

ABSTRACTS

Radioelektronika i informatika. 2006. № 2.

UDC 629.78

The meteor-burst signal reception from remote TV stations in situation of local interferences.

/ I. E. Antipov, Ju. A. Koval', A. V. Saprykin // Radioelektronika i informatika. 2006. № 2. P.4-8.

In paper the task of meteor-burst reception of remote TV stations for exploratory purposes is formulated. The task is that together with meteor-burst signals reception from remote TV stations, a local ones can be accepted too. In this situation the signal from the local TV station is a interference. It is underlined, that the both sources signals have identical carrying frequency, similar structure, and thesources direction is ambiguous. For the task solution the adaptive areas system which uses some difference in a direction on sources of a signal and interference, and also difference in polarization. Weighting coefficients of the adaptive system are formed by a graded-index method.

Fig. 5. Ref.: 8 items.

UDC 621.372.8

Below-cutoff waveguide-dielectric resonator of complex form with dielectric nonuniforms /

N.I. Slipchenko // Radioelektronika i informatika. 2006. № 2. P.8-12.

The analytical calculation of below-cutoff waveguide-dielectric resonator of complex form with dielectric nonuniforms is given. The system of linear algebraic equations of common kind are obtained from which reflection and transfer coefficients have been obtained.

Ref.: 6 items.

UDC 621.382.323

Influence of heterogenetty in active area PTSH to VAKH and criterial dependes VUNSH-BELL / L.M. Ahramovitch, S.O.Zuev, V.V. Starostenko, V.Yu. Tereshenko // Radioelektronika i informatika. 2006. № 2. P. 13-15.

Results of numerical calculations of influence of heterogeneity of active area silicon PTSH on development of electrothermal processes in a crystal of the transistor from the beginning of avalanche breakdown before catastrophic thermal breakdown of the device coming at achievement of temperature of a lattice in area of a cord, corresponding temperature of fusion Au - substrates are resulted.

Fig. 3. Ref.: 4 items.

УДК 621.385.624

Multi-periodical mathematical model of a magnetron / G.I. Churyumov, K.M. Basrawi, K.V. Sivokon' // Radioelektronika i informatika. 2006. № 2. P.15-27.

The multi-periodic two-dimensional mathematical model of the magnetron generator for studying the power and frequency characteristics in view of transport (localization) of heating being gave up on electrodes of the tubes (on a cathode and an anode) by electrons has been offered. The analysis of solution accuracy of a self-consistent set of motion equations, excitation equations and Poisson's equation calculating the forces of a space charge is given in view of features of space and temporary discretization, and also the degree of discrete representation of an electron beam (charge of a large particle) is evaluated and the choice of initial data is validated. The main reasons defining a growth of computing errors and resulting in the computing instability of a solution are considered. New more precise algorithms for calculating the impact energies of particles on electrodes are offered. The outcomes of trajectory analysis of particles in static and dynamic modes of a magnetron are represented.

Fig. 7. Ref.: 24 items.

UDC 539.1.074

Simulation of dosimetric characteristics of CdTe (CdZnTe) g-radiation sensors / A.A. Zakharchenko, V.E. Kutny, A.V. Rybka, M.A. Khazhmuradov // Radioelektronika i informatika. 2006. № 2. P.28-33.

The model of the energy dependence of sensitivity of CdTe (CdZnTe) g-radiation sensor is considered. The discrete sensitivity of sensors grown by various modifications of Bridgman method is calculated and compared with experimental data. The method for decreasing error of dosimetric measurements is validated based on the developed model.

Tab. 2. Fig. 5. Ref.: 17 items.

UDC 519.859

Mathematical modeling of interactions of straightline segment and primary geometric objects / T.E. Romanova, K.A. Stupak // Radioelektronika i informatika. 2006. № 2. P.34-39.

The article considers f-functions as a tool of mathematical modeling of interaction of line segment and two-dimensional primary objects. The functions may be very useful for an analytical description of basic geometric conditions (belonging an object to the given domain and nonintersecting geometric objects) when constructing mathematical models of optimization placement problems (packing and cutting) for arbitrary shaped geometric objects.

Fig. 7. Ref.: 7 items.

UDC 518.85

The approached method of solving transport tasks / O.O. Yemets', T.O. Parfonova // Radioelektronika i informatika. 2006. № 2. P.39-41.

The approached method of solving transport tasks of combinatorial type was suggested and based in the article. This method allows to find the solution with assigned in advance precision.

Ref.: 7 items.

UDC 618.514.01:517.977.5

The task of dynamic synthesis for the turn over pendulum as the object of control / A. E. Radievski // Radioelektronika i informatika. 2006. № 2. P.41-44.

Within the procedure of analytical construction of optimal regulators we consider the task. of dynamic synthesis for the turn over pendulum as the object of control. From the whole solution under consideration the solution of the structure synthesis.

Ref.: 13 items.

UDC 615.89:621.372

The formation of impulses with given properties for affecting the multi-component mixtures / S.N. Vasiljev, N.N. Gora // Radioelektronika i informatika. 2006. № 2. P.44-47.

The optimum process of generation and transmission impulses which affect a multicomponent mixture with the purpose of changing its properties is explored. One of the inverse problems for multi-mode channel of transmitting impulses is considered. The normalizer and the shape of the source signal that forms the desired out coming process are found.

Ref.: 5 items.

UDC 681.5

Controlling criterion of systems on the Petri Nets Basis / S.A. Kachur // Radioelektronika i informatika. 2006. № 2. P.47-49.

Controlling of the systems described by the Petri Nets is considered, in general case and for concrete expansion of the Petri Nets. Controlling criterion in terms of the Petri Nets is developed.

Ref.: 4 items.

UDC 681.324

Optimization of the compositional microprogram control unit's circuit with elementary operational linear chains / A.A. Barkalov, A.A.Krasichkov, Khaled Barakat // Radioelektronika i informatika. 2006. № 2. P.50-54.

The microoperation's address transforming in the CMCU circuit is offered in the article. The conditions of address transformer usage for addressing of microinstructions are considered. The example of the CMCU circuit synthesis with address transformer is given. The carried out researches have shown that the method reduces hardware expenses up to 18%.

Fig. 5. Ref.: 8 items.

UDC 681.51.007

Metric matching of image segmentation results / E.A. Yegorova, D.K. Kinoshenko, S.V. Mashtalir, D.V. Shlyakhov // Radioelektronika i informatika. 2006. № 2. P.55-62.

It is offered to use mathes of partitions of a field of view as a base for image matching. The similyrity functional is introduced on arbitrary finite partitions, and what it represents the metric is proved. Results of partitions metric properties explorations are considered.

Fig. 10. Ref.: 24 items.

UDC 512.563.6

Adequacy control of logic functions minimization / V.G Rubanov, E.N Korobkova // Radioelektronika i informatika. 2006. № 2. P.62-68.

The adequacy control method of logic functions minimization has been considered. It is based on their definitional domain compression and following multiversion minimization.

Fig. 3. Ref.: 8 items.

UDC 004.738.52:004.031

A method for representing the functional structure of theWeb-systems / V. Sayenko // Radioelektronika i informatika. 2006. № 2. P.68-75.

An extended method for representing the functional structure of the information system has been proposed. It is based on a graph representation with goals, functions, and methods as vertexes. The vertex-weighted graph is used for analysis. Several examples were considered.

Tab. 9. Fig. 5. Ref.: 5 items.

UDC [519.95 + 518.5]:622.692.4

Using GPS- and GSM-technologies at the enterprises on gas supply and gasification. / A. Dudolad, V. Sedak, E. Dzeshulsky // Radioelektronika i informatika. 2006. № 2. P.76-79.

The problem of the providing reliable and accident-free operation of the gas network in condition of greater industrial Ukrainian cities, every year becomes more important. The important and urgent aspects of this problem concerning management in an emergency are considered. The existing problems in emergency service work are analyzed and the ways of their decision are offered concerning the pilot-project of the definition of the cars condition of the Emergency-restoration service work.

Fig. 3. Fig. 1. Ref.: 7 items.

UDC 519.688

Using methodologies of the object-oriented designing with the language UML / V.S.Esilevsky, P.S.Netesa, M.V.Klimova // Radioelektronika i informatika. 2006. № 2. P.79-84.

In the work application of methodologies for object-oriented design of distributed real-time systems with use of graphic capabilities of UML-language is considered. The use of this methodology is examined by the example of the system for telemetric information collecting from a group of pumping stations and its effectiveness is proved.

Fig. 4. Ref. 2 items.

UDC 681.3.016

Model of the coordination of the data at integration of information systems / S.S. Tanyansky // Radioelektronika i informatika. 2006. № 2. P.84-91.

The methods of designing of the allocated databases are analyzed. The basic means of support of integrity data based on dependences between attributes of the relations are considered. The properties of operations above the data influencing on an overall performance of the integrated systems are determined. The class of the uncoordinated relations is considered and the methods of their coordination for management of the integrated systems are offered on the basis of the allocated storage of the data.

Fig. 1. Ref. 11 items.

UDC 621.383.8:621.396.96:621.396.6

The present-day state of systems of the receiving monitoring processing information of the images and trends their development based on the differential method / B.P. Rusyn, V.G. Ivanyuk, O.V. Kapshiy // Radioelektronika i informatika. 2006. № 2. P.91-101.

Proposed review describes basic technical-software types of information transforms that are used into medical and multimedia image processing systems and are useful for development of a scheme of differential method. Formalized investigation of the scheme basing on an analytical analysis of the presented materials is proposed. Algorithmical detalization of the formalized method's scheme is based on principles of information quantity. Influence of parameters of technical tools used for getting information about image points on results of image analysis by proposed algorithm based on the scheme of differential method is estimated. The estimation is carried out basing on selection operation of the algorithm.

Ref.: 85 items.

UDC 681.324

Development of technology of analysis of adequacy and adjustment of model of weekly structured business - process / S.F.Chaliy // Radioelektronika i informatika. 2006. № 2. P.101-106.

The questions of errors exposure in weekly structured business - processes are examined. A testing model and method is offered. It's based on situation-scenario technology of design weekly structured business - processes.

Fig.2. Ref.: 3 items.

UDC 007.52(0450)

Algorithm of definition of distance of a known reference point in problems of visual positioning mobile objects/ M.P. Muhina, R.S. Datsuk, K.I. Lazareva //Radioelektronika i informatika. 2006. № 2. P.106-108.

The algorithm which is based on a method of visual positioning is offered. Use of this algorithm allows to define the current position with necessary accuracy, to define its orientation concerning base system of coordinates and to find its rate.

Tab. 1. Fig. 3. Ref.: 3 items.