

2/2 017

UNCLASSIFIED

PROCESSING DATE--30OCT70.

CIRC ACCESSION NO--AP0129111

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PELOIDIN WAS COMBINED WITH ANTIBIOTICS IN THE TREATMENT OF 103 PATIENTS SUFFERING OF CHRONIC NON SPECIFIC PROSTATITIS. PELOIDIN WAS USED IN THE FORM OF MICROENEMAS 50 ML, 40DEGREESC, 10-12 PER COURSE). RECOVERY WAS SEEN IN 79.6PERCENT, IMPROVEMENT IN 16.5PERCENT, FAILURE IN 3.9PERCENT. CONTROL STUDIES IN PATIENTS NOT RECEIVING PELOIDIN SHOWED THAT INCLUSION OF PELOIDIN IN THE COMPLEX TREATMENT OF CHRONIC NON SPECIFIC PROSTATITIS HAS MAJOR ADVANTAGES. FACILITY: UROLOGICHESKOYE OTDELENIYE Pervoy GORDOSKOY KLINICHESKOY BOL'NITSY. FACILITY: POLIKLINICHESKOYE OTDELENIYE ZHELEZNODOROZHNOY KLINICHESKOY BOL'NITSY.

UNCLASSIFIED

USSR

UDC 681.3.06:51

BEL'TSON, Kh. N.

"A Tabular Programming System"

Primeneniye Vychisl. Tekhn. v Elektrotekhn. Prom-sti [Use of Computer Equipment in the Electronics Industry], Moscow, 1971, pp 300-307, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V786 by V. Mikheyev).

Translation: A tabular programming system (TPS) is studied, designed for programming of information and logic problems including tabularly fixed relationships. Definitions of structural tables, reduced structural tables and limitations on the use of tables in the TPS are presented. A method for conversion of an ordinary table to a structural table and the order of operations in the computer when tables are used are presented. It is noted that the "TAM" program has been developed for input of tables to computers, inputting punch tape with tables and allowing conversion of information from M2 code to binary, binary-decimal or ATSPU code, forming the table in computer memory, recording the table on magnetic tape and providing a check printout of the table.

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AA 0040726

BELTSOV P.F. UR 0482

2

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

242344 COOLING FRAME FOR INSIDE CASTINGS composed of parallel members (1) whose compartments (2) are free transversely to form vertical channels; the cross areas of these compartments reduce in stages from the top down starting at the feeder head. This allows directed access of molten metal to parts of the mould furthest from the feeder head. The staged reduction ensures that the lower compartments (a-a) harden first, allowing metal in from the central compartments (2a-a) and so on up.

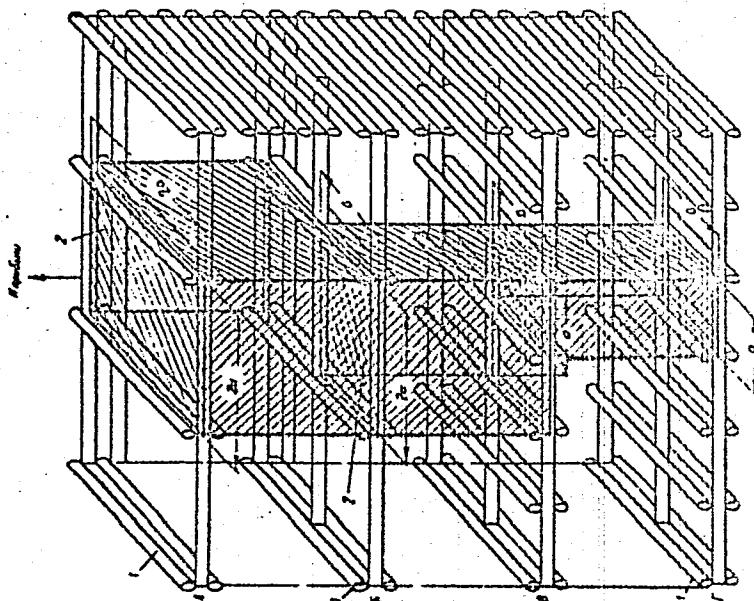
4.7.66 as 1089813/22-2. VASILEVSKII, P.F. et al. CENTRAL ENGINEERING TECHNOLOGY INST. (11.9.69) Bul 15/25.4.69 Class 31b². Int.Cl.3 22d.

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AA0040726



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LD

AA0040726

AUTHORS: Vasilevskiy, P. F.; Kuznetsov, G. A.; Shirayev, V. V.;
Blokhin, I. Ye.; Bel'tsov, P. F.; and Litvyakova, O. N.

Tsentralnyy Nauchno - Issledovatel'skiy Institut Tekhnologii
Mashinostroyeniya

19750378

70

1/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--USE OF CHLORO DERIVATIVES OF ISOCYANURIC ACID FOR FIBER BLEACHING

-U-

B

AUTHOR--(02)-BELTSOV, V.M., KALOUS, I.V.

COUNTRY OF INFO--USSR

SOURCE--TEKST. PROM. (MOSCOW) 1970, 30(2), 54-5

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--RAYON, CELLULOSE, SYNTHETIC FIBER, ACETATE, OPTIC PROPERTY, SODIUM COMPOUND, CHLORIDE, NATURAL FIBER, CHEMICAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1755

STEP NO--UR/0342/70/030/002/0054/0055

CIRC ACCESSION NO--AP0112741

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112741

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CELLULOSE ACETATE FIBERS (I),
POLY(ETHYLENE TEREPHTHALATE) (II) FIBERS, AND I OR II BLENDS WITH COTTON
(III) OR RAYON FIBERS WERE BLEACHED WITH 2-3 G-L. NA
DICHLOROISOCYANURATE (IV) SOLNS. IV SOLNS. WERE STABLE AT PH 3-9.5 AND
20-80DEGREES. THE OPTIMUM TEMPS. WERE 20-30DEGREES FOR I AND
60-5DEGREES FOR II OR ITS BLENDS. BLEACHING TIME WAS 25-30 MIN. THERE
WAS NO LOSS OF STRENGTH OF I OR II AFTER BLEACHING; THEIR WHITENESS
REACHED 82-85.6PERCENT. THE BLENDS OF II AND III RETAINED
95.5-97.0PERCENT OF THE ORIGINAL STRENGTH AFTER BLEACHING TO 84.2PERCENT
WHITENESS. FACILITY: LITLP IM. KIORVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.384.5

ANAN'YEV, L.M., SEL'FYAYEV, YU.N.A., CHAKHLOV, V.L. [NII pri Tomsk politekhn.in-te
--Scientific-Research Institute Attached To Tomsk Polytechnical Institute]

"Electron Injector"

USSR Author's Certificate No 274253, filed 4 Feb 67, published 17 Sept 70
(from RZh--Elektronika i yeye prizeneniye, No 4, April 1971, Abstract No
4A360P)

Translation: With the object of increasing the lifetime of the cathode, an
air-cored pulse transformer is connected by the secondary winding between the
cathode and the pulsed injector, and by the primary winding with the reservoir
capacitance in parallel with the pulse generator.

1/1

- 103 -

1/2: 011 UNCLASSIFIED PROCESSING DATE--020070
TITLE--NEW MACHINE FOR PRODUCING RUBBER CEMENT -U-

AUTHOR--(05)-KURINNYI, A.YE., KAVANIN, B.G., KASHKOVSKIY, S.S., BAGRINTSEV,
I.I., BELTYUKOV, A.V.
COUNTRY OF INFO--USSR **B**

SOURCE--KHIM. NEFT. MASHINOSTR. 1970, (2) 42-3

DATE PUBLISHED-----70

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

TOPIC TAGS--RUBBER ADHESIVE, RUBBER WORKING MACHINERY, MATERIAL MIXING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY RFL/FRAME--1992/1505

STEP NO--UR/0314/70/000/002/0042/0043

CIRC ACCESSION NO--AP0112499

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--02OCT70
CIRC ACCESSION NO--AP0112499
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NOVEL MIXING APP. WAS DEVELOPED FOR THE PREPN. OF RUBBER CEMENT FROM RUBBER MIXT. NO 109 DISSOLVED IN GASOLINE. A CROSS SECTIONAL DIAGRAM OF THE APP. AND ITS MODE OF OPERATION ARE PRESENTED. THE NEW APP. REDUCED THE PREPN. TIME FROM 3-6 HR TO 40-60 MIN.

UNCLASSIFIED

USSR

B

BELUBEKYAN, A. V.

"Experimental Investigation of Functioning of Pre-Stressed Light Concrete Beams Subjected to Bending and Twisting"

Izv. AN Arm. SSR (Technical Sciences Series), Volume 23, No. 1, 1970, pp 42-46.

Abstract: The results are presented from an experimental study of the resistance of 14 beams of pre-stressed lightweight concrete to twisting and to bending plus twisting. It is noted that pre-stressing significantly increases the crack resistance of the beams, and the load-bearing capacity of pre-stressed beams under twisting averaged 30% higher than the load-bearing capacity of similar unstressed beams. With the combined influence of bending and twisting, the stress in the longitudinal and transverse reinforcing reached the yield point. In this case, no increase in load-bearing capacity in pre-stressed beams was noted.

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Stress Analysis and Stability Studies

USSR

UDC 593.3

BELUBEKYAN, E. V., Yerevan Polytechnic Institute imeni K. Marks

"Bend in a Sealed Rectangular Plate With a Symmetrical Internal Cut"

Yerevan, Doklady Akademii Nauk Armyanskoy SSR, LIV, No 2, 1972, pp 77-83

Abstract: Bend in a rigidly surface-sealed rectangular plate weakened by a symmetrical internal cut resulting from action of a continuous cross-sectional load is considered.

The solution of this problem, with use of the method of paired series-equations, reduces to a set of three infinite systems of linear algebraic equations. It is demonstrated that the three systems are quasi-fully regular, while their free members tend to zero with increase in the index.

The presence of a cut in such a sealed plate increases maximum bend by 120%, while thrust moment in the middle of the plate parallel to the cut increases by 35%, and thrust moment at the middle of the opposite side of the plate is reduced by 67%. Bending moment at the center of the plate is increased by 40%.

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USSR

AMBARTSUMYAN, S.A., BAGDASARYAN, G.YE., BELUBEKYAN, M.V. (Yerevan)

"Concerning the Three-Dimensional Problem of Magnetoelastic Oscillations of a Plate"

Moscow, Prikladnaya Matematika i Mekhanika, No 2, March-April 1971, pp 216-228.

Abstract: The problem of investigation of the magnetoelastic oscillations of an electrically conductive plate in a magnetic field is reduced to the simultaneous solution of the equations of magnetic elasticity in a region occupied by the plate (internal problem), and the equations of electrodynamics for the entire remaining region of the space under consideration (external problem). An attempt is made to determine the magnetic field of a thin plate of finite conductivity, by means of asymptotic integration of the simultaneous equations of magnetoelasticity for the region occupied by the plate. Simultaneously considering the internal problem and the external problem, an investigation is made of the magnetoelastic oscillations of a thin plate of finite conductivity. Some hypotheses of magnetoelasticity are formulated for a plate of finite conductivity. In special cases, when the material of the plate is ideally conductive or when an infinitely extending thin plate has finite electric conductivity, the problem of magnetoelastic oscillations is solved relatively simple. In the general case, when the plate may have finite dimensions while its material is finitely conductive, the solution of this

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USSR

AMBARTSUMNYAN, S.A., et al, Prikladnaya Matematika i Mekhanika, No 2, March-April 1971, pp 216-228.

problem becomes very difficult, since in this case the internal problem cannot be divided and a precise determination of the magnetic field of the plate in a three-dimensional formulation is not possible. 6 bibliographic entries.

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USSR

UDC 632.951.2.07

KOZLOVA, T. F., SHAKHOVA, G. B., BELUGIN, V. F., ZHELONKIN, V. G., and SEDOV, N. V.

"Synthesis of the Koral Insecticide"

Moscow, Khimicheskaya Promyshlennost', No 6, 1971, pp 29-30 (429-430)

Abstract: Koral -- 0,0-diethyl-3(3-chloro-4-methylcoumaryl-7)thiophosphate is an insecticide of low toxicity in respect to cattle, when applied externally. The synthesis of this material consists of four steps; preparation of 0,0-diethylchlorothiophosphate (I) by the reaction of thiotrichlorophosphorus with ethanol; synthesis of α -chloroacetoacetate from acetoacetate and sulfuric acid followed by condensation with resorcinol to yield 3-chloro-7-hydroxy-4-methylcoumarine (II) and finally condensation of (I) with (II) by refluxing their mixture in acetone containing potassium carbonate. Koral is a white powder, m.p. 92-92.5°C. It is practically insoluble in water, slightly soluble in alcohols, and hydrocarbons, dissolves well in ketones.

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1/2 020 UNCLASSIFIED PROCESSING DATE--07OCT70
TITLE--ON THE EFFECT OF SURFACTANTS ON STRUCTURE FORMATION IN POWDER
DISPERSIONS IN NONPOLAR LIQUID MEDIUM AND IN AIR -U-
AUTHOR--(05)-BELUGINA, G.V., KONSTANTINOVA, V.V., MIRZAABDULLAYEVA, D.,
ZAKLYEVA, S.KH., REBINDER, P.A.
COUNTRY OF INFO--USSR B
SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 177-181
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--COAGULATION, AIR, CALCIUM CARBONATE, CALCIUM FLUORIDE, IRON
OXIDE, HYDROCARBON, REACTION KINETICS, SURFACTANT, AEROSOL CHEMISTRY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/0768 STEP NO--UR/0069/70/032/002/0177/0181
CIRC ACCESSION NO--AP0108969
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0108969

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDITIONES OF SURFACTANTS CHANGES THE SEDIMENTATION KINETICS OF SUSPENSIONS (CACO SUB3, FE SUB2 O SUB3, CAF SUB2), INCREASES THE VOLUME FRACTION OF THE SOLID PHASE IN THE SEDIMENT AND DIMINISHES THE STRENGTH OF COAGULATION STRUCTURES IN POWDER DISPERSIONS BOTH IN A LIQUID HYDROCARBON MEDIUM AND IN AIR. IN DISPERSIONS WITH MIXED SOLID PHASES SMALL ADDITIONS OF A SECOND DISPERSED PHASE HAVE A SIMILAR EFFECT.

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124050

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ATTACHMENT IS DESCRIBED
ALLOWING MEASUREMENTS TO BE CARRIED OUT IN THE ELECTRON DIFFRACTOMETER
EG-100-A. BY THERMOSTATING TO PLUS OR MINUS 0.5 DEGREES DURING THE
EXPOSITION AND LOWERING THE VOLTAGE BY 25-30 KV, GE LATTICE SPACINGS
WERE DETD. WITH AN ABS. ERROR 2 TIMES 10 PRIME NEGATIVE 5 ANGSTROM.
VALUES FOR ZN AND RADIATION AGREE WITHIN 5 TIMES 10 PRIME NEGATIVE 6
ANGSTROM. ILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--THE EFFECT OF ASCORBIC ACID AND SOME GROUP B VITAMINS ON THE
FUNCTIONAL STATE OF THE ADRENAL CORTEX IN PATIENTS WITH PHOTODERMATOSES
AUTHOR--BELUKHA, U.K. **B**
COUNTRY OF INFO--USSR
SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 5, PP 24-30
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DERMATITIS, VITAMIN B COMPLEX, HORMONE, ACTH, CORTICOSTEROID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/0691 STEP NO--UR/0206/70/000/005/0024/0030
CIRC ACCESSION NO--AP0121352
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121352

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. METABOLISM OF VITAMINS B SUB1, B SUB2, PP AND C AND EXCRETION OF 17-KETOSTEROIDS WERE STUDIED IN 165 PATIENTS WITH PHOTODERMATOSES BEFORE AND AFTER VITAMIN THERAPY. OF THESE PATIENTS 80 HAD THE DERMATO BULLOUS FORM OF PORPHYRIA TARDA, 50 SOLAR PRURIGO AND 35 SOLAR ECZEMA. PATIENTS WITH PHOTODERMATOSES WERE SHOWN TO HAVE B SUB1, B SUB2, PP AND C HYPOVITAMINOSIS. THE LOWEST CONTENT OF VITAMINS B SUB2 AND C WAS FOUND IN PATIENTS WITH PORPHYRIA AND OF VITAMINS B SUB1 AND PP IN PATIENTS WITH SOLAR PRURIGO AND SOLAR ECZEMA. EXCRETION OF 17-KS WAS REDUCED IN 73,5PERCENT OF THE PATIENTS, AND NEGATIVE EOSINOPHILIC. THORN TEST AND DISTORTED RESPONSE TO ACTH ADMINISTRATION WERE DEMONSTRATED IN TWO THIRDS OF THE PATIENTS. UPON REPLETION OF PATIENTS WITH PHOTODERMATOSES WITH VITAMINS B SUB1, B SUB2, PP AND C FOR A LONG TIME (UP TO 35 DAYS) IN THE MAJORITY OF THEM METABOLISM OF THESE VITAMINS NORMALISED AND THE FUNCTIONAL STATE OF THE ADRENAL CORTEX IMPROVED. THE RESULTS OF THESE STUDIES CONFIRM THE STIMULATING EFFECT OF THE COMPLEX OF VITAMINS B SUB1, B SUB2, PP AND C ON THE BIOSYNTHESIS OF CORTICOSTEROIDS AND INDICATE A CERTAIN RELATIONSHIP BETWEEN STEROID HORMONES AND VITAMINS B SUB1, B SUB2, PP AND C. FACILITY: UZBEKSKIY N-I KOZHNO-VENEROLOGICHESKIY INSTITUT, TASHKENT.

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Acc. Nr:

AP0048368

Abstracting Service:

Ref. Code:

INTERNAT. AEROSPACE ABST. 5-90 UR0293

BELUNOVA A.D.

A70-24315 # Study of the geoactive particles and photo-electrons by means of satellite 'Kosmos-261.' IV--Study of charged particles with a middle and high energy (Issledovanie geoaktivnykh korpuskul i fotoelektronov na sputnike 'Kosmos-261.' IV--Izmereniia zariazhennykh chastits srednikh i vysokikh energii). A. D. Boliunova, A. D. Verevkin, Iu. I. Gal'perin, L. S. Gorn, L. S. Zhurina, I. D. Ivanov, R. N. Isaeva, I. P. Karpinskii, R. A. Kovrazhkin, V. V. Temnyi, B. I. Khazanov, A. V. Shifrin, and F. K. Shuiskaia. *Kosmicheskie Issledovaniia*, vol. 8, Jan.-Feb. 1970, p. 126-135. 7 refs. In Russian.

Descriptions of the scintillation spectrometers for measuring the electrons with energy ranging from 20 to 150 keV and more, protons with energy ranging from 0.30 to 9 MeV. A lead-screened Geiger counter for measuring the protons with energy above 50 MeV and rigid electrons is also described. The latitude-dependant intensity-distribution of the intrusive electrons is determined together with the pitch distribution of the electron intensity in the auroral zone, and differential electron spectra.

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19800076

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BELVTSEVA, A.T.

COMPUTERS/AUTOMATION

NEW BOOKS

6806189

Homogeneous Microelectric Associative Processors

V. Pranghbil, G.M. Puzan, O.G. Sinyukhin, A.A. Chudin, O.
 homogeneous microelectric associative processors, Sovetskoe radio, Moscow, 289 pp. The principles of constructing a homogeneous associative model processor used for solving a wide class of problems involving batch processing of information is described. This processor has three times the productivity and much greater efficiency than modern computers.

Methods of executing arithmetic, logic, and retrieval operations using the processor are described, and appropriate algorithms and programs are presented. Examples of solving various problems via the processor are examined and comparative evaluations of the times required for their solution using the processor and ordinary computers are given. Problems which lend themselves to batch processing, including pattern recognition, classification, and identification, and situations involving economic planning and management, medical and technical diagnostics, radar and sonar, weather forecasting, etc. are discussed.

A survey is made of some of the more interesting foreign work on the construction of associative parallel processors. Current capabilities of microelectronics for the execution of these processors using LSI are examined. The book will be of interest to a wide range of engineers, technical, and scientific personnel, and to students of higher educational institutions who are interested in computers, engineering electronics, and microelectronics.

Printed Circuits in Instrument Design, Computer Technology, and Automation

N.A. T. Belvtseva (ed.), *Printed circuits in instrument design, computer technology and automation*, Mashinostroyeniye, Moscow, 1973, 289 pp. A systematic description of the basic problems of design, production technology, and use and achievements of domestic and foreign technology are included. Material is used for the production of printed circuits, methods of preparing the prototypes of these circuits, special features of constructing printed circuits, including analysis of the basic design engineering problems and design verifications, are described in detail. Much attention is devoted to the design of printed circuit conductors and basic printed elements for lower and higher frequencies. In examining the problems of manufacturing printed plates, a step by step description is presented of plate production, design of printed

Soviet Electronics Review, July 1973

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USSR

UDC: 621.372.8.092.22

BELYACHENKO, V. P., GORSKAYA, R. S., LAZERSON, A. G., RYZHENKO, B. F.,
~~CHARUSHKIN, B. D.~~

"Approximate Calculation of the Characteristics of Film-Type Decelerating Systems on a Dielectric Substrate"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1971, vyp. 1, pp 134-137 (from RZh-Radiotekhnika, No 5, May 61, Abstract No 5E108)

Translation: The proposed method, which can be used to calculate the dispersion characteristics of film-type rod decelerating systems on a dielectric substrate, utilizes the well known results of investigation of film-type rod systems without a dielectric. The method of perturbation and the method of equivalent substitution are used to derive computational formulas. Two illustrations, bibliography of five titles. Resumé.

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1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--BRIGHTNESS VARIATIONS OF AG PEG DURING THE YEARS FROM 1962 TO 1967
-U-
AUTHOR--BELYAKINA, T.S.
COUNTRY OF INFO--USSR *B*
SOURCE--ASTROFIZIKA, VOL. 6, FEB. 1970, P. 49-64
DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS
TOPIC TAGS--PHOTOMETRY, PHOTOELECTRIC METHOD, OPTIC BRIGHTNESS, SPECTRUM,
STAR

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0707 STEP NO--UR/0388/70/006/000/0049/0064
CIRC ACCESSION NO--AP0126419
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0126419

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF THREE COLOR PHOTOELECTRIC PHOTOMETRY OF AG PEG OVER THE PERIOD FROM 1962 TO 1967. A COMPOSITE PHOTOELECTRIC CURVE IN YELLOW LIGHT IS CONSTRUCTED FOR THIS TIME AND IS SATISFACTRILY REPRESENTED BY A SINUSOID WITH A PERIOD OF 800 DAYS AND AN AMPLITUDE OF 0.15 MAGNITUDE. THE BRIGHTNESS VARIED SIMULTANEOUSLY IN ALL OBSERVED REGIONS OF THE SPECTRUM; THE MEAN AMPLITUDE OF VARIATIONS IN YELLOW AND BLUE LIGHT WAS 0.3 MAGNITUDE, AND 0.5 MAGNITUDE IN THE ULTRAVIOLET. PROCEEDING FROM THE DUPLICITY OF THE STAR, THE BRIGHTNESS VARIATION CAN BE EXPLAINED BY THE ORBITAL MOTION OF ITS COLD COMPONENT, WHEREBY THE HEMISPHERE ORIENTED TOWARD THE HOT COMPONENT IS BRIGHTER THAN THE REVERSE SIDE. IT IS NOTED THAT THESE PERIODIC VARIATIONS IN THE BRIGHTNESS OF AG PEG BECAME OBSERVABLE ONLY RELATIVELY RECENTLY. FACILITY: KRYMSKAIA ASTROFIZICHESKAIA OBSERVATORIIA, PARTIZANSKOYE, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC 539.67

MOZZHUKHIN, Ye. I., and BELYAKOV, A. A.

"Internal Friction Recovery in Highly Deformed Molybdenum"

Sb. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 79-82

Abstract: The results obtained in the study of recovery of molybdenum wire samples made of MCh, MK, and ML brands are presented. A mechanism explaining the regularity of internal friction reduction in the process of high-temperature annealing with an appreciable variation of dislocation density is presented. The kinetics of internal friction recovery in highly deformed molybdenum wires during low-temperature annealing attest to a high degree of dislocation locking by point defects. 1 table, 2 figures, 4 references.

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USSR

UDC 621.394.4

BELYAKOV, A. A., LYUBARSKIY, V. YA., and ROMONOVA, N. A.

"Group Operation of Discrete Channels in a Data Transmission System"

Moscow, Elektrosvyaz', No 11, 1970, pp 67-73

Abstract: The authors consider a method for constructing group equipment for data transmission which would reduce the volume of hardware needed at central information processing stations. A block diagram is given for the group units ensuring the operation of parallel channels with noise-proof coding and automatic redemand of combinations accepted with errors. A diagram is given for the relationship between circulation time with respect to the operative memory unit and the maximal number of directions which can be serviced by group units under conditions of the single-digit method of processing accepted information. The number of directions increases two to three times by using a two or three digit method for processing accepted information. A diagram is also given for the distribution of the time of an operational memory unit among the various functional units within the direction processing cycle along with the block diagrams for the sending and receiving sections of units for coupling with the computer and the communication channels. Original article: six figures, two formulas, and three bibliographic entries.

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USSR

UDC 619:616.981.42-036.2:636.293.3

VOZHDAYEV, N. S., SHERGIN, YU. K., Candidates of Veterinary Sciences and
BELYAKOV, A. I., Kirgiz Scientific Research Institute of Livestock Raising
and Veterinary Medicine

"Epizootiology of Brucellosis Among Yaks"

Moscow Veterinariya, No 10, 1971, pp 64-66

Abstract: Brucellosis was first detected among yaks in Kirgizia in 1955 in the Central Tyan-Shan region and on the mountain pastures in the Issyk-Kul hollow. Since then it has spread to many other parts of the republic, and the incidence ranges from 0.27 to 71% in various herds. The disease is transmitted mainly by contact between sick and healthy animals or through the alimentary route due to numerous abortions and infection of the pastures with excretion from sick animals. The course of brucellosis in yaks may be acute or chronic. If chronic, most animals do not exhibit clinical symptoms and the final diagnosis must be based on serological, bacteriological, and biological examination. The disease is most prevalent in the spring and summer (mating and calving period), but prompt prophylactic serological examinations help to keep it from spreading.

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USSR

UDC 621.397.62

BELYAKOV, B. I., DUGINETS, E. N., BYSTROVA, N. I.

"A Device for Isolating Recognition Signals"

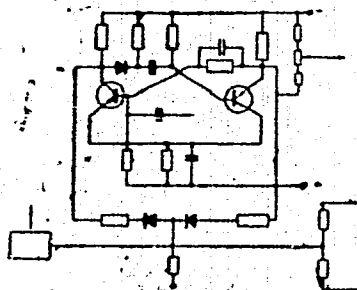
Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 7, Mar 71, Author's Certificate No 295209, Division H, filed 5 May 69, published 4 Feb 71, p 170

Translation: This Author's Certificate introduces a device for isolating a recognition signal for a color television receiver. The device contains an integrating circuit to which signals are sent from the loads of the color-difference signal video amplifiers. The device also includes a switching device such as a slave multivibrator with the load in one arm connected through a diode to the integrating network. As a distinguishing feature of the patent, the reliability of isolating recognition pulses is improved by connecting the second arm of the slave multivibrator to the integrating network through a diode which is connected the opposite way and is shunted by a variable resistor. Voltage is sent from the centertap of this resistor to the limiters of the color-difference channels in the television receiver.

1/2

USSR

BELYAKOV, B. I., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 7, Mar 71, Author's Certificate No 295209, Division H, filed 5 May 69, published 4 Feb 71, p 170



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1/2 01
 UNCLASSIFIED
 TITLE--PREPARATION OF BASE CASTINGS FROM LOW ALLOY CAST IRON -U- PROCESSING DATE--09OCT70
 AUTHOR--(05)-SKAZHENNIK, V.A., BELYAKOV, B.P., MIROSHNICHENKO, A.I.,
 BABYACHENKO, B.D., BUT, YU.G.
 COUNTRY OF INFO--USSR
 SOURCE--LITEINOE PROIZVOD. 1970, (1), 40 **B**
 DATE PUBLISHED-----70
 SUBJECT AREAS--MATERIALS
 TOPIC TAGS--CAST IRON, TITANIUM CONTAINING ALLOY, COPPER CONTAINING ALLOY,
 NICKEL CONTAINING ALLOY, CHROMIUM CONTAINING ALLOY
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1995/1387 STEP NO--UR/0128/70/000/001/0040/0040
 CIRC ACCESSION NO--AP0116836
 UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--090CT70

CIRC ACCESSION NU--AP0116836

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IMPROVEMENT OF HARDNESS, STRUCTURE, AND DURABILITY OF CASTINGS FOR DENTAL EQUIPMENT WAS ACHIEVED THROUGH THE ADDN. OF NATURALLY ALLOYED CR-NI AND TI-CU CAST IRONS TO THE PRODUCTION FOUNDRY CAST IRON. THE OPTIMAL AMTS. WERE: CR-NI 10-12 AND TI-CU CAST IRONS 7-8PERCENT WITH RESULTING CHEM. COMPN. OF THE FOUNDRY CAST IRON: C 3.0-3.35, SI 1.4-1.7, MN 0.7-0.9, CR 0.2-0.35, CU 0.2-0.35, NI 0.1-0.26, TI 0.1-0.15, P SMALLER THAN OR EQUAL TO 0.3, AND S SMALLER THAN OR EQUAL TO 0.12 WT. PERC TE SIL STRE GTH 26 KG- M PRIM , HARDN S 187- 0 . THE MICROSTRUC URE CONSISTED OF ONLY PEARLITE WITH INCLUSIONS OF GRAPHITE HAVING LENGTH OF 220 MU.

UNCLASSIFIED

USSR

ALIKhANYAN, A. I., BELYAKOV, E. S., LORIKYAN, N. P., MARKARYAN, K. Zh, and SHIKhLYAROV, K. K.

"A Study of Transition Radiation in Plastic Foam"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 17, No 9, 5 May 73, pp 453 - 456

Abstract: Recent studies have indicated the great utility of transition radiation in those high-energy regions where traditional methods of particle identification encounter great difficulties. However, there is still a lack of systematic studies of radiation spectra in porous materials. The authors used the Yerevan electron accelerator to study radiation in the frequency band 13 - 130 kev. Electrons with energies of 1 - 3.75 Gev were used to produce photons detected by a scintillation counter with a NaI crystal 2 centimeters thick and 7 centimeters in diameter, behind a beryllium salt window 100 microns thick. Differential radiation spectra and curves relating the total number of photons per electron to the characteristics of the plastic were obtained.

1/1

- 65 -

USSR

UDC: None

ALIKHAN'YAN, A. I., BELYAKOV, E. S., GARIBYAN, G. M., LORIKYAN, M. P.,
MARKARYAN, K. Zh., and SHIKHLYAROV, K. K.

"Separation of Ultra-High-Energy Particles by the Radiation Transition Method"

Moscow, Pis'ma v Zhurnal Eksperimental'nov i Teoreticheskoy Fiziki, vol 16,
No 6, 20 September 1972, pp 315-318

Abstract: Detectors of transition radiation in the x-ray frequency range are widely used for identifying high-energy particles in cosmic rays and in large accelerators. This letter gives the results of experiments conducted on transitional radiation occurring in foam plastic of 0.04 g/cm³ density with electron energies of 1-4.5 Gev, where it was shown that the use of the streamer chamber method with a foam plastic radiator permitted the separation of particles in the energy range of $\gamma = E/mc^2 > 10^3$ with high reliability. The equipment used for the measurements was the same as that described in an earlier article (A. I. Alikhan'yan, et al, Izv. AN Arm. SSR, Fizika, 5, 1970, p 267), modified to permit observation of the primary electron track, thus easing the procedure. The question of the possibility of separating protons and pi-mesons using this method is also investigated. The authors thank A. Ts. Amatuni for his useful comments.

1/1

Acoustical and Ultrasonic

USSR

UDC: 534.232

BELYAKOV, I. I., SMARYSHEV, M. D., Leningrad

"Emission Impedance and Coefficient of Concentration of a One-Dimensional System of Rings on an Infinite Rigid Cylinder"

Moscow, Akusticheskiy Zhurnal, Vol 18, No 2, Apr-Jun 72, pp 183-191

Abstract: A one-dimensional periodic system of $2\nu+1$ rings arranged with period d on the surface of an infinite rigid cylinder of radius a is considered. The oscillatory velocity of the surface of the rings is described by a separable function of the variables ϕ and z in the cylindrical system of coordinates. Linear phase distribution of the rate of oscillations $v_n = v \exp(inkd \cos \theta_0)$ is assumed which ensures compensation in direction θ_0 relative to the axis of the cylinder.

$$\xi_n(a, \varphi, z) = \begin{cases} v_n f(\varphi) F(z), & |z - nd| < \frac{h}{2} \\ 0, & \text{for other } z. \end{cases}$$

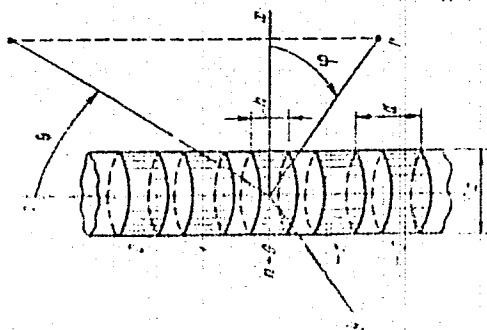
Approximate expressions are derived for the emission impedance and coefficient of concentration for such an antenna system, assuming that the im-

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USSR

BELYAKOV, I. I., SMARYSHEV, M. D., Akusticheskiy Zhurnal, Vol 18, No 2, Apr-Jun 72, pp 183-191

pedances of a ring are equal in finite and infinite systems. A procedure is offered for refining the approximate formulas. Data are given on calculation of the emission impedance and coefficient of concentration of a cylindrical cophased ring lying in an infinite rigid cylindrical screen for various ring diameters and heights.



Acc. Nr.

AP0039251

Abstracting Service:

CHEMICAL ABST. 4-70

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Ref. Code

UR0096

68946e Deposits of iron oxides in the lower part of the fire-box of a supercritical-pressure boiler with mazut firing. Krasyakova, L. Yu.; Belyakov, I. J. (Tsentr. Kotloturbin. Inst., Leningrad, USSR). Teploenergetika 1970, 17(1), 28-32 (Russ). Porous Fe oxide deposits were formed in the boilers of the Kona-kov elec. power plant. The deposits were black with 0.1-0.2 mm thickness consisting of 84-96% magnetite, <5.5% Cu, and <8% Ca, with small amt. of Mn, Cr, Ni, and V. There were signs of pit corrosion under the deposits. The rate of deposit formation depends on the thermal load and mainly on the degree of the use of mazut (fuel oil). When the boilers were fired with gas, no deposit formation took place on the boiler tubes. The corrosion associated with the deposits causes complete destruction of the tubes after 6000-7000 hr of operation with mazut or combined gas-mazut firing. M. Shelef

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UDC 669.14.018.8:620.18

ZASLAVSKAYA, L. V., LASHKO, N. F., BELYAKOV, L. N.,
ANDREYEVA, F. S., and KAGAN, Ye. S., All-Union Scientific
Research Institute of Aviation Materials

"Redistribution of Nickel and Chromium in $\alpha \rightarrow \gamma$ -Transformation
in Stainless Steels Containing Chromium and Nickel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1973,
pp 39-42

Abstract: A study was made of Cr, Ni, and Mo redistribution
when tempering in the interval of partial $\alpha \rightarrow \gamma$ -transformation
in Kh11N9 and Kh11N9M2 stainless steels, containing nickel and
chromium and serving as base of martensitic aging stainless
steels. The Kh11N9 steel contained 0.012% C, 0.022% Mn,
0.07% Si, 0.68% Cr, and 9.2% Ni; the Kh11N9M2 steel was ad-
ditionally alloyed with 1.9% Mo. At heating rates ≤ 50 deg/sec,
 $\alpha \rightarrow \gamma$ -transformation goes with Cr and Ni redistribution between
 α - and γ -phases. At partial $\alpha \rightarrow \gamma$ -transformation, austenite con-

1/2

USSR

ZASLAVKAYA, L. V., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1973, pp 39-42

tains more Cr, Ni, and probably also more Mo than the α -phase. The austenite concentration with Cr, Ni, and with other elements in the $\alpha \rightarrow \gamma$ -transformation process in KhLN9-type steels is apparently one of the sources of austenite stabilization of these steels in the tempering process at $\alpha \rightarrow \gamma$ -transformation temperature. Two figures, one table, twelve bibliographic references.

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BELYAKOV, L. N.

EXAMINATION OF MARTENSITE-AGED OONIKHNSH STEEL BY PRECIPITATION OF
TITANIUM CARBONITRIDES

UDC 669.13+24.25+28+539.4.011

SPS 56001
16 MAR 72

Article by L. N. Belyakov, V. A. Nikoiforova, G. K. Novykhina, V. V. Sakhkov, Moscow, Izvestiya Akademii Nauk SSSR, Metallurgiya, No 1, 1972, printed to press 3 December 1970, pp 159-165

Martensite-aged steels on a base of Fe = 10% Ni-Co, doped with titanium, can be embrittled by slow cooling from 1200-1250°C as a result of the precipitation of Ti(C,N) lattices along the boundaries of the original austenite grain [1]. The sharp drop in plasticity and ductility is usually accompanied by transition to intercrystallite fracture. Porph lattices are detected in the structure of the large forgings and punchings of OONIKHNSH steel along the boundaries of the austenite grains, and also drawn in the direction of the hot plastic deformation of the Ti(C,N) cluster. The forgings and punchings had a large grain of 1-2 on the scale. The relative contraction of these forgings in the transverse and height directions (in the zone of fracture and height direction) after quenching from 820° and drawing at 480° compressed a total of 2-10%. Triangular recrystallization at 925-975° [2] reduced the grain size of the steel, but did not raise the plasticity to the required values. An investigation was made on the temperature range of precipitation of the Ti(C,N) lattices in the OONIKHNSH steel, their embrittling influence, and also the conditions of altering the structures having the lattices.

The investigation was made on steel melted at the Elektrostal' Plant in open arc furnaces with a weight up to 5 T and subsequent vacuum-arc smelting in crystallizers up to 600

Steels

USSR

UDC: 669.15'24'25'28:539.4.011

BELYAKOV, L. N., NIKOL'SKAYA, V. L., REVIYAKINA, O. K. and SACHKOV, V. V.,
Moscow

"Embrittlement of Precipitation-Hardening Martensitic Steel"

Moscow, Izvestiya Akademii nauk SSSR, Metally, No 1, Jan-Feb 72, pp 159-165

Abstract: This study concerns the temperature range conducive to the segregation of Ti(C, N) particles in the form of networks along the austenite grain boundaries in 000N18K9M5T steel, the embrittling effect of such networks on the steel, as well as the conditions for correcting structures having such networks. On slow cooling from 1200-1250°C the coarse-grained precipitated non-hardened martensitic steel becomes brittle due to the separation of Ti(C, N) networks within the 760-1000°C range. It is shown that brittleness may be eliminated by rapid cooling in water or oil. The structure and mechanical properties of steels with networks and Ti(C, N) segregations may be corrected by quenching the steel from 1200-1250°C (after homogenizing for more than 1 hr) and triple recrystallization at 900-975°C to reduce the grain size. The formation of carbonitride networks may be inhibited by lowering the end temperature of hot plastic deformation in order to preclude further recrystallization. (4 illustrations, 3 tables, 6 bibliographic references).
1/1

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UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, "

236661 ELECTRON BEAM ALIGNMENT INDICATOR for
electron beam devices contains deflecting
system (1) which receives from oscillator (2) two
sinusoidal signals with a 90 deg. phase shift
through phase shifter (3) so that the beam sweeps
around in a circle relative to slot (4) with sections
at right angles to each other. The signal from
resistor (6) which is connected to collector (5)
can be examined on the screen of oscillograph (7).

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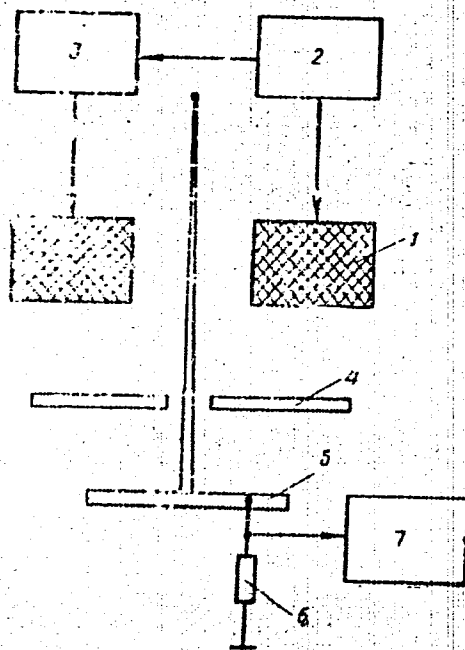
6.9.67. as 1181796/26-25, LOGUNOV, V.I. and
BELYAKOV, M.M. (10.6.69) Bul. 7/3.2.69. Class 21g
Int. Cl. H 01 j.

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BELYAKOV, R.

Cybernetics

SN: JPRS 56092
23 MAY 72

A HYPOTHETICAL "HEART-LUNGS" MODEL

UFG 62-506.22

Article by R. V. Belyakov, Kiev, Avionika, Ukrainian, No 6, 1971, pp 65-68

Cybernetics

Energy is supplied to living muscles by arterial blood. This means that in the composition of blood there are at least two energy-bearing substances which are potentially capable of exothermic reaction. The principal (but not only) such substances are glucose and oxygen.

However, the reaction of oxidation does not begin in the blood itself, but only at the place of final destination -- in the tissues of the organism. Premature initiation of the energy-bearing reaction is prevented, firstly, by the fact that the oxygen is temporarily bound by hemoglobin and is transported by "porters" -- in erythrocytes, those microscopic polymer ampules. Secondly, the blood lacks the special enzyme which gives the first thrust necessary for the beginning of the complex cycle of the oxidation reactions. These enzymes are contained in the cells of the muscle itself and, what is, so to speak, fresh portions of substrate. As is well known, the oxidation reaction of glucose in the cells does not take place by means of direct combination with oxygen, but begins with phosphorylation and includes a series of transformations (the so-called Embden-Meyerhof path and the Krebs cycle). This path has a series of stages, during which energy is accumulated in adenosine triphosphate (ATP).

Can it be expected that in the future there will be obtained synthetic polymer structures at all able to perform similar complex reactions of energy exchange? At present this seems unlikely, since it means recreating many specific properties of living muscle cells, and possibly even whole cells. Such a system would be synthetic copy of muscle, and not a model.

6291A

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--URGENT PROBLEMS OF THE PRESENT DAY EPIDEMIOLOGY -U-
AUTHOR--BELYAKOV, V. **B**
COUNTRY OF INFO--USSR
SOURCE--MEDITSINSKAYA GAZETA, AUGUST 28, 1970, P 3, COLS 1-2
DATE PUBLISHED--28AUG70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL SCIENCES
TOPIC TAGS--EPIDEMIOLOGY, MEDICAL PERSONNEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1765 STEP NO--UR/9034/70/000/000/0003/0003
CIRC ACCESSION NO--AN0138726
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AN0138726

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DIGESTS PAPERS PRESENTED AT THE DISCUSSIONS OF THE METHODOLOGICAL PRINCIPLES OF THE INFECTIOUS AND NON INFECTIOUS EPIDEMIOLOGY SPONSORED BY THE DEPARTMENT OF HYGIENE, MICROBIOLOGY AND EPIDEMIOLOGY OF THE ACADEMY OF MEDICAL SCIENCES, U.S.S.R. PAPERS OF A. CHAKLIN AND V. DVOYRIN, V. METELITSK, N. ZHARIKOV, AND V. SMIRNO, ET AL, DEALT WITH THE LATEST RESULTS AND SHOWED THEIR POTENTIAL USES IN ONCOLOGY, CARDIOLOGY, PSYCHIATRY, AND OTHER FIELDS OF MEDICINE. G. AVANDILOV'S PAPER WAS DEVOTED TO THE BIOMETRIC ASPECTS OF THE EPIDEMIOLOGICAL STUDY OF NONINFECTIOUS DISEASES. LONG RANGE RESEARCH HAS BEEN LAUNCHED WHICH EMPLOYS PROLONGED OBSERVATIONS AND MORE THAN ONE STUDY OF THE SAME GROUP OF POPULATION. THE IMPORTANT OF MODERN EPIDEMIOLOGY HAS BEEN UNDERSCORED IN THE PAPER GIVEN BY PROF. I. YELKIN.

UNCLASSIFIED

Instruments and Equipment

USSR

UDC 616.008.9-073.55

FEDYAYEV, S. F., and BELYAKOV, V. A., Moscow Scientific Research Institute of Vaccines and Sera imeni Mechnikov

"Using the Light Scattering Method to Study Biological Aerosols"

Moscow, Laboratornoye Delo, Vol 11, 1971, pp 699-701

Translation: Modern artificial biological aerosols used for immunization of people and animals are distinguished by a wide range of particle concentrations per unit of volume and also by their polydispersity (from fractions of a micron to dozens of microns). Under these circumstances the first instruments designed for the study of aerosol parameters which worked on the principle of light scattering, were unsuitable.

The problem of the present work is to create methods and instruments which provide the necessary accuracy in determining particle and weight concentration and also the spectrum of atomization of the vaccine, which is made into aerosol by atomizing instruments.

It was necessary to create a device with high resolving power, i.e., one which would provide: 1) recording of 0.5-40 micron particles, 2) the possibility of measuring aerosol concentrations up to 500,000 units in one liter, and 3) the simultaneous recording of the entire spectrum of particles.

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USSR

FEDYAYEV, S. F. and EELYAKOV, V. A., *Laboratornoye Delo*, Vol 11, 1971, pp 699-701

Among the photoelectric instruments suitable for recording particles in the air was the electron-optical system of the A3-4 device. It was used as the basis for the sensor of the device. The main optical schematic of the sensor of the photoelectric aerosol dispersion meter AD-1 is shown in Fig. 1.

With the help of a diaphragm (3) and the objectives (2), the ray of light from the source (1) is focused into a cylindrical beam with a diameter of 1 ml. Through the connecting pipe (4) an aerosol stream with a diameter of 1 m is directed perpendicular to the focused ray of light. The intersection of the light ray from the source and the aerosol stream forms the measurement volume of the optical system of the sensor. Perpendicular to the plane of the ray from the source and the aerosol stream, intersecting the measurement volume is the visual axis of the photomultiplier (7).

When particles in the air enter the measurement volume of the sensor, they scatter the light from the source which is sensed by the photomultiplier. As a result of this, at the output of the photomultiplier electric pulses arise which are proportional to the square of the particle radii. From the sensor, after appropriate amplification, the electric pulses are directed through a 5-meter cable to the amplitude selectors in the analytical and

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USSR

FEDYAYEV, S. F. and BELYAKOV, V. A., *Laboratornoye Delo*, Vol 11, 1971, pp 699-701

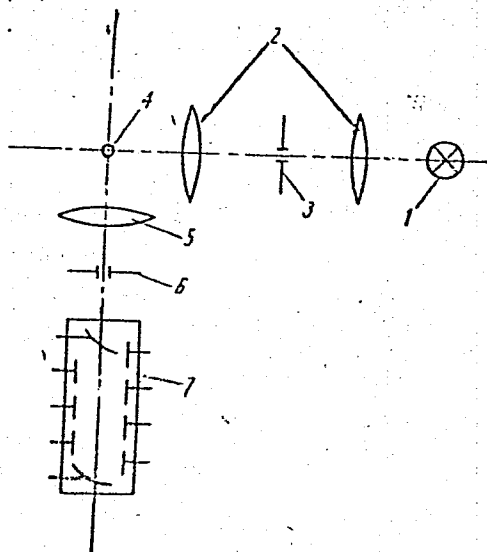


Fig. 1. The principal optical scheme of the sensor. 1-source; 2-source objectives; 3-source diaphragm; 4-connecting pipe; 5-objective of the photomultiplier; 6-diaphragm of the photomultiplier; 7-photomultiplier

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USSR

FEDYAYEV, S. F. and BELYAKOV, V. A., Laboratornoye Delo, Vol 11, 1971, pp 699-701

computing block. After fractionation, the pulses are counted and are fed to the indicator, an electromechanical counter of the MES-54 type.

The AD-1 aggregate makes it possible to record simultaneously pulses in a wide range of particle sizes ranging in diameter from 0.5 to 4 microns and from 3 to 40 microns. This is made possible by the existence of two sub-ranges with an automatic change in the amplification factor of the pulse amplifier and adjustment of the amplitude selectors. The aggregate has five channels with various conversion factors: 128, 64, 32, 16, and 8. The rate of passage of the aerosol through the sensor is 0.2 l/min. All this makes it possible to sufficiently monitor the concentrated artificial polydisperse biological aerosols (200,000 to 400,000 units in 1 l).

The maximum count rate for particles A is determined by the illuminated space of the sensor through which the aerosol stream passes. Poisson distribution predicts that two or more particles have a probability of not more than 5% of passing through the illuminated space if the mean population does not exceed 0.4 particles. Assuming that the diameter of the aerosol stream is $d = 0.1$ cm and the width of the light beam which intersects the particles is $h = 0.1$ cm. we find:

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USSR

FEDYAYEV, S. F. and BELYAKOV, V. A., *Laboratornoye Delo*, Vol 11, 1971, pp 699-701

$$A = \frac{4 \cdot 0.4}{\pi d^2 h} = 500 \text{ particles/cm}^3. \text{ The instrument}$$

is calibrated for a relatively monodisperse medium Lycopodium, 80% of whose spores have a diameter of 28 microns, which makes it possible to measure the size of the aerosol particles with sufficient accuracy.

The following methods are used for calibration: The electro-optical sensor is installed with a connecting pipe pointing downward. A pump is connected at the other side and air is drawn through the illuminated space of the sensor at a rate of 0.2 l/min. With a light priming of a small amount of Lycopodium in front of the connecting pipe an aerosol cloud is formed which is carried by the air stream so that the Lycopodium particles migrate to the measuring volume of the sensor where the light scattered by them is transformed into electric pulses which are registered by an oscillograph. After determining the amplitude of the electric pulse which corresponds to the average particle size of 28 microns and taking into account the proportionality between the pulse amplitude and the square of the particle radius, we construct a graph for adjusting the amplitude selectors of the device (Fig. 2). After this, using a pulse generator, the operational thresholds of the selectors of all the five channels of the two subranges are adjusted.

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USSR

FEDYAYEV, S. F. and BELYAKOV, V. A., *Laboratornoye Delo*, Vol 11, 1971,
pp 699-701

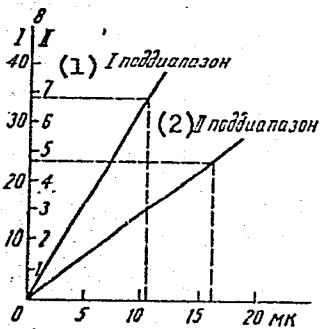


Fig. 2. Graph of adjustment of the thresholds of the amplitude selectors of the device. The horizontal -- the square of the radius of the particle (in microns); on the vertical -- the pulse amplitude (in volts).

Key: 1. Subrange 1
2. Subrange 2

For comparison of the accuracy of calibration described above, the rather labor-consuming calibration on a sedimentometer was conducted from an oil fog obtained by bubbling. No significant deviations were observed.

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USSR

FEDYAYEV, S. F. and EELYAKOV, V. A., *Laboratornoye Delo*, Vol 11, 1971, pp 699-701

Experimental tests have been conducted in chambers of various sizes: 0.7, 5.6, and 112 m³. In the tests dry aerosol vaccines from the Moscow Scientific Research Institute for Vaccines and Sera imeni I. I. Mechnikov were used. Vaccines were atomized using PAV-65 device. The rate of passage of air through the measuring volume of the sensor was adjusted to 0.2 l/min/ a type 822 atomizer. Tests lasted 15 min. The connecting pipe of the sensor was placed in a horizontal position. The concentration by weight was monitored by two additional methods: by protein content (Lowry method) and by the fluorescence of the vaccine solution being tested (electronic fluorometer EF-3M). Samples were also taken with the aid of an impinger.

On the basis of numerous experiments, spectra were obtained for the count and the weight distributions of dry aerosol vaccines.

Atomization of dry vaccines using the PAV-65 device follows an exponential course while the maximum concentration by weight is found for 19-micron particles. This gives favorable conditions for vaccination. It causes little reaction with a good immunizing effect.

Thus the photoelectric method of investigating particles of biological polydisperse aerosol vaccines in an air stream at the present time, in our

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USSR

FEDYAYEV, S. F. and BELYAKOV, V. A., *Laboratornoye Delo*, Vol 11, 1971,
pp 699-701

opinion is the only sufficiently reliable method of studying the spectrum of particle size of an aerosol. This makes it possible to analyze the number and size of the particles in a unit volume and to observe the kinetics of change in particle concentration during the experiment.

8/8

1/2 024 UNCLASSIFIED PROCESSING DATE—090C170
TITLE—CHEMILUMINESCENCE IN HYDROCARBON OXIDATION IN SOLUTION.
QUANTITATIVE STUDY OF THE EXCITATION AND EMISSION STEPS -U-
AUTHOR—(02)—BELYAKOV, V.A., VESILEV, R.F. **B**
COUNTRY OF INFO—USSR
SOURCE—PHOTOCHEM. PHOTOBIOLOG. 1970, 11(3), 179-92
DATE PUBLISHED— ----70
SUBJECT AREA—CHEMISTRY, PHYSICS
TOPIC TAGS—CHEMILUMINESCENCE, HYDROCARBON OXIDATION, CARBONYL COMPOUND,
ACETOPHENONE, CYCLOHEXANONE, EXCITED STATE, VIBRATION
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—1997/1829 STEP NO—UK/0000/70/011/003/0179/0192
CIRC ACCESSION NO—AP0112803
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0112803

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHEMILUMINESCENCE OBSD. IN THE
VISIBLE REGION DURING THE OXIDN. OF HYDROCARBONS IN LIQ. PHASE RESULTS
FROM PEROXY RADICAL DISPROPORTIONATION, THE EMITTER BEING A CARBONYL
COMPD. IN THE TRIPLET STATE. A NO. OF EXAMPLES OF ENERGY TRANSFER FROM
CARBONYL COMPS. (SUCH AS ACETOPHENONE AND CYCLOHEXANONE) TO
HYDROCARBONS WERE EXAMD. EXCITATION YIELDS WERE CALCD. FROM THE RATE
CONSTS., EMISSION YIELDS, INTENSITIES, AND REACTION RATES. COMPETING
PROCESSES DEPENDENT ON TRANSFORMATION OF CHEM. ENERGY INTO VIBRATIONS
ARE ELECTRONIC EXCITATION OF THE CARBONYL COMPD., VIBRATIONAL EXCITATION
OF THE CARBONYL COMPD. IN THE GROUND STATE, AND REVERSE DECOMP. OF AN
INTERMEDIATE COMPLEX INTO PEROXY RADICALS. FACILITY: INST.
PHOTOSYN., PUSHCHIN: N OKA, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THEORY OF MAGNETIC MOESSBAUER DIFFRACTION MEASUREMENT -U-
AUTHOR-(02)-BELYAKOV, V.A., AIVAZYAN, YU.M.
COUNTRY OF INFO--USSR **B**
SOURCE--PHYS. REV. B 1970, (3) 1(5), 1903-7
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS
TOPIC TAGS--MOSSBAUER EFFECT, GAMMA RADIATION, PARTICLE DIFFRACTION,
CRYSTAL ORIENTATION, MAGNETIC STRUCTURE, GAMMA SCATTERING,
ANTIFERROMAGNETIC MATERIAL

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0984 STEP NO--US/0000/70/001/005/1903/1907
CIRC ACCESSION NO--AP0124643
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124643

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THEORY OF MOESSBAUER GAMMA RAY DIFFRACTION BY MAGNETICALLY ORDERED CRYSTALS CONTG. MOESSBAUER NUCLEI IS DEVELOPED IN THE BORN APPROXN. FOR CRYSTALS WHOSE MAGNETIC STRUCTURE INDUCES AN ORDERING OF MAGNETIC FIELDS AT MOESSBAUER NUCLEI, THE DIFFRACTION PATTERNS EXHIBIT MAGNETIC BRAGG MAX. THE POSITIONS OF THESE MAX. DO NOT COINCIDE GENERALLY WITH THE POSITIONS OF RAYLEIGH MAX. THE POLARIZATION OF RADIATION SCATTERED AT BRAGG ANGLES CONTAINS INFORMATION ABOUT THE ORIENTATION OF THE MAGNETIC FIELDS AT THE MOESSBAUER NUCLEI RELATIVE TO THE CRYSTALLOGRAPHIC DIRECTIONS. THE EXPRESSIONS FOR THE POLARIZATION AND COHERENT SCATTERING CROSS SECTION ARE GIVEN IN THE CASE OF LARGE NUCLEAR ZEEMAN SPLITTING FOR PURELY NUCLEAR SCATTERING. DIFFRACTION BY ANTIFERROMAGNETIC CRYSTALS IS EXAMD. IN DETAIL. THE POSSIBILITY OF STUDYING MAGNETIC ORDERING IN CRYSTALS BY MEANS OF MOESSBAUER DIFFRACTION IS DISCUSSED. FACILITY: ALL UNION SCE. INST. PHYS. TECH. RADIO-TECH. MEAS., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 616.9-085.371-039.71

BELYAKOV, V. D., and KHEYFETS, L. B.

"Certain Theoretical and Practical Aspects of Specific Prophylaxis Against Infectious Diseases"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunologii, No 6, 1973,
pp 148-153

:: During the past 10 years much has been accomplished in the fields of prophylaxis and immunotherapy, especially in the USSR. Among the decisions of the Commission on Immunoprophylaxis of the Presidium of the Academy of Medical Sciences of the USSR is that the schedule of immunization against smallpox may be modified so that primary immunization takes place during the 1st to 2d year of life (rather than the 12th to 18th month, as now practiced), and in exceptional cases may be postponed to the 3d year. Immunization of children older than 3 years should be accompanied by the administration of specific immune gamma globulin. It has also been recommended that biphasic immunization be evaluated employing an inactivated vaccine to minimize complications. The need for smallpox reimmunization after the 15th years of life has also been questioned. Studies need also to be conducted to determine whether the time of immunization with the DPT

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USSR

BELYAKOV, V. D., and KHEYFETS, L. B., Zhurnal Mikrobiologii Epidemiologii i Immunologii, No 6, 1973, pp 148-153

vaccine should be moved up to the 3d month of life from the 5th to 6th month. It has also been suggested that the pertussis component of the DPT vaccine be increased and diphtheria and tetanus toxoids be decreased. Other suggestions are that a pertussis vaccine be administered separately to enhance the immune response against it. At the present time no changes are planned in the vaccination schedule for tuberculosis. All indications are that the Soviet BCG preparations are as effective as the best foreign vaccines. Currently, the first intracutaneous vaccination is administered on the 5th to 7th day of life to more than 95% of the neonates. Revaccinations are conducted at ages 6-7, 12, and 17 years. Immunity seems to be maintained for 5-7 years after the last injection. Live polio vaccine is administered orally three times during the 1st, 2d, and 3d years of life, and once when the pupils enter the first and the ninth classes. During the last few years a measles vaccine has been introduced which is first administered during the first 10 to 12 months of life. The vaccine has not yet been standardized and occasionally elicits severe side effects, but it is highly effective. However, the duration of immunity has not yet been definitely established.

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USSR

BELYAKOV, V. D., and KHEYFETS, L. B., Zhurnal Mikrobiologii Epidemiologii i Immunologii, No 6, 1973, pp 148-153

Detailed studies are also being conducted on the routes of administration and effectiveness of influenza A2 and B vaccines, and of a mumps vaccine.

3/3

1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECT OF PH ON THE CORROSION FATIGUE OF THE MAGNESIUM ALLOY MA,2,1
-U-
AUTHOR--(04)-BELYAKOV, V.E., PUSHKINA, S.V., PROKIN, A.K., ROMANOV, V.V.
COUNTRY OF INFO--USSR *B*
SOURCE--FIZ.-KHIM. MEKHAN. MAT., 1970, 6, (1), 38-41
DATE PUBLISHED-----70

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UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129167

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE PH OF THE CORROSIVE MEDIUM ON THE CORROSION FATIGUE OF MG ALLOY MA-2-1 IN SOLUTIONS HAVING A STRENGTH OF SIMILAR TO 0.1 N WITH RESPECT TO CL PRIME NEGATIVE IONS WAS STUDIED. THE OVER ALL LOSS OF FATIGUE STRENGTH IN THESE MEDIA WAS DIVIDED INTO TWO COMPONENTS: LOSS OF STRENGTH DUE TO CORROSION FATIGUE PROPER, AND LOSS OF STRENGTH ARISING FROM THE REDUCTION IN THE CROSS SECTION OF THE CORRODED SAMPLE. FOR PH VALUES BETWEEN 1.3 AND 4.0 THE LOSSES AROSE MAINLY FROM THE SECOND FACTOR; FOR PH VALUES BETWEEN 4 AND 14 THEY AROSE MAINLY FROM THE FIRST FACTOR.

UNCLASSIFIED

USSR

UDC 621.3.078

BELYAKOV, V. L., and POPOV, V. S., Leningrad Military Engineering Academy
imeni A. F. Mozhayskiy

"The Problem of Analysis and Synthesis of Automatic Control Systems by the
Method of Logarithmic Frequency Characteristics"

Leningrad, Priberostroyeniye, Vol XIV, No 7, 1971, pp 53-55

Abstract: The transfer functions of complex automatic control systems often
contain fourth-order factors of the following type:

$$\left. \begin{array}{l} \tau^4 p^4 + 2\xi\tau^2 p^2 + 1, \quad \tau^4 p^4 + 1 \\ \frac{1}{T^4 p^4 + 2\xi T^2 p^2 + 1}, \quad \frac{1}{T^4 p^4 + 1} \end{array} \right\} \quad (1)$$

where $0 \leq \xi < 1$. If the system under consideration is an open system, then
it is advisable to relate the expressions of form (1) to standard factors
and to construct their normalized logarithmic amplitude and phase character-
istics. From the normalized logarithmic amplitude characteristics of such
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USSR

BELYAKOV, V. L., and POPOV, V. S., *Priborostroyeniye*, Vol XIV, No 7, 1971, pp 53-55

factors it is easy to construct the logarithmic amplitude characteristics of the control system itself, with almost no computational work involved. Hence, the isolation of standard factors in the form of the expressions in (1) considerably simplifies research on complex automatic control systems by the method of logarithmic frequency characteristics.

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Controls

USSR

UDC 621.3.078

BELYAKOV, V. L. and POPOV, V. S.

"Analysis and Synthesis of Automatic Control Systems by the Logarithmic Frequency Characteristic Method"

Leningrad, Izvestiya VUZ -- Priborostroyeniye, No. 7, 1971, pp 53-55.

Abstract: The chief advantage of the use of logarithmic characteristics over ordinary frequency characteristic methods is that they lend themselves to plotting with practically no computation. The authors begin their study by writing the fourth-order coefficients usually contained in the transfer functions encountered when investigating aircraft control, for example. While these coefficients can be expanded into second-order coefficients, it is simpler to plot the frequency characteristics from the fourth-order forms by the logarithmic frequency method, for analyzing and synthesizing automatic control systems, if the normalized logarithmic amplitude characteristics and logarithmic frequency characteristics of those forms are known. A family of normalized logarithmic amplitude characteristics is plotted, from which one can plot the logarithmic amplitude characteristics of a control system whose transfer functions contain the fourth-order coefficients.

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USSR

BELYAKOV, V .L., and POPOV, V. S., Izvestiya VUZ -- Priborostroyeniye, No 7, 1971, pp 53-55

The authors are associated with the A. F. Mozhayskiy Military Engineering Academy, Leningrad.

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USSR

UDC: 621.3.049.75

GODOVITSYN, Ye. V., USMANOV, R. A., BELYAKOV, V. M., LAVRIXHCHEV, V. P.,
LAPSHINOVA, Zh. V., VIKULINA, N. V.

"A Method of Making Thin-Film Circuits"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki,
No 27, 1970, Soviet Patent No 279728, Class 21, filed 20 Dec 68, p 53

Abstract: This Author's Certificate introduces a method of making thin-film circuits based on forming circuit conductors on a dielectric substrate by means of an acid resist made from modified rubber, and coating the conductors with a layer of copper and gold. As a distinguishing feature of the patent, adhesion of the resist to the metallized substrate is improved by coating the substrate with a layer of iron over which the resist is applied.

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USSR

UDC 681.355

BELYAKOV, V. M., BLINKOV, Yu. B., LOMTEV, Ye. A., and SHLYANDIN, V. M.

"Time Interval-to-Digital Code Converter"

USSR Author's Certificate No 262514, Filed 1/07/68, Published 2/11/70
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i
Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B485P)

Translation: A time interval-to-digital code converter is suggested, containing forming flip-flops, a collector circuit, digital memory registers, and a delay line with taps. The outputs of the delay line are connected to the inputs of the collector circuit; the outputs of the collector circuit are connected to the first input of the forming flip-flop, the second input of which is connected to the last delay line output; the inputs of the digital memory registers are connected to the outputs of the delay line. In order to simplify the converter, it contains coincidence circuits, a pulse expander, and a shift register. The input of the delay line is connected to the input of the shift register and the output of the coincidence circuit; the input of the coincidence circuit is connected to the output of the forming flip-flop, one input of which is connected to the "clear" terminal, while the other is connected to the input of the delay

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USSR

BELYAKOV, V. M., et al., USSR Author's Certificate No 262514, Filed 1/07/68, Published 2/11/70 (Translated from Referativnyy Zhurnal Avtomatika, Tele-mekhanika i Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B485P)

line. The enabling inputs of the memory registers are connected to the first inputs of the digital coincidence circuits. The outputs of the coincidence circuits of the digits are connected to the output of the forming flip-flop of the collection circuit; the second inputs of the digital coincidence circuits are connected to the outputs of the shift register, while the input of the forming flip-flop of the collecting circuit is connected to the input of the pulse expander, the output of which is connected to the first input of the coincidence circuit. The second input of the coincidence circuit is connected to the last output of the shift register, and the output of the coincidence circuit is connected to the input of the delay line. 2 figs.

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- 100 -

USSR

UDC 537.533.2+537.534

ABROYAN, I. A., BELYAKOV, V. S., TITOV, A. I.

"Ion-Electron Emission of Germanium Bombarded by Krypton Ions"

Tr. Leningr. politekhn. in-ta (Works of Leningrad Polytechnical Institute), 1970, No 311, pp 71-76 (from RZh-Fizika, No 12(1), Dec 70, Abstract No 12Zh662)

Translation: The ion-electron emission of Ge single crystals under bombardment by krypton ions with energies from 0.3 to 15 keV was studied. It was observed that the coefficient of ion-electron emission γ was a nonlinear function of ion energy. It was established that in the region of emission potentials γ remains constant under a change in the angle of incidence of the ions ϕ . The kinetic knocking out of electrons noted begins krypton ion energies of ~ 2 keV, and the function $\gamma(\phi)$ is nonmonotonic in accordance with the transparency model of a crystal in the region of kinetic emission. The dependence of γ on target temperature was also investigated. 14 references. Abstract.

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USSR

UDC 620.197.8

BELYAKOV, V. Ye., ROMANOV, V. V., Moscow, Pedagogical Institute imeni
V. I. Lenin

"The Influence of Anions Upon the Long-Term Strength of Magnesium Alloy
MA2-1"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 7, No 4, 1971, pp 27-30

Abstract: The rate of destruction of magnesium alloys in stress corrosion depends upon the nature of the anion composition of the solutions; here it is assumed that the mechanism of metal destruction is tied exclusively to corrosive cracking, but at the same time the influence of other factors is also possible. The article deals with a study of the influence of some anions of neutral salt solutions upon the long-term strength of magnesium alloy MA2-1, particularly upon corrosive cracking and purely corrosive damages. In solutions containing sulfate, nitrate, acetate, and chloride ions, the mechanism of long-term strength loss of the alloy is linked predominantly to corrosive cracking, in a carbonate solution it is linked to corrosive cracking and purely corrosive damages, while in phosphate and fluoride solutions it is linked to purely corrosive damages. 1 figure. 10 references.

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.USSR

UDC 620.197.8

BELYAKOV, V. YE., PUSHKINA, S. V., and ROMANOV, V. V., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR, Moscow

"Effect of the pH of the Medium on the Lasting Durability of the MA2-1 Alloy"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 5, 1970, pp 7-10

Abstract: A study was made to determine quantitatively the specific weight of the factors destructive of and tending to shorten the lasting durability of the MA2-1 magnesium alloy. There are two such factors: corrosion splitting and purely corrosive destruction. These factors are active when the metal is in electrolyte solutions, especially chloride solutions, and their activity is a function of the pH of the solutions. The MA2-1 alloy has the following chemical composition: 4.45% Al; 1.12% Zn; 0.56% Mn; 0.006% Fe; 0.07% Si; 0.0011% Ni; 0.002% Be; and the OST standard Mg. It was prepared for the experiments in the form of partially finished sheets 1.5 mm thick. Results of the experiments are given in the form of curves showing the variations of differ-

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USSR

BELYAKOV, V. YE., et al., Fiziko-Khimicheskaya Mekhanika Materialov, Vol. 6, No 5, 1970, pp 7-10

ent parameters of the alloy as functions of the pH. It is found that solutions 0.1 normal for chloride ion cause a marked loss in lasting durability of the alloy; this was determined to be 33 hours. The pH for such solutions has a strong effect on the mechanism and extent of the loss, chiefly through the mechanism of purely corrosive destruction.

2/2

Magnesium

USSR

UDC: 620.197.8

B
~~BEIYAKOV~~, V. YE., PUSHKINA, S. V., PROKIN, A. K., and ROMANOV, V. V., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR

"pH Effect on the Corrosion Fatigue of MA-2-1 Magnesium Alloy"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 1, Jan-Feb 70, pp 38-41.

Abstract: A determination was made of the effect of pH on the loss of cyclic strength of the MA-2-1 alloy in working media containing chlorine ions (0.1 N). The composition of the alloy is: 4.45% Al; 1.12% Zn; 0.56% Mn; 0.006% Fe; 0.07% Si; 0.0011% Ni; 0.002% Be; the balance Mg. For the study, the alloy was in the form of 1.5-mm sheet. In 0.1 N chloride solutions, the MA-2-1 alloy appears to have low corrosion fatigue strength. In solutions with pH=4 to 14 the alloy's failure is attributed to corrosion fatigue; within this range pH does not control the extent of loss in cyclic strength. At pH=4 to 1.3, the loss in cyclic strength occurs basically due to the reduction in the cross section of the specimen.

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Acc. Nr: AP0047635

Abstracting Service:
CHEMICAL ABST. 5-70

Ref. Code:
UR0057

B

104146e Adsorption of hydrogen on the [110] and [111] faces of silicon. Datsjev, M. I.; Belvakov, Yu. I. (Leningrad Gos. Univ., Leningrad, USSR). *Zh. Tekh. Fiz.* 1970, 40(1), 229-33 (Russ). To study the adsorption of mol. H on Si, the direct flash method in an impulse mass spectrograph was used. Si single crystals treated with a mixt. of 5HNO₃ + 3HF + 3AcOH + 0.02Br and rinsed with distd. H₂O were degassed in a vacuum chamber at $1-2 \times 10^{-3}$ torr. By anal. of the desorbed gas, the most efficient method for degassing and cleaning of crystal surfaces was found: starting from 5×10^{-7} torr, the adsorbent was held at a temp. 400°K higher than the temp. of the vacuum chamber and after reaching 2×10^{-3} torr, the sample temp. was further increased by 550°K so that its abs. value was 1550°K. The approx. residual gas compn, was 70% H₂, 20% CO, and 10% CO₂-H₂O. The pressure of Pd purified H₂ in the adsorption chamber was 2×10^{-2} - 1×10^{-4} torr. Desorption curves of H₂ on [111] faces, relating pressure difference with time reach 2 max., which attest to 2 stages of adsorption β_1 and β_2 . On the [110] face, only 1 max. was detected. The amt. of the more strongly bound hydrogen (β_2) was 1.3×10^{14} mol./cm², which corresponds to the surface coverage value of 0.3. Both values do not depend on the compn. of the adsorbate. Approx. 5% of the H is adsorbed as SiH₂ and SiH₃. M. Soucek

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REEL/FRA
19791207

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BELYAKOV, YU. N.

Microelectronics.

MICROELECTRONICS

Excerpta from Russian-language book edited by F. V. Lurkin:
Mikroelektronika, No 5, 1972, Sovetskoye Radio Publishing House,
Moscow, UDC 621.382:621.396.6-101.5.

JPRS 57333
25 October 1972

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- a -

(I - USSR - F)

This article examines the basic physical effects caused in NDP transistors during irradiation. The influence of these effects are described on the degradation of the parameters of the NDP transistors. Formulas are given for computation of the volt-ampere characteristics during irradiation. The radiational resistance of the integrated circuits on bipolar and NDP transistors is discussed.

The article contains 5 figures, 1 table, and 15 bibliographic references.

UDC 621.396.6-151.5
681.128.14-514.5

A Method of Computing Major Integrated Circuits on NDP Transistors with Supplimenting Types of Conductivity. Andriy V. Gorbunov and Gondeyev S.K. In the Collection Mikroelektronika, edited by V.V. Lukin, No 5, P 79, Sovetskoye Radio Publishing House, 1972.

The article concerns the computation and optimization of major integrated circuits on supplimenting NDP transistors. Optimization criteria for major integrated circuits are suggested.

It is shown that the problem of computing major integrated circuits can be reduced to determining the minimum of the linear function of regulable (determined) parameters of the major integrated circuit in the region of the determination, whose boundaries are nonlinear and have a statistical scatter. The algorithms developed for solving this problem by computation on a computer are cited.

The article contains 11 figures and 11 bibliographic references.

UDC 621.392.8

The Influence of Geometric Dimensions of Active Components on Speed of Response of Micropower Transistor-Transistor Logic of Integrated Circuits. Bel'yakov, Yu.M., Smal's, G.O. and Izbashvskiy, A.V. In the Collection Mikroelektronika, edited by V.V. Lukin, No 5, p 98, Sovetskoye Radio Publishing House, 1972.

On the basis of experimental data and from the geometric dimensions of transistor structures a computation is given of the capacitances per unit of area of the end and side surfaces of three transistor contacts. It is shown that the speed of response of the micropower TTL of the integrated circuits to a significant degree is determined by

the dimensions of the active components, the influence of the dimensions being more significant as the required power of the circuit is less. The authors study the influence of the capacitance of the emitter junction of a microemitter transistor on the speed of response of the TTL of the circuit.

The article contains 6 figures, 2 tables, and 4 bibliographic references.

UDC 621.386.6-181.5

Basic Ways of Increasing the Quality of Logic Integrated Microcircuits. Vannukhons, S.S. In the Collection *Mikroelektronika*, edited by T. V. Lukin, No 5, p 110, Sovetskoye Radio Publishing House, 1972.

This article defines the functional relationship between the product PT and other physical parameters of space, bounded by an arbitrary surface. On the basis of the obtained dependence the article discusses ways of increasing the speed of response and decreasing the scattering power of the logic integrated microcircuit.

The article contains 2 bibliographic references.

UDC 621.387.21

Use of Nonlinear Programming for Optimal Computation of the Geometric Dimensions of the Regions of Transistors of Integrated Circuits. Kazenkov, G.G., Batilov, B.V., Lebedeva, A.I., and Rudenko, A.A. In the Collection *Mikroelektronika*, edited by T. V. Lukin, No 5, p 118, Sovetskoye Radio Publishing House, 1972.

A method is suggested for solving problems of synthesizing active components based on the use of nonlinear programming equipment. The article gives a block-diagram of the program algorithm and a specific example of the optimal computation of the geometric dimensions of the regions of a transistor for an integrated semiconductor circuit.

The article contains 4 figures, 1 table, and 8 bibliographic references.

UDC 621.396.6-181.5

Structure of Micropower Integrated Internal Memories on Uniform Subsystems on Supplementing MDP Transistors. Gordyev, B.K. et al. In the Collection *Mikroelektronika*, edited by T. V. Lukin, No 5, p 128, Sovetskoye Radio Publishing House, 1972.

USSR
POKHIL, P. F., BELYAYEV, A. F., et. al.,

"Combustion of Powdered Metals in Active Media"

Goreniye Poroshkoobraznykh Metallov v Aktivnykh Sredakh., Nauka Press,
Moscow, 1972, 293 pages.

Translation of Annotation: This book is dedicated to important and pressing problems of the ignition and combustion of such metals as aluminum, beryllium, magnesium, boron, lithium and others, broadly used in new technology. They allow, for example, significant improvement of the physical and chemical characteristics of rocket fuels. The book presents and summarizes extensive experimental and theoretical material, produced by Soviet and foreign authors over the past 10 to 15 years. Modern methods of investigation and the primary regularities of ignition and combustion of metals are also presented, the problem of the influence of metal additives on the physical-energetic parameters of powders and explosives are also presented.

The book is designed for scientific workers and engineers working in the area of combustion, as well as teachers at universities, graduate students and undergraduates specializing in this area. 51 Tables; 148 Figures; 356 Biblio. Refs.

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USSR

POKHIL, P. F., BELYAYEV, A. F., et. al., Goreniye Poroshkoobraznykh Metallov v Aktivnykh Sredakh., Nauka Press, Moscow, 1972, 293 pages.

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USSR

POKHIL, P. F., BELYAYEV, A. F., et. al., Goreniye Poroshkoobraznykh Metallov v Aktivnykh Sredakh., Nauka Press, Moscow, 1972, 293 pages.

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3/5	

USSR

681.2:621.317.42

BUZINOV, V.S., BEIYAKOVA, G.M., MELEKHOV, M.YE., FILONOV, A.N.

"Standard Units For Checking And Calibration Of Field-Strength Meters With Loop And Dipole Antennas"

Izmeritel'naya tekhnika, No 5, May 1972, pp 55-56

Abstract: This paper discusses P1-4 and P1-5 units of the second class which at present are entering production and are intended for metrological servicing of electromagnetic field-strength meters. The P1-4 operates in the 10 kHz-30 MHz frequency range. The range of the rated values of the magnetic field strength, reproducible by four interchangeable loops antennas, lies within the limits 0.5--0.025 mA/m. The P1-5, which operates in the 30--1000 MHz frequency range, uses a set of dipole antennas tuned to the fixed frequencies 30, 40, 50, 60, 70, 80, 100, 125, 150, 175, 200, 225, 250, 275, 300, 400, 500, 600, 700, 800 and 1000 MHz. The rated values of the electrical field strength, measurable by the dipoles of the standard unit, lie within the limits 0.7--10 v/m (according to the frequency). 2 fig. 2 ref. Received, 19 October 1971.

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USSR

UDC 681.3

BELYAKOVA, G. Ya.

"Automation of an Algorithm for Minimization of Binary-Decimal Decoders"

Algoritmiz. Protssessov i Sintez Releyn. Ustroystv [Algorithmization of Processes and Synthesis of Relay Devices -- Collection of Works], Frunze, Ilim Press, 1971, pp 67-83, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V758 by the author).

Translation: Computer realization of an algorithm for minimization of binary decimal decoders in the form of bilateral diode grids, written in LYAPAS, is described. Certain results of selection of versions of inscription of decoder operating condition producing the minimum structure of the bilateral diode grid are presented.

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USSR

UDC: 51.621.391

BELYAKOVA, G. Ya., OBRAZTSOV, V. V.

"An Algorithm for Minimization of Binary-Decimal Decoders"

V sb. Algoritmiz. protsessov i sintez. releyn. ustroystv (Algorithmization of Processes and Synthesis of Relay Devices--collection of works), Frunze, "Ilim", 1971, pp 84-89 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V430)

[No abstract]

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USSR

UDC 620.172.251.1:669.14.018.8

BELYAKOVA, K. A., IL'ICHEV, V. YA., STARTSEV, V. I., and TAVER, YE. I., Physico-Technical Institute of Low Temperatures, Academy of Sciences

"Strength and Plasticity of VNS-17 Steel at Low Temperatures"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 3, 1971, pp 7-9

Abstract: A study was made of the mechanical properties of VNS-17 martensitic aging steel in the delivered state (hot rolled products) and its welded joints at temperatures to -269° C. In the hot-rolled state VNS-17 steel has sufficient plasticity and is insensitive to acute notching at test temperatures from room temperature to -253° C. In structural elements welded without filler metal or with basic composition wire, VNS-17 steel can be used to -196° C. In the presence of an acute notch, the strength of the welded joints at -253° C and -269° C is greater than the strength of the steel at room temperature. The chemical composition of the investigated steel was 0.014% C, 0.08% Mn, 0.17% Si, 10.28% Cr, 9.55% Ni, 0.66% Ti, 0.07% Al, 2.1% Mo, 0.01% Zr, 0.002% B, 0.06% Ca, 0.007% S, and 0.01% P. 1/1

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USSR

UDC 620.172.251.1:669.14.018.8

BELYAKOVA, K. A., IL'ICHEV, V. YA., STARTSEV, V. I., and TAVER,
~~YE. I.~~, Physico-Technical Institute of Low Temperatures,
Academy of Sciences

"Strength and Plasticity of VNS-17 Steel at Low Temperatures"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No
3, 1971, pp 7-9

Abstract: A study was made of the mechanical properties of VNS-17 martensitic aging steel in the delivered state (hot rolled products) and its welded joints at temperatures to -269° C. In the hot-rolled state VNS-17 steel has sufficient plasticity and is insensitive to acute notching at test temperatures from room temperature to -253° C. In structural elements welded without filler metal or with basic composition wire, VNS-17 steel can be used to -196° C. In the presence of an acute notch, the strength of the welded joints at -253° C and -269° C is greater than the strength of the steel at room temperature. The chemical composition of the investigated steel was 0.014% C, 0.08% Mn, 0.17% Si, 10.28% Cr, 9.55% Ni, 0.66% Ti, 0.07% Al, 2.1% Mo, 0.01% Zr, 0.002% B, 0.06% Ca, 0.007% S, and 0.01% P. 1/1

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USSR

UDC 541.133

BELYAKOVA, L. D., KEYBAL, V. L., and KISELEV, A. V., Institute of Physical Chemistry, Academy of Sciences, USSR, Chemical Faculty at the Moscow State University Ireni M. V. Lomonosov

"Gas-Chromatographic Study of the Adsorption of Carbon Dioxide on NaX Zeolite"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 9, Sep 70, pp 2345-2349

Abstract: Isotherms of the molecular adsorption of CO₂ on the NaX zeolite crystals with and without a binder were calculated for temperature range 70-180° on the basis of the theory of nonideal equilibria chromatography. These isotherms agree with data obtained from static measurements carried out at 150 and 170°C. From the data obtained it was possible to calculate the relationship between isosteric heats of adsorption of CO₂ and the adsorption values for low saturation levels of the surface of zeolites. The values agree with those obtained from calorimetry data, with consideration of the heat capacity of the adsorption system zeolite-CO₂.

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USSR

UDC 546.224

BELIAKOVA, I. D., KISELEV, A. V., MIKHAYLENKO, I. Ye., SOLOYAN, G. A., and SPITSYN, V. I., Academician

"Gas-Chromatographic Study of the Effect of Radioactive Radiation and Heat Treatment on the Adsorption Properties of Magnesium Sulfate"

Moscow, Doklady Akademii Nauk SSSR, Vol 197, No 1, March-April 1971, pp 88-90

Abstract: The procedure and results of a gas-chromatic study of the effect of radioactivity and heat treatment on the adsorption properties of magnesium sulfate are presented. The initial magnesium sulfate samples contained about 1% water, and the variation of their adsorption properties with respect to n-hydrocarbons and benzene as a result of the removal of this water during calcination was studied. Curves are presented for the retained volumes of n-nonane and benzene as a function of the calcining time of $MgSO_4$ at 400° and $500^\circ C$ and the ratios of the retained volumes of benzene measured at a column temperature of 245° to n-nonane (column temperature 200°) as a function of the calcining time of $MgSO_4$. It was found that radioactive samples of sulfates containing SO_4^{2-} ions with S^{35} exhibit appreciably stronger adsorption of hydrocarbons, the molecules of which belong to group B (containing high-bonds)

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BELYAKOVA, L. D., et al, Doklady Akademii Nauk SSSR, Vol 197, No 1, March-April 1971, pp 88-90

and to group A (containing only σ -bonds) by comparison with nonradioactive sulfates. Removal of water during calcining increases the adsorption of both groups of hydrocarbons. The specificity of molecular adsorption of aromatic hydrocarbons, which reaches a maximum after calcining at 400° for 5 hours, increases especially sharply.

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I/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE USE OF THE SIMPLEX METHOD FOR THE STUDY OF PHYS. PROPERTIES OF A TERNARY PLASTIC SYSTEM AS A FUNCTION OF COMPN. WAS DISCUSSED. THE EXPTS. WERE CONDUCTED WITH A SYSTEM COMPOSED OF S-70 POLY(VINYL CHLORIDE), SKN-26 RUBBER, TRICRESYL PHOSPHATE, AND A MIXT. OF STABILIZERS (2PBCO SUB3.PB(OH) SUB2 AND TRIS(NONYLPHENYL) PHOSPHITE). SEVERAL QUADRATIC EQUATIONS, WHICH EXPRESSED THE PHYS. PROPERTIES OF PLASTICS AS A FUNCTION OF COMPN., WERE DERIVED AND THE DATA WERE PLOTTED ON A TRIANGULAR DIAGRAM. THE ANAL. METHOD CUT THE NO. OF EXPTS. BY GREATER THAN TWO THIRD AND THE CALCO. CURVES MATCHED THE EXPTL. ONES FAIRLY WELL.

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USSR

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IGNATOVA, T. S., BELYAKOVA, N. P., PERMIKINA, N. M., SEMKINA, N. V.,
MYAKISHEVA, N. A., and YEVDOKIMOVA, Z. U., Eastern Institute of Refractories

"Effect of Technological Factors on the Density and Microstructure of
Corundum Ceramics Containing 1% Titanium Oxide"

Moscow, Ogneupory, No 8, 70, pp 32-35

Abstract: This study demonstrates the dependence of the microstructure and the density of corundum ceramics on the method of grinding, the dispersity of the silica, the method of molding, and the annealing temperatures of the finished product. A higher dispersity, vibratory grinding, high annealing temperatures, and TiO_2 additions promote the formation of a macrocrystalline structure, which in turn is responsible for the greater heat resistance of the material. A higher dispersity of the silica increases the intensity of

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IGNATOVA, T. S., et al, Ogneupory, No 8, 70, pp 32-35

crystallization at high temperatures and initiates recrystallization of corundum at a much lower annealing temperature. Vibratory grinding intensifies recrystallization and the formation of a macrocrystalline structure, which causes loosening of the body and decreases the density. It appears that the higher thermal resistance and lower strength of corundum parts with macrocrystalline structures are related to some increase in apparent porosity.

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Nr 1, pp 32-37

THE CLINICO-ELECTROCARDIOGRAPHIC PICTURE
OF INTERMEDIATE FORMS OF CORONARY (ISCHEMIC)
DISEASE

V. G. Popov, T. I. Belyakova

Summary

The paper presents the differential diagnosis signs of intermediate forms of coronary (ischemic) disease (primary and repeated microfocal myocardial infarction, focal dystrophy of the myocardium). The authors emphasize the diagnostic importance of these forms, along with the clinico-electrocardiographic picture, data of laboratory investigations. The recognition of intermediate forms of coronary disease is of essential significance both for the prognosis and for the proper institution of therapeutic and prophylactic measures.

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BELYAKOVA, T. S.

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LEVEL, STRUCTURE, AND DISTINCTIVE FEATURES OF EMERGENCY HOSPITAL CARE IN DIFFERENT TYPES OF CITIES

All- public health

[Article by Ye. A. Losinova, V. V. Zhigalova, T. S. Belyakova, N. T. Trebilin, I. K. Smolovik, L. F. Burmich, N. E. Ivanova, A. I. Lavrenko, A. I. Suravskaya, M. I. Barykov, All-Union Scientific Research Institute of Social Hygiene and Public Health Organization Imeni N. A. Semashko, Rostovskaya, Ul'yanovskaya and Kurskaya Oblast Health Departments; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 7, 1971, submitted 16 February 1971, pp 13-25]

In spite of the knowhow accumulated by Soviet public health in the area of planning and developing norms for medical care in hospitals, still unstudied is the matter of bed requirements referable to emergency hospitalization of patients and the structure of such requirements. Of special interest is the development and improvement of the network and structure of the beds allocated for emergency hospitalization in view of the specialized emergency hospitals founded on the basis of Decree No 517 dated 5 July 1968 issued by the Central Committee of the CPSU and USSR Council of Ministers, "On Measures for Further Improvement of Public Health and Development of Medical Science in the Nation," as well as integration of emergency stations and hospitals, as reflected in order No 608, dated 6 August 1968, issued by the USSR Minister of Health.

In resolving planning and organizational problems pertaining to emergency hospital care it is not deemed possible to be governed by official reports, since the statistics on hospitalized patients include data on emergency hospitalization only referable to surgical emergencies whereas a considerable place is occupied by emergency hospitalization of therapeutic, obstetric-gynecological, infectious, and other patients.

For the purpose of substantiating the structure of the beds allocated for emergency hospitalization, the All-Union Scientific Research Institute of Social Hygiene and Public Health Organization Imeni N. A. Semashko, jointly with the oblast health departments of Rostovskaya, Ul'yanovskaya, Kurskaya, Kalinigradskaya, and Volgodonskaya oblasts and the Ministry of Health of Bashkir ASSR, conducted a complex study to determine the level, scope, and nature of emergency hospital care in different types of cities.

USSR

UDC 669.15.018.8(088.8)

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FEDOTOVA, L. S., ALEKSEYENKO, M. F., POTAK, YA. M., BELYAKOVA, V. A., ORZHEKH-OVSIKY, YU. F., SHEPETOV, V. A., TOPILIN, V. V., DORONIN, V. M., KLYUYEV, M. M.

"Stainless Steel"

USSR Author's Certificate No 276434, Filed 25 Jul 68, Published 13 Oct 70 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I637P)

Translation: A steel for operation at temperatures up to 600° is proposed with the following composition (in %): C 0.05-0.09, Cr 10.5-12, Ni 1.4-1.8, Mo 0.35-0.5, Nb 0.06-0.15, V 0.15-0.25, Si < 0.6, Mn < 0.6, Ce < 0.02. The ratio of the alloying elements satisfies the formula $0.68\% Cr + (\% Mo + \% V + \% Si) + 0.5\% Nb - (30\% C + \% Ni + 0.5\% Mn) < 6.6$. After quenching from 1,000° and tempering at 570°, at 20, 500, and 550° the steel has σ_B of 120, 70, and 55 kg/mm², σ_T of 100, 75, and 55 kg/mm², δ of 12% and ψ of 60-65%, respectively; σ_{500}^{100} and σ_{550}^{100} are 56 and 32 kg/mm², respectively.

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USSR

B

GOROSHCHENKO, YA. G., and BELYAKOVA, YE. P.

"Conference on Titanium Chemistry and Technology"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 36, No 5, May 70, pp 520-521

Abstract: A Conference on Titanium Chemistry and Technology was held 16-19 December 1969 in Kiev at the Institute of General and Inorganic Chemistry, Academy of Sciences Ukrainian SSR. Representatives of leading scientific establishments and enterprises of the titanium industry took part in the conference. The section on titanium-compound production technology devoted a great deal of attention to improvements in the sulfation process for various titanium raw materials and to expanding the raw material base for titanium pigment production by the sulfuric acid method. A number of papers dealt with methods of processing modified ilmenite, rutile, perovskite, sphene and other titanium concentrates into titanium dioxide pigment and fillers, the

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GOROSHCHENKO, YA. G., and BELYAKOVA, YE. P., Ukrainskiy Khimicheskii Zhurnal, Vol 36, No 5, May 70, pp 520-521

preliminary preparation of ilmenite concentrates before acid treatment and research on the smelting of high-titanium slags.

A paper by V. N. SKOMOROKH discussed the production of titanium dioxide pigment at the Sumy Chemical Combine, including the possibility of creating new production methods based on the interaction of ilmenite with concentrated hydrochloric acid during heating (method developed at the Institute of General and Inorganic Chemistry). Papers by YA. M. LIPKES and T. A. YERMOLAYEV dealt with the chlorine method of producing titanium dioxide pigment. In this connection papers were presented on the state of titanium tetrachloride production technology in the USSR and abroad. A paper by YA. G. GOROSHCHENKO dealt with the hydrolysis of titanium sulfate. I. A. SHEKA reported on the production and properties of titanium selenites. Papers by I. N. BELYAYEV et al. (Rostov State University) covered the synthesis

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GOROSHCHENKO, YA. G., and BELYAKOVA, YE. P., *Ukrainskiy Khimicheskiy Zhurnal*, Vol 36, No 5, May 70, pp 520-521

and properties of metatitanates of bivalent metals with cadmium hafnate, the physicochemical properties of saturated solutions with the participation of titanyl oxalates.

M. L. SHOLOKHOVICH (Rostov State University) presented the paper, "Phase Equilibria Underlying the Growth of Single Crystals of Ferroelectric Substances From Molten Media." A. M. GOLUB et al. (Kiev State University) described results of a study of the interaction in the system $K_2TiF_6 - Sr(NO_3)_2 - K_2CO_3 - H_2O$. Representatives of the Institute of Biophysics and the Chelyabinsk Branch of the Institute of Mineral Pigments reported on ion-exchange properties of phosphate and hydroxide compounds of titanium. A paper by YU. K. DELIMARSKIY, as well as papers by representatives of Leningrad Mining Institute, described results of a study of fusibility curves, thermodynamic and electrochemical studies of systems containing fluorotitanates of al-

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