

ABSTRACTS

Radioelektronika i informatika. 2006. № 4.

UDC.621.373.9;621.382.2.09.64

Research ultrabandwidth of the noise oscillator's in millimeter wavelength range with the high noise level / P. P. Loshitsky, A. V. Pavluchenko // Radioelektronika i informatika. 2006. № 4. P. 4-10.

The work was celebrated of research the base steps of design ultrabandwidth the noise oscillators in 3-mm wavelength range with the high noise level. The IMPATT diodes were used for reception high noise level in microwave band, and they worked in unnormal mode. Research matching of impedance active element and waveguide circuit connection of diode, type of waveguide-coaxial junction in dependence from geometry system and dependence quantity of quality of noise oscillator from profile doping silicon structure double-transit diode's was made.

Fig.: 10. Ref.: 13 items.

UDC 681.7.069.24

Modeling of a process formation of the signals in a pulse semi-conductor laser rangefinder / M.M. Bykov, V.S. Tyurin, S.V. Tyurin // Radioelektronika i informatika. 2006. № 4. P.11-15.

In given article the modeling of the process formation of signals in a laser semi-conductor pulse rangefinder is presented. For this purpose the analysis of functioning algorithm of the given laser device has been carried out and the mathematical apparatus, which describes the work of model is developed. Such model has been created with the help of a package of applied programs SIMULINK of program system MATLAB.

Fig. 9. Ref.: 4 items.

UDC 537.86

The pulse electromagnetic fields influence on integrated microcircuits of memory / L.N. Achramovich, M.P. Gribsky, E.V. Grigoryev, S.A. Zuev, V.V. Starostenko, G.I. Churyumov // Radioelektronika i informatika. 2006. № 4. P. 15-17.

Results of pulse electromagnetic fields on integrated microcircuits of memory influence research are presented. Threshold values of field's intensity at which refusals of modern microcircuits of memory begin are certain.

Tab. 1. Fig. 2. Ref.: 4 items.

UDC 681.003.66

The procedure of prediction of cause-effect dependences for problem domains with determined set of events / S.O. Sokolov, O.L Stokipny // Radioelektronika i informatika. 2006. № 4. P.18-20.

The article are described the procedure that allow to predict cause-effect dependences and can be used for building database of primary knolidge about cause-effect dependences for problem domain with determined set of events.

Ref.: 6 items.

UDC 618.514.01:517.977.5

The task of dynamic synthesis for the harmonious oscillator with two control function / A. E. Radievski // Radioelektronika i informatika. 2006. № 4. P. 21-24.

Within the procedure of analytical construction of optimal regulators we consider the task. of dynamic synthesis for the harmonious oscillator with two control function as the object of control. From the whole solution under consideration the solution of the structure and parameter synthesis, principle of the realization optimal regulator.

Ref.: 10 items.

UDC 621.77

Synthesis of multichannel iterative systems robust regulators / T.B. Nikitina // Radioelektronika i informatika. 2006. № 4. P. 24-30.

The method of the synthesis of robust control by the multichannel control system based on decomposition of initial movement of multichannel control system on movements of the separate channels which are included in multichannel control system is developed. Thus synthesis of robust control of multichannel control system is reduced to consecutive synthesis of separate channels since the first basic power channel and finishing last low-power high-speed channel.

Ref.: 11 items.

UDC 681.324

Fragmentation of variables in Mealy automaton with coding of rows of direct structural table / A.A. Barkalov, R.M. Babakov, Ahmad Fuad Hamadah Bader // Radioelektronika i informatika. 2006. № 4. P. 31-33.

The new structure of Mealy control automaton with coding of rows of direct structural table, used principle of fragmentation of variables, is proposed. Analytical valuations of effectiveness of proposed structure of automaton are achieved, and analysis of effectiveness is done. The middle gain of hardware expenses in circuit of forming of variables is 200%.

Tab. 1. Fig. 2. Ref.: 8 items.

UDC 681.3.066

Performance assessment of parallel programming techniques / V.A. Gorbachov, T.V. Grytsenko // Radioelektronika i informatika. 2006. № 4. P. 34-38.

The goal of this work is to evaluate and compare the computational performance of the most common parallel libraries such as Message Passing Interface (MPI), High Performance Fortran (HPF), OpenMP and DVM. Evaluation is based on NAS Parallel benchmark suite (NPB) which includes simulated applications BT, SP, LU and kernel benchmarks FT, CG and MG. A brief introduction of the four parallel techniques under study: MPI, HPF, OpenMP and DVM, as well as their models is provided together with benchmarks used and the test results. Finally, corresponding recommendations are given for the different approaches depending on the number of processors or computational nodes.

Tab. 3. Fig. 1. Ref. 10 items.

UDC 519.713

Problems of anti-virus branch, methods of struggle with threat of computer viruses and immediate future trends its developing/A.A.Gorobets,A.V. Kunitskiy, O.M.Parfentiy,O.O. Chuvilo // Radioelektronika i informatika. 2006. № 4. P. 38-43.

It is shown here that new methods of resistance are needed to be found. State of world market of methods of struggle with threat of computer viruses is considered too. The technologies of antivirus struggle are shown in this article. Besides it is highlighted the problems that is before anti-virus branch now. As a result of analysis are revealed the tendencies of development of antivirus technologies and are proposed some suggestions concerning improvements of these technologies.

Tab. 3. Ref.: 11 items.

UDC 517.9

About one mathematical model with the degenerate differential second-order equation with impulse action / A.V. Trubitsyn // Radioelektronika i informatika. 2006. № 4. P. 44-47.

In the article the indispensable and sufficient conditions of existence of the solution of the degenerate differential equation with impulse actions in fixed times are established. The example of an electric network is esteemed, which one is modelled by equations of the indicated type. The indispensable and sufficient conditions of existence and uniqueness of a transient regime in circuits are retrieved. The conditions are encompassed by the coordination of variable input voltage, impulse actions and initial state.

Fig. 1. Ref.: 7 items.

UDC 681.324

A Novel Approach for Watermark Embedding/ B. Forouzandeh, K. Abdi, A. Shirazi Beheshti , L. S. Ghazanfari, Sh. Sharifmansouri // Radioelektronika i informatika. 2006. № 4. P. 48-51.

Many watermarking methods use correlation detection for extraction of watermark. The decision threshold of correlation is chosen based on error probability appeared in detection process. Attacks on watermarked image usually cause fluctuation in error probability, precision, extracted energy, and length for a blind DWT-based watermarking algorithm by investigating the alteration rate of energy and the length of the detected watermark. The new algorithm can address fairly good optimization on the above issues. The extracted results are used in a novel embedding approach in which the DWT-coefficients of the image, in each sub-band, are separated into dominant and non-dominant groups.

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

UDC 681.5; 535.32

Software for universal system of experiment automation / A.S. Vlasenko, A.A. Galusa, A.Ya. Zaharchenko // Radioelektronika i informatika. 2006. № 4. P. 52-56.

This paper deals with the problem of laboratory experiment automation. A task of software-hardware platform creation is considered, which aim is to give an opportunity to experimenter to automate a wide class of installations within minimal time and with minimal financial expenses. The structure of the system is such flexible that for its concrete realization there is only needed to create application software necessary for automated experiment.

Fig. 7. Ref.: 7 items.

UDC 004.946;004.925

Survey of realistic rendering methods and research target setting / A. S. Popov // Radioelektronika i informatika. 2006. № 4. P. 57-61.

This work covers the primary methods of realistic visualization, their strong and weaknesses, and also applicability for various practical problems. The review has shown that realistic interactive visualization remains a challenge, which doesn't have the common solution. Ways of the solution of a realistic interactive visualization problem are proposed.

Ref.: 20 items.

UDC 519.876

Simulation modeling of business processes on Unit-Function-Object models / I.V. Tsehmistro // Radioelektronika i informatika. 2006. № 4. P. 61-65.

This article reviews simulation modeling of business processes with method of systemology analysis and design. The requirements for mathematical model of dynamics describing was specified. The instrument of production systems was used for dynamics describing of Unit-Function-Object models.

Fig. 6. Ref.: 9 items.

UDC 004.055:004.7

Methods for estimation of the efficiency of user's access to computer network's resources / V.I. Sayenko, T.I. Krivonos. // Radioelektronika i informatika. 2006. № 4. P. 66-71.

The efficiency estimation method of user access to computer network resources is proposed. The ratings are intended for using in systems of permanent monitoring. Quality characteristics are based on parameters of delay and refusals in access to resources. These methods are based on expert estimations and depend on the individual user activity. Several examples were considered.

Tab. 7. Fig. 5. Ref.: 7 items.

UDC 004.93'1:004.942:519.23

Synthesis and research of algorithms of identification of the speakers on performances of residuals of a linear prediction / A.V. Fedorov, A.V. Omelchenko // Radioelektronika i informatika. 2006. № 4. P. 71-75.

The synthesis and experimental check of text independent adaptive algorithms of identification of speakers on performances of residuals of a linear prediction is carried out. The system of informative indications, used in this work, includes coefficients of the Fourier's transformation of an autocorrelation function of the initial voice signal and signal of residuals of a linear prediction passed through various window functions.

Tab. 1. Fig. 3. Ref.: 9 items.

UDC 621.371

Near electromagnetic influence of atmospheric fronts on the person and technics / I.I. Zima, V.J. Strilchenko // Radioelektronika i informatika. 2006. № 4. P. 76-82.

The physics of radiance and its action on electronic technique and the human surveyed on the basis of representation of protons of water and electrons of oxygen of an atmosphere as the harmonic magnetic oscillator. The rotor reverberation model of an atmosphere which allows to view mechanisms of action of a background and pulsing irradiating rotor waves is offered.

Fig. 4. Ref.: 11 items.

UDC 004.7

Model of the avalanche situation classification / O.N. Dyachenko, A.Ya. Kuzemin, V.V. Lyashenko // Radioelektronika i informatika. 2006. № 4. P. 83-86.

This paper deals with very important topic of the avalanche situations classification. The transfer model of the avalanche hazard from probabilistic estimation to the scale of avalanche situations has been offered. Informative predictors were revealed and discriminant analysis was carried out for model building.

Tab. 4. Fig. 3. Ref.: 6 items.