### УДК 519.71

**THE MATHEMATICAL MODELS WITH LOGIC CONTROLLERS**

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In this paper a stabilizing control design method for nonlinear dynamical systems with uncertainties based on *Takagi – Sugeno* fuzzy models is discussed. The paper proposed asymptotic stability sufficient conditions for fuzzy control systems via Lyapunov’s second method. These stability conditions can be reduced to linear matrix inequality problems. Therefore they can be solved efficiently in practice by convex programming techniques.   
The results of the paper can be used in nonlinear systems stability analysis.

**Key words:** *Takagi – Sugeno* fuzzy models, nonlinear fuzzy control systems, Lyapunov function, stability, fuzzy controller, fuzzy observer, linear matrix inequalities.

УДК 621.396.946

**SERVICE «POLLING CALL AND RETURNS» IN SATELLITE COMMUNICATION SYSTEMS FOR THE DECISION OF MONITORING PROBLEMS**

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Work of service «Polling call and returns» in satellite communication system «Inmarsat» is considered, the necessity of creation of similar service in other satellite communication systems for monitoring in northern latitude is concluded.

**Key words:** system **«**Inmarsat**»**, ship earth station, terminal of communication, ephemeris of satellite.

УДК 621.396.932

**CALCULATION OF ENERGY CHARACTERISTICS OF FISHER CARRIER CHANNELS**

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It is shown that energy characteristics of ship communication channels take an enormous importance in providing communication in a high-frequency range. The calculation of the basic energy characteristics is given.

**Key words:** communication channel, high frequencies, ionosphere, working frequency, radio communication.

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**SOLVING THE PROBLEM OF CUTTING EXPENSES FOR TRAFFIC   
OF SATELLITE SYSTEM INMARSAT**

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The problem of cutting financial expenses for transfer of satellite positions to networks Inmarsat without reduction of daily quantity of the positions received from each vessel is formulated. The analysis of models of satellite stations which are established on trade courts now is carried out. Technical features of satellite station of model TT-3026M come to light. The software of satellite station TT-3026 and a command of management are studied by it. Working out of the instruction for the service organizations is spent.

**Key words:** technical control mean, satellite station, satellite coordinates, software, trade vessel, state monitoring, coast earth station, communication channel.

УДК 519.6:551.510.413.5

**METHOD FOR PREDICTION AND ANALYSIS OF IONOSPHERIC PARAMETERS   
BASED ON THE COMBINATION OF THE WAVELET TRANSFORM   
AND AUTOREGRESSIVE MODELS**

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The method of multicomponent modeling of ionospheric data is described. This method is based on combining wavelet-transform with the autoregressive integrated moving average models, which allows to perform data analysis and build a prediction. To evaluate the method and modeling algorithms based on it the data of the critical frequency *f*0*F*2, recorded at the station «Paratunka» (Kamchatka Peninsula) are used. Modeling data the features associated with solar activity, as well as features appearing in periods of strong earthquakes in Kamchatka are identified.

**Key words:** wavelet transform, autoregressive model, critical frequency, anomalies.

УДК 519.6:550.38

**CHARACTERISTIC DIURNAL CONSTITUENT AND LOCAL FEATURES   
IN GEOMAGNETIC SIGNAL EXTRACTION METHOD**

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The article proposes a new wavelet-based method, which allows to distinguish characteristic constituent and local features during magnetic storms in geomagnetic signal in an automatic mode. The local features carry substantial information about the intensity and the dynamic of the development of the geomagnetic perturbations; it allows us to detect sudden commencement because it could be an indicator of onset of the geomagnetic storm. The distinguished characteristic diurnal constituent of the geomagnetic signal describes the field variations in quiet time and its essential changes in periods of increasing geomagnetic activity. The method has been successfully tested on the model signals and the Earth’s magnetic ﬁeld data obtained at the observatory «Paratunka» (village Paratunka, Kamchatka region, Far East of Russia).

**Key words:** wavelet transform, magnetic storm, geomagnetic data.

УДК 621.311:629.5

**DEVELOPMENT OF DIGITAL MODELS OF REGIME PROPERTIES FOR RESEARCH   
OF DYNAMIC STABILITY OF A SHIP ELECTRICAL POWER SYSTEM**

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Results of modeling of a ship electrical power system in the program of computer modeling by means of the MATLAB 7.0 package, allowing to analyze indicators of steady parallel work of diesel engine-generating units and a ship power line are presented.

**Key words:** ship electrical power system, stability, moment, model, MATLAB.

УДК 664.951.2:639.215.8

**DEVELOPMENT OF TECHNOLOGY ARCTIC CHAR`S SALTING,   
FROZEN COMBINED WITH SALTING BY AWAY**

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In the article the expediency of arctic char low-temperature salting and the process scheme of salting are proved. The characteristic of organoleptic parameters of arctic char low-temperature salting is given.

**Key words:** arctic char, low-temperature salting, process scheme.

УДК 664.8.047:582.272

**JUSTIFICATION FOR AIR PARAMETERS FOR DRYING BROWN ALGAE**

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Analysis results of various methods of processing algae are given; their strengths and weaknesses are identified. The test-bed of the dryer based on a vapor compression heat pump is designed. The choice of refrigerant and air parameters for drying seaweed using a heat pump is proved.

**Key words:** brown algae, drying, dryers, heat pump, optimum air parameters, energy efficiency.

УДК 594.1:591.51(268.45)

**THE FIRST RECORDS OF BEHAVIORAL RESPONSES   
OF THE BIVALVES, ICELANDIC SCALLOP *CHLAMYS ISLANDICA*   
AND HORSE MUSSEL *MODIOLUS MODIOLUS***

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The first behavior records as the shell gaping in Icelandic scallop *Chlamys islandica* and horse mussel *Modiolus modiolus* were made in 1987 on the Barents Sea (Dal’niaya Zelenetskaya Bay). There were first defined the elementary acts and the quantitative parameters of the behavior of these species. It was revealed that in normal natural conditions the horse mussel and scallop were always open, but never kept their valves fully opened or closed; in the behavior of the species was not observed steady slow rhythm with a clear alternation of phases activity and quiescence. It was established experimentally that the patterns of molluscs behavior were largely determined by environmental conditions, particularly the effects of pollution. The studies of the molluscs behavior under normal conditions are the basis to explore their use as biosensors of the aquatic environment.

**Key words**: valve movements, shell gaping, Icelandic scallops, Modiolus, behavioral responses, behavior parameters, elementary acts, biosensors, biomonitoring.

УДК 597.2./.5 (571.651**)**

**CHARACTERISTICS OF ICHTHYOFAUNA INHABITING THE WATER BODY   
OF THE AMAAM LAGOON (THE CHUKCHI PENINSULA)**

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The results of the study of ichthyofauna structure inhabiting the water body of the Amaam lagoon including the rivers: Amaam, Arinay, Perevalnaya and the Arinay lagoon are presented. Size-weight characteristics of hydrocoles are demonstrated. The comparative analysis has been carried out.

**Key words:** Ichthyofauna, The Amaam lagoon, age structure, comparison characteristics.

УДК 664.8:582.272

**PRODUCTION AND UTILIZATION OF BROWN ALGAE POLYSACHARIDES**

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The article deals with polysaccharide properties, different alginate technologies, algae species as an alginate source. Quality parameters of ready product are determined. The relationship between the alginate colour and the quality of ready product is analyzed.

**Key words:** alginic acid, alginates, sorbents, structuremakers.

УДК 664.951.2

**CURRENT TRENDS** **OF SALTY PRODUCT PRODUCTION FROM HYDROBIONTS**

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The current trends of the technology development of salty product are considered in the article. The ways of the regulation of raw fish enzyme system in salty product making, as well as ways of slowing down oxidative and microbiological damage are given.

**Key words:** technology, salting, salty product, biochemical maturation.

УДК 664.8.047:582.272

**INFLUENCE OF RAW ALGAE DRYING METHODS USED FOR MAYONNAISE JUICE COOKING ON QUALITATIVE CHARACTERISTICS OF READY PRODUCT**

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Different ways of raw algae drying, their influence on dried algae qualitative characteristics and on the properties of mayonnaise juice with algae are investigated. The qualitative characteristics of the ready product are resulted.

**Key words:** drying, emulsion products, mayonnaise juice, viscosity.

УДК 504.61: 911.37(571.66)

**CHOICE CRITERIA FOR OPTIMAL WASTE MANAGEMENT FOR SETTLEMENTS   
OF KARAGINSKY MUNICIPAL AREA**

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On the basis of the Russian Federation State policy in the field of industrial and consumer waste management possible variants of effective industrial and consumer waste of hazard classes I to V management system for Karaginsky municipal area are considered.

**Key words:** industrial and consumer waste, waste disposal facility, waste passport, class of hazard, environmental contamination.

УДК 351.72(470)

**REFORMING OF THE HEALTH CARE SYSTEM FINANCE:   
ORGANIZATION AND ECONOMY**

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Results of changes of health care system in Russia with putting in the federal law from 2010 May, 08 № 83-FZ «About changes in some lows of Russian Federation in the connection of the improvement low status of state organizations» are analyzed. Some advantages and disadvantages of injected system of health care financing are established. Prospects of further development of health care system and compulsory insurance system are determined on examples of diagnosis-related groups.

**Key words:** health care, system of compulsory insurance, diagnosis-related groups.

УДК 657.6:338.486

**AUDITING PECULIARITIES OF TOURIST** **COMPANIES**

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The article deals with organization of auditing in travel industry. Proper methods of auditing allow auditors to reveal flaws in economic and financial activity of a company and to offer final judgment enabling adequate elimination of the flaws.

**Kew words:** tourist companies, auditing methods, financial activity, economic subject.

УДК 383.483.11:502.17

**USE OF RECREATIONAL FACILITIES OF THE PROTECTED AREAS   
FOR SUSTAINABLE DEVELOPMENT OF ECOLOGICAL   
AND ETHNOGRAPHICAL TOURISM**

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The results of the research devoted to the ecological and ethnographic tourism in protected areas are presented. We analyze the ethnographic and ecological tourism as a factor for sustainable development of recreational zones in the protected areas.

**Key words:** recreational potential, ethnographical and ecological tourism, sustainable development, protected areas.

УДК 316.6+378

STRUCTURALLY-SUBSTANTIAL ANALYSIS OF ECONOMIST NEGOTIABILITY

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Problems of forming the economist negotiability are considered. Specification of negotiability components is given.

**Key words:** expert of economic structure, negotiability.

УДК 378:811

**ON THE ISSUE OF PROFESSIONALLY-ORIENTED TEACHING   
OF A FOREIGN LANGUAGE IN A NON-LINGUISTIC INSTITUTE   
OF HIGHER EDUCATION**

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This article covers the nature of professionally-oriented teaching of foreign language which implies in its integration with specific disciplines in order to obtain additional professional knowledge and formation professionally significant qualities of a person.

**Key words:** professionally-oriented teaching, foreign language, teaching techniques, communicative activity.

УДК 378:811

**INTERNATIONAL EDUCATIONAL PRACTICE IN FOREIGN LANGUAGE TEACHING**

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The article gives brief description of European educational experience within the framework of Lifelong Learning Programme (using of Europass Language Passport, European Levels Self Assessment Grid) which can be efficiently applied in teaching foreign languages at Russian institutions of higher education.

**Key words:** Lifelong Learning Programme, language skills, self-assessment, foreign language teaching.

УДК 352(091)(47)

**FORMATION AND DEVELOPMENT OF REGIONAL SELF-GOVERNMENT   
IN PRE-REVOLUTIONARY RUSSIA: RETROSPECTIVE ANALYSIS**

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The evolution process of the local government in Russia during the chronological period including the IXth and the first half of the XXth centuries is examined. The features of municipal administration in the Old Russian country are described. The role of a town popular assembly in the process of forming the system of local government in the Russian country is shown. It is proved that in Russia since Ivan the Terrible’s time till the second half of the XIXth century the system of centralized public administration founded on the throne was established. According to the author, during the above mentioned period self-administrative foundations in Russian state system were increasing and decreasing from time to time. Changes in the local government of Russia which were connected with the reforms of Peter the Great are reflected in this article. The author also shows the causes of inefficiency of the activity of local administration which was created by the Great Reformer. In addition, the content of the reform of the municipal government, which was carried out at the close of the XVIII century by Catherine II, is carefully explored here; and the radical nature of that reform is also assessed. In the context of historical retrospective review special features of pre-revolutionary public school in Russia are detected.

**Key words:** local government, municipal administration, local administration, assembly governance, posadnik, town commonage, village community, Zemskii institutions, administrative reform, town reform.