АННОТАЦИИ СТАТЕЙ НА АНГЛИЙСКОМ ЯЗЫКЕ

Bandman O.L. SIMULATING PHYSICAL PROCESSES BY CELLULAR AUTOMATA. When simulating physical processes by cellular automata (CA) the question on corresponding physical values to their modal values arises twice. For the first time this question arises when a CA is constructed and for the second time it is arisen when interpreting the simulation results. In this paper we propose a systematic approach for solving these problems; in fact, we establish general rules for constructing a CA and based on these rules we develop scaling methods for three main types of CA-models in details, namely, for a diffusion CA, for a hydrodynamic CA, and for an asynchronous kinetic CA.

Keywords: cellular automata (CA), diffusion CA, hydrodynamic CA, asynchronous kinetic CA.

Chetverikov V.V., Gordievskih V.V., Voronenkov D.V., Malishenko A.M., Gromakov E.I. CONCEPTUAL SEMANTICS OF DESIGN ORGANIZATION INFORMATION PORTAL. Opportunities of various technologies for the realization of design organization management with the use of an information portal are considered. To use the information generated by various control systems (MPS, QMS, etc.) at each level of management hierarchy (at the level of policy management, at the level of portfolio management, at the level of project management, at the level of implementation management) effectively it is necessary to provide its representativeness. Information representativeness can be achieved by computer semantic selection and providing a user with the consistent information. In this paper the conceptual variant of the ontology structure that allows selecting essential attributes and connections of portal documents on the basis of their semantic contents is offered.

Keywords: ontology, semantic, design organization, information portal.

Evdokimov A.A., Lihovidova E.O. THE DISCRETE MODEL OF THE CIRCULATE TYPE GENETIC NETWORK WITH THRESHOLD FUNCTION. The discrete model of a genetic network has been considered. Its functioning is determined by the definition of an additive automata function. As a result, the description of the new class of cycles and working vectors of circulate type models with a circulate digraph structure has been obtained.

Keywords: Genetic network, digraph, additive automata, state graph of a function, cycles of a state graph, working vectors of a state graph.

Garayshina I.R. APPLICATION OF INFINITELY LINED THREE-PHASE QUEUE SYSTEM FOR INVESTIGATION OF PROCESS OF MODIFICATION OF NUMBER OF PERSONS INSURED IN RETIREMENT FUND IN CONDITION OF INCOMING UNSTEADY FLOW. The model of process of modification of number of persons insured in retirement fund is proposed. Three categories of the population are considered: working persons before retiring, working retired persons, non-working retired persons. Mentioned process main characteristics are investigated.

Keywords: three-phase system, model of process of modification of number of persons, pension fund.

Kokshenev V.V., Sushchenko S.P. THROUGHPUT ANALYSIS OF THE TRANSPORT LAYER PROTOCOL WITH SELECTIVE AND GROUP REJECT MODE IN THE SINGLE HOP PATH. Models of the transport layer protocol with selective and group reject mode were proposed. Models are based on the Markov chain with discrete time and consider the influence of size of the retransmit time-out on the inter-node link throughput. The dependency of throughput

of the transport layer protocol from the link error rate, protocol parameters and informational channel characteristics was deduced.

Keywords: transmission path, protocol, window size, time-out duration, error rate, throughput, Markov chain.

Levin I.I. THE GENERATION OF HIGH PERFORMANCE RECONFIGURABLE COMPUTER SYSTEMS. In this paper, we consider high performance computer system development. The main component of such system is not a universal microprocessor but programmable logic integrated circuits. The developed hardware-software means support a structure-procedural organized computer process and allow to get the efficiency up to 60 % for a number of tasks and moreover, to get a linear dependency when increasing the number of hardware units.

Keywords: high performance computer systems, programmable logic integrated circuits, hardware-software means, structured-procedural organization of the computer process

Mikheev P.A., Sushchenko S.P. THE BUFFER MEMORY LOCK INFLUENCE ON THROUGHPUT OF STAR NETWORK. Transit network node model with traffic split is proposed. The influence of channel quality, input traffic distribution and buffer memory sharing strategy on pass flow study.

Keywords: star network, memory lock, throughput, mathematical model, Markov chain, buffer memory sharing strategy, traffic split.

Pottosin Yu.V., Shestakov E.A. USING BOOLEAN FUNCTION FOR REPRESENTATION OF POLYGONS. The problems related to determination of the position of a point on a plane concerning the field restricted by a polygon are considered. In connection with those problems an incompletely specified Boolean function is introduced whose arguments are predicates related to the sides of the polygon. The position of the point is determined by the value of the function.

Keywords: polygon, Boolean function, predicate.

Solodushkin V.I. OPTIMAL FUNCTION OF SPATIAL SENSITIVITY OF THE DETECTOR OF RADIATION IN VIEW OF DIMENSIONS OF CONTROLLED OBJECT. In article the task of optimal function of detector's spatial sensitivity with reference to radiometric system intended for detection of alien inclusions in controlled object for a three-dimensional case is solved. The complete analysis of influence all possible of compound profile barriers on detection of any homogeneous defects is given.

Keywords: optimal functions of spatial sensitivity, controlled object, homogeneous defects.

Zakrevskij A.D. MANIPULATIONS ON LARGE VARIABLES BOOLEAN FUNCTIONS. A set of manipulations on Boolean functions is suggested. Boolean function is represented by Boolean vector with 2^n components. Using these manipulations simplifies determination of monotonous property of partially determined Boolean functions and decision of composition (decomposition) problems.

Keywords: a set of manipulations, partially determined Boolean functions, composition (decomposition) of Boolean functions.

АННОТАЦИЯ СТАТЬИ НА РУССКОМ ЯЗЫКЕ

Хорошевский В.Г., *Павский К.В.*, *Никитин Д.С.* ТЕХНИКО-ЭКОНОМИЧЕСКИЕ ПОКАЗАТЕЛИ ФУНКЦИОНИРОВАНИЯ РАСПРЕДЕЛЕННЫХ ВЫЧИСЛИТЕЛЬНЫХ СИСТЕМ И ФУНКЦИЯ ОСУЩЕСТВИМОСТИ РЕШЕНИЯ СЛОЖНЫХ ЗАДАЧ. Современный инструментарий высокопроизводительной обработки информации – это распределённые вычислительные системы (ВС), объединяющие большое число процессоров. Эксплуатация подобных систем неизбежно связана с финансовыми затратами. Работа состоит из двух частей. В первой части рассмотрен континуальный подход к расчету технико-экономи-

ческих показателей функционирования распределенных ВС (функций дохода и расходов) в стационарном и переходном режимах. Отличительными особенностями работы являются: введение коэффициента стоимости эксплуатации сети связей и учет времени реконфигурации структуры ВС после сбоев. Вторая часть посвящена расчету функции осуществимости решения сложных задач на распределенных ВС. Получена система интегральных уравнений для вычисления функции осуществимости решения задач. Предложен параллельный алгоритм для ее вычисления.

Ключевые слова: Распределенные вычислительные системы, технико-экономические показатели, функция осуществимости.