Free Radicals

USSR

UDC: 541.15:542.61

VASHMAN, A. A., and SAVEL'YEV, YU. I.

"Radical Formation in Low-Temperature Radiolysis of Tributyl Phosphate and Some Other Organophosphorus Extracting Agents"

Leningrad, Radiokhimiya, Vol 12, No 1, 1970, pp 12-17

Abstract: The authors used the EPR method to study the free radicals formed in the gamma irradiation of tributyl phosphate and some other neutral organophosphorus extracting agents, as well as radical formation in irradiated mixtures of tributyl phosphate with nitric acid and with inert diluents. It was found that in extracting agents irradiated in air O_2^- radicals are formed in the release of radical electron traps. In frozen mixtures of tributyl phosphate with benzene and decane the formation of radicals of the extracting agent and diluent is governed by additive law with variations in the component concentration. An exception are mixtures of tributyl phosphate with carbon tetrachloride, which display strong deviation in additivity in the formation of radicals of diluent with variations in its concentration. In irradiated mixtures of tributyl phosphate with 97 percent HNO_3

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USSR

VASHMAN, A. A., and SAVEL'YEV, YU. I., Radiokhimiya, Vol 12, No 1, 1970, PP 12-17

the EPR spectra belong to $\dot{N}O_2$ and $\dot{N}O_3$ radicals formed in the radiolysis of concentrated nitric acid, as well as $\dot{R}$ radicals of the extracting agent. The $\dot{N}O_2$ and $\dot{R}$ radicals are formed additively. The $\dot{N}O_3$ radicals are electron traps, and their EPR signal begins to appear only in the region of low concentrations of tributyl phosphate. Radiation-chemical reactions of the formation of final radiolysis products of tributyl phosphate are discussed.

2/2

USSR

UDC 546.732-386.03+546.742-386.03

VERSHCHAGINA, T. Ya., VASHMAN, A. A.

"Spectroscopic, Magnetochemical and Relaxation Measurements of Co^{II} and Ni^{II} Complexes with Organophosphorus Ligands"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol XVIII, No 1, 1973, pp 162-168

Abstract: The methods of electron spectroscopy, magnetic suspension and spin echo in the phosphorus nuclei were used to study complexes of the nitrates of Co^{II} and Ni^{II} with tributyl phosphate, tributyl phosphinate and tributyl-phosphine oxide. The nature of the metal-ligand chemical bonds in the complexes formed during the process of extraction in aqueous solutions of organophosphorus compounds is discussed. The increasing order of degree of donor-acceptor metal-ligand bonding phosphate-phosphinate-phosphine oxide coincides with the increase in the extractive capacity of the extractants. However, water molecules are preferable coordinating ligands in mixed solvents.

1/1

1/2 035 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--PIG IRON CONTAINING BORON AND ALUMINUM -U-

AUTHOR-(02)-KRESTYANOV, V.I., VASHUKOV, I.A.

COUNTRY OF INFO--USSR

SOURCE--GER. OFFEN. 1,804,690

DATE PUBLISHED--09JUN70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PIG IRON, BORON ALLOY, ALUMINUM ALLOY, CHEMICAL PATENT, WEAR RESISTANCE, NICKEL ALLOY, MECHANICAL STRENGTH, CHROMIUM ALLOY, SILICON ALLOY, MANGANESE ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1790 STEP NO--GY/0000/68/000/000/0000/0000

CIRC ACCESSION NO--AA0130623

UNCLASSIFIED

2/2 035 UNCLASSIFIED

CIRC ACCESSION NO--AA0130623 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE WEAR RESISTANCE TO SLIDING FRICTION OF PIG IRON WAS INCREASED BY ADDING 0.008-0.1PERCENT B AND 0.02-0.15PERCENT AL. THUS, FERROBORAL CONTG. 9-11PERCENT B AND SIMILAR TO 10PERCENT AL PLUS NI WAS ADDED CONTINUOUSLY AND SIMULTANEOUSLY TO PIG IRON IN A CUPOLA FURNACE TO GIVE GRAY PIG IRON CONTG. C 3.103.4, SI 1.6-2.0, MN 0.6-0.9, CR 0.2-0.4, NI 0.4-0.6, B 0.025-0.05, AND AL 0.01-0.03, S SMALLER THAN 0.12, AND P SMALLER THAN 0.16PERCENT. THIS NATERIAL HAD PEARLITE STRUCTURE, 190-220 HARDNESS NO., LARGER THAN 48 KG-MM PRIME2 BENDING STRENGTH, LARGER THAN 28 KG-MM PRIME2 BREAKING STRENGTH, AND A 3 FOLD HIGHER WEAR RESISTANCE TO SLIDING FRICTION THAN A COMMON PIG IRON. FACILITY: EFREMOV, A. I., TYAZHSTANKOGIDROPRESS PLANT.

UNCLASSIFIED

USSR

BARYKIN, N. P., POYUROVSKIY, Yu. V., NIKOLAYEV, V. A., VASHURIN, A. M., PLEKHOV, V. A.

"Calculation of Thermoelastic Stresses During Cooling of Stamps at Various Rates"

Tr. Ufim. Aviats. In-t. [Works of Ufim Aviation Institute], 1971, No 25, pp 111-119, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 V43, by N. T. Glazunova).

Translation: This article presents results of theoretical and experimental studies of the stress field in heated, hollow, thickwall, long cylinders cooled in various media. Axisymmetrical distribution of temperature in the cross section is assumed. The temperature field along the cylinder is assumed constant. Under these conditions, the temperature and corresponding stress field in the body in the radial direction are described by certain logarithmic rules. For long bodies of rectangular cross section, the author's recommend that the actual contour be replaced by an equivalent cylinder, with the condition of equality of areas of side surfaces. The results of the study are illustrated by graphs of temperature stresses in cylindrical stamps of type 5KhNV steel, cooled in oil and in air. 8 Biblio. Refs.

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USSR

UDC: 629.1.054.6

VASHURKIN, Yu. V., SHUIN, V. V., MATVEYEV, V. G.

"A Device for Correcting a Gyroscopic Angle-Data Transmitter"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332323, Division G, filed 25 Sep 68, published 14 Mar 72, p 157

Translation: This Author's Certificate introduces a device for correcting a gyroscopic angle-data transmitter. The device contains a gyroscope in a Cardan suspension, a contact pickup of the angle of misalignment of the suspension frames, a relay, and a torque pickup. As a distinguishing feature of the patent, the accuracy and reliability of the device are improved by adding a delay unit for the relay release time, and by making the contact pickup of the angle of misalignment in the form of two brush contacts which are fixed to the outer frame and spaced by a gap in which a contact connected to the inner frame of the Cardan suspension of the gyroscope slides freely.

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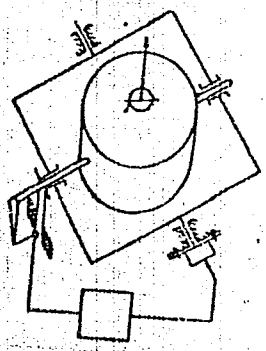
USSR

VASHURKIN, Yu. V. et al., USSR Author's Certificate No 332323



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USSR

UDC 621.385.833.22:621.386:543.42

VASICHEV, B. N., NERASHKO, G. K., KAPLICHNYY, V. K., SHULYAK, E. A., KLIMOVITSKIY, A. M.

"X-Ray--Spectral Attachment to UEMV-100 and UEMV-100 V Electron Microscopes"

V sb. Apparatura i metody rentgenovsk. analiza (Apparatus and Methods of X-Ray Analysis -- Collection of Works), Vyp 5, Leningrad, 1969, pp 200-209 (from RZh--Elektronika i yeye primeneniye, No 5, May 70, Abstract No 5A249)

Translation: An x-ray attachment is described which makes it possible in a transmission electron microscope to conduct x-ray analysis of part of the object being observed, simultaneously with the observation of images. The attachment to the UEMV-100 is constructed on the basis of an objective lens with a microchamber. It is possible on the objective lens to place either a proportional counter of x-ray quanta for nondispersion x-ray--spectral analysis, or a spectrometer with crystal--analyzers. The holder for the objectives and standards is fixed at the end of the bar. There are five sockets on it for arrangement of objectives and standards. Changing them takes place without impairment of the vacuum in the coluum. The holder for the objective is isolated from the body of the lens for feasibility in measuring absorbed current. The resolution of objective is 100 Å with a focal length of 6.5 mm. The spectrometer is fulfilled by a scheme with a

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USSR

VASICHEV, B. N., et al., Apparatura i metody rentgenovsk. analiza, Vyp 5, 1969, pp 200-209 (from RZh-Elektronika i yeye primeneniye, No 5, May 70, Abstract No 5A249)

fixed distance from the crystal to the radiation source (270 mm). The detector moves in an arc. Four crystals are mounted on the cylinder of the spectrometer: three lithium fluorine crystals with different radii of curvature, and a mica crystal. Change of the crystal is conducted without impairment of the vacuum. The spectrometer is enclosed in a cylindrical hermetic housing of a length of 220 mm and a diameter of 240 mm. The registration covers elements with atomic numbers from 13 to 92. An investigation is conducted of the performance of an electron gun based on the intensity of radiation and the diameter of the sonde. A table is given showing the results of measurements of the absolute response of the attachment. N. S.

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1/2 013 UNCLASSIFIED

TITLE--HIGHLY LOCAL X RAY MICROANALYZER -U- PROCESSING DATE--30OCT70

AUTHOR-(05)-VASICHEV, V.N., VERESHCHAGIN, YE.N., DERSHVARTS, G.V., KAPLICHNYY, V.N., KISEL, G.D.

COUNTRY OF INFO--USSR

SOURCE--PRIB. TEKH. EKSP. 1970, 1, 217-20

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON MICROSCOPE, X RAY SPECTROMETER, MICROCHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1476 STEP NO--UR/0120/70/001/000/0217/0220

CIRC ACCESSION NO--AP0106232

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0106232

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ELECTRON MICROSCOPE X RAY MICROANALYZER IS DESCRIBED WHICH MAKES IT POSSIBLE TO CONDUCT AN X RAY SPECTRUM ANAL. OF AREAS WITH A DIAM. SIMILAR TO OR LESS THAN 500 ANGSTROM. RESULTS OF TESTING OF THE LIGHTING SCHEME OF THE DEVICE AND ITS NONDISPERSION SYSTEM OF REGISTRATION OF CHARACTERISTIC SPECTRA ARE PUBLISHED. LINES OF THE CHARACTERISTIC SPECTRUM CAN BE REGISTERED IF THE WT. OF THE PART OF THE MATERIAL UNDER STUDY EQUALS 1.7 TIMES 10 PRIME NEGATIVE17 G.

UNCLASSIFIED

USSR

UDC 582.264:576.809.33

TUBAYEV, T. T., VASIGOV, T., RAKHIMOV, A., and YAKUBOV, Kh. F., Division of Microbiology, Academy of Sciences Uzbek SSR

"Mass Cultivation of Scenedesmus Under the Open Sky"

Tashkent, Uzbekskiy Biologicheskiy Zhurnal, Vol 16, No 3, 1972, pp 43-44

Abstract: Experiments were conducted on the cultivation on a large scale under the open sky of the local mesothermal strain UA-2-6 of the alga Scenedesmus obliquus (Turp.) Kuetz., which had been isolated from the soil of irrigated fields in the vicinity of Tashkent. Cultivation was carried out on an experimental plot of the Institute of Botany, Academy of Sciences Uzbek SSR. The algae were grown on installations of a type developed at Leningrad State University. The layer thickness was 8-10 cm. The inorganic nutrient medium 04 (cf. Ye. I. Milogradova and A. M. Muzafarov, p 9, in the symposium O Proizvodstvennoy Kul'ture Odnokletochnykh Vodorosley - The Cultivation of Single-Cell Algae on a Production Scale -, Fan, Tashkent) was used. CO_2 was fed in by means of a centrifugal pump. The average daily yield of S. obliquus from May to Sep corresponded to 18.4 g dry matter per sq. m. vs. 17.2 g for Chlorella vulgaris Beyer 157. The biomass of S. obliquus contained 750.2 mg/kg

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USSR

TUBAYEV, T. T., et al, Uzbekskiy Biologicheskiy Zhurnal, Vol 16, No 3, 1972, pp 43-44

carotene and crude protein 55.9, crude fat 10.4, ash 10-17, monosaccharides 0.13, maltose 1.2, dextrins 1.9, starch 2.02, hemicellulose 0.49, and cellulose 0.54. As far as the yield and the chemical composition of the biomass are concerned, S. obliquus is not inferior to Chlorella. Furthermore, it surpasses Chlorella with respect to some useful properties. S. obliquus contains chondrillasterone (0.23% of dry matter), which can be used as a starting material for the synthesis of cortisone. On the basis of the results obtained, the cultivation of S. obliquus under the open sky looks very promising.

2/2

USSR

UDC: 550.834

SLUTSKOVSKIY, A. I., YASIK, A. I., NIKIFOROV, S. V., BEREZA, G. V.

"A Device for Recording Seismic Time Profiles in the Form of Triangles and Trapezoids"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8, Mar 72, Author's Certificate No 330410, Division G, filed 10 Nov 69, published 24 Feb 72, p 143

Translation: This Author's Certificate introduces: 1. A device for recording seismic time profiles in the form of triangles and trapezoids. The device contains an optimizer, a modulator and a scanning system. As a distinguishing feature of the patent, the effectiveness of processing seismic data is improved by connecting high-frequency square-wave sources through integrating circuits and amplifiers to the inputs of the balanced modulator whose output is connected through an amplifier to a diode bilateral clipper with controllable threshold. The second input of the clipper is connected to a pulse amplifier of extremum values of seismic signals, and the clipper output is connected through an amplifier and half-wave rectifier to the amplifier of the vertical deflecting system of a cathode ray tube. 2. A modi-

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USSR

SLUTSKOVSKIY, A. I. et al., USSR Author's Certificate No 330410

fication of this device distinguished by the fact that the stability of scanning triangular and trapezoidal images on the screen of the CRT is improved by connecting the high-frequency square-wave source with twice the frequency of the low-frequency sources through a differentiating circuit to the controlling input of a switch connected in parallel with the input of an amplifier and a capacitor. The capacitor is connected through a resistor to a DC voltage source, and the output of the amplifier is connected to the horizontal deflecting system of the cathode ray tube.

2/2

USSR

UDC: 621.315.592

MOLIN, V. N., VASIL, O. I., SKRIPKINA, P. A., ASEYEV, A. L., PETROSYAN, V. I., STENIN, S. I., and TAVGER, B. A., Institute of Semiconductor Physics, Novosibirsk

"Connections of the Electrophysical Characteristics and Structure of Dimension-Quantized InSb Films"

Leningrad, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1447-1451

Abstract: The purpose of this paper is to establish a connection between the structure and the electrical characteristics of InSb films with quantum dimensional effects. In the form of wedges, the specimens were prepared by pulse sputtering in a vacuum of 10^{-5} mm Hg on mica sheets measuring 10X80 mm. The specimens were given two types of structure by two modes of annealing. A photograph of these structures is reproduced, and curves are plotted for the mobility as a function of the thickness of the InSb films for the two structural types and for nonstoichiometric films with excess Sb, for the mobility as a function of the polycrystalline film temperature and the textured film temperature. The authors express their gratitude to E. I. Dagman and L. M. Rodnikova for their assistance.

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USSR

UDC 620.172.253.05

VASIL'CHENKO, G. S., CHERNYAVSKIY, L. L., ROMANOV, V. S., and MART'YANOV, N. S., Moscow

"The VRD-300 Installation for Strength Testing of High Speed Turbine Disks"

Kiev, Problemy prochnosti, No 1, 1971, pp 97-100

Abstract: The VRD-300 installation, planned and constructed at the Central Scientific Research Institute for Heavy Machine Building in 1965, is designed for strength testing of turbine wheels up to 300 mm in diameter weighing up to 15 kg at rotating speeds up to 75,000 rpm and temperatures up to 900°C under conditions approaching actual operating conditions. The machine is similar to the VRD-500 machine designed for larger, heavier and slower turbine wheels; the VRD-300 is driven by a centripetal air turbine and rides on bearings using copper inserts between the babbit and steel bushing. Drawings of the device and a description of its principal characteristics are presented.

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USSR

VASIL'CHENKO, G. S., MERINOV, G. N., KUZLITSKIY, A. S., Central Scientific Research Institute of Technology and Machine Building, Moscow

UDC 621.165-521:539.4

"Application of the Theory of Linear Mechanics of Fracture to Evaluating the Strength of Turbine Rotors"

Kiev, Problemy Prochnosti, No 9, Sep 72, pp 22-26

Abstract: The authors apply the theory of linear mechanics of fracture to analysis of the maximum strength of the K-220-44 welded turbine rotor made from 34KhMA steel. Linear mechanics of fracture can be used to find the mathematical relation between the geometry of a part, the dimensions of a crack or equivalent defect, the properties of the material, the stress distribution and the so called critical coefficient of stress intensity. This coefficient can be used to find the stresses which lead to brittle fracture of the rotor in the case of a crack or similar flaw of a certain size, or to solve the inverse problem -- to determine the dimensions of the crack which will produce brittle fracture of the rotor at a given speed. The critical coefficient of stress intensity is experimentally determined, and a numerical formula is derived which gives this coefficient in terms of the geometry of

USSR

VASIL'CHENKO, G. S. et al., Problemy Prochnosti, No 9, Sep 72, pp 22-26

the part and the weakening defect, and the rotational velocity at fracture. The applicability of the method is experimentally confirmed. It is found that the working speed of the K-220-44 rotor can be exceeded by 25% without danger of brittle fracture from inertial and cyclic loads.

2/2

USSR

VASIL'CHENKO, G. V., NELIPOVICH, N. B. 681.121.8

"Device for Measurement of Flow Velocities of Fluids by Electrochemical Method"

Tr. Koordinats. Soveshchaniy Po Gidrotekhn [Works of Coordination Conference on Hydraulic Engineering], No. 51, 1969, pp 94-100 (translated from Referativnyy Zhurnal Metrologiya I Izmeritel'naya Tekhnika, No. 4, 1970, Abstract No. 4.32.904, unsigned)

Translation: This device is designed for laboratory measurement of instantaneous local flow velocities of fluids in both laminar and turbulent modes. Operation (about three years) has demonstrated that the device provides stable measurement (between calibrations) for several hours. This requires that the material in the circulation installation not oxidize and not be broken down by the solution of the electrolyte. One illustration, three biblio. refs.

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1/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--INVESTIGATION OF THE STRESS STRAIN STATE OF A SHORT CYLINDER BY A THREE DIMENSIONAL PHOTOELASTIC TECHNIQUE -U-

AUTHOR--VASILCHENKO, I.P.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, FEB. 1970, P 118-119

DATE PUBLISHED-------70

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

TOPIC TAGS--STRESS STRAIN DIAGRAM, EPOXY RESIN, LIGHT POLARIZATION, PHOTOELASTICITY, POISSON COEFFICIENT

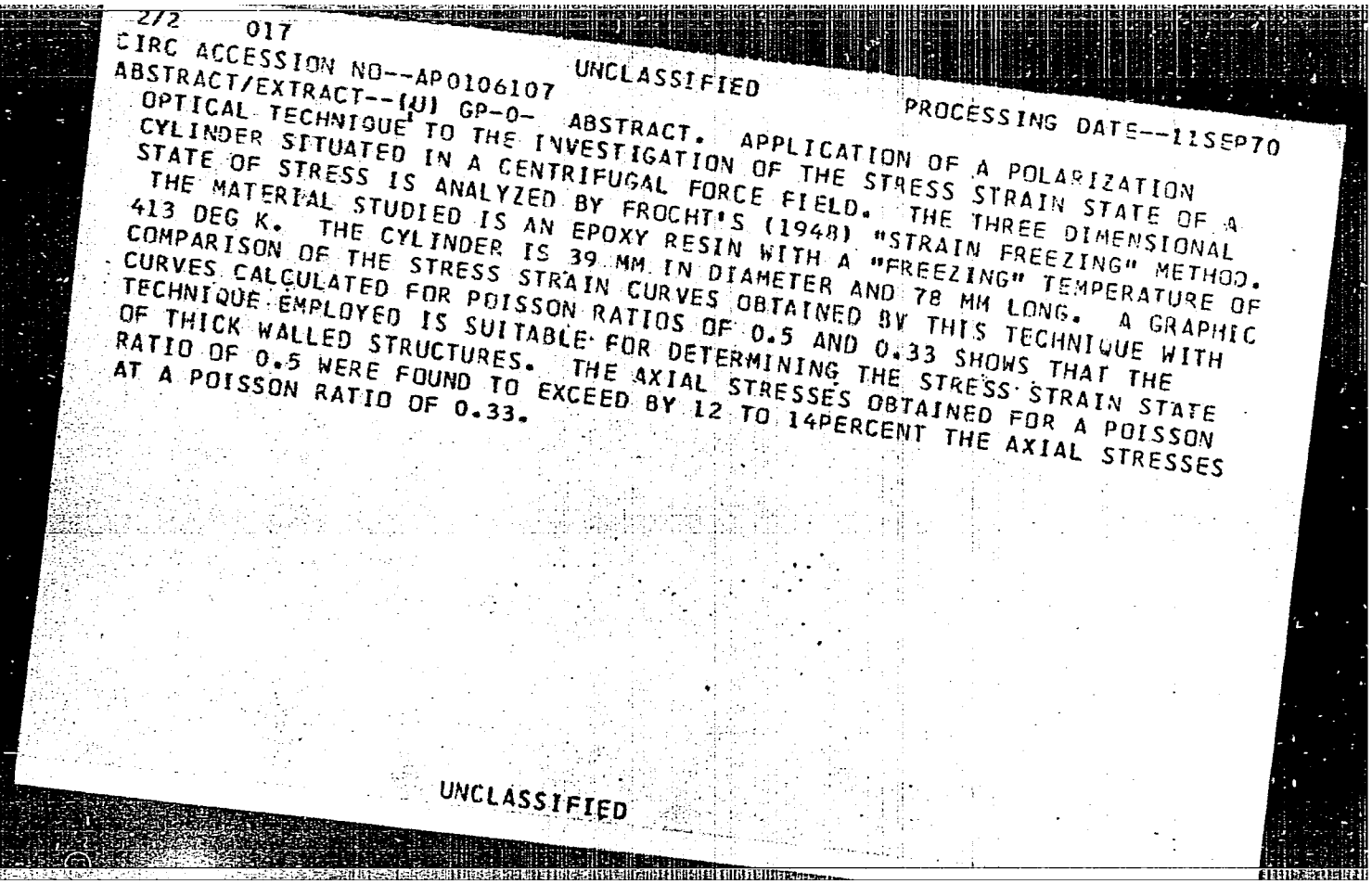
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1330 STEP NO--UR/0198/70/006/000/0118/0119

CIRC ACCESSION NO--AP0106107

UNCLASSIFIED



2/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106107

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF A POLARIZATION OPTICAL TECHNIQUE TO THE INVESTIGATION OF THE STRESS STRAIN STATE OF A CYLINDER SITUATED IN A CENTRIFUGAL FORCE FIELD. THE THREE DIMENSIONAL STATE OF STRESS IS ANALYZED BY FROCHT'S (1948) "STRAIN FREEZING" METHOD. THE MATERIAL STUDIED IS AN EPOXY RESIN WITH A "FREEZING" TEMPERATURE OF 413 DEG K. THE CYLINDER IS 39 MM IN DIAMETER AND 78 MM LONG. A GRAPHIC COMPARISON OF THE STRESS STRAIN CURVES OBTAINED BY THIS TECHNIQUE WITH CURVES CALCULATED FOR POISSON RATIOS OF 0.5 AND 0.33 SHOWS THAT THE TECHNIQUE EMPLOYED IS SUITABLE FOR DETERMINING THE STRESS STRAIN STATE OF THICK WALLED STRUCTURES. THE AXIAL STRESSES OBTAINED FOR A POISSON RATIO OF 0.5 WERE FOUND TO EXCEED BY 12 TO 14PERCENT THE AXIAL STRESSES AT A POISSON RATIO OF 0.33.

UNCLASSIFIED

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TITLE--INVESTIGATION OF THE STRESS STRAIN STATE OF A SHORT CYLINDER BY A THREE DIMENSIONAL PHOTOELASTIC TECHNIQUE -U-

PROCESSING DATE--11SEP70

AUTHOR--VASILCHENKO, I.P.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, FEB. 1970, P 118-119

DATE PUBLISHED-------70

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

TOPIC TAGS--STRESS STRAIN DIAGRAM, EPOXY RESIN, LIGHT POLARIZATION, PHOTOELASTICITY, POISSON COEFFICIENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1330

STEP NO--UR/0198/70/006/000/0118/0119

CIRC ACCESSION NO--AP0106107

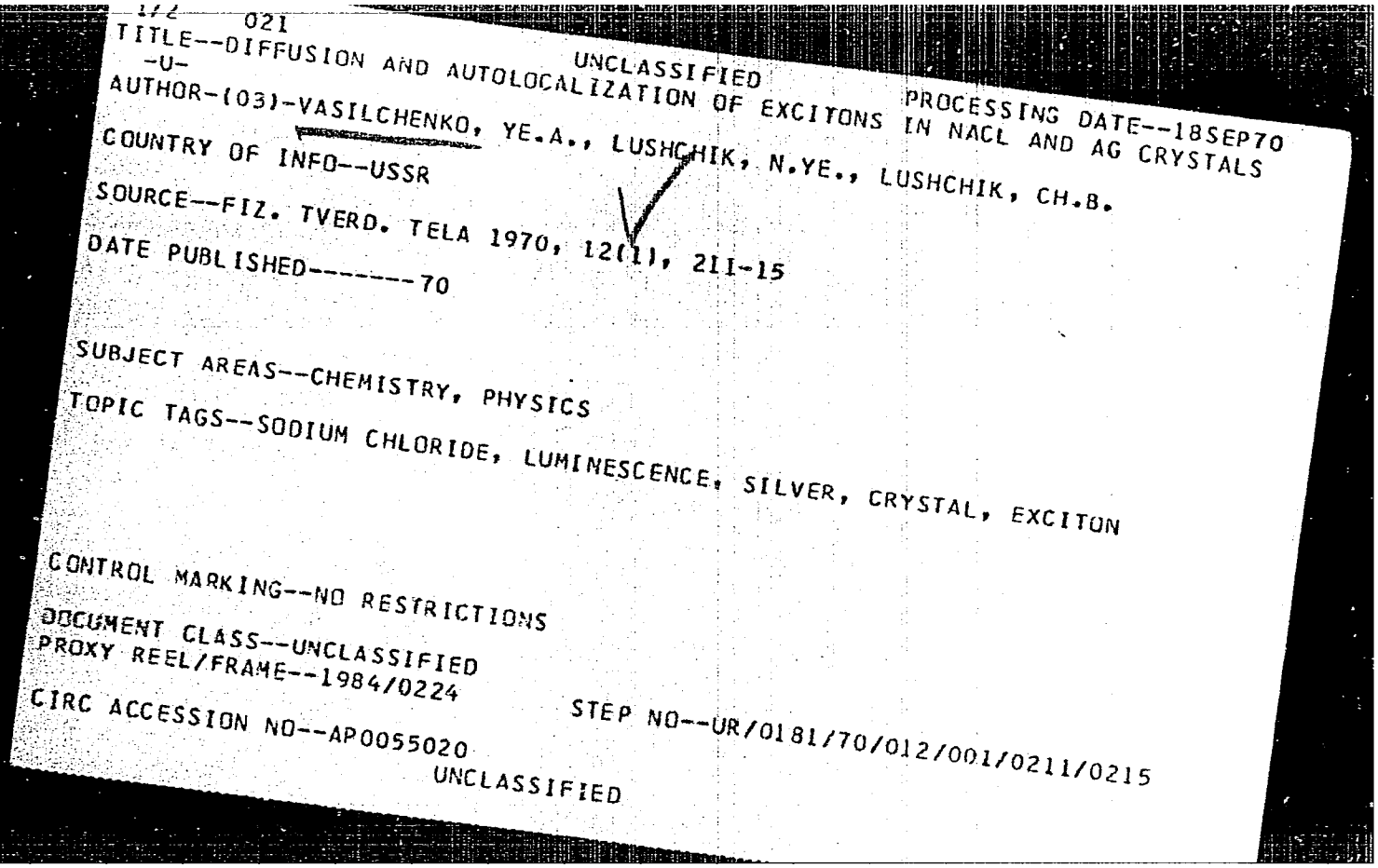
UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106107

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF A POLARIZATION OPTICAL TECHNIQUE TO THE INVESTIGATION OF THE STRESS STRAIN STATE OF A CYLINDER SITUATED IN A CENTRIFUGAL FORCE FIELD. THE THREE DIMENSIONAL STATE OF STRESS IS ANALYZED BY FROCHT'S (1948) "STRAIN FREEZING" METHOD. THE MATERIAL STUDIED IS AN EPOXY RESIN WITH A "FREEZING" TEMPERATURE OF 413 DEG K. THE CYLINDER IS 39 MM IN DIAMETER AND 78 MM LONG. A GRAPHIC COMPARISON OF THE STRESS STRAIN CURVES OBTAINED BY THIS TECHNIQUE WITH CURVES CALCULATED FOR POISSON RATIOS OF 0.5 AND 0.33 SHOWS THAT THE TECHNIQUE EMPLOYED IS SUITABLE FOR DETERMINING THE STRESS STRAIN STATE OF THICK WALLED STRUCTURES. THE AXIAL STRESSES OBTAINED FOR A POISSON RATIO OF 0.5 WERE FOUND TO EXCEED BY 12 TO 14PERCENT THE AXIAL STRESSES AT A POISSON RATIO OF 0.33.

UNCLASSIFIED



1/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--DIFFUSION AND AUTOLOCALIZATION OF EXCITONS IN NACL AND AG CRYSTALS -U-

AUTHOR-(03)-VASILCHENKO, YE.A., LUSHCHIK, N.YE., LUSHCHIK, CH.B.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(1), 211-15

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SODIUM CHLORIDE, LUMINESCENCE, SILVER, CRYSTAL, EXCITON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0224

STEP NO--UR/0181/70/012/001/0211/0215

CIRC ACCESSION NO--AP0055020

UNCLASSIFIED

2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AP0055020 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FAST (TAU SMALLER THAN 1 SEC) LUMINESCENCE OF AG PRIME POSITIVE CENTERS WAS INVESTIGATED IN NACL-AG CRYSTALS WHEN EXCITONS ARE CREATED BY THE LIGHT QUANTA OF 8.1 EV. AT 295DEGREES K THE EFFICIENCY OF THE EXCITON MECHANISM OF EXCITATION OF AG PRIME POSITIVE CENTERS ETA SUBEX VARIES FROM 0.62 TO 0.01 WHEN THE CONCN. OF ACTIVATOR DECREASES FROM 1 TO 0.005 MOLE PERCENT IN THE CRYSTAL. COOLING OF THE CRYSTALS TO 160DEGREES K LEADS TO A DECREASE IN ETA SUBEX TO AS MUCH AS ONE TWELFTH THAT AT 295DEGREES K. AT 160-80DEGREES K, THE MAGNITUDE OF ETA SUBEX IS INDEPENDENT OF TEMP. IN CRYSTALS OF NACL-AG, 2 EXCITON MECHANISMS OF EXCITATION OF THE IMPURITY CENTERS ARE REALIZED, THE LOW TEMP. MECHANISM IS RELATED TO MIGRATION OF HOT EXCITIONS OVER SEVERAL UNIT CELL LENGTHS AND THE HIGH TEMP. MECHANISM, WITH THE TEMP. OF THE DIFFUSION OF AXIALLY RELAXED EXCITONS. RELAXING EXCITONS ARE AUTOLOCALIZED AT T LESS THAN 170DEGREES K APPROX. WHERE THE RELAXING HOLES ARE PRESENT.

UNCLASSIFIED

USSR

LUTSENKO, Ye. I., FAYNBERG, Ya. B., VASIL'CHUK, V. A., and SHEPELEV, N. P.

UDC 533.916

"Interaction of an Intense Electron Beam With Uniform and Nonuniform Plasmas"

Kiev, Fizika Plasmy i Problemy Upravlyayemogo Termoyadernogo Sinteza (Plasma Physics and Problems in Controlled Thermonuclear Synthesis -- collection of works) No 3, "Naukova dumka," 1972, pp 5-15

Abstract: Since the method of obtaining intense electron beams by accelerating plasma electrons with an external magnetic field is a difficult one, the authors have investigated the problem of obtaining such a beam in plasmas which are uniform or nonuniform along their lengths, and they have developed a device for attaining that aim. A diagram of the device and a description of its component parts are given, together with details of its calibration. Experiments were performed with it for both uniform and nonuniform plasmas; among their results are oscillograms of the plasma radiation and of the electron beam current at various voltages. The experiments showed that there is a limited amount of electron emission from the cold cathode, but this disappears at plasma concentrations of less than $10^{12}/cm^3$. The beam current attains a value of 1000 amp at a 40 kv level, although beams of much higher power can be obtained.

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USSR

UDC 533.916

LUTSENKO, Ye. I., FAYNBERG, Ya. B., VASIL'CHUK, V. A., SHEPELEV, N. P.

"Interaction of an Intense Electron Beam With a Homogeneous and Nonhomogeneous Plasma"

Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb. (Plasma Physics and Problems of the Controlled Thermonuclear Fusion. Republic Interdepartmental Collection), 1972, No. 3, pp 5-15 (from RZh-Fizika, No 11, Nov 72, Abstract No 11G249)

Translation: The problem of producing an intense electron beam in a plasma at a density of $10^{11} - 10^{13}$ cm^{-3} by accelerating electrons in it with an external electric field of 500-1000 v/cm of 0.5 μsec duration produced by an induction accelerator is investigated. An electron beam with a current above 1000 a and an energy close to the applied voltage was obtained with a particle concentration in the beam of $n_1 \sim 10^{11}$ cm^{-3}. The beam is produced in the precathode layer of plasma of thickness less than 2 cm, where the entire voltage applied to it is redistributed. As the beam passes through the plasma, about 1/3 of the beam current is lost as a result of beam instability with a frequency ω_{pe}, and the energy spectrum of the electron is diffused. Stabilization of the instability is achieved by the application of a plasma that is nonhomogeneous along the length.

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USSR

VASILENKAYTIS, V., Candidate of Medical Sciences, Central Scientific Research Institute of Sanitary Education

"Technology in the Service of Health"

Frunze, Sovetskaya Kirgiziya, 6 Mar 73, p 4

Translation: Medicine utilizes extensively, boldly, and creatively the latest advancements in science and technology, and in hundreds of laboratories engineers, mathematicians, chemists, physicists, and specialists in electronics and cybernetics are creating original instruments and devices. Presently in the USSR more than 4,000 articles are being produced which pertain to therapeutics. It is enough to visit a cardiology clinic, for example, to appreciate how far we have come in the last few years. In the operating room there is an artificial microclimate, with the circulation in the organism maintained by an instrument for artificial circulation; a miniature device, "Kholod," cools the brain of a patient during surgical intervention, and artificial valves replace malfunctioning natural heart valves.

The struggle for the life of a patient is not limited, of course, by the walls of the operating room; in a number of lesions of the cardiovascular system, especially those involving damage to the coronary arteries, the physicians are assisted by the intensive care units where the patient is constantly

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VASILENKAYTIS, V., Sovetskaya Kirgiziya, 6 Mar 73, p 4

monitored, and the physician receives constant data on the state of the patient and any deviations from the norm.

Many patients die from acute heart failure following myocardial infarction. In such cases the life of the patient may be saved by an instrument which can "support" the heart or, for limited periods of time, replace it. The rested, recovered heart may then function for many years. In the Soviet Union many instruments are also being developed to assist the circulatory system, such as an elastic bulb that may be inserted into the aorta and contracts synchronously with the weakened heart, thereby assisting the heart in handling the increased load. Studies are also being conducted in the USSR on the construction of a mechanical heart. Electrical stimulation is gaining ever wider use in severe heart arrhythmias, as well as in resuscitation following clinical death.

Not even the most advanced instrumentation can replace a physician with his clinical acumen, experience, and intuition. However, the voluminous "memory" of a computer is very helpful in the diagnosis of heart diseases. Of special value in this respect is the method developed by Soviet scientists of transmitting electrocardiograms along common telephone wires from patients with suspected myocardial infarctions to consultation centers.

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USSR

VASILENKAYTIS, V., Sovetskaya Kirgiziya, 6 Mar 73, p 4

Thus far we have discussed cardiologic institutions; however, they do not constitute an exceptional case. For example, a modern oncology clinic is also characterized by highly advanced equipment, and at present it is difficult to distinguish them from laboratories dealing with nuclear investigations. Here one finds powerful irradiation units, advanced isotopic techniques, and sources of curative rays -- betatrons.

A genuine revolution in the diagnosis of certain internal diseases is connected with fiber optics. When introduced into flexible catheters, this type of optics makes it possible for the physician to examine the most inaccessible regions and cavities of the human organism. It is feasible, for instance, to introduce an elastic catheter into the stomach and conduct a detailed examination of the mucous membrane. The first attempts have been made to transmit such color "pictures" on a television screen. Roentgenologic instruments have been constructed which yield a color image. With the aid of this powerful medical technology the physicians are attacking ever more aggressively the bastions of cancer.

The promise of further successes in public health, based on the realization of humane principles, is aided by the enlistment of the latest advancements in science and technology in the struggle against a multitude of diseases.

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- 30 -

USSR

UDC:621.791.92.052.001.5:669.15-194:62-418

PAVLOV, I. V., LESHCHINSKIY, L. K., VASILENKO, A. I., Zhdanov Metallurgical Institute

"Peculiarities of the Structure of the Fusion Zone Produced During Surfacing with a Thin Austenitic Strip on Type 45 Steel"

Moscow, Svarochnoye Proizvodstvo, No 12, Dec 73, pp 33-35

Abstract: This work studies the possibility of acting on the structure and properties of the transition zone produced during surfacing of type 45 steel with a thin austenitic strip by changing the shape and dimensions of the electrode, with a low content of alloying elements in the electrode. The decrease in the participation of the base metal in the built-up surface metal characteristic for thin electrode strips (0.1-0.2 mm thick) allows a surfaced metal to be produced with higher austenite reserve which, in turn, can produce a narrower martensite layer between the base metal and the surfaced metal. Reduction of the temperature of the tail portion of the bath achieved by the use of a thin electrode strip allows the base-metal inclusions in the surfaced metal to be retained primarily unmelted.

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USSR UDC 539.3

GRIGORENKO, YA. M., and VASILENKO, A. T., (Kiev), Institute of Mechanics, Ukrainian SSR

"Concerning the Solution of Problems of Axisymmetric Deformation of Anisotropic Shells of Revolution"

Kiev, Prikladnaya Mekhanika, Vol 7, No 8, 1971, pp 3-8

Abstract: In the article is set forth an approach to a numerical solution of problems of the statics of axially symmetrical loaded shells of revolution, composed of anisotropic layers of, generally speaking, variable rigidity. It is assumed that the layers of the shell are deformed jointly without slipping and separation and that for the entire packet of the shell the hypothesis of undeformed normals is on the whole valid. At each point of the shell there is but a single plane of elastic symmetry that is parallel to the coordinate surface. The elastic and thermophysical characteristics do not change along the parallel. The derived solving system of ordinary differential equations is integrated by means of a numerical algorithm on an electronic digital computer for arbitrary boundary conditions and loads. Solved as an example is a problem concerning the stressed state of an anistropic ellipsoidal shell of variable thickness. Two figures, one table, eight references.
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1/2 022 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--DEDUCTION OF EQUATIONS OF EQUILIBRIUM FOR MULTILAYER SHELLS WITH LAYERS OF VARIABLE THICKNESS -U-
AUTHOR--VASILENKO, A.T., GRIGORENKO, YA.M.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK UKRAINS'KOI RSR, DOPOVIDI, SERIIA A, FIZIKO, TEKHNICHNI I MATEMATICHNI NAUKI, VOL. 32, FEB. 1970, P. 155-158
DATE PUBLISHED----FEB70

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

TOPIC TAGS--FRICTION, REINFORCED SHELL STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0291 STEP NO--UR/0441/70/032/000/0155/0158

CIRC ACCESSION NO--AT0108589
ZZZZZZZZZZZZ UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AT0108589

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A PROCEDURE FOR DERIVING A CLASS OF EQUATIONS DESCRIBING THE EQUILIBRIUM OF SHELLS COMPOSED OF SEVERAL LAYERS OF VARIABLE THICKNESS. THE EQUATIONS ARE APPLICABLE TO MULTILAYER SHELLS IN WHICH INDIVIDUAL LAYERS PERFORM UNDER LOAD A SIMULTANEOUS WORK WITHOUT FRICTION.

ZZZZZZZZZZZZ UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--THE MECHANISM OF PLASMA LOSSES IN A STELLARATOR -U-

AUTHOR-(05)-BURCHENKO, P.YA., VASILENKO, B.T., VOLKOV, YE.D., PAVLICHENKO, O.S., POTAPENKO, V.A.
COUNTRY OF INFO--USSR

SOURCE--MOSCOW, ATOMNAYA ENERGIYA, VOL 28, NO 2, FEB 70, PP 126-129

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLASMA OSCILLATION, LOW FREQUENCY, STELLARATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1481 STEP NO--UR/0089/70/028/002/0126/0129

CIRC ACCESSION NO--AP0123384

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0123384

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE EQUILIBRIUM CONDITIONS AND SPECTRAL PROPERTIES OF LOW FREQUENCY OSCILLATIONS OF PLASMA OF OHMIC HEATING IN A STELLARATOR. IT IS SHOWN THAT EQUILIBRIUM IS DISRUPTED AT A MAGNITUDE BETA EQUALS 8 PI NKT DIVIDED BY H SUB0 PRIME2 HIGHER THAN SOME CRITICAL BETA SUBE. ON THE BASIS OF STUDIES OF LOW FREQUENCY OSCILLATIONS CONDUCTED AT BETA LESS THAN BETA SUBE, A DEDUCTION CAN BE MADE THAT DRIFT TYPE INSTABILITIES (DRIFT DISSIPATION OR THERMOFORCE) APPEAR IN THE COLLISION PLASMA IN THE STELLARATOR. THE AUTHORS THANK V. F. ALEKSIN AND S. S. MOISEYEV FOR VALUABLE REMARKS, AND A. I. ZHDANOV FOR HELP WITH THE CORRELATION TECHNIQUE.

UNCLASSIFIED

UNCLASSIFIED

TITLE--PYRAMIDAL INFLUENCES ON INTERNEURONS OF SPINAL REFLEX ARCS IN CAT -L-

PROCESSING DATE--03JUL70

AUTHOR--ZACCHCZHNYY, A.G., VASILENKO, D.A., KOSTYUK, P.G.

COUNTRY OF INFO--USSR

SOURCE--NEYROFIZIOLOGIYA,1970, VOL 2, NR 1, PP 17-25

DATE PUBLISHED-------70

23
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28

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CAT, CEREBRAL CORTEX, REFLEX, ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1977/0579

STEP NO--UR/0060/70/002/001/0017/0025

CIRC ACCESSION NO--AP0044106

UNCLASSIFIED

Acc. Nr: AP0044106 Ref. Code: UR 0660

PRIMARY SOURCE: Neyrofiziologiya, 1970, Vol 2, Nr 1 , pp 17-25

PYRAMIDAL INFLUENCES ON INTERNEURONS OF SPINAL REFLEX ARCS IN CAT

A. G. Zadorozhnyy, D. A. Vasilenko, P. G. Kostyuk

The A. A. Bogomoletz Institute of Physiology, Academy of Sciences, Ukrainian SSR, Kiev

Summary

Microelectrode investigations of effects produced in lumbar segmentary interneurons by electrical stimulation of sensorimotor cortex were performed in cats. Interneurons activated by FRA received excitatory action from cortex. Corticofugal influences were also predominantly excitatory in interneurons activated exclusively either by high threshold muscle or high threshold cutaneous afferents, but in few units pure inhibitory and mixed reactions were observed. Interneurons excited only by low threshold muscle or cutaneous afferents received very weak pyramidal influences or were out of them.

AP0044106

Mean latencies of corticaly evoked EPSP's and spikes were calculated for the above-mentioned groups of interneurons. They were 11.8±2.6 msec and 20.1±1.8 msec in FRA neurons; 15.5±3.6 msec and 16.3±2.2 msec for neurons activated only by high threshold muscle afferents; 11.8±2.6 msec and 18.3±1.4 msec for units activated only by high threshold cutaneous afferents.

Possible pathways of corticofugal influences on spinal interneurons and functional significance of such influences are discussed.

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1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--A STUDY OF THE INITIAL STAGES OF SUCROSE DECOMPOSITION BY THE STRAINS OF CLADOSPORIUM SP -U-
AUTHOR-(03)-NOVIKOVA, S.I., BONDARCHUK, A.A., VASILENKO, G.D.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 35-41

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SUCROSE, SACCHARIDE, HYDROLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0483 STEP NO--UR/0220/70/039/001/0035/0041

CIRC ACCESSION NO--AP0117719

UNCLASSIFIED

2/2 009 UNCLASSIFIED

CIRC ACCESSION NO--AP0117719 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SUCROSE PHOSPHOROLYSIS WAS NOT FOUND DURING THE INITIAL STAGES OF SUCROSE DECOMPOSITION BY CLADOSPORIUM SP., STRAINS 1622, AND 5143. THE STRAINS DECOMPOSED SUCROSE BY HYDROLYSIS FOLLOWED WITH TRANSHEXOZILATION RESULTING IN OLIGOSACCHARIDES WITH DIFFERENT VALUES OF R SUBGL. THESE OLIGOSACCHARIDES WERE PROVED TO BE MAINLY TRANSFRUCTOZILATION PRODUCTS. HYDROLYTIC AND TRANSHEXOSILASE ACTIVITIES VARY IN DIFFERENT STRAINS AND DEPEND ON THE CULTURAL AGE.

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USSR

UDC 621.791.052:620.193:669.295

BLASHCHUK, V. YE., Engineer, GUREVICH, S. M., Doctor of Technical Sciences, SHELENKOV, G. M., Engineer, Electric Welding Institute imeni Ye. O. Paton; TKACHENKO, N. M., Candidate of Technical Sciences, VASILENKO, I. I., Candidate of Technical Sciences, LISKEVICH, I. YU., Engineer, ZAFIYOVSKIY, YU. M., Engineer, ISAYEVA, N. M., Engineer, and MELEKHOV, R. K., Engineer, Physico-mechanical Institute of the Academy of Sciences UkrSSR

"The Tendency of AT3 Titanium Alloy Welded Joints to Mechanical Corrosion Failure"

Moscow, Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 39-40

Abstract: A study was made of the tendency of AT3 titanium alloy and its welded joints to breakdown at increased temperature and pressure in a 0.6% solution of H_2SO_4, as applicable to the working conditions of hydrolytic apparatus. Specimens of AT3 alloy were cut from 24-mm-thick hot-rolled sheet. The failure of welded joints took place at stresses exceeding the yield limit of the alloy. The conditional limits of the corrosion-fatigue strength in axial load with symmetric tension and compression of AT3 alloy and its manually welded joints are close. Automatically welded joints show, in comparison with AT3 alloy,

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BLASHCHUK, V. YE., et al., Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 39-40

some decrease in strength at stresses exceeding the conditional limit of corrosion-fatigue strength. The AT3 alloy and its welded joints show practically the same durability at cyclic torsion. AT3 alloy is recommended for the production of welded experimental hydrolytic apparatus. Four figures, one table, eight bibliographic references.

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USSR

UDC 620.194:621.785.7

KHITARISHVILI, M. G., DIKIY, I. I., ZYUBRIK, A. I., VASILENKO, I. I.

Physicomechanical Institute, Academy of Sciences, Ukranian SSR, L'vov

"An Investigation of Corrosive Cracking of High-Strength Steels in Some Media"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 7, No 4, 1971, pp 19-23

Abstract: The present article is a continuation of research dealing with the cracking of high-strength hardened U8A carbon steel in acid and neutral media. The development of a crack in a sample undergoing testing for corrosive cracking brings about a gradual decrease of cross section. Therefore, if equally loaded samples are preliminarily held in the medium for different lengths of time, and are then tested for short-time strength in air, this short-time strength must continually decrease with increase of the time the sample is held in the medium. The indicated nature of the change between the short-term strength of the samples and the kinetics of crack development has a specific relationship; various sectors of the curves correspond to various stages of corrosive crack development. These stages of crack development are explained from the point of view of the electrochemical theory of corrosive cracking. 5 figures. 2 tables. 8 references.

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USSR

UDC 620.193.37

VASILENKO, I. I., MELEKHOV, R. K., SHULTE, A. Yu. KALINNIKOV, Ye. S.,

Physicomechanical Institute, Academy of Sciences, Ukrainian SSR. L'vov; Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin, Moscow

"Increasing the Strength of Steel 17G1S Against Corrosive Cracking by Refining It With Synthetic Slag"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 7, No 4, 1971, pp 31-33

Abstract: The tendency of carbon steel toward corrosive cracking is determined to a considerable degree by the quantity and sizes of microstructural defects, which are foci of corrosive mechanical cracks. Therefore the refining of steel by liquid synthetic slag in a crucible, which provides purification from harmful admixtures, nonmetallic inclusions, and an increase in density, should decrease its sensitivity to corrosive cracking. A study was made of the influence of this means of refining upon the stability of low-alloy steel 17G1S against cracking in an alkaline electrolyte and a nitrate electrolyte. One batch of steel was produced by the conventional open-hearth technology, and the other was refined with synthetic slag in a crucible. It

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VASILENKO, I. I., et al, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 7, No 4, 1971, pp 31-33

was established that the refining of low-alloy steel by synthetic slag considerably increases its resistance against corrosive cracking in an alkaline solution and in a nitrate solution. The greater tendency of the steel melted by the conventional open-hearth method to corrosive cracking is caused principally by the presence of a large quantity of considerably large nonmetallic inclusions. 1 figure. 3 tables. 5 references.

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Corrosion

USSR

UDC: 620.196

MELEKHOV, P. K., ZLOTNIKOV, S. A., VASILENKO, I. I., and KUSLITSKIY, A. B., Academy of Sciences of the Ukrainian SSR. L'vov Physicomechanical Institute

"The Effect of the Type of Nonmetallic Inclusions on the Sensitivity of 20 Grade Steel to Corrosion Cracking"

Moscow, Zashchita Metallov, Vol 7, No 3,, 1971, pp 327-329

Abstract: The authors study the effect of the type of nonmetallic inclusions (the plastic silicates, alumina, silica, and the nitrides of titanium) on resistance of grade 20 steel to corrosion cracking. Metal with the following composition of elements was used for specimens: 0.19-0.21% C, 0.21-0.23%Si, 0.35-0.36% Mn, 0.1% Cr, 0.16% Ni, 0.011-0.014% S, and 0.010-0.012% P. The metal was produced by programmed contamination in an induction furnace. The corrosion cracking tests were conducted using cylindrical specimens (heat treatment: quenching in oil at 850° with subsequent two hour tempering at 150°) in a boiling 50% NH_4NO_3 solution on the Zst 3/3 testing strength machine. A test base of 50 hr. was used. The relative sensitivity of steel to corrosion cracking in an alkaline medium was also determined. It is shown that in testing specimens in air at a stretching rate in the order of 10^{-3}mm/min., their

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MELEKHOV, P. K., et al., Zashchita Metallov, Vol 7, No 3, 1971, pp 327-329

plasticity remains the same as tested on standard tensile testing machines. In testing in boiling NH_4NO_3, the inclusion of titanium nitride seems least detrimental. Titanium nitride also seems to have the least harmful effect on the plasticity and strength of steel during testing in an alkaline solution. The type of nonmetallic inclusions notably affect the plasticity and strength of a metal, but not isotropy. The least harmful effect of the nitrides of titanium on the resistance of steel to corrosion cracking can be explained primarily by the fact that the nitrides of titanium are finely divided and that they are relatively uniformly distributed in a die. This results in the reduction of the local concentration of stresses in the metal. The second reason is the insignificant degree of electrochemical heterogeneity of the metal surface. The latter results in an increased incubation period for the development of corrosion cracking. Original article: two tables, two figures, and seven bibliographic entries.

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1/2 026 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--INCREASING THE RESISTANCE OF CARBON STEEL WELDS TO CORROSION CRACKING ON REDUCING THE RESIDUAL WELDING STRESSES BY WORKING -U-

AUTHOR-(05)-ZYUBRIK, A.I., VASILENKO, I.I., TEREKH, O.I., DIKY, I.I., KARPENKO, G.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ.-KHIM. MEKHAN. MAT., 1970, 6, (2), 42-45

DATE PUBLISHED-------70

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

TOPIC TAGS--CORROSION CRACKING, CARBON STEEL, STEEL WELDING, RESIDUAL STRESS, ELECTROCHEMICAL PROPERTY, PLASTIC DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0216 STEP NO--UR/0369/70/006/002/0042/0045

CIRC ACCESSION NO--AP0129472

UNCLASSIFIED

2/2 026 UNCLASSIFIED

CIRC ACCESSION NO--AP0129472 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF PLASTIC DEFORMATION (WORKING) ON (I) THE RESIDUAL STRESSES ARISING IN THE NEIGHBOURHOOD OF WELDS IN C STEEL PARTS, (II) THE ELECTROCHEMICAL PROPERTIES OF THE WELD METAL, AND (III) THE RESISTANCE OF THE WHOLE TO CORROSION CRACKING WAS STUDIED. THERE WAS A SHARP FALL IN RESIDUAL STRESSES ON SUBJECTING TO 1-2PERCENT DEFORMATION; THE ELECTROCHEMICAL HETEROGENEITY OF THE METAL ALSO DIMINISHED, AND THE RESISTANCE OF THE WELDS TO CORROSION CRACKING IN BOILING ALKALI AND NITRATE SOLUTIONS INCREASED SUBSTANTIALLY.

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Coatings

USSR

UDC 620.194.4

ZYUBRIK, A. I., RUBINSHTEYN, G. M., and VASILENKO, I. I., Institute of Physico Mechanics, Academy of Sciences Ukrainian SSR, L'vov; Bogoslovskiy Aluminum Plant

"Metallized Coatings to Protect Welds from Corrosion Cracking"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, No 3, May-June 70, pp 22-24

Abstract: Welded samples of St. 3 steel measuring 300 x 500 x 7 mm and 250 x 500 x 4 mm with a seam length of 500 mm and with a residual welding stress of the seams approaching the yield point of the base metal were subjected to corrosion cracking with the application of an external load. A portion of the plates were cut transverse to the weld seam to produce samples measuring 300 x 30 x 7 and 250 x 20 x 4 mm which were subjected to a bend load to the yield point (one before coating, the other after coating). Both types of samples were sandblasted to clean and roughen their surfaces. The surfaces of the samples were electroplated with nickel, copper, zinc, iron, St. 3 steel, or 1Kh18N9T steel using alternating current at 25 v. Coating thickness ranged from 0.1 to 1.2 mm to permit determination of the optimum thickness which would provide the best coating-base metal bonding and the most reliable protection of the surface from corrosive media, and which would allow the metal sample to be strained without rupture of the coating.

The best results were produced with a coating of 1Kh18N9T stainless steel. Out of 10 samples coated with this steel, not one ruptured. This was true whether

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203430004-3"

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ZYUBRIK, A. I., et al., Fiziko-Khimicheskaya Mekhanika Materialov, No 3, May-June 70, pp 22-24

the corrosive medium was a nitrate (NH_4NO_3-50% solution) or alkali (NaOH-40% solution), where the corrosion rate was 0.8 and 0.9 kg/m^2-hr respectively. Optimum coating thickness was 0.4 mm, where the time to cracking was close to 100 hours in the nitrate solution.

The authors state that additional protection against corrosion cracking may be achieved by using resins and lacquers.

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USSR

UDC: 621.372.853(088.8)

VASILENKO, I. Ya. and SHOLOMIY, V. M.

"Termination Junction Using a Thin Ribbon Line"

Avt. sv. SSSR (Author's Certificate USSR) Class 21a^4, 73 (H 01p 5/08), No. 275303, Application 29.07.68, Publication 15.09.70 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3R196P)

Translation: The proposed junction consists of a coaxial line whose center conductor ends in the loop of the terminating device. For the purpose of reducing the criticalness in matching the junction loop, the width is increased compared to the width of the ribbon line.

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USSR

UDC 624.07:534.1

DEBRIVNYY, I. Ye., VASILENKO, L. F.

"Torsional Vibrations of a Rod Considering Viscous and Amplitude-Nonlinear Friction"

V sb. Rasseyaniye energii pri kolebaniyakh mekh. sistem (Energy Scattering Under Oscillations of Mechanical Systems -- Collection of Works), Kiev, "Nauk. dumka", 1972, pp 68-72 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V266)

Translation: The problem of forced torsional vibrations of a rod under a harmonic external effect is discussed. Nonlinear friction corresponding to an elliptical hysteresis loop with a skeletal line in the form of an inclined straight line is taken into account along with viscous friction. The Bubnov method is applied with respect to the coordinate and the Krylov-Bogolyubov method is applied with respect to time. A numerical example is discussed. 5 ref. Yu. N. Novichkov.

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USSR

UDC 539.412.1

GORODETSKIY, V. N., KOZLOV, I. A., VASILENKO, L. P., Kiev

"The Question of the Strength of Disks with Inclined Rim"

Problemy Prochnosti, No 3, 1972, pp 28-30.

Abstract: Results are presented from experimental tests of two methods of designing inclined disks. The actual influence of the area of contact between rim and hub on the stress state of the disk is demonstrated. Values of coefficients describing the increase in true stresses in the dangerous area of inclined disks are presented.

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USSR

UDC 621.373.535 (206.3)

BAGAYEV, S. N., VASILENKO, L. S., MATYUGIN, YU. A., KLEMENT'YEV, V. M., TROSHIN, B. I., and CHEBOTAYEV, V. P.

"Some Results of a Study of the Generation Frequency Stability of Gas Lasers on the 0.63, 1.5, 3.39, and 9.6 Micron Wavelengths"

Leningrad, Optika i Spektroskopiya, Vol 32, No 4, Apr 72, pp 802-808

Abstract: The article gives a brief description of the principal results of the authors' study of the frequency stabilization of gas lasers on the 0.63, 1.5, 3.39, and 9.6-micron wavelengths. Various frequency stabilization methods were used: viz., a stabilization method based on the Lamb dip, stabilization methods according to the peak in the output radiation power (a laser with an internal absorption cell) and with an external gas absorption cell in a variable magnetic field. The main purpose of this work was to show that high frequency stability values can be attained in various lasers by various methods. The experimental setup and the measurement procedures used by the authors, as well as the research results will be described in separate

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BAGAYEV, S. N., et al., Optika i Spektroskopiya, Vol 32, No 4, Apr 72, pp 802-808

articles. The main emphasis was placed on the physical principles of the stabilization methods used and the results attained. All the principal results are shown in a table which, besides generation-frequency-stability measurement data, also gives parameters which characterize the physicotechnical properties of an optical frequency discriminator.

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USSR

UDC 537.525.1

VASILENKO, L. S., LISITSYN, V. N., NOTKIN, G. YE., and CHEBOTAYEV, V. P.

"Disintegration of the 2^1P and 2^3P Levels of He in a Glow Discharge"

Leningrad, Optika i Spektroskopiya, Vol 28, No 6, Jun 70, pp 1085-1093

Abstract: The article describes results of a study of the cross-sections for the disintegration of the 2^1P and 2^3P levels of helium in a dc discharge by atomic collisions. The purpose was to ascertain the channel over which excitation transfer from singlet levels to triplet levels occurs. The study was based on the method of selective optical excitation. It was found that the levels 2^1P and 2^3P of He have a cross-section for disintegration by interatomic collisions of $< 10^{-16}$ sq cm. A study of the magnitude and sign for the modulation of the population of a number of levels, resulting from selective optical excitation of the level 2^1P, indicates the following general pattern for the excitation of helium levels:

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USSR

GERASIMOV, F. M., et al., Optika i Spektroskopiya, Vol 28, No 6, Jun 70, pp 1196-1203

a differential. During tests of the ruling engine about 40 diffraction gratings were made with 600, 300, and 200 lines/mm. In most cases the gratings, when studied by the interference method, displayed straight interference fringes and gave high-quality spectral lines in the spectral unit.

USSR

UDC 621.382.323-416

VASILENKO, L.S., DVORNIKOV, V.I.

"Experimental Study Of Silicon Of Metal-Insulator-Semiconductor Transistor With Induced p-Type Channel At T = 77° K"

Elektron.tekhnika. Nauch.-tekhn.sb.Kriogen.elektronika (Electronics Technology. Scientific-Technical Collection. Cyrogenic Electronics),1971, Issue 1(3),pp 35-45 (from RZh:Elektronika i yeye primeneniye, No 10, Oct 1972,Abstract No 10B191)

Translation: The paper describes a MIS transistor with an insulated gate which has a high input resistance (10^{12}--10^{14} ohm) in a wide temperature range independent of the magnitude and polarity of the voltage at the gate. An account is given of the basic physical principles and peculiarities of operation of a MIS transistor under conditions of deep freezing. The static volt-ampere characteristics and the amplifying and noise parameters of a transistor with a p-type channel during cooling to 77° K are analyzed. 7 ill. 11 ref. N.K.

1/1

USSR

UDC 615.31:547.564.47.099

VASILENKO, N. M., VOLODCHENKO, V. A., NAKONECHNYY, A. A., and SADOKHA, YE. R., Industrial Toxicology Laboratory, Kharkov Scientific Research Institute of Labor Hygiene and Occupational Diseases

"Comparative Toxicological Evaluation of para-Phenetidine and Cyanoethyl-para-Phenetidine"

Moscow, Farmakologiya i Toksikologiya, Vol 35, No 3, May/Jun 72, pp 367-369

Abstract: Albino rats and rabbits were used in the tests. Para-phenetidine was injected as a 5% emulsion and cyanoethyl-p-phenetidine as a 25% suspension in a 3% starch gel. Subacute toxicity was induced by injection of the material into the stomach with 0.1 LD_{50} six times a week for one month. No cumulative effects were observed. The hemoglobin content, the erythrocyte, reticulocyte, and leukocyte content and leukocyte formula were determined. The Heinz bodies were also calculated. At the end of the tests the animals were sacrificed and the weight coefficient of the internal organs determined. Methemoglobin and sulfhemoglobin contents were also determined. The high toxicity of para-phenetidine is due to its high methemoglobin-forming activity. The introduction of the cyanoethyl group weakens this activity, but does not exclude the

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USSR

VASILENKO, N. M., et al., Farmakologiya Toksikologiya, Vol 35, No 3, May/Jun 72, pp 367-369

possibility of the combined formation of methemoglobin and cyanohemoglobin which in its turn contributes to the inhibition of the cyano group in the brain, preventing its transfer to the tissue and consequently blocking respiratory cytochromoxidase.

USSR

UDC 615.917:547.587

VASILENKO, N. M., VOLODCHENKO, V. A., and LABUNSKIY, V. V., Kharkov Institute of Industrial Hygiene and Occupational Diseases

"Correlation Between the Chemical Structure of Mono-, Bi-, and Trinuclear Quinones and Their Toxicity"

Moscow, Gigiyena i Sanitariya, No 6, 1972, p 113

Abstract: There are mono-, di-, and trinuclear quinones - benzoquinones (BQ), naphthoquinones (NQ), and anthraquinones (AQ) - depending on the number of benzene rings in the molecule. AQ derivatives containing various radicals in the main nucleus are more toxic than the AQ themselves. BQ are the least toxic among the amino AQ derivatives, the diamines are more toxic than the monamines. Among the AQ sulfonic acids, the most aggressive is the disodium salt of 1,8-sulfonic acid. The presence of methoxy, ethyoxy, and amino groups and especially combinations of them in the AQ molecule are the most dangerous. Introduction into the NQ molecule of 2 atoms of chlorine (2,3-dichloro-1,4-naphthoquinone) or 2 atoms of bromine combined with amino, hydroxy, and imino groups (5-amino-8-hydroxy-3,7-dibromo-1,4-naphthoquinonimine) mitigates the toxic and irritating effects of the compound.

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Acc. Nr:
AP0054284 Ref. Code: UR0463
PRIMARY SOURCE: Molekulyarnaya Biologiya, 1970, Vol 4, Nr 2,
pp 205-212

FRACTIONATION OF VALINE ISOACCEPTOR tRNAs FROM BAKER'S YEAST

S. K. VASILENKO, F. F. DIMITROVA, L. V. OBUKHOVA, V. F. PODGORNYY and N. A. SERBO

Institute of Organic Chemistry, Siberian Branch of the Academy of Sciences, USSR, Novosibirsk

A new method for the chromatography of isoacceptor tRNAs^{Val} from baker's yeast is described. The chromatography is carried out on TEAE-cellulose columns at 38—40° in solution of 7 *M* urea and 0.1 *M* CH_3COOH, in NaCl linear gradient from 0,35 to 0,5 *M*. Mg^{+2} ions and EDTA in concentrations 0,005—0,01 *M* have a marked influence on the fractionation. tRNA^{Val} was fractionated into a few isoacceptor fractions. Structural difference of these fractions was confirmed by the analysis of guanylo-ribonuclease digests of ^{14}C-valyl-tRNA on TEAE-cellulose columns in linear gradient of HCOOH and NaCl in 7 *M* urea. The final purification of tRNA^{Val} was performed by the chemical method of periodate oxidation.

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REEL/FRAME
19831422

DI 2

USSR

UDC: 8.74

VASILENKO, V. A., KOSSOV, B. B.

"Recognition Algorithms and Perception Psychology"

Moscow, Izbr. tr. Vses. mezhvuz. simpoz. po prikl. mat. i kibernet., Gor'kiy, 1967 (Selected Works of the All-Union Intercollegiate Symposium on Applied Mathematics and Cybernetics, Gor'kiy, 1967), "Nauka", 1973, pp 242-244 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V685 by the authors)

Translation: The paper deals with the question of human selection of a system of features and their evaluation in image classification. A new method is proposed for doing psychological experiments on determining the subjective distances between different visual objects. A series of psychological experiments is done on the method of ranking and the method of paired intervals, and the coefficients of rank correlation are computed for these methods.

1/1

VASILENKO, V. A.

SO: JPRS 53402
18 Jun 71

UDC: 362.147(049.3)

CONCERNING YA.I. DREYERMAN'S ARTICLE ENTITLED "SOME DEBATABLE ISSUES PERTAINING TO METHODS OF EVALUATING THE EFFECTIVENESS OF DISPENSARY CARE"

[Article by P.V. Khomenko, candidate of medical sciences, and V.A. Vasilenko, Chair of Social Hygiene and Organization of Public Health (Headed by Professor I.D. Khorosh), Kiev Medical Institute; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 5, 1971, submitted 3 December 1970, pp 45-47]

In an article published in the journal, Sovetskoye Zdravookhraneniye, (1970, No 9), Ya.I. Dreyerman voiced a number of debatable proposals dealing with methods of evaluating the effectiveness of dispensary care.

We share this author's view, that to date the number of patients under dispensary care does not average more than 60-80 per physician at many therapeutic institutions, and 20-30 per physician in a n a r r o w specialty (surgeon, neuropathologist, and others). However, we cannot agree that one of the main causes of the relatively inadequate coverage of the population with dispensary care is that doctors are overloaded in the outpatient service. With today's load and proper organization of work, one doctor can render satisfactory dispensary care to 150-200 people per year. If he sees 2-3 people out of the total number under dispensary care every day, he will receive about 50 visits per month, and about 500 per year. If one patient under dispensary care makes three visits on an average, the doctor will be able to take care of 166 people per year.

In medical institutions where less than 100-150 people are under dispensary care by one doctor, the quality of organization of his work in general and dispensary service in particular is poor. With such a work load, according to estimates, about 30 percent of the entire population is covered by dispensary care.

Further increase in number of individuals subject to dispensary care is directly related to a decrease in the doctor's total load.

It would be expedient to analyze dispensary services with due consi-

*Published for the purpose of discussion.

USSR

UDC 8.74

VASILENKO, V. A., PIRUMOV, R. N., ROMANOV, A. N.

"Some Problems of Training Pattern Recognition Machines"

V sb. Avtomat. upr. i vychisl. tekhn. (Automatic Control and Computer Engineering -- collection of works), Vyp. 10, Moscow, Mashinostroyeniye Press, 1972, pp 74-103 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V661)

Translation: A study was made of the problems of training automata to recognize complex three-dimensional figures by their two-dimensional projections. Special attention was given to the procedure for learning recognition in the presence of noise. Studies were made of various principles of data processing during input and output from the trained automaton. It was demonstrated that the best results have been achieved as a result of the differentiating transformation of the brightness function of the image scanning row and the transition to description of input situations in the space of the properties realized in the process of feeding the images to the digital computer. On the basis of the results obtained by the authors, defined practical recommendations are made. The bibliography has 16 entries.

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USSR

UDC 8.74

VASILENKO, V. A., PIRUMOV, R. N., ROMANOV, A. N.

"On Certain Problems in Teaching a Machine to Recognize Images"

V sb. Avtomat. upr. i vychisl. tekhn. (Automatic Control and Computer Technology -- Collection of Works), No. 10, Moscow, "Mashinostroyeniye", 1972, pp 74-103 (from RZh-Matematika, No 9, Sep 72, Abstract No 9V661)

Translation: The article discusses problems of teaching an automaton to recognize complex three-dimensional figures on the basis of their plane projections. Particular attention is given to a technique for teaching recognition in the presence of noise. Various principles for the processing of isoinformation during its input and output from the learning automaton are investigated. It is shown that the best results are achieved through differentiating conversion of the function for the clarity of the line of separation of the image and the transition to the description of input situations in the space of properties that is achieved during input of images into the computer. Certain practical recommendations are made on the basis of results obtained by the authors. 16 ref. Authors abstract.

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--UTILIZATION OF THERMOLUMINESCENCE METHOD FOR THE STUDY OF MAGMATIC ROCKS CONTACTS EXEMPLIFIED BY TUCHINSK MASSIF -U-

AUTHOR-(03)-VASILENKO, V.B., LITVINOVSKIY, B.A., KHOLODOVA, L.D.

COUNTRY OF INFO--USSR

SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 2, PP 57-63

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MAGMA, GRANITE, THERMOLUMINESCENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1229 STEP NO--UR/0210/70/000/002/0057/0063

CIRC ACCESSION NO--AP0103117

UNCLASSIFIED

2/2 013 UNCLASSIFIED

CIRC ACCESSION NO--AP0103117 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT THE STUDY OF ALKALINE AND NEPHELINE SYENITES CONTACTS WITH PALEOZOIC GRANITOIDS USING THE METHOD OF THERMOLUMINESCENCE IS ESTABLISHED THAT THERMOLUMINESCENCE PARAMETERS OF SYENITES AND THEIR FELSPARS ARE UNDERRATED COMPARATIVELY WITH THOSE "NORMAL" AND INDICATE THE TEMPERING OF THESE ROCKS. THE DEGREE OF THE TEMPERING IS DECREASED WITH REMOVAL FROM CONTACT WITH GRANITES. BASED UPON THESE DATA THE MOVEMENT OF THE HEAT FLOW FROM GRANITES UP TO SYENITES IS SUGGESTED.

UNCLASSIFIED

USSR

UDC 639.16.07.669:65.011.56

SMOLYAK, V. A., UZLYUK, V. N., Candidates of Technical Sciences,
VASILENKO, V. I., ZELENIN, V. M., YASHIN, YU. F., Engineers

"Gamma-Relay Level Gage for Automatic Dosage Control"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 5, 1970,
pp 38-39

Translation: Volume dosage was applied to a rebuilt furnace of a metallurgical plant since, under the prevalent technical conditions, it was impossible to use a complex of typical equipment and mechanisms for assembling and dosing the coke in mass. Based on a GR-7 radioisotope gamma relay, a system for automatic regulation of coke volume dosage controlling a roller disc screen for sifting coke particles and a main skip hoist (see drawing) was developed.

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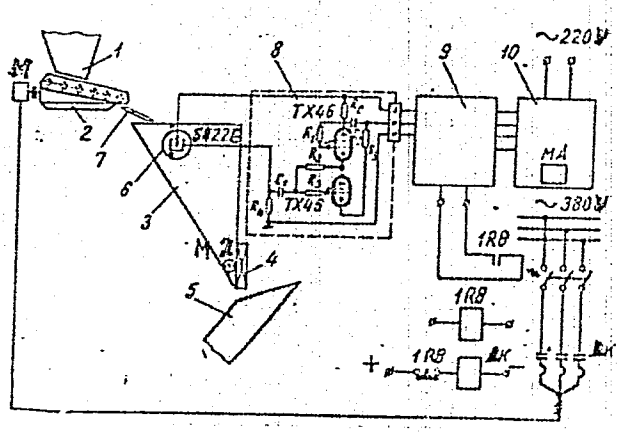
USSR

SMOLYAK, V. A., et al., Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 5, 1970, pp 38-39



Automatic Radioisotope Control System for Coke Dosage and Disc Screen Regulation:

2/5

USSR

SMOLYAK, V. A., et al., Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 5, 1970, pp 38-39

1) coke bunker; 2) disc screen; 3) coke hopper; 4) gate; 5) skip; 6) radiation detector; 7) nozzle for adjusting input coke mass; 8) sensor; 9) electronic relay block; 10) control block

The radiation source is in a cast iron collimator container outside the weight hopper 3. at its side wall. The container provides safety from radiation and forms a gamma radiation beam directed toward the detector 6, which uses a SI22G counter in a protective tube 200 mm in diameter and with a wall thickness of two mm in the upper part of the interior of the hopper 3. The placement of the detector inside the object measured, where the radiation by 30-40% the activity of the source and thus reduces the danger of radiation to personnel operating the loading mechanism.

To prevent false operation of the gamma relay and to improve the coke dosage automatic control system, a radiometric pair

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USSR

SMOLYAK, V. A., etal, Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 5, 1970, pp 38-39

(source and detector) was placed so that the gamma beam, perpendicular to the longitudinal axis of the screen, is not interrupted by the flow until the moment the hopper is filled with a specified amount of coke and its top is hit by the gamma beam.

To adjust the system -- i.e., to change the specified mass within the limits of 100-200 kg -- the pouring nozzle 7 is shifted by 200-300 mm and pulls the top away from the gamma beam to the screen opposite the wall of the hopper, so that the latter is filled with a large quantity of the coke before the screen is switched off. And, conversely, the sideward approach of the top to the vertical plane passing through the gamma beam leads to an earlier intersection of the latter by the top of the coke mass. Consequently, the control of the coke mass within the technical range depends on which of the following interrupts the gamma beam: the top of the poured coke mass or the side slope ascending to the top. In the latter case, the top is higher than the level at which the gamma beam is permitted to pass.

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USSR

SMOLYAK, V. A., Et al., Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 5, 1970, pp 38-39

This control system also contains a sensor, an electronic relay block, and a control block, as well as a low-current control for the electric-feed network of the disc screen.

The control signal from the sensor is applied to the relay of the electron relay block operating in the positive (triggered) position. When the hopper is filled with the specified amount of coke, the gamma beam intensity is weakened to one-third its former level, and contacts IRB of the switch are opened. The coil of IRB is deenergized, the closed contacts IRB in the coil of the linear contactor LK open, and the motor M of the disc screen is switched off. The screen is once more switched on after the gate 4 is opened (motor M2) and the coke is poured from the hopper into the skip 5.

The radioisotope automatic coke dosage regulation systems are based on both coke-loading mechanisms. The annual saving to the economy amounts to 42 thousand rubles.

5/5

1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--THE PROBLEM CONCERNED WITH THE TIMELY DIAGNOSIS OF CANCER OF THE STOMACH -U-

AUTHOR-(05)-VASILENKO, V.KH., SOKOLOV, L.K., RAPOPORT, S.I., TSODIKOV, G.V., SHOLSKIY, B.G.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 3, PP 9-20

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIGESTIVE SYSTEM DISEASE, CANCER, RADIOGRAPHY, BIOPSY, DIAGNOSTIC MEDICINE, STOMACH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0915 STEP NO--UR/0497/70/048/003/0009/0020

CIRC ACCESSION NO--AP0126574

UNCLASSIFIED

2/2 027 UNCLASSIFIED

CIRC ACCESSION NO--AP0126574 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLEX EXAMINATION (ROENTGENOLOGICAL, GASTROSCOPY, AIMED GASTROBIOPSY AND CYTOLOGY) PERFORMED IN 475 PATIENTS SUFFERING FROM GASTRIC DISEASES PREOPERATIVELY REVEALED CANCER IN 62 OUT OF 65 CASES. THE AUTHORS REPORT ON 12 CASES OF EARLY PREOPERATIVE RECOGNITION OF CANCER OF THE STOMACH THANKS TO THE USE OF AIMED GASTROBIOPSY AND CYTOLOGY. IT IS DEEMED EXPEDIENT TO INTRODUCE NEW PRINCIPLES IN THE APPROACH TO THE PROBLEM OF RECOGNITION OF EARLY CANCER, IN WHICH DECISIVE SHOULD BE BIOPSY INVESTIGATION OBTAINED DURING AIMED GASTROSCOPY; HOWEVER AT THE SAME TIME CLINICAL DATA IN THE DIAGNOSIS OF EARLY CANCER ARE RARELY PRACTICAL.

FACILITY: VSESOYUZNYY NAUCHNO-ISSLED. INSTITUT GASTROENTEROLOGII, MINISTERSTVA ZDRAVOOKHRANENIYA, SSSR, MOSKVA.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ACUTE GASTRODUODENAL EROSIONS AND ULCERS -U-

AUTHOR-(03)-VASILENKO, V.KH., MATVEYEV, N.K., NIKOLAYEV, N.O.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 4, PP 33-40

DATE PUBLISHED----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIGESTIVE SYSTEM DISEASE, DUODENUM, LESION, PATHOGENESIS, PROPHYLAXIS, DIAGNOSTIC MEDICINE

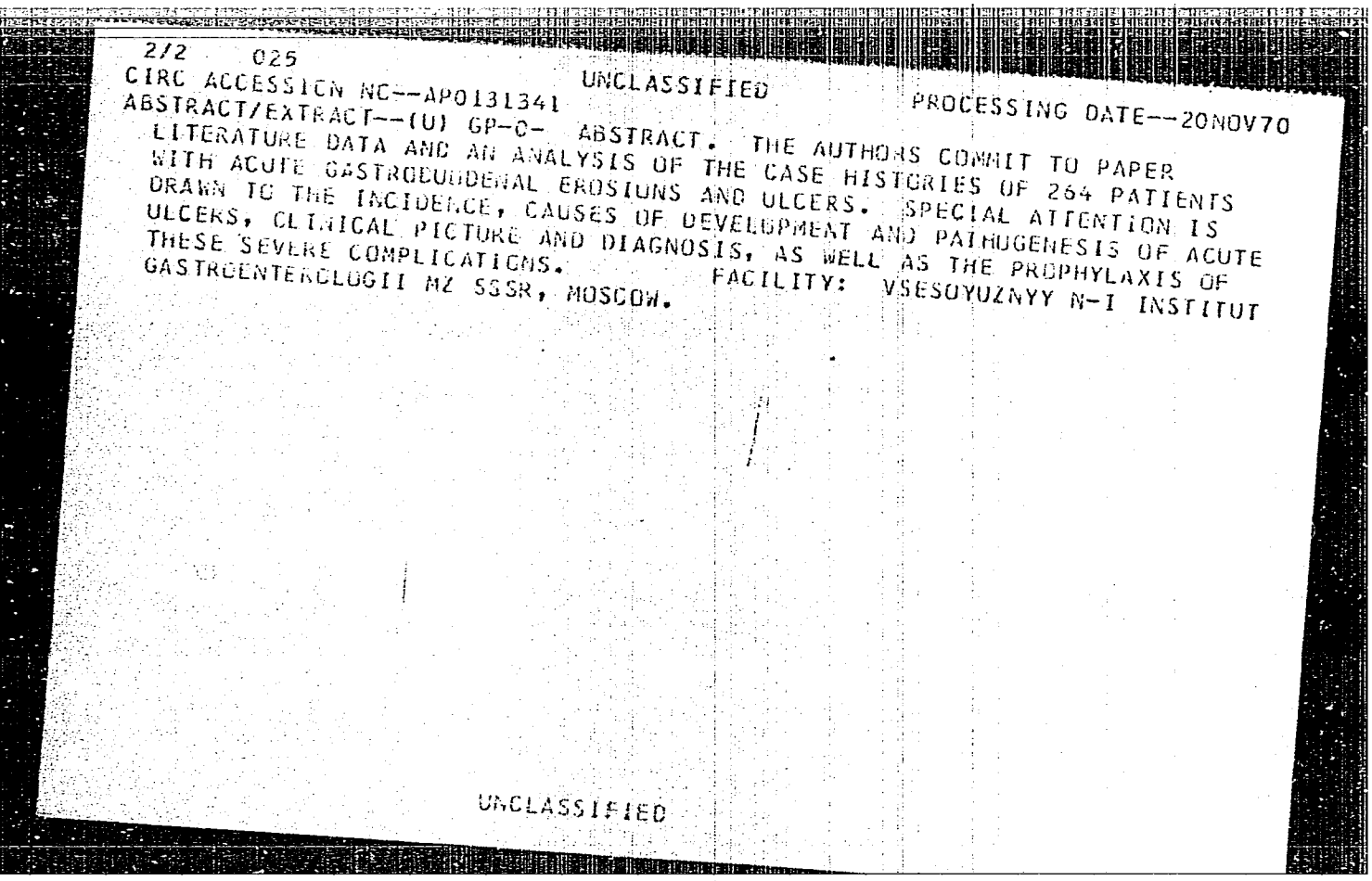
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0746 STEP NO--UR/0497/70/048/004/0033/0040

CIRC ACCESSION NO--AP0131341

UNCLASSIFIED



2/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131341

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS COMMIT TO PAPER LITERATURE DATA AND AN ANALYSIS OF THE CASE HISTORIES OF 264 PATIENTS WITH ACUTE GASTRODUODENAL EROSIONS AND ULCERS. SPECIAL ATTENTION IS DRAWN TO THE INCIDENCE, CAUSES OF DEVELOPMENT AND PATHOGENESIS OF ACUTE ULCERS, CLINICAL PICTURE AND DIAGNOSIS, AS WELL AS THE PROPHYLAXIS OF THESE SEVERE COMPLICATIONS. FACILITY: VSESOYUZNYY N-I INSTITUT GASTROENTEROLOGII MZ SSSR, MOSCOW.

UNCLASSIFIED

USSR

UDC 621.373.43

GEL'FANDBEYN, Ya. A., VASILENKO, V. M.

"A Complex Signal Oscillator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 5, Feb 72, Author's Certificate No 327564, Division H, filed 19 May 70, published 26 Jan 72, p 160

Translation: This Author's Certificate introduces a complex signal oscillator which contains a unit signal generator and an adder. As a distinguishing feature of the patent, the device is designed to keep the frequency, amplitude and phase of the signal components independent of the frequency, amplitude and phase of the main signal. The output of the unit signal generator is connected to the inputs of linear vibrators through parallel-connected voltage dividers with corresponding division coefficients. The outputs of the vibrators are connected through the corresponding phase shifters to the corresponding inputs of the adder.

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USSR

UDC 669.295.48

SOROKIN, I. P., VASILENKO, V. P., and TSARINNAYA, A. V.

"Recovery of Titanium and Rare Metals Into Chloride Solution from Hydrolysis Products of Chloride Wastes of Titanium Industry"

Sb. tr. Vses. n.-i, i proyektn. in-t titana (Collection of Works of the All-Union Scientific Research Institute of Titanium), 1970, pp 99-105 (from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G157)

Translation: Results are presented of experiments involving the leaching of Ti, Ta, Nb, and Zr with HCl solution from their moist concentrate--hydrolysis product, of the spent melt of furnace for processing chloride pulp of the composition (in %): TiO_2 39.0, Nb_2O_5 2.87, Ta_2O_5 0.299, and ZrO_2 7.9. A study is made of different parameters and optimal conditions of the process: 15-20% solution of HCl, ratio T: Zh = 1:4, temperature 80-100° and duration 30 min with continuous mixing. One-phase leaching of freshly precipitated, moist concentrate with 15-20% HCl solution allows recovery in solution (in %): Ti up to 75, Zr up to 99, Nb up to 84, and Ta up to 66. 6 tables, 6 bibl. entries.

Authors' abstract

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USSR

UDC 543.251:669.017.1

SHVETS, T. M., MEL'NICHENKO, Z. M., VASILENKO, V. P., IVANOVA, L. YU., and NATANSON, E. M., Institute of Colloidal Chemistry and Water Chemistry, Academy of Sciences Ukrainian SSR

"Effect of Additives on the Electrodeposition of Iron-Cobalt-Nickel Ternary Alloys"

Kiev, Poroshkovaya metallurgiya, No 3, 1972, pp 12-17

Abstract: Cited are the experimental results of a study of the effects of various additives (both inert and surface-active compounds) on the electrodeposition of highly dispersed layers of Fe-Co-Ni alloys, their structure, and the size and shape of the particles formed in the double-layer bath. Measurements of the magnetic properties of the highly dispersed Fe-Co-Ni alloy powders produced in the presence of additives indicate the coercive force to be slightly lower in all cases; the residual inductance increases due to the high dispersity and the marked anisotropy of the shape. The study shows the potential changes in the structure of the deposit as a function of one electrodeposition additive on another. (2 illustrations, 2 tables, 5 bibliographic references)

1/1

USSR

UDC 621.762.2(088.8)

SHVETS, T. M., VASILENKO, V. P., NATANSON, E. M.

"Method of Production of Metal Powders"

USSR Author's Certificate No. 308094, filed 3/04/69, published 23/08/71. (Translated from Referativnyy Zhurnal Metallurgiya, No 2, 1972, Abstract No. 2G374P).

Translation: A method is suggested for production of metal powders by electrolysis of aqueous solutions of salts using an oscillating cathode. In order to increase the degree of dispersion and homogeneity of the powders of the colloid metals and alloys, the process of electrolysis is performed in a 2-layer bath, consisting of an aqueous solution of the corresponding salts of the metals and an organic fluid, as ultrasonic oscillations are fed to the cathode.

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1/2 047 UNCLASSIFIED

TITLE--ELECTRON MICROSCOPE STUDY OF HIGHLY DISPERSED COBALT -U-

PROCESSING DATE--04DEC70

AUTHOR-(04)-SHVETS, T.M., VASILENKO, V.P., ZHELIBO, YE.P., NATANSON, E.M.

COUNTRY OF INFO--USSR

SOURCE--UKRAIN, KHIM, ZHUR., APR. 1970, 36, (4), 335-339

DATE PUBLISHED----APR70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ELECTRON MICROSCOPY, COBALT ALLOY, METAL POWDER, POWDER METAL, METAL FIBER, ELECTRODEPOSITION, ELECTROLYTE, CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

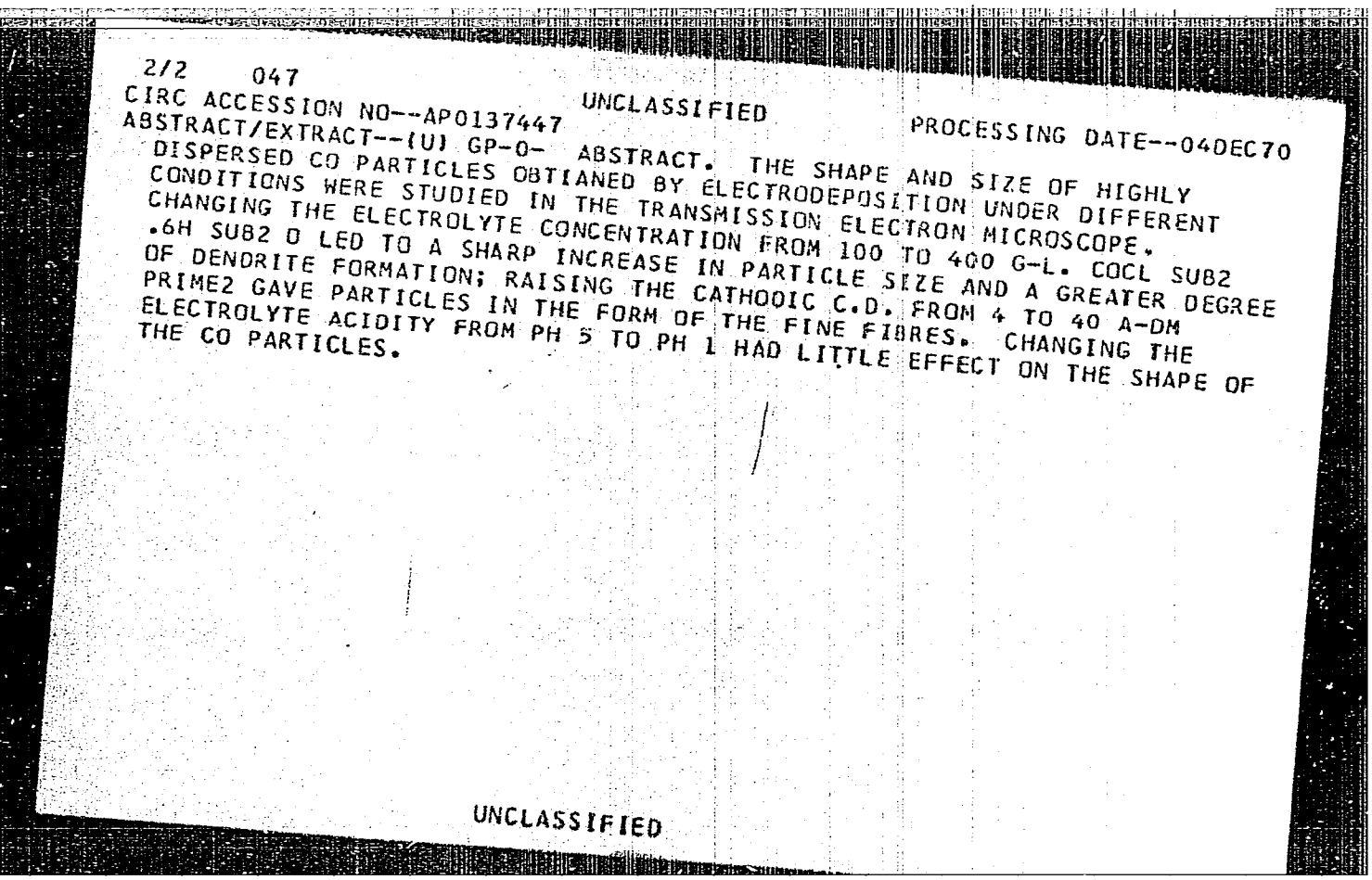
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0343

STEP NO--UR/0073/70/036/004/0335/0339

CIRC ACCESSION NO--AP0137447

UNCLASSIFIED



2/2 047 UNCLASSIFIED

CIRC ACCESSION NO--AP0137447 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SHAPE AND SIZE OF HIGHLY DISPERSED CO PARTICLES OBTIANED BY ELECTRODEPOSITION UNDER DIFFERENT CONDITIONS WERE STUDIED IN THE TRANSMISSION ELECTRON MICROSCOPE. CHANGING THE ELECTROLYTE CONCENTRATION FROM 100 TO 400 G-L. COCL SUB2 .6H SUB2 O LED TO A SHARP INCREASE IN PARTICLE SIZE AND A GREATER DEGREE OF DENDRITE FORMATION; RAISING THE CATHODIC C.D. FROM 4 TO 40 A-DM PRIME2 GAVE PARTICLES IN THE FORM OF THE FINE FIBRES. CHANGING THE ELECTROLYTE ACIDITY FROM PH 5 TO PH 1 HAD LITTLE EFFECT ON THE SHAPE OF THE CO PARTICLES.

UNCLASSIFIED

USSR

3

UDC: 8.74

SIRODZHA, I. B., SALYGA, V. I., MYSHKO, Ye. I., VASILENKO, Yu. A., KARTASHOV, L. N., PRYANITSKIY, A. M., KUZ'MINA, O. I.

"Modeling the Process of Teaching Pattern Recognition by the Method of R-Functions With the Use of a Digital Computer"

Probl. bioniki. Resp. mezhved. temat. nauch.-tekhn. sb. (Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection), 1971, vyp. 7, pp 106-112 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V582)

Translation: The paper deals with a mathematical model of instruction whose basis is a developed learning algorithm of pattern recognition distinguished by the use of a fundamentally new procedure of predicative description of arbitrary geometric forms in multidimensional spaces with the aid of R-functions. Authors' abstract.

1/1

USSR

VASILENKO, Yu. A., KAKURIN, N. Ya.

"One Canonical Form of Representation of the Functions of k-Valued Logic"

Mnogoyustoych. Elementy i ikh Primeneniye [Multistable Elements and Their Applications -- Collection of Works], Moscow, Sov. Radio Press, 1971, pp 102-105, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V348 by G. Gavrilov).

Translation: The author's have introduced so-called (i, j)-continuous functions of k-valued logic. Function $f(x_1, \ldots, x_n)$ from P_k is called (i, j)-continuous if for any two sets $\tilde{\alpha}$ and $\tilde{\beta}$ of values of variables satisfying the condition $|\alpha_m - \beta_m| \leq i$, $m = 1, \ldots, n$, the following relationship is fulfilled: $|f(\tilde{\alpha}) - f(\tilde{\beta})| \leq j$. It is proven that where $i \geq j$, the class of all (i, j)-continuous functions is closed, while where $0 < i < j < k - 1$ it is not closed (to the operation of superposition). Then, a form of the representation of (i, j)-continuous functions is presented. It is a natural extension to the case of (i, j)-continuous functions of the widely known representation of functions from P_k in system 0, 1, ..., k - 1, $j_0(x)$, ..., $j_{k-1}(x)$, min(x, y), max(x, y) (RZhMat, 1959, 9704). A system is presented

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VASILENKO, Yu. A., KAKURIN, N. Ya., Mnogoyustoych. Elementy i ikh Primeneniye, Moscow, Sov. Radio Press, 1971, pp 102-105.

consisting of four functions which is complete in the class of (i, j)-continuous functions.

Abstractors Note. It is easy to see that the classes of (i, j)-continuous functions are simple generalizations of the classes U, E_1, E_2, ..., E_S, studied by S. V. Yablonskiy in the work indicated above. Only instead of some divisions of set E^k, the covering of the set with various (special) systems of subsets must be taken.

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UDC 681.325.65:537.312.62

KAN, Ya. S., BELYAVSKIY, V. L., VASILENKO, Yu. A., and KAKURIN, N. Ya., Khar'kov Institute of Radioelectronics

"A Multiple-Valued Logic Element"

USSR Author's Certificate No 262954, Filed 25 Jun 68, Published 4 Jun 70 (from Referativnyy Zhurnal -- Avtomatika, Telemekhanika, i Vychislitel'naya Tekhnika, No 8, 1971, Abstract No 8B144 P)

Translation: Multiple-valued logic elements (MLE) whose circuitry is based on amplitude, phase, and frequency representation of data are well-known. A common shortcoming of their circuits is that they are monofunctional and not sufficiently reliable in operation, especially when there is a large number of input variables. In order to guarantee reliable operation on the part of an MLE that can perform a sufficiently large number of multiple-valued logic functions, it is suggested that the MLE be constructed in such a way that information can be coded spatially. This can be accomplished by using cryotrons as components of the MLE, since they make it possible to use a purely geometric principle of information conversion. In the proposed logic element, the cores of the cryotrons in each line are connected in series. The beginnings of the cores of the odd cryotrons in an odd and

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KAN, Ya. S., et al., USSR Author's Certificate No 262954, Filed 25 Jun 68, Published 4 Jun 70 (from Referativnyy Zhurnal -- Avtomatika, Telemekhanika, i Vychislitel'naya Tekhnika, No 8, 1971, Abstract No 8B144 P)

even line are interconnected. The ends of the cores are also interconnected. The windings of the odd cryotrons in the odd lines and the windings of the even cryotrons in the even lines are connected in series and joined to the unit outputs of the inverters. The unit inputs of the inverters are connected with the sources of the input variables x_i. The windings of the even cryotrons in the odd lines and the windings of the odd cryotrons in the even lines are connected in series and joined to the zero inputs of the inverters. 1 illustration.

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KAKURIN, N. Ya., and VASILENKO, Yu. A. UDC 681.327

"Methods of Constructing Multistable Elements"

Pribory i sistemy avtomatiki. Resp. mezhved. nauch.-tekhn. sb. (Automation Instruments and Systems. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 14, pp 48-51 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6 B187)

Translation: A review of prospective areas in the creation of multistable systems using different physical methods of data representation is presented. A detailed study is made of pulse-phase multistable elements and ferro-accumulating counters. A comparative characteristic of the elements is presented. There are 3 illustrations and a 3-entry bibliography.

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VASILENKO, Yu. A.

"Recognizing the Symmetry of Boolean Functions"

Riga, Avtomatika i Vychislitel'naya Tekhnika, November-December, 1971; pp 82-3

Abstract: An algorithm is suggested for recognizing the symmetry of Boolean functions. It is based on presenting a given function in the form of some graphic structure (logic tree). The proposed algorithm is on a par with known algorithms in the quantity of comparisons ($2^n - 1$), but it is superior to them in logical simplicity, geometrical visualization, and convenience of use. The algorithm can be generalized easily for k-valued logic as well as for multiple-output circuits. Two examples illustrating the algorithm are given.

The article includes two figures: Figure 1 shows a logic tree for a function of three arguments; Figure 2 shows a logic tree for a function of four arguments. There are 7 bibliographic references.

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VASILENKO, Yu. A.

SO: JPRS 53649
21 July 71

CONCERNING A PROMISING TREND IN COMPUTER TECHNOLOGY

[Article by V. P. Balavadkiy, Yu. A. Vasilenko and N. Ya. Kakurin, Khar'kov, Sbornik, Russian, No 2, 1970, pp 82-87]

To a considerable extent, the scientific-technical achievements of recent years have been triggered by the development of computer technology, communications engineering, and the methods of data processing. These trends have supported the development of complex technical systems. However, with growth in the complexity of the problems being solved and an increase in the complexity of the tasks imposed on systems, quality, a contradiction has arisen between the indices determining the feasibility of building systems with computer complexes.

One such index is the reliability of operation. The provision of the necessary level of reliability along with increased complexity requires a reduction in intensity of failures in the individual elements of a system by two orders of magnitude, which is technologically unacceptable and economically disadvantageous. The necessary therefore arises for the development of new principles and methods for the construction of systems preserving the operating reliability at relatively low reliability of the system's elements, a divergence in the values of their parameters, or even the breakdown of a certain number of elements.

Modern computer systems lose their ability to function within 10 times any malfunction. An appreciable increase in the complexity of systems can lead to the situation that malfunctions will become more likely, while excessive miniaturization will only make repair more difficult or will make it generally impossible. In both instances, the costs related to the correction of malfunctions are increasing. Naturally, the planner is interested in the question as to whether the costs related to the malfunctions will make a planned system inadvisable.

Computers: Programming & Applications

USSR

UDC: 681.32.001

VASILENKO, Yu. A., VSELYUBSKIY, A. I.

"Device for Determination of Reliability of Characteristics of Computer Elements and Units"

Pribory i Sistemy Avtomatiki. Resp. Mezhved. Nauchno-Tekhn. Sb. [Automation Devices and Systems. Republic Interdepartmental Scientific-Technical Collection], No 13, 1970, pp 62-67 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B82, by Yu. K.)

Translation: A method is described for obtaining areas, in a system of coordinates of three parameters, in which the discrete functional elements tested operate with fixed reliability, and a device realizing the algorithm for the method suggested is described. The method consists of defining cross sections in the two-dimensional space of two parameters with fixed values of the third parameter. The required number of cross sections with respect to the fixed parameter determines the desired area in the system of coordinates of the three parameters. Block diagrams are presented and the operating principle of the device for automatic production of cross sections using an economical

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VASILENKO, Yu. A., VSELYUBSKIY, A. I., Pribory i Sistemy Avtomatiki. Resp. Mezhved. Nauchno-Tekhn. Sb. [Automation Devices and Systems. Republic Interdepartmental Scientific-Technical Collection], No 13, 1970, pp 62-67 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B82, by Yu. K.)

algorithm is described in detail. The device described realizes the algorithm taking into consideration the confidence boundaries for a fixed value of reliability. Five illustrations; nine tables, three biblio. refs.

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KAKURIN, N. Ya., VASILENKO, Yu. A. UDC: 681.325.5

"Single-Digit Decimal Adder"

Pribory i Sistemy Avtomatiki. Resp. Mezhved. Nauchno-Tekhn. Sb. [Automation Devices and Systems. Repulic Interdepartmental Scientific-Technical Collection], No 13, 1970, pp 71-74 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B213, by T. D.)

Translation: The authors analyze a method for construction of a combination adder yielding a savings of logic elements. The second stage of the adder -- the sum correction section -- is changed. If this method is applied to adders based on combination-accumulating elements, an even greater saving of equipment is produced due to the presence of inverted variables. An example of construction of a decimal adder in 8421 code is presented. Two illustrations; two tables; four biblio. refs.

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1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--METHOD OF DETERMINING RESIDUAL STRESSES IN THE AXIALLY SYMMETRICAL HEATING OF THIN PLATES -U-

AUTHOR-(03)-ZHDANOV, I.M., KORZH, V.N., VASILENKO, YU.A.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB., 1970, 36, (2), 213-215

DATE PUBLISHED-------70

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

TOPIC TAGS--THERMAL STRESS, STRESS ANALYSIS, FLAT PALTE, METAL HEATING, STRAIN GAGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0307 STEP NO--UR/0032/70/036/002/0213/0215

CIRC ACCESSION NO--AP0129539

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129539

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD OF STUDYING THE RESIDUAL STRESSES IN THIN METAL PLATES AND WELDS ARISING FROM THE AXIALLY SYMMETRICAL HEATING OF THE LATTER IS DESCRIBED. THE METHOD IS BASED ON THE USE OF A SPECIAL ANNULAR RESISTANCE WIRE WHICH RESPONDS DIRECTLY TO THE STRESSES IN THE MATERIAL. THE PROCEDURE TO BE ADOPTED IN CALIBRATING THIS DEVICE IS INDICATED. RESIDUAL STRESSES AT POINTS DEVIATING BY VARIOUS DISTANCES FROM THE HEATING AXIS MAY BE DETERMINED BY DRILLING SMALL HOLES AT THE CORRESPONDING LOCATIONS.

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