1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PHENYLTRIALKYLSILOXANE OLIGOMERS WITH BRANCHED MOLECULAR STRUCTURE -U-

AUTHOR-(05)-TYERSKAYA, S.A., ANDRIANOV, K.A., CHERNOBROVKINA, M.N., TIKHONOV, V.S., ALANICHEV, V.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 339-46

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SILOXANE, HETEROCYCLIC OXYGEN COMPOUND, CONDENSATION REACTION, MOLECULAR STRUCTURE, BENZENE DERIVATIVE, CHEMICAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1735 STEP NO--UR/0079/70/040/002/0339/0346

CIRC ACCESSION NO--AP0112725

UNCLASSIFIED

USSR UDC:538.566+621.371

ALANAKYAN, Yu. P., Tr. Metrol. In-tov SSSR [Works of Metrological Institutes of the USSR[, No. 102 (162), 1970, pp. 72-81 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Zh163 by the Author)

The investigation is performed for the case in which the frequency of oscillations is near the gyrofrequency of the electrons considering self-consistent distribution of plasma density in the field of the surface wave. The dispersion equation is found and the distribution of plasma density is determined.

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USSR UDC:538.566+621.371

ALANAKYAN, Yu. P.

"The Theory of Surface Electromagnetic Waves"

Tr. Metrol. In-tov SSSR [Works of Metrological Institutes of the USSR], No. 102 (162), 1970, pp. 72-81 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Zh163 by the Author)

Abstract: The propagation of surface electromagnetic waves along the boundary of a plasma is studied, considering perturbations in plasma density by the self-consistent field of the surface wave. Under the conditions present in an isotropic plasma, a dispersion equation for the surface wave is produced and it is demonstrated that heterogeneity of the plasma limits possible values of the field amplitude of the surface wave. The dependence of the maximum value of the amplitude of the electric field on oscillating frequency is also found. Furthermore, the case of propagation of a surface wave across a permanent magnetic field is studied.

USSR

YEGIYAN, K. SH., et al., Izvestiya Akademii Nauk Armyanskoy SSR, Vol 5, No 5, 1970, pp 381-391

organizing and carrying out the work, E. V. TER-M.NASYAN, Chief of the Design Bureau of Yerevan Physics Institute, and Senior Engineer G. G. MAMIKONYAN for designing the apparatus;

L. A. MAKHNENKO, Sector Chief of the Physicotechnical Institute, Academy of Sciences Ukrainian SSR, G. A. DEMYANENKO, Chief of the LU-300 Installation, and the entire LU-300 installation staff for their daily assistance in carrying out the experiment; and G. O. OVSEPYAN, D. A. ZARGARYAN, and L. A. SARKISYAN, staff members of Yerevan Physics Institute, for their part in the work of preparing and testing the apparatus and their part in the physical measurements.

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USSR

YEGIYAN, K. SH., et al., Izvestiya Akademii Nauk Armyanskoy SSR, Vol 5, No 5, 1970, pp 381-391

conductor after the scattering chamber is a secondary emission monitor for the relative measurement of the electron beam intensity. After the secondary emission monitor the electron beam is absorbed by a burial ground of heavy concrete blocks. The apparatus was tested by measuring the elastic-scattering cross-section for electrons on a free proton in a CH_2 target. A feature of the apparatus is that it works under a high background level from the electron beam. The calibration measurements performed indicate that the apparatus permits the study of direct nuclear reactions with a cross-section of $\geq 2 \cdot 10^{-3}$ sq cm/steradian.

The authors thank A. I. ALIKHANYAN, Corresponding Member of the Academy of Sciences USSR, and Professor V. M. KHARITONOV, Sector Chief of Yerevan Physics Institute, for their interest in the work and repeated discussions; N. I. MOCHESHNIKOV, Sector Chief of the Physicotechnical Institute, for his assistance in

2/3

USSR

UDC 539.1

YEGIYAN, K. SH., BOCHEK, G. L., GRISHAYEV, I. A., ALANAKYAN, K. V., KULIBABA, V. I., and SITENKO, M. L., Yerevan Physics Institute, Physicotechnical Institute of the Academy of Sciences Ukrainian SSR

"Apparatus for the Study of Direct Nuclear Reactions Caused by Electrons and Gamma Quanta With an Energy of Up to 300 Mev"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, Vol 5, No 5, 1970, pp 381-391

Abstract: The article gives a description of an apparatus designed for studying nuclear structure and the character of the interactions of electrons and gamma quanta with a maximum energy of up to 300 Mev. A focused beam of the 300-Mev Khar'kov linear accelerator goes from a parallel transfer system over a vacuum electronic conductor into a scattering chamber. Revolving around the latter on a fixed platform are two magnetic analyzers designed to record secondary reaction particles produced by the gamma quanta or electrons. Situated on an extension of the electronic

USSR

ARUTYUNYAN, R. G., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 4, 1973, pp 732-736

H_c = 1.8 erg observed at i_p = 16 ma-cm^2 and D (hill diameter) and h (hill height) equal to 1.5 and 0.25 microns, respectively. After 16 ma-cm^{-2}, hill size diminishes; 3) a definite relationship exists between H_c, $\varphi_{3/2}$ and D, P. 5 figures, 9 bibliographic references.

2/2

USSR

UDC [illegible]

ARUTYUNYAN, R. G., YEGIYAN, K. A., YEDIGARYAN, A. A., [illegible], A. B., and ALAVAKYAN, G. A., Yerevan Scientific Research Institute of Electronic Machines

"Effect of Roughness and Thickness on the Coercive Force of Cylindrical Iron-Nickel Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, [illegible], 1973, pp [illegible]

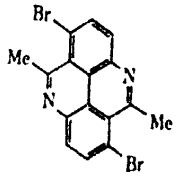
Abstract: A study was made of the nature of coercive force H_c in cylindrical iron-nickel films, 0.3-2.0 microns thick, having a magnetic anisotropy close to zero. Two groups of films were investigated: [illegible] deposited respectively on polished and on weakly etched [illegible] wire, 0.2% Fe in this case. In both cases an anisotropy [illegible] applied to eliminate the effect of the wire's crystal structure. Surface roughness was altered by varying the wire-etching conditions [illegible] temperature T. From the study of microfields, maps the [illegible] were noted: 1) films on polished wire with [illegible] smooth surface with an [illegible] diameter of heterogeneities of about 0.1 microns but with a large spread amounting to 0.01-0.05 microns; 2) increase in T led to the formation of a characteristic [illegible] rise of H_c and the anisotropic dispersion φ_{90} with the lowest value at

1/2

Acc. Nr: AP0045159 Abstracting Service: CHEMICAL ABST. 4/70 Ref. Code: UR0409

A

90341a Nucleophilic mobility of a bromine atom in 1,6-dibromo-5,10-dimethyl-4,9-diazapyrene. Alam, L. V.; Veksler, K. V.; Efros, L. S. (Leningrad. Tekhnol. Inst. im. Lensoveta, Leningrad, USSR). *Khim. Geterotsikl. Soedin.* 1970, (1), 133-4 (Russ). Heating 21.8 g 5,5-dibromo-2,2-bis(acetamido)biphenyl with 217 g $AlCl_3$ and 46.4 g NaCl 8 hr at 250° gave 8% 1,6-dibromo-5,10-dimethyl-4,9-diazapyrene (I), m. 275-7° (decompn.)



(I)

which with piperidine 5 hr at 180° in a sealed tube gave yellow 1-piperidinyl-6-bromo-5,10-dimethyl-4,9-diazapyrene, m. 175-8° (decompn.). Ir and uv spectra are given. G. M. Kosolapoff

REEL/FRAME
19780059

2/2 037 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AM0101153

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 5. CHAPTER I DIFFERENCE DIAGRAMS 7. II DISCONTINUITY DECOMPOSITIONS 67. APPENDIX I CALCULATION OF FORMATION OF A SHOCK WAVE FORMING IN INTERSECTING CHARACTERISTICS 90. II MECHANICAL EFFECTS ON AN ELECTRODE IN ACCUMULATION OF PLASMA ON THE AXIS 93. APPENDIX III 99. BIBLIOGRAPHY 112.

UNCLASSIFIED

1/2 037 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--SOLUTION OF UNIDIMENSIONAL PROBLEMS OF GAS DYNAMICS IN MOVING NETWORKS -U-

AUTHOR-(04)-ALALYKIN, G.B., GODUNOV, S.K., KIREYEVA, I.L., PLINER, L.A.

COUNTRY OF INFO--USSR

SOURCE--RESHENIYE ODNOMERNYKH ZADACH GAZOVOY DINAMIKI V PODVIZHNYKH SETKAKH, MOSCOW, NAUKA, 1970, 110 PP

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GAS DYNAMICS, PLASMA SHOCK WAVE, ELECTRODE PROPERTY, DIFFERENCE METHOD, MONOGRAPH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0779 STEP NO--UR/0000/70/000/000/0001/0110

CIRC ACCESSION NO--AM0101153

UNCLASSIFIED

USSR

ALAKSANDROV, V. M. and [illegible], V. A. (Rostov-on-[illegible])

"Orthogonal Polynomial Method in Plane Combination Problems of Elasticity Theory"

Moscow, Prikladnaya Matematika i Mekhanika, Vol 34, [illegible], pp [illegible]

Abstract: The [illegible] of the orthogonal polynomial method [illegible] solving problems [illegible] theory of elasticity, [illegible] problem to the [illegible] of an integral equation of the first [illegible] of the region of variation of the dimensionless parameters in the kernel of the integral equation, and the separation of the chief part of the kernel corresponding to the [illegible] region of variation of the parameters. [illegible] are found for the integral operator corresponding to the chief part, these functions being a system of classical orthogonal polynomials. The [illegible] function in the right-hand member of the integral equation and the solution are arranged in series in terms of these polynomials, and the regular part of the kernel is arranged in a double series. The integral equation then reduces easily to an infinite algebraic system of equations. The matrix of the finite system obtained in a shortening of the infinite system, explained in detail in the article, is almost triangular to permit a solution to the problem. The authors express their gratitude to G. Ya. Popov for his assistance.

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UDC 621.385.032/034

USSR

ALAKHOV, YE. K.

"Stabilization Of The Regime Of A Reflex Klystron--Autodyne In Devices For Measurement Of Secondary Radiation"

Tr. Leningr. in-ta tochnoy mekh. i optiki (Works Of The Leningrad Institute Of Precision Mechanics And Optics), 1970, Issue 69, pp 111-114 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A161)

Translation: A computation is fulfilled for a proposed circuit for stabilization of the performance of a reflex klystron--autodyn (RKA) which is used in a short-range radar [v blizhney radiolokatsii] for measurement of secondary radiation fields. Negative feedback is achieved because of the connection of a resistor into the cathode circuit of the RKA. The indicated method of stabilization is applicable for a considerable part of the generation area. An example of the computation is presented. The results obtained show that for a more effective stabilization between the reflector circuit and the load it is necessary to introduce a d-c amplifier. 2 ref. R.Zh.

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USSR

UDC 621.385.623/624

ALAKHOV, YE. K.

"To The Problem Of Deformation Of The Electron Flow In Reflex Klystrons By The Microwave Field Of The Resonator"

Tr. Leningr. in-ta tochnoy mekh. i optiki (Works Of The Leningrad Institute Of Precision Mechanics And Optics), 1970, Issue 69, pp 115-120 (from Rzh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A162)

Translation: The theory is considered of the enlargement of the cross section of the electron flow in a reflex klystron, with the presence of oscillation under the influence of the microwave field of the resonator. It is assumed that the klystron has axial symmetry. The transverse and longitudinal components are found of the velocity of the electrons during their emergence from the resonator gap and also the equation of the path of movement of the electrons excited by the resonator field. On the basis of the expressions obtained it is possible to find the effective coefficient of the electron interaction in the klystron. R.M.

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USSR

ALAKHOV, Ye. K., Izvestiya Vysshikh Uchebnykh Zavedeniy, Priborostroyeniye, Vol 13, No 12, 1970, pp 9-10

a variable low-frequency voltage over the load resistance in the circuit of the first resonator grid. In the tetrode regime of a RK, low frequency oscillations are additionally amplified k times and are tapped at the load in the reflector plate circuit. In the former application, the total sensitivity exceeds that in the tetrode application and lies within the 100-150 volt range.

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USSR

UDC 621.385.6

ALAKHOV, Ye. K., Leningrad Institute of Precision Mechanics and Optics

"Reflex Klystron as a Tetrode for Autodyne Reception"

Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy, Priborostroyeniye, Vol 13, No 12, 1970, pp 9-10

Abstract: Use of the reflex klystron (RK) in the conventional tetrode regime follows directly from its design when the leads of the resonator gap are correspondingly equivalent to the control and shielding grids of the tetrode, and the reflector plate acts as the anode. In another modification, the focusing electrode of the klystron can be used as the control grid. Here, because of the high mutual shielding of the electrical fields near the reflector plate and the cathode, the permeability of the klystron-tetrode proves extremely small, which suggests high gain factors. Actually, from experimental data the dynamic gain in terms of low-frequency voltages average 45-50 decibels for conventional RK. Use of the tetrode regime of the klystron for autodyne reception of secondary radiation signals is of great interest, when the RK simultaneously fills its principal role -- generating UHF signals. As we know, in autodyne signal reception the klystron power cathode current varies, which then produces

USSR UDC 681.325.6

ALAKHOV, Ye. K., Leningrad Institute of Precision Mechanics and Optics

"Use of the Superregenerative Mode of a Reflective Klystron-Autodyne for Reception of Secondary Emission"

Leningrad, IVUZ Priborostroyeniye, Vol 14, No 10, Oct 71, pp 5-9

Abstract: The author considers superregenerative operation of a reflective klystron. The operating mode is based on using harmonic quenching oscillations in the reflector circuit with formation of primary modulation of the cavity supply current. The theory of the problem is presented as well as a circuit for a pilot model superregenerator with mode stabilization. The results of experiments agree satisfactorily with the theoretical predictions. Three figures, bibliography of seven titles.

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USSR

YALAMOV, Yu. I., et al., Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 316-318

one of the components (for example, the first) of a binary gaseous mixture. Allowance is made for gas slippage along the particle surface.

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USSR

UDC 533.15

YALAMOV, Yu. I., ALADZHYAN, V. M., GALOYAN, V. S., and DERYAGIN, B. V., Corresponding Member of the Academy of Sciences USSR, Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Diffusiophoresis of Volatile Aerosol Particles in a Slipping Mode"

Moscow, Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 316-318

Abstract: In earlier articles the authors developed a diffusiophoresis theory for moderately large, nonvolatile aerosol particles whose radius satisfies the condition:

$$0.01 \leq \lambda/R \leq 0{,}03,$$

where λ is the mean free path length of gaseous molecules in binary gaseous mixtures. A diffusiophoresis theory was also considered for very large volatile particles. The present article deals with the derivation of a formula for the diffusiophoresis velocity of moderately large volatile particles, with allowance for all factors which are proportional to the Knudsen number, equal to λ/R. The authors consider a spherical drop consisting of a substance which can be evaporated (or condensed), forming

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UDC 547.558.1

USSR

MASTRYUKOVA, T. A., ALADZHEVA, I. M., PATROSOV, YE. I., KABACHNIK, M. I.,
Institute of Organoelemental Compounds, Academy of Sciences of the USSR

"Acidity and Tautomerism of β-Ketophosphonium Salts. Synthesis and Acid-Base Properties of Triphenyl(Diacylmethyl)phosphonium Salts"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1470-1473

Abstract: Diacylphosphinomethylenes (I) and the corresponding phosphonium salts (II) were synthesized, and their acid-base properties were studied. Compounds (I) have been previously described, and the first representative of (II) was reported in Zhurnal Obshchey Khimii in 1971 (Vol 41, p 2356). triphenyl(acetylbenzoylmethyl)-phosphonium chloride. New members of the series were synthesized by reacting hydrogen halides or trifluoroacetic acid with the corresponding phosphinomethylenes (I). The resultant salts are completely stable with the exception of triphenyl(diacetylmethyl)-phosphonium chloride. The acid-base properties of the compounds were studied by a potentiometric method in water-ethanol solutions and in nitromethane. It was found that phosphinomethylenes are weak bases, and the corresponding phosphonium salts are fairly strong acids.

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USSR

UDC 547.241 + 547.62 + 547.442

MASTRYUKOVA, T. A., ALADZHEVA, I. M., PETROVSKIY, P. V., MATROSOV, YE. I., and KABACHNIK, M. I., Institute of Organometallic Compounds

"Acidity and Tautomerism of beta-Ketophosphonium Salts. Tautomerism of Triphenyl(diacylmethyl)phosphonium Salts"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 991-997

Abstract: According to the IR- and NMR-Spectroscopic data the salts of triphenyl(acetylbenzoylmethyl)-, triphenyl(acetylcarboethoxymethyl) and triphenyl(diacetylmethyl)phosphonium exist in the enole form; they are in the trans-enolic orientation with the protons of the hydroxyl groups being involved in intermolecular hydrogen bonding with the anions or the oxygen of the carbonyl groups. Triphenyl(dicarboethoxymethyl)phosphonium chloride exists in the dicarbonyl form.

1/1

2/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132190

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CONVENTIONAL GRAY CAST IRON (C 3.2, SI 2.0, MN 1.5, P 0.3, AND S 0.035 WT. PERCENT) WAS CHOSEN FOR THE STUDY OF THE DEPENDENCE OF SUPERHEATING TEMP., HOLDING TIME, AND DEGREE OF VACUUM ON STRUCTURAL CHARACTERISTICS. SPECIMENS WERE CASE UNDER IDENTICAL CONDITIONS, AND THE MELTING WAS PERFORMED IN VACUUM AS WELL AS IN VARIOUS AMTS. EXPTL. MELTS WERE CARRIED OUT IN SILICA CRUCIBLES AT 1300-2000EGREES AT 1 TIMES 10 PRIME3 NEGATIVE TORR. THE COOLING RATE WAS VARIED 24-250EGREES PER MIN. CONVENTIONALLY MELTED CAST IRON CHANGED WITH INCREASED COOLING RATE WITHIN THIS RANGE FROM REFFITE PEARLITE TO PEARLITE CEMENTITE, WHILE THE VACUUM MELTED CHANGED ONLY TO PEARLITE FERRITE. WITH INCREASED SUPERHEATING TEMP. AND DESULFURIZATION THE FERRITE FORMATION PROCEEDED MORE INTENSELY IN VACUUM CAST IRON THAN IN CONVENTIONAL CAST IRON. THE PRINCIPAL STRUCTURAL CHARACTERISTIC OF VACUUMIZED CAST IRON WAS THE FORMATION OF ANOMALOUS FERRITE IN THE SHAPE OF A BULLS EYE WITH FORMATIONS OF PERALITE REGIONS ALL AROUND. THESE FORMATIONS ARE INTERRELATED WITH THE FORMATION OF FINELY DISPERSED GRAPHITE, WHICH OCCURRED PREVIOUSLY.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EFFECT OF COOLING ON THE STRUCTURE OF VACUUM CAST IRON -U-

AUTHOR-(02)-KUZMIN, I.V., ALADZHALYAN, YE.N.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZVOD. 1970, (1), 35-6

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--CAST IRON, VACUUM TECHNIQUE, METAL CASTING, METAL COOLING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1928 STEP NO--UR/0128/70/000/001/0035/0036

CIRC ACCESSION NO--AP0132190

UNCLASSIFIED

USSR UDC 612.825+612.822.3

ALADZHALOVA, N. A., KOL'TSOVA, A. V., and KOSHTOYANTS, O. Kh., Institute of Higher Nervous Activity and Neurophysiology, USSR Academy of Sciences, and Institute of Neurology, USSR Academy of Medical Sciences, Moscow

"Frequency Spectrum of Ultraslow Brain Waves in the Human Brain"

Moscow, Doklady Akad. Nauk SSSR, No 3, 1973, pp 749-752

Abstract: Ultraslow brain waves recorded in 72 subjects age 20 to 50 were found to differ in frequency at the same time in different regions of the brain. The parameters of the ultraslow rhythms did not coincide in symmetrical zones of the hemispheres. They were pronounced in some leads but completely absent in others, and several rhythms might be superposed in the same lead. Statistical analysis of 1700 sections of the recordings showed that during wakefulness second rhythms with a period of 8 to 10 sec and amplitude of 0.05 to 0.1 mv were dominant (in 77% of the cases). The next most frequent was a rhythm with T = 1 min and amplitude of 0.15 to 0.2 mv (in 20% of the cases). Rhythms at other frequencies were observed in less than 10% of the cases each. The latter appear to have been caused by uncontrollable mental activity or change in level of wakefulness.
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USSR

ALAD'YEV, V. Z., K teorii odnorodnykh struktur, Tallinn, 1971, 3765-71 Dep.

homogeneous structures with refractoriness. The sixth section studies the problem of the existence of the resonance phenomenon in homogeneous structures. And finally, the seventh section of the paper takes up certain questions of recursiveness of sequences of configurations generated by unidimensional homogeneous structures. Author's abstract.

USSR

UDC: 8.74

ALAD'YEV, V. Z., Institute of Experimental Biology, Academy of Sciences of the Estonian SSR

"On the Theory of Homogeneous Structures"

K teorii odnorodnykh struktur (cf. English above), Tallinn, 1971, 17 pp, biblio. 22 titles, 3765-71 Dep. (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V491 Dep)

Translation: The first section of the paper deals with the problem of the dimensions of the internal blocks of erasable configurations in unidimensional homogeneous structures, and the relation between this problem and that of the minimum size of unstructed configurations. The second section takes up certain problems of the existence of adaptive and universal configurations. The third section investigates the problem of existence of unconstructed configurations in homogeneous structures, and refines the concept of "unconstructedness" itself in homogeneous structures. The fourth section examines certain problems of modeling the process of growth of figures in homogeneous structures, and the existence in homogeneous structures of passive configurations of least dimension. The fifth section discusses

USSR UDC 519.96

ALAD'YEV, V., Institute of Experimental Biology, Estonian SSR Academy of Sciences

"One Asymptotic Property of Stochastic Cellular Structures"

Tallin, Izvestiya Akademii Nauk Estonskoy SSR, Fizika - Matematika, Vol 20, No 2, 71, pp 205-208

Abstract: This article examines the Neuman-Moore cellular structure into which probability transfers have been introduced. The author shows the equivalence of several types of stochastic cellular structures by uniform Markovian chains. The necessary and sufficient conditions are given for asymptotic determination of the stochastic cellular structures examined here.

The author defines stochastic cellular structures and states the proposition that each structure is equivalent to a uniform Markovian chain. Proof is derived mathematically, and the opinion is expressed that the stochastic approach may solve a number of questions posed by Moore in 1962 in the Proceedings of the Symposium of Applied Mathematics.

The article contains a bibliography of four titles.

1/1

USSR

Alad'yev Viktor, Izv. ZN Est SSR. Biologiya, 1973, Vol 22, No 1, pp 68-76.

of problems are studied which the author raised in an earlier monograph (Alad'yev, V. Z., K Teorii Odnoradnykh Struktur [The Theory of Homogeneous Structures], Tallin, 1972). An estimate is given of the minimum block containing a UCC-1 (unconstructed configuration of type 1) or UCC(UCC-1) in a one-dimensional homogeneous structure. An assumption is stated, suggesting a criterion for existence of UCC-1 in a homogeneous structure $\cdot Z^1$, Sp, $I^{V}_{(2)}$. 17 biblio. refs.

2/2

USSR

ALAD'YEV VIKTOR

"Some Algorithmic Problems of Mathematical Biology"

Izv. AN Est SSR. Biologiya [News of Academy of Sciences, Est SSR. Biology], 1973, Vol 22, No 1, pp 68-76 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V721, by the author).

Translation: A nonquantitative approach to description of biological processes is studied, first suggested by N. Rashevskiy. The algorithm for description of certain biological processes suggested consists of homogeneous one-dimensional structures (τ algorithms) which have a number of advantages over other known algorithms for word processing. Further, the τ algorithms are used as a basis for the study of certain problems stated by N. Rashevskiy. An algorithm is presented (the G algorithm) written in the alphabet $B = A \cup \{a\}$ $(a \notin A)$, which doubles in the finite word in alphabet A. A formal system Σ_A^R is introduced in alphabet A with the output rule R. For it, the assumption is formulated that there is no system Σ_A^R which can double any finite word in alphabet A. An example of a τ algorithm is given which acts on a system of words. This algorithm does not double any individual word of the system, but doubles any word of the system when other words are present. In conclusion, a number

USSR

ALAD'YEV, I. T. et al., Magnitn. gidrodinamika, 1971, No 1, pp 68-72

of the proposed scheme is the possibility of an appreciable increase in working voltage and reduction in current as compared with traditional circuits. For instance in the anticipated intense pumping mode of the working model, the following indices may be achieved: voltage across the terminals 5 V, developed pressure drop 25 atmospheres, potassium flow rate 0.75 kg/s, efficiency 11%. The proposed scheme with sectionalized electrodes is used for high-pressure pumps with relatively low flow rates. Eight illustrations, bibliography of four titles.

2/2

Power

USSR UDC [621.362:538.4]-16:[669-404.001.4

ALAD'YEV, I. T., MUKHIN, V. A., SHPIZBAK, V. Ya., TEPLOV, G. V., TOLMACH, I. M.

"Experimental Study of a DC MHD Machine With Sectionalized Electrodes"

Magnitn. gidrodinamika (Magnetohydrodynamics), 1971, No 1, pp 64-72 (from RZh-Elektrotekhnika i Energetika, No 9, Sep 71, Abstract No 9A98)

Translation: A working model of a DC MHD machine with sectionalized electrodes is made and experimentally studied on a potassium loop to check the theory and procedure of calculating MHD devices of this type. The study was done for pump and generator operating modes. The following characteristics were obtained in one of the pumping modes: molten potassium temperature 160°C, voltage applied across the channel 1.1 V, developed head 4.05 atmospheres, flow rate 0.19 kg/s, efficiency 7%. The following characteristics were obtained in one of the generator modes: potassium temperature 255°C, voltage across the load 0.4 V, load current 50 A, flow rate 0.356 kg/s, pressure drop 1.0 atmospheres, efficiency 6.2%. The method of calculation is outlined. An advantage

1/2

USSR

UDC 532.529.5

KABAKOV, V. I. and ALAD'YEV, I. T.

"Trajectory and Depth of Penetration of Liquid Jets in a Two-Phase Flow"

V sb. Dvukhfazn. potoki i vopr. teploobmena (Two-Phase Flows and Problems in Heat Transfer--collection of works), Moscow, "Nauka", 1970, pp 25-31 (from Referativnyy Zhurnal-Aviatsionnyye i raketnyye dvigateli, No 12, Dec 70, Abstract No 12.34.142)

Translation: Certain physical phenomena occurring in injectors used in power plants upon condensation are examined. A semiempirical theory is presented, describing the trajectory and depth of penetration of liquid sprayed into a transverse vapor-liquid flow. Illustrations: 6. Tables: 1. Bibliography: 10 entries.

1/1

USSR

ALAD'YEV, I. T., et al., Teplo-Massopernos v Odno-i Dvukhfaznykh Sredakh, 1971, pp 5-9

The following conclusions were made:

1. The critical heat flux increases with the mass velocity
2. The critical heat flux decreases with the increase of the tube length
3. The critical heat flux usually occurs at the outlet of the tube.

2/2

USSR UDC 536.243

ALAD'YEV, I.T., GORLOV, I.G. and FEDYNSKIY, O.S.

"Effect of Nonuniformity of Heat Inflow Along Channel Length on Critical Heat Flux With Potassium Boiling In Tubes"

Moscow, Teplo-Massopernos v Odno-i Dvukhfaznykh Sredakh, 1971, pp 5-9

Abstract: An experimental investigation of critical heat flux with increasing and decreasing heat inflow along the length of the pipe was conducted.

The mass velocity was from 20 to 250 kg/m^{2}sec, pressure nearly atmospheric, temperature close to the saturation one.

Potassium was flowing through round, vertical, molybdenum tubes. The heat inflow was produced by the electric current passing through the tube. The distribution of the heat inflow was controlled by varying the thickness of the tube wall.

USSR

ALAD'YEV, I. T., VOSKRESENSKIY, K. D., GUKOV, G. P., SAPEROV, YE. V., FARDZINOV, V. K.

"Device for Extracting Geothermal Energy"

USSR Author's Certificate No 322084 (from Otkrytiya, Izobreteniya, Promyshlennyye obravtsy, Tovarnyye znaki (Discoveries, Inventions, Industrial Models, Trademarks), No 43, 1973, page 213)

Translation: (1) This device for extracting geothermal energy from hot rock crushed, for example, by an underground nuclear explosion and containing the basic drill stem and open-bottom working casing set to a flooded horizon is distinguished by the fact that in order to increase the reliability it reduced the time for putting the unit into operation, the operating column is made perforated above the lower mark of the stem and it is equipped in the perforated section with discharge channels, but inside the operating column below the perforated section a heat exchanger has been installed for tapping the geothermal heat.

(2) This is a device according to item 1 distinguished by the fact that the operating stem is executed with perforations in the lower section.

1/1

USSR

UDC 537.311.33.001.2

ALADINSKIY, V.K., NIKHAYLOV, L.K., SHPIRT, V.A.

"Generation Of Microwave Oscillations In Silicon Epitaxial P-N Junctions"

Elektron. tekhnika. Nauch.-tekhn.sb. Poluprovodn. pribory (Electronic Technics. Scientific-Technical Collection. Semiconductor Devices), 1971, Issue 7(6-), pp 21-23 (from RZh:Elektronika i yeye primeneniye, No 5, May 1972, Abstract No 5B108)

Translation: The paper reports on the generation of microwave oscillations in p-n junctions in which the base and rectifying layers are obtained by epitaxy. The breakdown voltages of the semiconductor diode are found in the 40--60 V interval. The capacitance with zero bias is $\leqslant$ 1 pf. The wavelength of the oscillations which are generated is 5.4--5.8 cm.

1/1

2/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0127804

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PN JUNCTIONS IN SIC SINGLE CRYSTALS WITH N CONCN. OF 6 TIMES 10 PRIME17 TO 10 PRIME19-CM PRIME3 WERE PREPD. BY: (I) AL DIFFUSION AT 1900-2300DEGREES DURING SEVERAL MIN, (II) B DIFFUSION AT 1920-2000DEGREES DURING SEVERAL MIN, OR (III) EPITAXIAL GROWTH WITH THE P REGION DOPED WITH AL. THE STATISTICAL CHARACTERISTICS AND THE DIFFERENTIAL RESISTANCE, AS WELL AS THEIR TEMP. DEPENDENCES, WERE MEASURED. THE CAPACITANCE VOLTAGE RELATIONS WERE PLOTTED AND THE SPACE CHARGE LAYER THICKNESS (10 PRIME NEGATIVE6-10 PRIME NEGATIVE5 CM) WAS EVALUATED. THE V. AMP. CHARACTERISTICS ARE NTO STEEP ENOUGH, SO THAT THE VOLTAGE AT C.D. EQUALS 1-5 MA-CM PRIME2 WAS ARBITRARIYLY CHOSEN AS THE BREAKDOWN VOLTAGE, WHICH VALIED FROM 10 TO 40 V, CORRESPONDING TO A FIELD OF 5 TIMES 10 PRIME6 V-CM. THE IMPURITY DISTRIBUTION IN THE DIODES IN CLOSE TO THE ABROUP OR TO THE LINEAR PN JUNCTION. THE LATTER ARE RESPONSIBLE FOR THE TUNNEL MECHANISM OF ELEC. BREAKDOWN. THE TEMP. COEFF. OF BREAKDOWN (BETA) AT 60-120DEGREES IS NEG. AND IS LARGER THAN EXPECTED FROM THERMAL EXPANSION CONSIDERATIONS. THE TEMP. INDEPENDENCE OF BETA IMPLIES A CONSIDERABLE CONTRIBUTION OF EXPANSION TO THE TEMP. DEPENDENCE OF THE TUNNEL EFFECT. THE TUNNEL TRANSITIONS ARE CONSIDERED AS INDIRECT AND AS OCCURRING BY A PHONON MECHANISM. THE FIELD (E) DEPENDENCE OF THE BREAKDOWN CURRENT (I) WAS STUDIED, AND A RELATION LOG I SIMILAR TO ROOT BAR E WAS DERIVED. IT WAS VALID IN A WIDE RANGE OF I. THE PREDOMINANT TYPE OF BREAKDOWN IS THAT BASED ON THE TUNNEL EFFECT. A CONSISTENT THEORETICAL MODEL IS PROPOSED.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--TUNNEL BREAKDOWN IN SILICON CARBIDE PN JUNCTIONS -U-

AUTHOR-(04)-ALADINSKIY, V.K., KUZNETSOVA, YE.N., PAVLICHENKO, V.I., RYZHIKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(4), 708-14

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PN JUNCTION, SILICON CARBIDE, SINGLE CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0183 STEP NO--UR/0449/70/004/004/0708/0714

CIRC ACCESSION NO--AP0127804

UNCLASSIFIED

USSR

UDC 621.382.2

ALADINSKIY, V.K., KUZNETSOVA, Ye.N., PAVLICHENKO, V.I., and RYZHIKOV, I.V.

"Tunnel Breakdown in SiC p-n Junctions"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 708-714

Abstract: This paper describes experiments, which investigate the breakdown mechanism in SiC p-n junctions obtained by various technical means. Such electrical breakdowns are accompanied by electroluminescence, and research in the latter is valuable for investigating one of the new directions in semiconductor engineering, the creation and development of light diodes, i.e., instruments in which electrical energy is transformed to light energy. The p-n junctions under test were prepared by the diffusion of aluminum at temperatures of 1900-2300° C for several hours, or the diffusion of boron for several minutes at a temperature of 1920-2000° C and separate diffusion of Al followed by boron. Some of the junctions were obtained by epitaxial growth; then, the p region was doped with Al. The authors conclude by suggesting that an analysis of the spectral characteristics of recombination radiation in the breakdown of diodes of this type would be worthwhile conducting.

1/1

USSR UDC 621.382.2

ALADINSKIY, V. K., and TIMERBULATOV, A. M.

"On Two Forms of Avalanche Breakdown in P-N Junctions"

Elektron. tekhnika. Nauch.-tekhn. sb. Poluprovodn. pribory (Electronics Technology. Scientific-Technical Collection. Semiconductor Devices), 1970, Issue 7(57), pp 39-43 (from RZh-Elektronika i yeye primenenive, No 7, July 1971, Abstract No 7B264)

Translation: It is shown that two stationary forms of avalanche breakdown are possible. In homogeneous p-n junctions of sufficiently large area, the steady state of the avalanche breakdown results from the narrow overlapping of the damping avalanches of the electrons and holes. In homogeneous p-n junctions of small area (microplasmas) a quasistationary form of the breakdown is possible, which is connected with one selfsupporting avalanche which is stabilized by the space charge of the mobile carriers. Summary.

1/1

USSR

UDC 537.311.33.001.2

ALADINSKIY, V.K.

"Concerning The Statistical Properties Of A Process Of Avalanche Multiplication Of Electron-Hole Pairs In P-N Junctions"

Elektron.tekhnika. Nauch.-tekhn.sb. Poluprovodn. pribory (Electronics Technology. Scientific-Technical Collection. Semiconductor Devices), 1971, No 5(66), pp 22-28 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2B81)

Translation: For an analysis of the fluctuations of the number of charge carriers appearing during impact ionization in p-n junctions, an apparatus for Markov multiplicative processes is investigated. It is shown that the statistical characteristics of an avalanche process depends on the average number of ionize impacts in a p-n junction γ_0. The probability of degeneracy and the limiting distribution of the overall number of pairs are found as a function of the magnitude γ_0. Summary.

1/1

USSR

UDC 621.373.5.001.5:621.382.23.011.222

ALADINSKIY, V. K., GRADINAROV, P. G.

"Output Characteristics of a Tunnel-Drift Diode"

Moscow, Radiotekhnika i elektronika, Vol XVII, No 2, 1972, pp 376-380

Abstract: It has already been indicated [V. K. Aladinskiy, Fizika i tekhnika poluprovodnikov, No 2, 617, 1968; V. K. Alandinskiy, et al., Fizika i tekhnika poluprovodnikov, No 4, 1328, 1970] that along with Gunn diodes, diodes can be used as solid state generators in which the high frequency generation is caused by the tunnel effect or a combination of it with impact ionization. An estimate of the efficiency of such a tunnel-drift diode is made here. The output power can reach 10^6-10^5 watts/cm^2 for a resonator with a high Q-factor in the submillimeter and millimeter wave ranges. The efficiency depends on the electric field distribution in the diode structure and its geometry. For optimal conditions it is 10 percent.

1/1

ACCESSION NR: AP3007637

ASSOCIATION: none

SUBMITTED: 18Aug61	DATE ACQ: 16Oct63	ENCL: 00
SUB CODE: GE	NO REF SOV: 000	OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R002065900024-6

USSR

ACCESSION NR: AP3007637 S/0286/63/000/011/0041/0041

AUTHOR: Bruk, V. A.; Drozdova, N. A.; Gruyev, D. A.; Sushchik, A. S.; Aladinskiy, V. K.; Kurnosov, A. I.

TITLE: Method of producing alloy p-n junctions

SOURCE: Byul. izobret. i tovarn. znakov, no. 11, 1963, 41

TOPIC TAGS: semiconductor manufacture, transistor, p-n junction transistor, alloy transistor junction

ABSTRACT: A method of producing alloy p-n junctions using highly-alloyed materials with a step-by-step distribution of admixtures in the p-n junction, based on the heat-treatment of the layered semiconductive structure.

Distinguishing features: In order to eliminate the influence of diffusion on the structure of the p-n junction, the layered structure is mixed in a furnace with a cross temperature gradient, and, by controlling the temperature gradient, the melting zone is mixed at a speed that is higher than the speed of diffusion of the admixtures.

Card 1/2

ALADINSKAYA, T. I.

Life Support Systems

SO: JPRS 53418
24 June 71

UDC 613.32:629.78.048

ARTIFICIAL MINERALIZATION OF WATER REGENERATED DURING SPACEFLIGHT

All (Life Support Systems)

[Article by M. I. Shikina, G. V. Chizhov, V. V. Krasnoshchekov, T. I. Aladinskaya, N. A. Golikova and Yu. E. Khokhlin; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol [illegible], No [illegible], [illegible], pp [illegible], submitted for publication 17 February 1970]

Abstract: Data published in the Soviet and foreign literature indicate a need for adding minerals to the water regenerated from human wastes during spaceflight. The paper presents experimental findings concerning the mineralization of regenerated water with [illegible] salts, powdered [illegible], and salt tablets. This method has certain advantages over current techniques, yielding drinking water with better organoleptic properties and superior physicochemical composition.

Since drinking water can be obtained during spaceflight by means of its regeneration from the products of man's vital functions and waste, hygienists are faced with the serious problem of ensuring that the regenerated water will have the required palatability and chemical composition.

It is known that in its composition regenerated water is close to distilled water and [illegible] are [illegible] by the absence of mineral compounds present in natural drinking water which are physiologically important for the human body (Yu. Ye. [illegible]).

The biological role of [illegible] and microelements present in water has been studied quite well ([illegible]; R. D. [illegible]).

It is well known that food plays the principal role in supplying the body with mineral compounds. However, it has been established through research that the inadequate intake of individual mineral components with water can also exert a negative effect both on its organoleptic properties and on a number of body physiological functions ([illegible]; Margaret,). For example,

holes can be drilled as deep as 6,000 m in this region and that at such depths there are collectors favorable for saturation by petroleum and gas. The presence of a thick stratum of rocks of igneous types is evidence of intensive volcanic activity in the region. Periods of active volcanism occurred in western Ciscaucasia and on the northern slope of the Greater Caucases during the Middle Devonian, Permain, Lower Jurassic and Albain. The massive nature of these rocks of volcanic origin and the almost complete absence of sedimentary formations in the series of rocks of volcanic origin makes it difficult to determine their age. The data collected from rock cores indicate that in the southern part of the Timashevskaya formation conditions exist for the formation of lithologic-stratigraphic deposits of petroleum and gas. For exploring these deposits it is necessary to drill holes to the south of the Medvedovskaya area in the direction of the northern edge of the Western Kuban downwarp.

Acc. Nr.: AP0048493 A

Ref. Code: UR0009

JPRS49937

Geological Cross Section of Superdeep Hole in Ciscaucasia

(Abstract: "Geological Cross Section of Super deep Well in Ciscaucasia," by G. M. Aladatov, A. I. D'yakonov and S. I. Gorlov, All-Union Scientific Research Institute of Petroleum; Moscow, Geologii Nefti i Gaza, No 1, 1970, pp 55-57)

Deep drilling was begun in 1964 in Krasnoyarskiy Kray in the Medvedovskaya fold, situated in the northern part of the Timashevskaya formation, for detailed study of tectonic structure and determining the petroleum and gas deposits in Mesozoic deposits. Two boreholes were drilled there (position shown in Fig. 1, a geological cross section of the area). The first, passing through rocks of Cenozoic and Late Cretaceous age, in the interval 4,106-4,515 m encountered sedimentary and igneous-sedimentary formations (tuffs and tuff sandstones). The second hole was drilled to a depth of 6,320 m. It encountered a complex of deposits of Cenozoic, Cretaceous and Jurassic age and a stratum of rocks of volcanic origin tentatively assigned to the Upper Paleozoic-Lower Mesozoic. The depth reached by hole No. 2 is among the record depths reached in the USSR and is the greatest reached in Ciscaucasia. Figure 2 is a geological cross section of hole No. 2; this cross section is discussed in detail in the text. The work has shown that

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USSR UDC 617-001.28-085.355:577.157.2]-07:616.151.5-07

BALUDA, V. P., ALADAMOV, A. G., and PONOMAREV, Yu. T., Laboratory of Experimental Hematology, Scientific Research Institute of Medical Radiology, Academy of Medical Sciences USSR, Obninsk

"Effect of Transfusion of Factor 13 on the Ultrastructure of Fibrin in Acute Radiation Sickness"

Moscow, Meditsinskaya Radiologiya, No 5, 1971, pp 51-52

Abstract: The ultrastructure of fibrin taken from rats at the height of moderately severe radiation sickness induced by Co^{60} gamma rays (600 r) was found to be impaired. The fibers were shortened, arranged in disorderly fashion, and lacking in the transverse striation characteristic of physiological fibrin. Intravenous injection of factor 13 (40 mg of protein per kg of weight) on day 7 after irradiation restored the structure of fibrin, its characteristic transverse striation, orderly arrangement, distinctness of contours, and normal length of the fibers. It also increased the resistance of the vascular walls while decreasing the bleeding time and volume of blood lost. The administration of plasma fractions without factor 13 had no effect on the fibrin ultrastructure, quality of the fibrin clot, or bleeding time.

1/1

USSR

UDC: 550.834

ALABUZHEV, P. M., GALYWIN, N. A., GERNER, I. I., GRITCHIN, A. A., ZUYEV, A. K., NIKITIN, A. A., KHON, V. F., Novosibirsk Electrical Engineering Institute

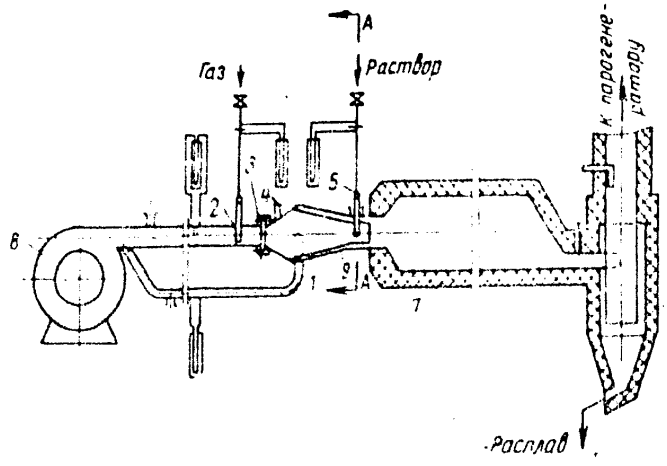
"A Seismic Receiver"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 36, Dec 71, Author's Certificate No 322742, Division G, filed 8 Apr 70, published 30 Nov 71, p 154

Translation: This Author's Certificate introduces a seismic receiver which contains a housing, an inertial mass and a displacement registering device. As a distinguishing feature of the patent, the sensitivity of the receiver is improved and the measurement range is extended by suspending the inertial mass on two preformed flat elastic strips which are securely fastened by their ends to the housing. The strips are securely fastened in the middle above and below to the inertial mass, and regulating screws press against the end faces of the strips.

1/1

AA0038345



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UR 0482

3-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

237822 EFFLUENTS FURNACE BURNS low-calorie aqueous solutions containing organic toxic substances and is fitted out with a secondary combustion chamber 7 and with tubes 6 forming the effluents spray facility 5 and arranged right across the section of the combustion chamber 1 with port outlets. Primary air is blown 8 to the gas distributor 2 and mixed with gas for jetting out through 3 into the chamber 1; here it is ignited 4 so pass combustion products through to the secondary chamber 7. The actual solution of liquor for burning reaches the furnace through the ports and flows perpendicular to the conbustion products at 200-250 m/sec. so as to provide the atomised effect and force a mix of combustion products and atomised fluid into the secondary chamber. The combustion chamber can be cooled by admitting secondary air from the cowl. In the secondary chamber . the liquor evaporates and organic toxic content is combusted. 24.12.65. as 1045156/ 23-26 ALABOVSKIY A.N and KRYZHANOVSKIY V.N. (14.7.67.) Bul.9/20.2.69. Class 1.g Int.Cl.B01j,

19731462

USSR

YEGOROV, P. T., et al., Civil Defense, Moscow "Vysshaya Shkola," 1970, 544 pp

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USSR

YEGOROV, P. T., et al., Civil Defense, Moscow "Vysshaya Shkola," 1970, 544 pp

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YEGOROV, P. T., et al., Civil Defense, Moscow, "Vysshaya Shkola," 1970, 544 pp

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YEGOROV, P. T., et al., Civil Defense, Moscow, "Vysshaya Shkola," 1970, 544 pp

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YEGOROV, P. T., et al., Civil Defense, Moscow, "Vysshaya Shkola," 1970, 544 pp

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USSR

YEGOROV, P. T., et al., Civil Defense, Moscow, "Vysshaya Shkola," 1970, 544 pp

tional institutions in the "Civil Defense" course consist of teaching the students -- future specialists -- methods of protection from nuclear weapons, and of teaching them how practically to implement civil defense measures both in peacetime and wartime, and to fulfill the duties of commanders of formations for their instructional profile.

The present textbook was written in accordance with the training program for students of higher educational institutions in the "Civil Defense" course and is intended for students of the nation's technical engineering and humanities educational institutions. Besides this, it can also be used by students of the other higher educational institutions if the general course of this program is studied.

Participating in the compilation of the textbook were teachers of the civil defense course at the Moscow State All-Union Institute, Candidate of of Military Sciences Docent P. T. Yegorov (chapters 1, 2 [sections 1 and 2], 6, 8, and 11) and I. A. Shyyakhov (chapters 2 [sections 3 and 4], 3, 4, 5, 9, and 10, and Docent N. I. Alabin, teacher at the Moscow Technological Institute of Light Industry and Candidate of Military Sciences (chapters 7 and 12). Division Director of the USSR Ministry of Higher and Secondary Special Education G. A. Karpov, provided general supervision.

2/7

Publications

USSR UDC 355.77

YEGOROV, P. T., SHLYAKHOV, I. A., and ALABIN, N. I.,

Grazhdanskaya Oborona (Civil Defense), Moscow "Vysshaya Shkola", 1970, 544 pp

Translation: In the textbook information is given on the tasks, measures, and organization of civil defense, the effect of weapons of mass destruction on humans, buildings, and structures, means of protecting the population from weapons of mass destruction, the planning of civil defense, fulfillment of emergency restoration work, and the organization of public training on the problems of civil defense.

The book is intended for students of higher educational institutions.

Foreword: Taking into account the aggressive policy carried out by imperialist states and the arms race, the Communist Party and the Soviet Government show unflagging concern for strengthening the nations defensive might and improving civil defense.

Civil defense is a system of statewide defense measures aimed at protection of the population, creation of the conditions necessary for stable operation of national economic projects in time of war, and, in case of the use of weapons of mass destruction by the enemy, at the carrying out of rescue and immediate emergency restoration work.

Based on this premise, the basic tasks of instruction in higher educa-

USSR

ALABAYEV, SH. T., and ISKANDAROV, T. I., Meditainskiy Zhurnal Uzbekistana, No 8, Aug 73, pp 16-23

poisoning, a study of the metabolism of pesticides, immunological reactions of animals, the mechanism of enhanced pesticidal activity at higher temperatures and others.

2/2

Public Health, Hygiene and Sanitation

USSR UDC 613.632-001-004(575.1)+632.95(025)

ALABAYEV, SH. T., Professor and ISKANDAROV, T. L., Senior Scientific Associate, Uzbek Scientific Research Institute of Sanitation, Hygiene and Occupational Diseases and the Tashkent Order of Labor Red Banner Institute of Medicine

"Theoretical and Practical Aspects of Hygiene During Exposure to Pesticides in Hot Climates"

Tashkent, Meditainskiy Zhurnal Uzbekistana, No 8, Aug 73, pp 16-13

Abstract: The rapid rise in the use of pesticides in the area around Uzbekistan has made it necessary to study such aspects as proper handling of, maximum exposure to, toxicity of these compounds and clinical symptoms and treatment of overdoses. Also important are the mechanisms for the removal of the pesticides such as DDT, aldrin, and other chlorinated hydrocarbons from the natural environment and their effects on plants and animals. The rate of uptake of particular compounds and combinations thereof by plants was studied as a function of temperature; the LD_{50} was also determined. At higher temperatures ($35 \pm 2^{\circ}C$), the LD_{50} was reduced significantly. Eight topics are proposed for future research, such as more detailed clinical diagnosis of pesticide

CIRC ACCESSION NO--AN0125485

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW 64 HECTARE CAMPUS IS BEING CONSTRUCTED AT YAROSLAVSKOYE SHOSSE, 48-74, IN THE BABUSHKINSKIY DISTRICT, OF MOSCOW FOR THE CIVIL ENGINEERING INSTITUTE IMENI KUYBYSHEV (INZHENERNO-STROITEL, NYY INSTITUT). AN AREA FOR FIELD WORK IN GEOLGY, WELDING, GEODESY, BUILDING MACHINERY ANS STRUCTURES IS BEING DEVELOPED AT MYTISHCHI. A RESEARCH CENTER (BAZA) IS BEING ALSO ESTABLISHED THERE.

AT PRESENT, THE INSTITUTE BUILDINGS ARE LOCATED AT 24 POINTS OF THE CITY AND OF THE OBLAST. TWO MAIN BUILDINGS ARE LOCATED ON SHLYUZOVAYA NABEREZHNAY AND SPARTAKOVSKAYA ULITSA. THE INSTITUTE WAS FOUNDED IN 1921. ITS STUDENT BUDY, INCLUDING GRADUATE STUDENTS WORKING TOWARD ADVANCED DEGREES, IS 11,COO. 2,500 CIVIL ENGINEERS AND 200 INSTRUCTORS OF HIGHER SCHOOLS ARE ATTENDING ADVANCED TRAINING COURSES ANNUALLY. THE PREPARATORY DEPARTMENT OF THE INSTITUTE HAS 6,000 STUDENTS.

1/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--AN INSTITUTE IS BEING CONSTRUCTED -U-

AUTHOR--AKZHIGITOV, S.

COUNTRY OF INFO--USSR

SOURCE--VECHERNYAYA MOSKVA, AUGUST 14, 1970, P 2, COLS 7-9

DATE PUBLISHED--14AUG70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, EARTH SCIENCES AND OCEANOGRAPHY, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--GEOLOGY, WELDING, CIVIL ENGINEERING, GEODSY, ENGINEERING INSTITUTE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1878 STEP NO--UR/9027/70/000/000/0002/0002

CIRC ACCESSION NO--AN0125485

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128818

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SILICON COMPDS. WERE USED TO HARDEN ORGANOSILICON RESINS. TO IMPROVE THE PHYSICOMECH. PROPERTIES OF THE HARDENED PRODUCTS, 0.25-10 WT. PERCENT SIO WAS USED.

FACILITY: MENDELEEV, D. I., CHEMICAL TECHNOLOGICAL INSTITUTE, MOSCOW.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--HARDENING OF ORGANOSILICON RESINS -U-

AUTHOR-(05)-OSIPCHIK, V.S., AKUTIN, M.S., VLASOV, A.S., MNATSAKANYAN, V.G., KOROLKOV, K.S.

COUNTRY OF INFO--USSR

A

SOURCE--U.S.S.R. 265,446

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970

DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, SILICON COMPOUND, PLASTIC MECHANICAL PROPERTY, SCILICONE RESIN, ORGANOSILICON COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1419 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128818

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119496

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MODIFICATION OF A UREA OLIGOMER UKS (I) WITH 3-5PERCENT AGM-9, ES, AND POLY(VINYL ACETATE) EMULSION INCREASED THE WETTABILITY OF GLASS FIBERS WITH I AND IMPROVED PHYSICOMECH. PROPERTIES OF GLASS FIBER REINFORCED PLASTICS.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF MODIFYING UREA OLIGOMERS ON THE PROPERTIES OF GLASS FIBER REINFORCED PLASTICS -U-

AUTHOR-(05)-KRIVONOSOV, A.I., AKUTIN, M.S., KERBER, M.L., MESHCHERYAKOV, YU.YA., PUKHOVITSKAYA, A.N.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (3), 46-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--UREA, OLIGOMER, GLASS FIBER, REINFORCED PLASTIC, POLYVINYL ACETATE/(U)UKS UREA OLIGOMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0578 STEP NO--UR/0191/70/000/003/0046/0047

CIRC ACCESSION NO--AP0119496

UNCLASSIFIED

Acc. Nr. AP0045180 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code U.R0191

91089m **Stabilization of formaldehyde homo- and copolymers.** Gur'yanova, V. V.; Kovarskaya, B. M.; Kotreley, M. V.; Akutin, M. S. (USSR). *Plast. Massy* 1970, (1), 46-7 (Russ). Polyformaldehyde (I) (with blocked terminal groups) and dioxolane-trioxane copolymer (II) were subjected to oxidative thermal degradation in the presence of various stabilizers. The degradation of I was inhibited by TiO_2 (rutile), presumably due to the formation of a more dense supramol. structure inhibiting the diffusion of O into I. The degradation of II was most effectively inhibited by a ternary compn. consisting of an antioxidant 22-46 [2,2'-methylenebis(4-methyl-6-*tert*-butylphenol)], $H_2NC(:NH)NHCN$, and TiO_2. CKJR

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19780080

USSR UDC 678.652'41'21-9

SHARKOVSKIY, V. A., AKUTIN, M. S., KERBER, M. L. SHCHEGLOV, L. L., MATVELASHVILI, G. A., PUKHOVITSKAYA, A. N., MILL', L. I., GREBENNIKOV, A. V., OSTROVSKAYA, A. YE., and DYMARSKAYA, YE. L.

"New Types of Aminoplastics"

Moscow, Plasticheskiye Massy, No 12, Dec 70, pp 53-54

Abstract: The article describes synthesis of fiberglass plastics based on carbamide binders. These binders include a carbamide oligomer modified by polyvinylacetate emulsion during synthesis, and ures-benzoguanamine-formaldehyde oligomer. Fiberglass textolites based on these oligomers and TS-8/3-250 glass treated with lubricant 752 are mechanically strong. In addition to its excellent strength properties, the plastic based on urea-benzoguanamine-formaldehyde oligomer is also water-resistant.

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2/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AM0130587

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 5. CHAPTER I. MECHANIZATION OF STRIPPING OPERATIONS IN OPEN CUT MINES 12. II. MECHANIZATION OF MINE CONSTRUCTION OPERATIONS IN OPEN CUT MINES 36. USE OF CONTINUOUS OPERATION TECHNIQUES 70. CONCLUSION 125. BIBLIOGRAPHY 126. THE BOOK DEALS WITH BASIC MOST TYPICAL FLOW SHEETS IN MECHANIZATION OF STRIPPING AND MINE CONSTRUCTION OPERATIONS IN OPEN CUT MINES BY MEANS OF COMPELXES OF CONTINUOUS OPERATION MACHINES, AS WELL AS FUNDAMENTAL PRINCIPLES IN AUTOMATION OF THESE COMPLEXES. THE BOOK WAS WRITTEN FOR A WIDE CIRCLE OF ENGINEERING TECHNICAL PERSONNEL OF MINING ENTERPRISES, DESIGN AND SCIENTIFIC RESEARCH ORGANIZATONS; IT CAN BE USEFUL ALSO TO COLLEGE STUDENTS SPECIALIZING IN THE FIELD OF OPEN CUT MINING DEPOSITS.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--COMPLEXES OF MACHINES OF CONTINUOUS ACTION -U-

AUTHOR-(05)-TARTAKOVSKIY, B.N., AKUTIN, G.K., BARSUKOV, M.I., SHCHERBINA, YU.M., OSTROUKHOV, I.I.

COUNTRY OF INFO--USSR

SOURCE--COMPLEXES OF MACHINES OF CONTINUOUS ACTION (KOMPLEKSY MASHIN NEPRERYVNOGO DEYSTVIYA) MOSCOW, NEDRA, 1970, 123 PP

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--MINING ENGINEERING, MINERAL DEPOSIT, INDUSTRIAL AUTOMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1735 STEP NO--UR/0000/70/000/000/0001/0123

CIRC ACCESSION NO--AM0130587

UNCLASSIFIED

USSR A UDC 621.879.4-50:681.3.06:622.035

AKUTIN, G. K., SHCHERBINA, YU. M., and YASNOPOL'SKIY, V. V.

"Processing of Geological Data for Programming the Operation of Mining Rotary Excavators"

Avtomatiz. Proizv. Protsessov Na Otkryt. Gron. Rabotakh (Automation of Production Processes at Open Pit Mines -- Collection of Works), pp 12-19, Kiev, 1969 (from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 2, 1970, Abstract No 2A555 by Yu. Tumin)

Translation: A method of definition and the principal calculation formulas for certain technological parameters and coordinates of points on the trajectory of movement of a rotary wheel are presented. The formulas can be used during programmed operation of mining rotary excavators. A stratal deposit is analyzed. The geological data contain information on the inclination of the strata and their thicknesses; it is assumed that a sharp change in the inclination or thickness of a stratum within a programmed unit is improbable. The most effective method of working a scarp is defined as working in vertical strips with separation into substructures (layers) corresponding to the nature of the structure of deposition of the mineral being worked. One illustration. Three bibliographies. 1/1

UDC 681.3

USSR

AKUSHSKIY, I.Ya., YUDITSKIY, D.I.

"Organization of Detection and Correction of Errors in Computers in Non-positional Systems"

Tsifrov. Modeli i Integriruyushch Struktury [Digital Models and Integrating Structures -- Collection of Works], Taganrog, 1970, pp 308-318 (Translated from Referativnyy Zhurnal Matematika, No 11, 1970, Abstract No 11V471 by the Authors)

Abstract: Correcting codes in a system of residual classes with one test base are studied. It is suggested that the method of zeroing of a number be used for testing, allowing the number of the interval in which the number is located to be determined unambiguously. If the result of zeroing is other than zero, this indicates that there is an error present.

The result of zeroing allows possible values of errors to be determined for each base. Due to determination not only of the location but also of the value of possible errors, an average of three operations is sufficient to localize an error. An example of correction of a single error by a correcting code with one test base is presented.

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USSR

UDC 681.3

AKUSHSKIY, I.Ya., YUDITSKIY, D.I.

"Redundancy in Non-Positional Systems"

Ispol'z Izbytochnosti v Inform. Sistemakh [Use of Redundancy in Information Systems -- Collection of Works], Leningrad, Nauka Press, 1970, pp 300-307 (Translated from Referativnyy Zhurnal Matematika, No 11, 1970, Abstract No 11V472 by the Authors)

Abstract: The possibility of constructing correcting codes in a system of residual classes is studied. The correcting capabilities of codes with one and two test bases are studied. It is demonstrated that it is possible to test not only an individual number but also the result of a number of rational operations. The possibility of correction of errors using a single test base by gradual localization of errors during the process of calculation (method of alternative sets) is demonstrated. On the basis of statistical modeling it is concluded that for a system of bases with a range of 10^{10} the mean number of operations required to localize the point of error is 4-5. The problem of applying a system of residual classes to increase the viability of both individual machines and multimachine complexes is discussed.

1/1

USSR UDC: 51:155.001.57:681.3.06

AKUSHKIY, I. Ya., ZABOLOTSKIY, V. N.

"On a Combinatoric Approach to the Idea of Data Compression"

V sb. Tsifr. vychisl. tekhnika i programmir. (Digital Computer Technology and Programming--collection of works), vyp. 6, Moscow, "Sov. radio", 1971, pp 5-17 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V766)

Translation: The article deals with the problem of data compression using the Shannon logarithmic measure of information quantity as stated by A. N. Kolmogorov. Information blocks are considered -- cortèges consisting of elements whose probabilities of appearance are unknown. A solution is given for the problem of finding algorithms for one-to-one mapping of a set of blocks with ordered arrangement of elements onto a set of unordered blocks. Methods of numeration of some combinatoric aggregates are considered. Authors' abstract.

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USSR

(UDC 621.334.721.)

SKVORTSOV, A. A., Candidate of Technical Sciences, [illegible], A. G., Candidate of Technical Sciences, [illegible], A. A., Engineer, [illegible], Candidate of Technical Sciences, [illegible], Z. A., Engineer

"Failure Rate of the Collectors of Traction Motors with a Plastic Case in Operation"

Moscow, Elektrotekhnika, No 8, 1971, pp 21-22

Abstract: A study was made of the nature of operating failures of electric traction motors with a plastic case and causes for other occurrences. A sample of 16 collectors from motors which had been turned in for plant repair was used for the study. The largest number of failures occur at the overlap of the collector plates on the winding side. Problems with the armature rings were also very common. The nature of the damage was studied on collectors from 81,000 to 754,000 km of use. No correlation was discovered between the amount of use and the type of failure.

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2/2 028 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100763

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS ASSERT THAT THE LABOR EXPENSE IN THE DESIGN OF MACHINE CONTROL SYSTEMS AMOUNTS TO 30 TO 50PERCENT OF ALL OF THE ELECTRICAL EQUIPMENT DESIGN. FOR THAT REASON IT IS WORTH WHILE TO REDUCE THE LABOR THROUGH AUTOMATION. THE ENGINEERING METHOD OF THE DESIGN SHOULD BE SUFFICIENTLY ALGORITHMIZED TO ENLIST THE AID OF AN ELECTORNIC COMPUTER. THE ADVANTAGE OF SUCH A METHOD IS ILLUSTRATED BY SEVERAL EXAMPLES OF SYSTEMS DESIGNED BY DRIVE MECHANISM CONTROLLED BY A SINGLE MAGNETIC TW4 POSITION SLIDE VALVE, A DIAGRAM OF WHICH IS GIVEN. THREE VARIANTS OF THE SYSTEM CONTROLLING THE MECHANISM, TWO OF WHICH ARE DESIGNED BY ORDINARY METHODS WHI. THE THIRD IS DESIGNED BY A SYNTHESIS ALGORITHM DEVELOPED BY THE BELORUSSIAN ACADEMY OF SCIENCES ARE GIVEN. DIAGRAMS OF THE ELECTRICAL CIRCUIT OF THE SYSTEM AND THE CYCLOGRAM OF ITS OPERATION IN THE FIRST VARIANT OF THE CONTRC. SYSTEM ARE GIVEN. DIAGRAMS OF THE OTHER TWO VARIANTS ARE ALSO PRESENTED. COMPARISON OF THE FIRST TWO VARIANTS, DESIGNED BY ORDINARY METHODS, SHOWS THAT IN THE SYNTHESIS OF THE SYSTEM BY THOS USUAL METHOD THE SOLUTION DEPENDS ON THE PAST EXPERIENCE OF THE DESIGNER. THE SECOND VARIANT IS DEFINITELY SUPERIOR AS A RESULT OF THE CLARITY AND REGULARITY OF ITS STRUCTURE AS WELL AS BY VIRTUE OF ITS USE OF ABOUT HALF THE EQUIPMENT. THE THIRD IS BETTER THAN THE FIRST TWO, HOWEVER, IN THAT IT DOES NOT REQUIRE HIGH QUALIFICATIONS AND LONG EXPERIENCE ON THE PART OF THE DESIGNER. AN ACCOMPANYING TABLE PRESENTS THE FUNCTIONAL CYCLOGRAM OF THIS THIRD SYSTEM AS OBTAINED BY THE "MINSK-22" COMPUTER.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--"AUTOMATION OF MACHINE CONTROL SYSTEMS DESIGN" -U-

AUTHOR-(03)-DOBROLYUBOV, A.I., AKUNOVICH, S.I., POPLAVSKIY, V.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, MEKHANIZATISIYA I AVTOMATIZATSIYA PROIZVODSTVA, NO. 1, 1970, PP 36-39

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--AUTOMATION, MACHINE INDUSTRY, AUTOMATIC CONTROL SYSTEM, ELECTRIC EQUIPMENT, COMPUTER, DESIGN STANDARD, ELECTRONIC CIRCUIT, HYDRAULIC DEVICE/(U)MINSK DIGITAL COMPUTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REF /FRAME--1985/0241 STEP NO--UR/0118/70/000/001/0036/0039

CIRC ACCESSION NO--AP0100763

UNCLASSIFIED

USSR

DOBROLYUBOV, A. I., et al., Moscow, Mekhanizatskiya i Avtomatizatsiya Proizvodstva, No 1, 1970, pp 36-39

control of a mechanism requiring eight inputs when synthesis by the engineering method is used, four intermediate relays are required, whereas 17 and 9 intermediate relays respectively were required for two ordinary systems. The new method of synthesizing systems permits utilization of computers, which is of great significance in achieving high rates of technical progress. A functional diagram of a system obtained on the Minsk-22 computer is presented in tabular form. The purpose of the system for automatic planning and designing of control systems developed at the Technical Cybernetics Institute of the Belorussian SSR Academy of Sciences is automatic planning and designing not only of the schematic but also of all the technical documentation entering into the plans for the schematic: the installation diagrams, the summary technical documents, and special operating documentation. The problem of automatic drawing of the schematics has been solved by using the graphical-drawing automaton ITYeKAN developed at the institute. ALGOL-60 is used for the planning and designing system software.
2/2

USSR

UDC 62-5.002.5(084.2)

DOBROLYUBOV, A. I., Candidate of Technical Sciences, AKUNOVICH, S. I., POPLAVSKIY, V. S., Engineers

"Automatic Planning and Designing of Machine Tool Control Systems"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 1, 1970, pp 36-39

Abstract: This article contains an analysis and evaluation of ordinary and automatic methods of planning and designing machine tool control systems. Flow charts of sample systems are presented and the various components and operating process are explained.

Comparison of the systems shows that for the ordinary procedure of compiling the system the solution depends on the experience of the designer. An automatically designed system is presented which has the advantage that high qualifications and great design and planning experience are not required to realize the construction method. Increasing the number of inputs of the mechanism does not lead to an increase in the number of relays, as occurs in other systems. For example, for

TECHNICAL TRANSLATION

FSTC-HT-23-109-71

ENGLISH TITLE: ERROR EVALUATION IN DETERMINING CONCENTRATION AND SIZE OF FOG DROPS WITH THE AELITA INSTRUMENT

FOREIGN TITLE: OTSENKA OSHIBOK IZMERENIYA KONTSENTRATSII I RAZMERA KAPEL' TYMANA PRIBOROM "AELITA"

AUTHOR: L. G. Akul'shina, V. N. Aref'yev, N. K. Nikiforova, and G. I. Shchelchkov

SOURCE: Not Given

Translated for FSTC by ACSI

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AKUL'SHINA, L. G.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R002065900024-6

AKULOVA, Ye. A.

UNCLASSIFIED

INDEX ASSIGNED

USSR

UDC: 519.2:621.391

AKULOVA, L. G.

"A Statistical-Analytical Method of Calculating Communication Reliability"

Tr. NII mat. Voronezh. un-ta (Works of the Scientific Research Institute of Mathematics, Voronezh University), 1970, vyp. 2, pp 51-59 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V274)

Translation: A solution is found for the problem of constructing upper and lower estimates for the probability that in a finite connected graph without loops there will be between two vertices at least one path made up of operative arcs (an arc connecting vertices A_i and A_j is operative with probability p_{ij}). The quality of the constructed bilateral estimates depends on successful selection of paths and sections whose probability of functioning evaluates the sought probability. A method is proposed for such selection. V. Kashtanov.

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USSR

AKULOV, Yu. V. et al., Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2, pp 123-125

the oscillator module in the above-mentioned instrument for measuring amplitude-frequency and phase-frequency characteristics by the frequency transfer method, giving a phase measurement precision to 3°. One illustration. E. L.

2/2

USSR

UDC: 621.317.75

AKULOV, Yu. V., ZIBOROV, S. R., KLIMOV, V. P., KRASNOV, L. M., MARIGODOV, V. K.

"A Two-Frequency Sweep Generator for Measuring Amplitude-Frequency and Phase-Frequency Characteristics in a Frequency Band"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 123-125 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A390)

Translation: The article describes one of the basic modules of an instrument for measuring amplitude-frequency and phase-frequency characteristics. A two-frequency sweep generator with a sweep band from 5 to 50 MHz is designed on the principle of frequency conversion. The complete block diagram of the two-frequency sweep generator is given with enumeration of all modules. The sweep generator is based on two quartz-crystal resonators on a frequency of 57 MHz excited on the fifth mechanical harmonic and used in two corresponding quartz-crystal oscillators. In addition to the frequencies generated by these two oscillators, their beat frequency (difference frequency) is also used. The two-frequency sweep generator was used as

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USSR

AKULOV, YU. V., et al, Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2, 1970, pp 67-70

mission ratio limit of 10 DB. A serially produced F2-1 instrument is used as the low-frequency phase meter in the indicator section. The error in phase measurement is no greater than 2° over the entire working frequency range. E. L.

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USSR UDC: 621.317.75

AKULOV, Yu. V., ZIBOROV, S. R., KLIMOV, V. P., KRASNOV, L. M., MARIGODOV, V. K.

"Some Problems in Measuring the Amplitude-Frequency and Phase-Frequency Characteristics of Quadripoles"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 67-70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A393)

Translation: The authors point out fundamental difficulties and formulate requirements which must be imposed when designing wide-band two-frequency sweep generators and mixers which are the principal component parts of instruments for measuring the amplitude-frequency and phase-frequency characteristics of quadripoles. A block diagram is given together with a description of the operation of an instrument designed by the authors for measureing the phase-frequency and amplitude-frequency characteristics in the 5-50 MHz range. The instrument has a phase measurement limit of ±90° and a trans-

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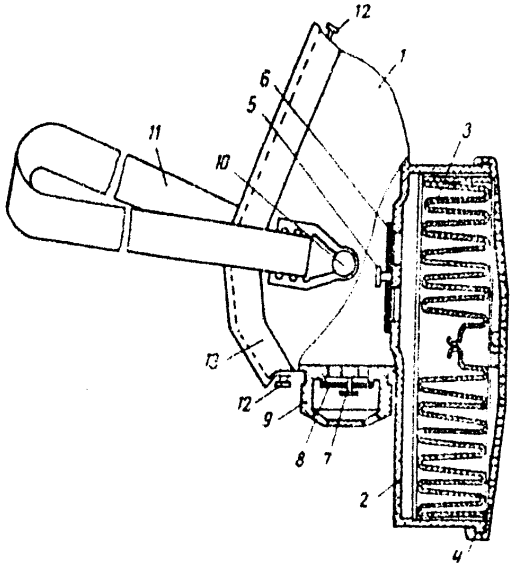
Acc. Nr.: AA0052692



Kostyuchenko, I. S.; Glontsev, V. F.; Akulov, V. A.; Gorokhova, V. A.

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REEL/FRAME
19821480

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AKULOV V.A.

AA0052692

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent, 1-70

241228 RESPIRATOR, consists of a half-(face)-mask, a container 2 which holds the filtering device, replaceable filtering element 3 and cover 4, pin 5 for holding the valve 6 on the inlet, and the pin 7 for holding the valve 8 on the outlet, which is also fitted with a sanitary compartment 9. Studs 10 fasten the headband 11 to the fase-mask, whilst studs 12 fasten the replaceable face-band to the edges of the mask. The pins 5, the sanitary compartment and the studs are all made in one piece with the face mask and the body of the filter-chamber. This reduces the number of separate components which go into the make up of the respirator. 27.5.68. as 1242796/31-16. I.S KOSTYUCHENKO et al. (22.8.69.) Bul.13/1.4.69. Class 61a. Int.Cl. A62b.

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19821479

USSR

AKULOV, N. S., and MOROZOV, I. M., Doklady Akademii BSSR, Vol 17, No 1, 1973, pp 13-16

The possibility of employing equation (1) for different cases has been confirmed by various experiments. In all these cases the coefficients α_0, α, β, and γ in equation (1) were constant. But under special experimental conditions for example, in the action of ultrasound on a crystal, these quantities may depend on the exposure time as a result of the fact that the probability of the activation of dislocation sources will vary. A theoretical study of this case is of great interest to explain the results of the effect of ultrasound and other alternating loads on the physical properties of crystals. In the present study the increase in dislocation density is assumed to be due mainly to the operation of Frank-Read sources. A model is suggested for a quantitative description of dislocation density as a function of the exposure time for alternating loads. Divided is an analytic expression which is verified by experimental data obtained in the determination of the dislocation density in lithium fluoride crystals and polycrystalline copper subjected to ultrasonic vibrations.

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USSR UDC 539.29:548.4

AKULOV, N. S., Academician of the Academy of Sciences Belorussian SSR, and MOROZOV, I. M., Department of Physics of Nondestructive Testing, Academy of Sciences Belorussian SSR

"Dislocation Multiplication in Crystals Under the Action of Alternating, Small-Amplitude Vibrations"

Minsk, Doklady Akademii Nauk BSSR, Vol 17, No 1, 1973, pp 13-16

Abstract: Statistical dislocation theory makes it possible to calculate variations in different physical properties which depend on the dislocation density. The relation here between the dislocation density U and deformation ε is given by the equation:

$$\frac{dU}{d\varepsilon} = \alpha_0 + (\alpha - \beta) U - \gamma U^2, \qquad (1)$$

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USSR

AKULOV, N. S., Doklady Akademii Nauk BSSR, Vol 15, No 5, May 71, pp 394-397

he finds the formula $m/m_e = 3^{2B+1}/2 \quad (\alpha^{-1}+1-2B)$, where B = 0, 1 is the barion charge (B = o for $\mu^{\pm}$), which agrees with the experimental data to an exceptional degree. This also explains the magnetic anomaly of the proton. The theory which the author developed shows that the elementary particles can be assumed as a particular type of quantum ultrarelativistic generators which decay by irradiation. The author treats the problem mathematically, giving equations to substantiate and illustrate his findings. The article contains 6 bibliographic entries.

2/2

USSR

UDC 539

AKULOV, N. S., Academician, Academy of Sciences, Belorussian SSR, Department of Physics of Nondestructive Testing Belorussian SSR Academy of Sciences

"Energy Levels in Elementary Particles"

Minsk, Doklady Akademii Nauk BSSR, Vol 15, No 5, May 71, pp 394-397

Abstract: As the quanta of a unified Heisenberg field the author suggests uni-quanta with a charge that is one-half with respect to the electron and the positron, a mass, and spin. These electrons may include uni-quanta with different degrees of excitation: (1) $e^{\pm}_{**}$, when both quanta appearing in the electron shell are found at the upper energy level; (2) $e^{\pm}_{*}$ when only one quantum is found in the upper level; and (3) ordinary electrons $e^{\pm}$ when both quanta are located in the lower level. The transitions $e^{\pm}_{**} \rightarrow e^{\pm}_{*}$ occur with decay of the particles. By taking these into account, the author finds it is possible to obtain a value for the masses of the elementary particles if he adds the masses of electrons and positrons to the intermediate level of excitation ($e^{\pm}_{*}$). For the masses of the proton and muon

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USSR

AKULOV, N. S., MOROZOV, I. M., Doklady Akademii Nauk BSSR, No 4, Apr 72, pp 311-314

can be bent in its slip plane. The point defects (impurity atoms, vacancies, etc.) fasten the dislocation segments by means of the Cottrell mechanism. Since an exact quantitative description of the change in the decrement of damping δ as a function of the stress amplitude σ_a and the number of cycles N, taking into account the case of the distribution of at least several point defects in one segment, involves major mathematical difficulties, the above assumptions concerning the dislocation segments were made. Expressions are derived for the dislocation deformation at the time of the N-th cycle, for the total scattering energy for the N-th cycle and for the decrement in damping. These expressions show the identical character of these relationships as functions of the number of cycles N but the different character as functions of the stress amplitude σ_a. It is noted that as the number of cycles N increases under large values of the stress amplitude σ_a, the effect of stripping of the dislocations from the nodes plays another, greater role and leads to the formation of submicrocracks.

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USSR UDC 539.43

AKULOV, N. S., Academician of the Academy of Sciences BSSR, MOROZOV, I. M., Department of the Physics of Nondestructive Testing of the Academy of Sciences BSSR

"On the Effect of Stress Amplitude and the Number of Vibration Cycles on the Decrement in Damping in Metals"

Minsk, Doklady Akademii Nauk BSSR, No 4, Apr 72, pp 311-314

Abstract: A theory of the functional relationship between decrement in damping and the amplitude of the applied stress and the number of load cycles is constructed assuming that all dislocation segments determined by the dislocation grid at the beginning of the test are equal to one another and there is one point defect at each of these, with the result that the segment is divided by the defect into two parts l and $L-l$, which are denoted by l_1 and l_2. For simplicity it is assumed that $l_1 = l$ is the distance from the defect to the closest dislocation node. It is noted that in constructing any such theory, one must consider that even a well annealed metal contains a dislocation grid; each dislocation segment is attached at the nodes of this grid, and the nodal points have relatively little mobility. The distance between neighboring nodes determines the length of the dislocation segment L, which under an applied stress

AKULINICHEVA, A.A.

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UDC: 519.2

AKULINICHEV, N. M.

"One Class of Controllable Poisson Processes"

Tr. Mosk. In-ta Radiotekhn., Elektron. i Avtomatiki [Works of Moscow Institute of Electronic Engineering and Automation], 1972, No 57, pp 67-75 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V66, by B. Grigelionis)

Translation: A controllable Poisson process with independent, identically distributed lengths of intervals between neighboring testing moments is studied. If at the moment of testing the value of the process does not exceed a certain fixed number, testing does not influence further behavior of the process, while otherwise the process is instantly returned to the zero state. Using the central limit theorem of L. Smith for processes of accumulation from trajectories of regenerative processes, the author proves asymptotic normality of several additive functionals of the trajectories of the Poisson process tested.

1/1

USSR UDC: 627.375.421

DEM'YANOV, V. V., AKULINICHEV, I. T.

"Resonance Amplifiers Based on Tubes and Transistors"

Rezonansnyye usiliteli na lampakh i tranzistorakh (cf. English above), Moscow, "Energiya", 1970, 136 pp, ill. 38 k. (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D2 K)

Translation: The authors discuss optimality of resonance amplifier circuits, and consider some problems of designing band amplifiers. Examples of resonance amplifier circuits are presented. Annotation.

1/1

2/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132584

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISTRIBUTION OF EVOKED POTENTIALS AND NEURONAL RESPONSES (292 CELLS) TO ELECTRIC STIMULATION OF THE OPTIC TECTUM AND TO LIGHT FLASHES WERE STUDIED IN TURTLES IMMOBILIZED BY DIPLACIN WITH ADDITION OF CHLORALOSE OR UNCER CHLORALOSE NEMBUTAL ANESTHESIA. MOST THALAMIC CELLS RESPONDING TO THESE STIMULI WERE CONCENTRATED WITHIN N. ROTUNDUS AND ADJOINING TO IT TR. TECTO THALAMICUS; FOREBRAIN CELLS WITHIN GENERAL CORTEX, PALLIAL THICKENING AND NEOSTRIATUM. MORE SHORT RESPONSES PREDOMINATED IN TWO LATTER STRUCTURES AS COMPARED TO GENERAL CORTEX. VISUAL AND TECTAL NEURONAL RESPONSES, ESPECIALLY OF THE SAME CONVERGENT CELLS, SHOWED SOME CORRELATION IN LATENCY AND RESPONSE TYPE, MORE PRONOUNCED IN N. ROTUNDUS. SUBMAXIMAL TETANIZATION OF THE OPTIC TECTUM PRODUCED FACILITATORY INFLUENCE ON VISUAL CORTICAL RESPONSES AND ON THOSE EVOKED BY STIMULATING N. ROTUNDUS. HIGH FREQUENCY STIMULATION OF N. ROTUNDUS INDUCED PARTIAL BLOCKING IN THE TECTAL CONDUCTION TO THE FOREBRAIN. THE TOTAL IRREVERSIBLE BLOCK OF THE CONDUCTION APPEARED DUE TO DESTRUCTION IN THE PART OF TP. TECTO THALAMICUS, BOARDERING THE LATERAL BUNDLE OF THE FOREBRAIN, LATERAL GENICULATE BODY AND N. ROTUNDUS. A CONCLUSION IS MADE THAT VARIOUS CONDUCTION PATHWAYS FOR THE TECTAL IMPULSATION TO THE FOREBRAIN MAY EXIST. FACILITY: THE I. M. SECHENOV INSTITUTE OF EVOLUTIONARY PHYSIOLOGY AND BIOCHEMISTRY, ACADEMY OF SCIENCES, USSR, LENINGRAD.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--THE TECTO THALAMO TELENCEPHALIC SYSTEM OF THE TURTLE ELECTROPHYSIOLOGICAL STUDY -U-

AUTHOR-(02)-BELEKHOVA, M.G., AKULINA, M.M.

A

COUNTRY OF INFO--USSR

SOURCE--NEYROFIZIOLOGIYA, 1970, VOL 2, NR 3, PP 296-306

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TURTLE, CENTRAL NERVOUS SYSTEM, ELECTROPHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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