment organization “Sakhalin Environment Watch”; 693010, Russia, Yuzhno-Sakhalinsk; Council Chief; sakhalinwatch@gmail.com |
| УДК [338.242](https://teacode.com/online/udc/33/338.242.html):005.591.6  **V.I. Kurakin, S.M. Kazantseva, V.V. Shelomentsev**  **ASSESSMENT OF POTENTIAL FOR THE STRATEGY  OF RUSSIA'S INNOVATIVE DEVELOPMENT**  Problems of low efficiency of science development in the Russian Federation are analyzed. A statistical study and international comparisons are conducted, and performance indicators of involving business and Russia’s population in scientific creativity are calculated. The key regulations to stimulate the development of science in the country (Strategy of Innovative Development of the Russian Federation for the period until 2020 and state programs for its achievement) are studied; conclusions on their limitations and inconsistency with the Strategy are drawn. The issue of the need for an open dialogue between participants in science development programs in the media is raised.  **Key words**: innovations, science, economy modernization, education, strategy.  *DOI: 10.17217/2079-0333-2017-41-93-99*  **Information about the authors**  **Kurakin** **Vladimir Ivanovich** – JSC West-Siberian Leasing Company; 625003, Russia, Tyumen; General Manager; v.i.kurakin@yandex.ru  **Kazantseva Svetlana Mikhailovna** – Tyumen State University; 625003, Russia, Tyumen; Doctor of Economic Sciences, Docent, Professor of Management, Marketing and Logistics Chair; siv\_ksm@mail.ru  **Shelomentsev Valery Vladimirovich** – LLC “Management company ‘Regional Academy of System Technologies and Amplification Thinking’”; 625048, Russia, Tyumen; Candidate of Sociological Sciences, Director for Research; Tyumen State Academy of World Economy, Management and Law; 625048, Russia, Tyumen; Assistant Professor of Management Сhair; 355243@inbox.ru |
| УДК 330.522.2:639.2  **E.G. Mikhaylova**  **PROBLEMS OF EFFICIENCY ESTIMATION OF FIXED ASSETS  IN THE FISHERY COMPLEX**  The features of the fishing industry that affect the valuation of fixed assets, including the most important part of them – the fleet, are considered. The system of indicators to assess the effectiveness of using the fixed assets in the fishing industry, taking into account the parameters of sustainable development is proposed. The indicators reflecting the types of efficiency such as time use, industrial, economic, ecological and social efficiency are considered. The characteristic of information security of calculations is given. There is a lack of information sources for individual indicators. The main problems in the comparability of statistical data are shown. The horizontal and vertical disparity of statistical data is revealed.  **Key words:** efficiency, core funds, ecological and economic efficiency, fuel intensity, pollock fishery, fishery, fish industry, fisheries, fisheries complex.  *DOI: 10.17217/2079-0333-2017-41-100-109*  **Information about the author**  **Mikhaylova Elena Gennadevna** – Kamchatka branch of Pacific Geographical Institute FEB RAS; 683000, Russia, Petropavlovsk-Kamchatsky; Candidate of Economic Sciences, Docent, Senior Researcher of Ecological and Economic Research Laboratory; rozotop@mail.ru |
| УДК 379.85+338.48  **A.R. Pogorelov, I.S. Vovzhenyak, S.A. Lozovskaya**  **Natural-recreational potential of the kamchatka region**  Tourism is one of the actively developing branches of the world modern economy. Tourism is of key importance in the context of socio-economic development of regions with unique and diverse natural and recreational potential. One of these regions is the Kamchatka Territory, for which tourism is recognized as a priority, its enhanced development will be carried out through the priority development area. This work presents the attempt to carry out a comprehensive comparative assessment of the administrative districts of the Kamchatka Territory in terms of their natural-recreational potential. As a result, five groups of districts have been identified according to the degree of natural-recreational resource availability. It is found that an increase in natural- recreational potential is observed in the direction from the northwest of the Kamchatka Territory to its southeastern districts. At the same time the recreational potential of the research region is underused due to a number of limiting economic factors.  **Key words:** recreational resource, recreational nature management, recreational potential, tourism, Kamchatka region.  *DOI: 10.17217/2079-0333-2017-41-110-116*  **Information about the authors**  **Pogorelov Artur Ruslanovich** – Far Eastern Federal University; 690091, Russia, Vladivostok; Undergraduate of Geography and Sustainable Development of Geosystems Chair; Pacific Institute of Geography FEB RAS; 690041, Russia, Vladivostok; Senior Engineer of Social and Medical Geography Laboratory; pogorelov\_ar@mail.ru  **Vovzhenyak Inna Stanislavovna** – Far Eastern Federal University; 690091, Russia, Vladivostok; Undergraduate of Geography and Sustainable Development of Geosystems Chair; inna-pogi@rambler.ru  **Lozovskaya Svetlana Artemevna** – Pacific Institute of Geography FEB RAS; 690041, Russia, Vladivostok; Candidate of Biological Sciences; Acting Head of Social and Medical Geography Laboratory; svloz@tig.dvo.ru |
| УДК 338.2:005.591.6  **S.B. Rudich**  **ACTUALIZATION OF THE CONCEPT “REGIONAL INNOVATION SYSTEM”**  Despite the wide range of researches in innovation activities at different levels of society spatial organization, a large number of questions have not sufficiently clear justification. Even for the definition «regional innovation system» (RIS), it is also understood that it is composed of various types of business entities, units and institutions that involved in the innovation process. However, while scientists have not reached an agreement on what the actual elements and relationships are the most important for the conceptual system kernel and what their exact content, what communication and relationships define the RIS concept, etc. Thus, in this article we faced the task of clarifying certain concepts related to the scientific category “regional innovation system” and justifying these refinements.  **Key words:** innovation system, region, institutions, environment, kernel.  *DOI: 10.17217/2079-0333-2017-41-117-130*  **Information about the author**  **Rudich Slavko Brankovich –** North-Caucasus Federal University; 355002, Russia, Stavropol; Сandidate of Economic Sciences, Associate Professor of State and Municipal Management Chair; slawko.ruditch@yandex |