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In this paper describes the analysis of the individual factors that are often neglected in practice and can lead to the error appearance of the liquid flow measurement. The methodical error of the transit-time ultrasonic flow measurement caused by the difference occurring the actual cross-sectional profile of the pressure pipeline from a circular shape is considered. An analytical expression for the evaluation of this error is presented. Recommendations for its reduction are given.

Keywords: ultrasound, flow measurement, transit-time method, cross-sectional profile, noncircular, error, accuracy.

A.E. Goldshtein, V.Yu. Belyankov

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The article describes various designs of the surface eddy current probes models in Comsol Multiphysics for using in flaw detector for manual inspection. Using the model data eddy current probe signals resulting from the interaction of the magnetic field transducers with conductive nonmagnetic plate with extended surface defect type slot are defined. The comparative analysis of the interaction results for various designs of the surface eddy current probes was done.

Keywords: Non-destructive testing, eddy current, planar eddy current probe, extended surface defect.

M.A. Kolosovskiy

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The paper considers the task of video surveillance for pedestrian crossings. We analyzed the peculiarities of the task and proposed an object detection system adapted to this task. The system consists of the object detector based on histograms of oriented gradients (HOG) and the motion detector. We measured the system's accuracy and performance. The future work is combining the proposed object detection system and tracking algorithm.

Keywords: object detection, motion detection, video surveillance, computer vision.

M. I. Stalnaya, S. Yu. Eremochkin, T. N. Pivkina

The software for calculation of the mechanical characteristics for the three-phase cage induction motor by vector-algorithmic commutation stator windings 20

The software for calculation of the mechanical characteristics for the three-phase cage induction motor from the single-phase network by the vector-algorithmic commutation electric motor stator windings is proposed in the article. Key software functions are considered, working results as the example of the electronic semiconductor inverter of the vector-algorithmic type are presented.

Keywords: vector-algorithmic control, three-phase induction motor, vector diagram of the stator rotary field, mechanical characteristics.

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Keywords: integrated characteristics, harmonic signal, instant values, orthogonal components, error.

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Keywords: free precession magnetometry, proton magnetometer, parametric analysis.

A.S. Bessonov

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Keywords: instruments simulation, data processing, graphic programming environment LabVIEW, virtual instruments, MathCAD tools.

A.V. Kaygorodov

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Keywords: accelerometer, adaptive filter, cardiology.

O. G. Berestneva, O. N. Fisochenko

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Keywords: adaptation of foreign students, statistical analysis, criteria and adaptation indicators, scale of measurement of parameters, integrated assessment.

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Keywords: identification, monitoring, the hybrid approach, forecasting, a pattern.

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Keywords: bioelectric signals, wheat seeds, expert system

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Keywords: position, orientation, graph, gradient, HOG, pose.

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Keywords: stress-strain state, three-dimensional model, sealed tooth, dentin, enamel.

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Keywords: universal coding, combinatorial code, redundancy, entropy.

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Keywords: coding, redundancy, entropy.

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Keywords: measuring system, error of the measuring channel, limit of an allowed relative error.

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Keywords: laser interferometer, an interference pattern, the measurement of small displacements, the surface of the object of control, diagnostics of the state.

A.E. Goldshtein, G.V. Vavilova

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Keywords: capacitance of electrical cable, electrocapacitive transducer, computer simulation, design parameters.

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Keywords: electrospark control, cable, electrode, capacitance, breakdown.

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Keywords: photovoltaic module, volt-ampere characteristics, climatic factors.

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Keywords: electrocardiograph, pocket electrocardiograph, handheld electrocardiograph, tele-ECG, dry electrodes.

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Keywords: ultrasonic vibrations, piezoelectric transducer, amplitude measuring.

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Keywords: eddy current method, phase, metal detector.

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Keywords: laser interferometer, the interference pattern, the measurement of displacement, the surface of the object of control, diagnostics of the state.

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Keywords: light, luminance, vision, measurement, lapse.

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Keywords: phase displacement, cable, wire, measurement, capacity, electrode, cable manufacturing, equivalent circuit.

S.A. Lisakov, A.V. Kuraev, A.N. Pavlov, E.V. Sypin

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Keywords: electro-optical gauge, fire, multipoint electro-optical system, sensitivity threshold, angular field.

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Keywords: ultrasonic, drilling, amplitude, drilling speed.

A.V. Ishkov, V.A. Novozhenov, A.V. Novozhenov, N.E. Strucheva, D.N. Ljashenko, S.F. Dmitriev, V.N. Malikov

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Keywords: Ce:Nb-alloys, substrate, impulse vacuum transpiration, nanofilms, eddy currents method, visual-optic method, oxidation kinetics.

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Keywords: Submersible drive, diagnostics, telemetry unit, vibration acceleration, phase-locked loop.

O. B. Akulova, V. I. Bukaty, U.I. Zalaeva

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Keywords: Indicator of weakening of light, water temperature, lake, daily measurements.

O.Y. Yankina, A.N. Pavlov, E.V. Sypin

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Keywords: backscatter, gas-disperse system, reproducibility of the experiments, a method of dispersions.

T.V. Kotlubovskaya, V.V. Nadvotskaya, O.E. Romanova

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Keywords: humidity, temperature, illumination, sensor, microcontroller, monitoring system.

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Keywords: sialodokholitiyaz, laser of dopplerometry, microcirculation, conservative treatment.

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Keywords: regional management, educational trajectory, educational institution, employer, individual, information system.

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Keywords: aerosol, databank, database, GIS, topological vectorial model.

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Keywords: ecological expert operation (eeo), qualification of the expert, automated system .

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Keywords: computer vision, visual classification of objects, the choice of learning-images, semantic graph, sift-descriptors, visual features.

I. Lyzin, V. Agajanian, S. Evstafiev, S. Molnin

A Comprehensive Approach to the Formation and Estimates of Basic Information and Communication Competence of Students 150

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Keywords: information and communication competence, university entrants, basic level of ict, evaluation criteria.

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Keywords: Information and communication competency, students, electronic it-university, comprehensive system, applied informatics.

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Keywords: security system, fire alarm, smooth operation, redundancy technology.

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Keywords: automation, cyclone, industrial controller, inverter.

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Keywords: pendulum deformer, automation, grinding, automatic control system, a microcontroller.

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Keywords: master training, applied science, the basic educational program design, monitoring quality, tiering training, branch of the university.

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Keywords: Analysis, forecasting, management, decision-making, franchising, franchisee, software, 1C.

A.V. Kuraev, S.A. Lisakov, A.N. Pavlov, E.V. Sypin

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Keywords: the multipoint electro-optical system, hardware-software complex, coordinates of the explosion, explosion suppression.

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Keywords: radioelectronic equipment pre-production, operative production planning, information production support, Enterprise Information Infrastructure, ERP.

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Keywords: temperature, humidity, solar radiation, sensors, liquid precipitates, controllers, hydrostatic water level.

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Keywords: the economic-mathematical model, the structure of the ICC, the criterion of optimality, dates of fieldwork, the need for mehanizatorah.

PART V. SOFTWARE AND HARDWARE AUTOMATED SYSTEMS AND COMPONENTS

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Keywords: ultrasound, pre-cavitation mode, ultrasonic apparatus, impulse excitation, duty cycle, rise time.

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the structure of technical solutions, as well as developed a schematic diagram of the device.

Keywords: diagnostic system, wireless charging, microcircuit of charge.

A.O. Belyaev, V.V. Kirienko, D.S. Ubraylo

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Keywords: bluetooth low energy, bluetooth classic, bluetooth smart, bluetooth smart ready, medical equipment, battery based power.

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Key words: system with a super-cycle, the state machine, realtime operating system, microcontroller, medical equipment, self-powered.

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Keywords: energy consumption testing, microcontroller, medical equipment, self-powered.

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Keywords: ultrasound, ultrasonic technological device, piezoelectric vibratory system.

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Keywords: instantaneous frequency, phase shift angle, phase meter, digital parametric analysis, adaptive filtering, radio navigation.

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Keywords: piezo, inertial piezodrive, nanoscale displacement, rotary translational drive, equivalent circuit, modeling.

I.D. Bortnikov, A.P. Ljuljakin, A.A. Trubachev, A.V. Yurchenko, V.I. Yurchenko

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Keywords: microstrip antenna, radiation pattern, reflection coefficient.

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Keywords: information security, model, complete factorial experiment (CFE), fractional factorial experiment (FFE).

K.V. Masalova, E.V. Sharlaev

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Keywords: personal data information systems, protection of personal data, personal data, the level of protection PDIS.

A.V. Karpov, R.R. Fatykhov, A.D. Smolyakov

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This article describes a method of wireless synchronization in system of dynamically encryption keys generating. The reference generator's bottom limit of frequency instability is substantiated. Rubidium frequency standards are selected as the reference generators. The network synchronization protocol is developed and realized.

Keywords: cryptography, multipath radio channel, distribution of secret keys, synchronization, frequency instability, frequency standard.

D.V. Kirillov

Technique of a decision space building in the automated role-based access control model ... 242

A concept of automated role-based access control and technique of a decision space building for automated operation processing, linked with access control component and relation state changing in corporate information system, are proposed. The complexities causes of role-based access control management are analyzed using experimental studies.

Keywords: access control, role-based access control, event-caused permissions delegation, decision space.

P.C. Shiverov, T.G. Novosad, M.N. Osipov

Trust in the context of verification-analysis of authentication protocols 248

The paper discusses the tools of formal analysis of authentication protocols. Proposed the formalized notion of trust as a key measure analysis of authentication protocols. This representation is considered in the framework of the use of test methods of authentication protocols verification - BAN-logic and automata-theoretic method of Dolev-Yao.

Keywords: cryptographic protocols, authentication, BAN-analysis, method of Dolev-Yao, trust.

A.Y. Iskhakov, V.I. Karnyshev, E.Y. Kostyuchenko, R.V. Meshcheryzkov, A.O. Shumskaya

Security patent information processing system 251

A description of methods of software security that realizes search, accumulation of data from public patent and reference and information data bases is conducted in the work. There proposed the differentiation of access rights to both the data and the operations. The system peculiarity is the increasing of safety level with the accumulation and correlation of information

Keywords: information protection; information security, patent information.

ПРАВИЛА ПО ОФОРМЛЕНИЮ СТАТЬИ

Статья объёмом 4-8 страниц, имеющая индекс УДК, аннотацию из 2-3 предложений и ключевые слова должна отвечать следующим требованиям:

Файл статьи должен быть подготовлен в текстовом редакторе Microsoft Word версии не ниже 97 и не выше 2003. Оптимально использовать для подготовки рукописи шаблон, приведенный на <http://mca.altstu.ru/index.php?mc=0>. Там же приведены и другие требования, предъявляемые к комплектности и содержанию направляемых в редакцию материалов. Нижеследующая информация дана для авторов, не имеющих возможности воспользоваться представленным на сайте шаблоном.

В диалоге “Файл - Параметры страницы“ используется размер бумаги формата А4, ориентация листа книжная. Поля: верхнее — 3,5 см; нижнее — 2,5 см; левое — 2,5 см; правое — 2,5 см; переплет — 0 см; колонтитул от края: верхний — 1,25 см; нижний — 2,3 см.

В диалоге “Формат - Колонки“ выбирается расположение текста в "две" колонки, устанавливается ширина колонок — 7,65 см, промежуток между ними — 0,7 см. В диалоге “Файл - Параметры страницы“ - "Макет" включить "Различать колонтитулы" - первой страницы и чётных и нечётных страниц. На нечетных страницах в верхнем колонтитуле указывается название статьи (главы) (Arial, 9 пунктов, прописные), а в нижнем колонтитуле – список авторов (Arial, 10 пунктов, прописные)

Названия статей набираются прописными буквами (шрифт “Arial“, размер шрифта текста — 14 пунктов, полужирный). Инициалы и фамилии авторов размещаются под названием статьи (шрифт “Arial“, размер шрифта текста — 12 пунктов). Аннотация статьи и ключевые слова набираются шрифтом Times, 10 пунктов с одинарным интервалом и отступом после абзаца 6 пунктов.

Для основной части текста используется шрифт “Arial“ размером 10 пунктов, красная строка — 0,8 см, интервал между строками “одинарный“. Нумерация страниц производится шрифтом “Arial“, 12 пунктов, наклонный. Расположение нумерации — внизу страницы (в нижнем колонтитуле), снаружи. Статья должна подразделяться на отдельные разделы (например, введение, эксперимент, обсуждение результатов, выводы и т.д.), названия которых выделяются жирным шрифтом.

Для создания формул и таблиц используются встроенные возможности Word. Рисунки цифрового формата (в электронном виде) создаются средствами растровых редакторов в черно-белом виде и вставляются в нужное место документа как текст.

Размеры рисунков не должны превышать границы полей страницы основного текста документа с учетом подрисуночной подписи. Рисунки издательством не редактируются. Если рисунок по ширине превышает размер колонки, то необходимо ставить перед ним и после него разрыв раздела на текущей странице. Рисунки, надписи и объекты Word должны перемещаться вместе с текстом, т.е. быть не поверх текста! Слово «рисунок» в подрисуночных подписях и по тексту статьи не сокращается.

Список литературы набирается шрифтом “Arial“ размером 9 пунктов. Заголовок «Список литературы» - Arial, 10 пунктов жирный. Перед списком при необходимости делается ссылка на спонсоров шрифтом Times, жирный 9 пунктов.

После списка литературы приводится контактная информация для связи с авторами статьи. Указывается место работы, занимаемая должность, ученая степень и звание шрифтом “Arial“, 9 пунктов, курсив. ФИО авторов выделяется жирным шрифтом. Прочая информация – по усмотрению авторов.

К твердой копии статьи прилагается 1) перевод названия статьи, фамилий и инициалов авторов, аннотации и ключевых слов на английский язык, 2) листок со сведениями об авторах, включающий место работы, должность, ученую степень и звание, адрес электронной почты, служебный телефон, почтовый адрес 3) акт экспертизы, или заменяющий его штамп на распечатанном экземпляре статьи. 4) письмо в редакцию для разрешения обработки и ограниченной публикации персональных данных. Авторы подписывают все страницы статьи и листок со сведениями.

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