

USSR

KOSTANDOV, E. A. and RESHCHIKOVA, T. N., Zhurnal Nevropatologii i Psikhatrii imeni S. S. Korsakov, Vol 73, Vyp 2, 1973, pp 230-235

made due to lack of information on specific nervous mechanisms behind this phenomenon.

2/2

1/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--SOME EXPERIMENTAL NEUTRON PHYSICAL PARAMETERS OF CO 1 ASSEMBLY -U-

AUTHOR--(04)-KOSTANTINOV, L.V., NIKOLAYEV, V.A., YEFANOV, A.I., USTINOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. (USSR); 28: 53-5 (JAN 1970)

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--NEUTRON ACTIVATION ANALYSIS, RADIATION SOURCE, SUBCRITICAL REACTOR, URANIUM DIOXIDE, POLYETHYLENE, NEUTRON FLUX, ENRICHED FUEL REACTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1983/1707

STEP NO--UR/0089/70/028/000/0053/0055

CIRC ACCESSION NO--AP0054549

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0054549

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DESCRIPTION IS GIVEN OF THE NEUTRON SOURCE CO 1 SUBCRITICAL SYSTEM USED FOR ACTIVATION ANALYSES. THE ACTIVATION ZONE OF THE SYSTEM WAS ASSEMBLED WITH URANIUM POLYETHYLENE DISKS. THE ACTIVATION ZONE IS 200 MM IN DIAMETER AND 230 MM HIGH. URANIUM DIOXIDE FUEL, ENRICHED UP TO 36PERCENT WITH PRIME235 U, IS HOMOGENEOUSLY DISPERSED IN THE POLYETHYLENE. TABULATED DATA ARE GIVEN ON MEASURED THERMAL FLUXES OF 10 PRIME7 NEUTRONS-CM PRIME2-SEC IN THE CO 1 INSTALLATION. DATA OBTAINED SUGGESTED THE FOLLOWING PARAMETERS FOR THE INSTALLATION: 0.5 TIMES 10 PRIME NEGATIVE2 SUBCRITICALITY; PRIME238 PU-BE (T SUBONE HALF EQUALS 89.6 YEARS; Q EQUALS 2.3 TIMES 10 PRIME8 NEUTRONS-SEC) SOURCE; 0.9 W; AND THE NEUTRON FLUX IN EXPERIMENTAL CHANNELS EQUAL TO 1.3 TIMES 10 PRIME7 NEUTRONS-CM PRIME2-SEC.

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--3000170

CIRC ACCESSION NO--AP0128898

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OPTIMUM PARAMETERS FOR THE CHROMATOGRAPHIC DETN. OF RAW CROTONALDEHYDE (I) ARE AS FOLLOWS: COLUMN (4 M TIMES 6 MM INSIDE DIAM) PACKED WITH DIATOMACEOUS EARTH (0.25-0.50 MM) COATED WITH 23PERCENT POLYETHYLENE GLYCOL ADIPATE, COLUMN TEMP. 88DEGREES, CARRIER GAS H AT 4.51-HR, DETECTOR CURRENT 120 MA. FOR THE ANAL. OF RAW BUTYRIC ACID (II) THE FOLLOWING CONDITIONS ARE RECOMMENDED: COLUMN TEMP. 135DEGREES, CARRIER GAS FLOW RATE 2.81 HR, 25PERCENT COLUMN COATING, DETECTOR CURRENT 140 MA. RELATIVE RETENTION VOLTS. OF 17 AND 25 COMPONENT MIXTS. OF I AND II, RESP., ARE TABULATED. ANAL. TIME WAS 60-5 MIN, SENSITIVITY BASED ON ME SMB2 CO DETN. 0.001 WT.PERCENT. FACILITY: GOS. NAUCH.-ISSLED. PROEKT. INST. POLIM, KLEEV, KIRGVAKAN, USSR.

UNCLASSIFIED

USSR

UDC 666.113.621'431'47'41'33'32'28

KOSTANYAN, K. A., SARINGYULYAN, R. S., KHERUMTSYAN, V. I., BELOV, N. I.,  
OGANEZOVA, R. S., and UL'YANOV, V. V.

"Glass"

USSR Author's Certificate No 366157, Filed 29 Jan 71, Published 16 Jan 73  
(from Otkrytiya, Izobreneniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 7,  
Mar (a) 73, Claim No 1620354/29-33)

Translation: A glass including  $\text{SiO}_2$ ,  $\text{CaO}$ ,  $\text{ZnO}$ ,  $\text{Na}_2\text{O}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{BaO}$  and  $\text{K}_2\text{O}$ , distinguished by the fact that in order to decrease the spectral absorption in the ultraviolet region it contains the above components in the following quantities, weight %:  $\text{SiO}_2$  67-76,  $\text{CaO}$  1.5-1.2,  $\text{ZnO}$  1-4,  $\text{Na}_2\text{O}$  7-15,  $\text{Al}_2\text{O}_3$  0.5-5,  $\text{BaO}$  0.5-5,  $\text{K}_2\text{O}$  2-12 and furthermore  $\text{SnO}$  0.2-2.0.

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1/2 022 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--EFFECT OF TEMPERATURE ON THE ELECTRICAL CONDUCTIVITY OF FUSED  
BORATE GLASSES -U-  
AUTHOR--(02)-KOSTANYAN, R.A., YERZNYAN, YE.A.  
COUNTRY OF INFO--USSR K  
SOURCE--ARM. KHIM. ZH. 1970, 23(4), 211-18  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--BORATE GLASS, ELECTRIC CONDUCTIVITY, ISOTHERM, LITHIUM GLASS,  
POTASSIUM COMPOUND, OXIDE GLASS, GLASS COMPOSITION, BORON COMPOUND,  
COMPLEX COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605018/C03 STEP NO--UR/0426/70/021/004/0211/0218  
CIRC ACCESSION NO--AP0140808  
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--110ECT0

CIRC ACCESSION NO--AP0140808

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELEC COND. WAS MEASURED IN THE RANGE OF 500-1400 DEG C FOR BORATE GLASSES OF THE LI SUB2 O-MO-B SUB2 J SUB3 AND K SUB2 O-MO-B SUB2 O SUB3 TYPES. PLOTS ARE SHOWN FOR THE GLASSES (FORMULAS SHOWN ON MICROFICHE). ELEC. COND. ISOTHERMS ARE SHOWN FOR LI AND K BORATE GLASSES AS FUNCTIONS OF BIVALENT METAL ADDNS. AN EXPRESSION IS PROPOSED FOR THE CALC. OF THE ELEC. COND. FOR THESE GLASSES. A COND. INCREASE AT HIGHER TEMPS. AT BIVALENT METAL ADDNS. RESULTS FROM 2 PROCESSES: GENERAL COND. INCREASE AT HIGHER TEMPS. AND AN INCREASE OF THE TEMP. FOR GLASSY STATE FORMATION. THE BIVALENT METAL OXIDES PLAY 2 ROLES: THEY FORM A B-O COMPLEX AND THEY FORM BONDS BETWEEN THESE COMPLEXES.

EREVAN, USSR. FACILITY: INST. OBSHCH. NEORG. KHIM.,

UNCLASSIFIED

Acc. Nr:

AP0045077

Abstracting Service: 5/76

INTERNAT. AEROSPACE ABST.

**KOSTAREV A.V.**  
Ref. Code:  
LR 0198

A70-23291 # Application of a symbolic method to the derivation of the equations in two-dimensional elasticity theory in polar coordinates (*Primenenie simvolicheskogo metoda k vyvodu uravnenii ploskoi zadachi teorii uprugosti v poliarnykh koordinatakh*). A. V. Kostarev and V. K. Prokopov (Leningradskii Politekhnikeskii Institut, Leningrad, USSR). *Prikladnaia Mekhanika*, vol. 6, Jan. 1970, p. 69-76. In Russian.

Application of Lur's (1955) method of obtaining solutions in symbolic notation to the two-dimensional problem in elasticity theory for a circular segment. The stresses and displacements are expressed through operators from four initial functions. The differential equations and boundary conditions for these functions are obtained with the aid of Prokopov's (1965) principle of minimum potential energy, using integral stress characteristics as the generalized forces.

V.P.

ALS

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ME 19771990

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USSR

UDC: 621.374.4

KOSTAREV, V. F., SOLOV'YEV, E. A., BELYAYEVA, T. A.

"A Pulse Repetition Frequency Multiplier"

Nauch. tr. Omsk. in-t inzh. zh.-d. transp. (Scientific Works of the Omsk Institute of Railway Transportation Engineers), 1970, 116, pp 3-9 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5G285)

Translation: The paper discusses a method of prf multiplication. Computational relationships are given for determining time parameters, and the error is analyzed. Design recommendations are given. Bibliography of three titles. Resumé.

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USSR

PROZOROV, L. V., et al., Pressovaniye metallov zhidkost'yu vysokogo davleniya, Mashinostroyeniye, 1972, 151 pp

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USSR

PROZOROV, L. V., et al., Pressovaniye metallov zhidkost'yu vysokogo davleniya, Mashinostroyeniye, 1972, 151 pp

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USSR

UDC: 521.372.01-501.12

KOSTAREV, V. Ye., POBEREZHSKIY, Ye. S., KHAZAN, V. M., KHMEROVA, N. P.

"On the Problem of Modeling a Linear Communications Channel With Distortions of Frequency Characteristics"

V sb. Raschety radiotekhn. skhem i proyektir. radioapparatury (Calculations of Radio Circuits and Design of Radio Equipment--collection of works), Omsk, 1970, pp 23-31 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A92)

Translation: The authors consider a linear communications channel as a two-terminal pair. The only limitations imposed are on the gating pole or on the width of the signal spectrum. Analysis is carried out for three versions of the two-terminal pair: a network which introduces only amplitude distortions; a network which introduces only phase distortions; and a network which introduces distortions of both types. Models are constructed for all three types of two-terminal pair networks. The first network is a cascade connection of an inertialess link and a long line with taps to an adder through attenuators and phase shifters. In particular, the proposed method can be used to simulate momentary realization of a communications channel with random parameters. Four illustrations, bibliography of eight titles. N. S.

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USSR

UIC: 621.375.132

YEL'TSOV, A. K. and KOSTAREV, V. Ye.

"Active RC Filters and Their Structure"

Sb. tr. Nauchno-tekhn. konferentsii prof.-prepodavat. sostava, Vses. zaochn. elektrotekhn. in-ta svyazi, Vyp. 5 (Transactions of the Scientific-Technical Conference of the Professorial-Instructor Staff of the All-Union Correspondence Electrical Engineering Communications Institute, No. 5) Moscow, 1970, pp 69-74 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D31)

Translation: A classification is given of RC filters depending on the type of active element. A filter circuit is considered in the form of an emitter follower with selective feedback through an RC circuit. Filters in the form of miniature structures are shown. Bibliography of three. N. S.

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USSR

UDC: 621.396.69:621.372.54

ARZHANOV, V. A., KOSTAREV, V. Ye, and KHAUSTOV, V. V.

"Electromechanical Filters and Delay Lines With Torsion Oscillations"

V sb. tr. Nauchno-tekhn. konferentsii prof.-prepodavat. sootava Vses. zaochn. elektrotekhn. in-ta svyazi (Transactions of the Scientific Conference of Professorial-Instructor Staff of the All-Union Correspondence Electrical Engineering Communications Institute) No. 5, Moscow, 1970, pp 83-86 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3V553)

Translation: The advantage of electromechanical over quartz filters is examined. For tuning electromechanical filters, a measurement circuit is recommended with compensation of the d-c component and positive feedback, made up of two transformers, the secondary windings of which are oppositely connected. Such a circuit can be used to measure the resonance frequencies of the mechanical resonators in the range of 90-150 kHz with an error of  $\pm 2$  Hz. Three illustrations, bibliography of one.

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1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--PRIME90 SR, STRONTIUM, AND CALCIUM IN CERTAIN HYDROBIONTS OF THE  
SEA OF OKHOTSK -U-  
AUTHOR--(03)-KOSTAREVA, G.V., BACHURIN, A.A., SOKOLOVA, N.V.  
COUNTRY OF INFO--USSR, ATLANTIC OCEAN, INDIAN OCEAN  
SOURCE--RADIOBIOLOGIYA: 10: 145-7, JAN-FEB 1970  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, NUCLEAR SCIENCE AND  
TECHNOLOGY, EARTH SCIENCES AND OCEANOGRAPHY  
TOPIC TAGS--STRONTIUM ISOTOPE, CALCIUM, HYDROBIOLOGY, SEAL, FISH, OCEAN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/1837

STEP NO--UR/0205/V0/010/000/0145/0147

CIRC ACCESSION NO--AP0127247

UNCLASSIFIED



2/2 009

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127247

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONCENTRATION OF PRIME90 SR, AS WELL AS THE CONTENT AND COEFFICIENTS OF ACCUMULATION OF SR AND CA IN CERTAIN SPECIES OF SEALS AND FISH OF THE SEA OF OKHOTSK WERE DETERMINED.

A COMPARISON WITH THE LITERATURE DATA INDICATED THAT THE CONCENTRATIONS OF PRIME90 SR IN THE INVESTIGATED HYDROBIONTS ARE COMPARABLE WITH THOSE FOR FISH OF THE INDIAN AND ATLANTIC OCEANS AND FOR SEALS OF THE CHUKOCKI SEA. THE COEFFICIENTS OF DISCRIMINATION OF SR WITH RESPECT TO CA IN FISH FROM DIFFERENT SEAS WERE THE SAME. THE SR CONCENTRATIONS, AS WELL AS CA IN RELATED SPECIES OF FISH FROM SEAS WITH DIFFERENT SALT CONTENTS PROVED CLOSE.

FACILITY: INST. OF BIOLOGY, SEVASTOPOL, USSR.

FACILITY: PACIFIC OCEAN SCIENTIFIC RESEARCH INST. OF FISHING AND OCEANOGRAPHY, MAGADAN, USSR.

UNCLASSIFIED

USSR

UDC 681.332.65

GEGESHIDZE, G. A., and KOSTAVA, Yu. N.

"Digital Device for Deflecting a Light Beam"

USSR Author's Certificate No 281000, filed 5 May 69, published 25 Nov 70  
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6,  
Jun 71, Abstract No 6B231P)

Translation: This invention is a digital electrooptical device for computers. It is designed for deflecting a light beam. A digital device for deflecting a light beam including a light source, a polarizer, electrooptical switches, and crystals with double-beam refraction arranged one after the other on the same optical axis is well known. A combination of a crystal with double-beam refraction and an electrooptical switch constitutes one cascade of the deflection device. The polarized beam passing through the cascade is deflected only when a voltage is applied to the electrooptical switch. In order to increase the number of shift positions of the beam, the number of deflection cascades through which the beam passes sequentially is increased. The deficiency of this device is a small angle of deflection of the light beam and large light energy losses caused by an increase in the number of electrooptical switches through which the beam

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USSR

GEGESHIDZE, G. A., and KOSTAVA, Yu. N., USSR Author's Certificate No 281000, filed 5 May 69, published 25 Nov 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6B231P)

passes sequentially with an increase in the number of positions. The purpose of the invention is to obtain a large angle of deflection of the light beam and decrease the light energy losses. The proposed device is distinguished by the fact that it is equipped with an optical fiber system (light guides) arranged in a defined manner, and the electrooptical switches contain auxiliary polarizers.

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USSR

UDC 621.357.13:669.292

IVANOVSKIY, L. YE. and KOTELEVSKIY, V. A.

"Electrolytic Refining and Preparation of a Continuous Cathode Precipitation of Vanadium in Bromide Melts"

Tr. In-ta elektrokhimii. Ural'sk nauch. tsentr. AN SSR (Studies of the Institute of Electrochemistry. Ural Science Center, Academy of Sciences USSR)  
Vyp 18, 1972, pp 82-86 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L428 by A. D. Davydov)

Translation: The electrolytic refining and precipitation of V during the electrolysis of bromide melts at 400-700°C was studied. For this an eutectic mixture of LiBr and KBr containing 6 to 8 wt %  $WBr_2$  was used. It was shown that at 500° and lower, V may be deposited on the cathode in a purity higher than 99.9% for a  $D_k$  equal to 0.01 a/cm<sup>2</sup>. At 400° V may be obtained as a coherent deposit several mm thick without noticeable further growth in the film. Increasing the temperature and  $D_k$  results in an increase in the growth of dendrites.

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USSR

VINOKUROV, V. G., DIMITRIYEV, Yu. K., YEVREINOV, E. V., ~~KOSTELYANSKIY, V. M.~~,  
LEKHNOVA, G. M., MIRENKOV, N. N., REZANOV, V. V., KHOROSHEYSKIY, V. G.

"A Homogeneous Computer System of Minicomputers"

Vychisl. Sistemy [Computer Systems -- Collection of Works], No 51, Novosibirsk,  
1972, pp 127-145 (Translated from Referativnyy Zhurnal Kibernetika, No 6,  
1973, Abstract No 6V600, by the authors).

Translation: The expediency is demonstrated of constructing homogeneous com-  
puter systems (HCS) of minicomputers. A two-dimensional computer system, the  
MINIMAKS is described. The elementary machines of this system are based on  
ASVT-M modules. The composition of typical HCS software is presented. 20  
biblio. refs.

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USSR

VINOKUROV, V. G., ZASTEVA, V. V., KOSTELYANSKIY, V. M., NOVOKHATNIY, A. A.

"Use of Minicomputers as Centers for Processing of Data of Remote Automatic Queueing Systems"

Vychisl. Sistemy [Computer Systems -- Collection of Works], No 51, Novosibirsk, 1972, pp 146-156 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V601, by the authors).

Translation: Methods of utilization of minicomputers in remote automatic queueing systems (RAQS) are studied. The range of jobs performed by these systems is defined. The expediency is demonstrated of using minicomputers at various levels of RAQS hierarchy, including at the level of the data processing center. In the last case, the data processing center uses a system of minicomputers in place of one or a few large computers. The structure of the data processing center of an airline ticket reservation system is presented.

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USSR

UDC 681.3.06:51

ITENBERG, I. I., KOSTELYANSKIY, V. M., LISOVENKO, N. N.

"Method of Compressed Placement of Tables of Values of Functions in Computer Memory"

Tr. NII Upravl. Vychisl. Mashin [Works of Scientific Research Institute for Control and Computing Machines], No 1, 1970, pp 91-95, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V776).

NO ABSTRACT.

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## Inorganic Compounds

USSR

UDC 541.183

TANUTROV, I. N., ~~KOSTEMETSKIY, Y. P.~~, MOISEYEV, G. K., OKUNEV, A. I."Density, Surface Tension and Viscosity of  $\text{Na}_2\text{SO}_4$ - $\text{CaSO}_4$  Melts"

Tr. In-ta Elektrokhimii. Ural'sk. nauch. tsentr. AN SSSR (Works of the Institute of Electrochemistry. Ural Scientific Center, Academy of Sciences of the USSR), 1971, vyp. 17, pp 41-44 (from RZh-Khimiya, No 1 (I), Jan 72, Abstract No 1B1260)

Translation: Measurements are made of the temperature and concentration dependence of density ( $\rho$ ), surface tension ( $\sigma$ ) and viscosity ( $\mu$ ) of melts of  $\text{Na}_2\text{SO}_4$ - $\text{CaSO}_4$  at 960-1200°C. It is found that in the concentration range of 0-50 mol %  $\text{CaSO}_4$ ,  $\rho$  and  $\sigma$  decrease linearly with temperature, while  $\mu$  decreases exponentially. The behavior of surface tension and adsorption with concentration indicates the probability of existence of  $[\text{NaSO}_4]$  anions in  $\text{Na}_2\text{SO}_4$ - $\text{CaSO}_4$  melts (primarily on the surface), while the viscosities and energy of activation of viscous flow indicate the presence of  $[\text{Ca}_x(\text{SO}_4)_y]^{n-}$  anions (chiefly within the body of the melt). Resume.

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USSR

UDC 621.793.3:669.255'24

KLYUCHNIKOV, N. G., KOSTENIGI, I. F.

"Composition and Properties of Cobalt-Nickel Alloys Obtained Chemically"

Uch. zap. Mosk. gos. ped. in-ta im. V. I. Lenina (Scientific Notes of Moscow State Pedagogic Institute imeni V. I. Lenin), 1971, No 340, pp 367-369 (from RZh-Khimiya, No 6 (II), Jun 72, Abstract No 6L316)

Translation: A study was made of the chemical deposition of Ni-Co-P alloys on a glass substrate from solutions containing the following (in grams/liter): 30 grams/liter of  $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$ , 10-30  $\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$ , 48  $\text{NH}_4\text{Cl}$ , 100 Na citrate, 20  $\text{NH}_4\text{H}_2\text{PO}_2$ , at 90-95° with a pH of 10. The procedure for preliminary treatment of the glass included degreasing, pickling, sensitizing and activating. The deposition rate (7-11  $\mu$  in 30 minutes), composition (2-8% P, 8-60% Co, 30-90% Ni) and microhardness (700-900  $\text{kg/mm}^2$ ) of Ni-Co-P alloys were determined.

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USSR

UDC [621.362:558.4]:558.6.001.24

KOSTENKO, FROLOV, S.D.

"Analysis Of Supersonic Operating Conditions Of Magnetohydrodynamic Generator"

V sb. Teplotekhn. probl. pryazogo preobrazov. energii (Heat-Engineering Problems Of Direct Energy Conversion--Collection Of Works), Issue 2, Kiev, "Nauk.dumka," 1971, pp 29-37 (from RZh--Elektrotehnika i energetika, No 12, Dec 1971, Abstract No 12A176)

Translation: The results are presented of a computed analysis of the supersonic operating conditions of a magnetohydrodynamic (MHD) channel, fulfilled by a one-dimensional approximation under equilibrium conditions of the flow of dissociated compressible gas, taking into account the friction and heat exchange in the channel walls, the effects of dissociation and recombination of the molecules and the variabilities of the thermophysical and electrical characteristics with respect to the length of the channel. The computations were fulfilled as applied to a MHD generator of the Faraday type with a sectionalized load, operating on the products of combustion of a stoichiometric mixture of TS-1 kerosene and enriched atmospheric oxygen (40-percent  $O_2$ ). It is shown that from the standpoint of the specific power output, the supersonic flow regimes in the MHD channel are optimum, in the process of which the higher the total temperature of the gas the more optimum is the Mach number. The effect of the angle of the channel opening on the characteristics of the MHD generator is considered. 6 ill. 3 ref. [Chark'ov Aviation Institute]

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1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EXTERNAL RESPIRATION FUNCTION IN PATIENTS WITH ACTIVE PULMONARY  
TUBERCULOSIS IN DISORDERS OF BRONCHIAL PATENCY -U-  
AUTHOR--KOSTENKO, A.N.  
COUNTRY OF INFO--USSR  
SOURCE--VRACHEBNOYE DELO, 1970, NR 6, PP 57-59  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RESPIRATION, TUBERCULOSIS, DIAGNOSTIC METHODS, LUNG  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1759 STEP NO--UR/0475/70/000/006/0057/0059  
CIRC ACCESSION NO--AP0129127  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129127

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE EXTERNAL RESPIRATION FUNCTION IN 179 PATIENTS WITH ACTIVE PULMONARY TUBERCULOSIS REVEALED THAT BRONCHIAL PATENCY DISORDERS OCCUPY ONE OF THE LEADING PLACES IN THE PATHOGENETIC MECHANISM OF RESPIRATORY INSUFFICIENCY. THERAPEUTIC MEASURES DIRECTED TOWARD REHABILITATION OF THE RESPIRATORY FUNCTION SHOULD TAKE INTO CONSIDERATION THE STATE OF BRONCHIAL PATENCY.

A PRACTICAL SCHEME IS PRESENTED FOR EVALUATION OF SPIROGRAPHIC AND PNEUMOTACHOMETRIC RATA DEPENDING ON THE TYPE OF EXTERNAL RESPIRATION DISORDER. FACILITY: KURS TUBERKULEZA VOROSHILCOVGRADSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR

UDC 620.194.8:678.5.06 - 419.8

CHERVATYUK, V. P., ~~KOSTENKO, A. YE.~~, NAKONECHNAYA, A. A., PLESYUK, A. K.,  
SHAMRAY, R. YA., and YAZON, Z. P., Severodonetsk

"Study of the Corrosive Resistance and Atmospheric Stability of Fiberglass  
Produced From the Composition 311 TKhS"

Kiev, Khimicheskaya Tekhnologiya, No 2 (62), Mar-Apr 72, pp 22-23

Abstract: Fiberglass material studied was resistant to hydrochloric acid, dilute and concentrated acetic and formic acids, acetic anhydride, aniline, trichlorobenzene, toluene, and gaseous  $Cl_2$ , HCl, and  $SO_2$ . Prolonged usage of this material shows considerable wear due to the action of light, temperature and moisture. With aging the firmness of the plastic deteriorates at an increasing rate. The laboratory results were fully corroborated by experiments carried out in the field.

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- 70 -

USSR

UDC 621.791.039

ISHTYKOV, YU. V., Engineer, ~~KOSTENKO, I. E.~~, Engineer, STEPANOV,  
N. A., Technician, DAVYDOV, A. A., technician

"Protective Chamber for Welding Circular Seams on Curvilinear  
Surfaces"

Moscow, Svarochnoye Proizvodstvo, No 3, Mar 72, p 43

Abstract: A protective telescopic chamber for welding circular seams on stationary objects is described. The chamber has passed prolonged tests and provides reliable protection in automatic welding circular seams, 50-200 mm in diameter, on objects of OT4 and VT20 steels with curvilinear surfaces. The chamber is equipped with two movable telescopically connected cylinders of diameters greater than the diameter of the seam to be welded. Stationary objects can be welded with this chamber by rotating the upper cylinder and welding head; rotating objects are welded by a stationary upper cylinder and torch. The use of the chamber for welding in an argon atmosphere with nonconsumable electrodes has proved to be economical and to provide high-quality circular welds on curved surfaces. 1 illustration  
1/1

ANO 012008

4  
UR9007

AUTHORS-- ANOKHIN, S., AND GALLAY, M., MERITORIOUS TEST PILOTS,  
 U.S.S.R., KUPFER, M. AND GRIBOVSKIY, V., AIRCRAFT  
 DESIGNERS, LSVETIN, B. AND PYSHNOV, V., MERITORIOUS  
 SCIENTISTS AND ENGINEERS, RAUSHENBAKH, V., CORRE-  
 SPONDING MEMBER OF THE ACADEMY OF SCIENCES, AND  
KOSTENKO, I., CANDIDATE OF TECHNICAL SCIENCES

TITLE-- WINGS FOR THE IMPOSSIBLE DREAM

NEWSPAPER-- KOMSOMOL,SKAYA PRAVDA, JANUARY 15, 1970, P 2, COLS 3-6

ABSTRACT-- THE AUTHORS ARE PROPOSING THE ESTABLISHMENT OF AN INTER-  
 AGENCY COMMISSION ON GLIDERS AND SMALL-ENGINE PLANES  
 WHICH WOULD GUIDE AND COORDINATE ALL THE ACTIVITIES  
 CONNECTED WITH DO-IT-YOURSELF AIRCRAFT.

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4 nw

USSR

KOSTENKO, L. I., TIMOSHENKO, A. G., TRAYNIN, E. Z.

"Electronic Modeling of Problems of Operations Research"

Elektronnoye Modelirovaniye Zadach Issledovaniya Operatsiy [English Version Above], Kiev, 1973, 163 pages (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V477K).

Translation: Chapter 1. General Problems of Linear Programming. Chapter 2. Problems of Extreme Paths on a Graph. Chapter 3. Problems of Network Planning and Control. Chapter 4. Problems of Extreme Flows. Chapter 5. Combinatorial Problems. Chapter 6. The Traveling Salesman Problem. Chapter 7. Games Theory Problems.

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56



USSR

UDC 576.851.49.097.21:576.851.49.097.2

KOSTENKO, L. S., and BELAYA, Yu. A., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR, Moscow

"The Surface K Antigen of *Sh. boydii* and Its Role in Virulence"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 65-71

Abstract: Cells of *Sh. boydii* were found to contain nine soluble antigens (including the surface K antigen and the O somatic antigen). Heating studies showed the cells did not lose the K antigen after heating for 1 hr at 60°C, but the amount of the antigen was significantly decreased by heating for 2 to 2.5 h at 100°C. The K antigen was completely lost by heating the cells for 2 h at 120°C. HCl treatment of the cells resulted in the almost complete disappearance of the K antigen, while alcohol treatment was without effect. Further differentiation of the K antigen from the O antigen was achieved with serological and immunoelectrophoretic studies. Subjecting colonies of *Sh. boydii* to oblique light made it possible to differentiate mutants either lacking the K or O antigen or containing them in a modified form (these colonies appeared dull blue, "normal" colonies possessing K and O antigens were concentric and appeared red-orange). Virulence studies on

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USSR.

KOSTENKO, L. S., and BELAYA, Yu. A., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 65-71

guinea pigs showed that cells with the K and O antigens elicited keratoconjunctivitis, while cells without the K and/or the O antigens failed to do so. This would indicate that the K antigen of *Sh. boydii* contributes to its virulence.

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USSR

UDC 621.416.722.1(083.8)

GCKHMAN, M.S., VOLKOV, V.V., GORODETSKIY, V.A., KOCHENKO, M.A. [Spets. konstrukt. byuro "Uralchermetavtomatika"--Special Design Bureau "Ural Ferrous Metal Automatic Equipment"]

"Pulse Regulated Power Supply"

USSR Author's Certificate No 255173, filed 3 Sept 68, published 8 Apr 70 (from RZn--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B55OP)

Translation: The block-diagram is proposed of a voltage regulator with pulse control in which is used a series key [klyuch] regulating element, a series storage choke coil, a reverse semiconductor diode, and a control circuit with a duration modulator. In order to assure triggering of the regulator during turn-on and also after emergency situations, a series circuit of a resistor and a silicon regulator is connected in parallel with the circuit of the series-connected regulating key element and the storage choke coil. 1 ill. B.D.

1/1

USSR

UDC: 621.31.043:006.12

~~KOSTENKO, M. P.~~, KOSTENKO, M. V., NEYMAN, L. R., PETROV, G. N., POPKOV, V. I.,  
SLONIM, M. A., Leningrad, Moscow

"Goals of the Scientific Council of the Academy of Sciences of the USSR on  
Theoretical and Electrophysical Problems of Electric Power Engineering, and  
the Work of the Council in 1969-1970"

Moscow, Izvestiya Akademii Nauk SSSR, Energetika i Transport, No 2, Mar/Apr 71,  
pp 28-38

Abstract: The goals of the Council and its activities for the years 1969-1970  
are explained by the chairmen of the five sections of the Council: Academician  
M. P. Kostenko, chairman of the first section on theoretical problems of genera-  
tion of electromagnetic energy, Corresponding Member of the Academy of Sciences  
of the USSR G. N. Petrov, chairman of the second section on problems of electro-  
magnetic field theory in electric power and electrophysical devices, Academician  
L. R. Neyman, chairman of the third section on problems in the theory of non-  
linear electric circuits of complex electric power and electromechanical de-  
vices, Corresponding Member of the Academy of Sciences of the USSR M. V. Kos-  
tenko, chairman of the fourth section on theoretical problems of electrophy-  
sically high voltages, and Academician V. I. Popkov, chairman of the fifth

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USSR

KOSTENKO, M. P., et al, Izvestiya Akademii Nauk SSSR, Energetika i Transport, No 2, Mar/Apr 71, pp 28-38

section on electrophysical processes in gases under high pressure, and scientific problems associated with creating transfers and equipment with insulation by compressed gases. A historical review is given of the aims of each section, its future goals are outlined, and the work done by each section in 1969-1970 is outlined together with plans for 1971.

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1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--MIKHAIL POLIYEVKTOVICH KOSTENKO HAS RECEIVED THE TITLE HERO OF  
SOCIALIST LABOR -U-  
AUTHOR--KOSTENKO, M.P.  
COUNTRY OF INFO--USSR *R*  
SOURCE--MOSCOW, PRAVDA, 1 JAN 70, P 2  
DATE PUBLISHED--01JAN70  
  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., BEHAVIORAL AND SOCIAL  
SCIENCES  
TOPIC TAGS--STATE PRIZE, LENIN PRIZE, ELECTRIC EQUIPMENT  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3004/0428 STEP NO--UR/9012/70/000/000/0002/0002  
CIRC ACCESSION NO--AN0131073  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AN0131073

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR GREAT SERVICE IN DEVELOPING SCIENCE IN THE FIELD OF ELECTRICAL MACHINE BUILDING AND HIS MANY YEARS OF FRUITFUL WORK IN PREPARING ENGINEERING AND SCIENTIFIC CADRES, AND IN CONNECTION WITH HIS 80TH BIRTHDAY, ACADEMICIAN OF THE ACADEMY OF SCIENCES USSR MIKHAIL POLIYEVKTOVICH KOSTENKO HAS RECEIVED THE TITLE HERO OF SOCIALIST LABOR WITH THE AWARDING OF THE ORDER OF LENIN AND "HAMMER AND SICKLE" GOLD MEDAL.

UNCLASSIFIED

USSR

UDC: [621.395.741+621.3.051.025]:621.3.013.7.001.24

GAYNULLIN, R. A., ZARKHI, I. M., and ~~KOSTENKO, M. V.~~

"Computing the Deleterious Effects of Single-Phase Short-Circuiting in High-Voltage Networks on Communications Cables"

Moscow, Izvestiya AN SSSR--Energetika i transport, No 1, 1972, pp 104-111

Abstract: A method is developed of computing the deleterious effects of power networks carrying 110 kV and higher, operating with transformer neutrals at dead ground, in single-phase short-circuiting. The currents in such networks, amounting to tens of kiloamperes, put a heavy stress on grounded circuits and set up magnetic fields which galvanically and inductively affect nearby communication cables. Although there are methods for computing these deleterious effects, they calculate the galvanic and inductive effects separately, then sum them up to arrive at a very approximate result which does not take into account the phase relations between the individual components. This defect is avoided in the present method, which is based on the numerical integration of a system of inhomogeneous differential equations with the boundary conditions accounted for. An example of how the computation is done on the "Minsk-22" computer is given.

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USSR

UDC: 621.31.043:006.12

KOSTENKO, M. P., KOSTENKO, M. V., NEYMAN, L. R., PETROV, G. N., POPKOV, V. I.,  
SLONIM, M. A., Leningrad, Moscow

"Goals of the Scientific Council of the Academy of Sciences of the USSR on  
Theoretical and Electrophysical Problems of Electric Power Engineering, and  
the Work of the Council in 1969-1970"

Moscow, Izvestiya Akademii Nauk SSSR, Energetika i Transport, No 2, Mar/Apr 71,  
pp 28-38

Abstract: The goals of the Council and its activities for the years 1969-1970  
are explained by the chairmen of the five sections of the Council: Academician  
M. P. Kostenko, chairman of the first section on theoretical problems of genera-  
tion of electromagnetic energy, Corresponding Member of the Academy of Sciences  
of the USSR G. N. Petrov, chairman of the second section on problems of electro-  
magnetic field theory in electric power and electrophysical devices, Academician  
L. R. Neyman, chairman of the third section on problems in the theory of non-  
linear electric circuits of complex electric power and electromechanical de-  
vices, Corresponding Member of the Academy of Sciences of the USSR M. V. Kos-  
tenko, chairman of the fourth section on theoretical problems of electrophy-  
sically high voltages, and Academician V. I. Popkov, chairman of the fifth

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USSR

KOSTENKO, M. P., et al, Izvestiya Akademii Nauk SSSR, Energetika i Transport, No 2, Mar/Apr 71, pp 28-38

section on electrophysical processes in gases under high pressure, and scientific problems associated with creating transfers and equipment with insulation by compressed gases. A historical review is given of the aims of each section, its future goals are outlined, and the work done by each section in 1969-1970 is outlined together with plans for 1971.

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USSR

UNC: 621.391.3

KOSTENKO, N. L., CHAYEVSKIY, Ye. V.

"Transverse and Longitudinal Correlation of Energy Flux Densities"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 11, Nov '72, pp 2205-2303

Abstract: A correlation analysis is made of fluctuations due to spatial displacement of the observer. Fairly simple formulas are derived, and the correlation coefficients are calculated for the angular coordinates of the energy flux density vector, as well as the correlation coefficients of the modulus of this vector. The influence of the trajectory of motion of the observer is considered as well as the effect of the geometry of multiple-element reflectors on the correlation coefficients.

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USSR

DEC 517.942.932

K  
KOSTENKO, N. M. (Odessa)

"Asymptotic Behavior of Eigenvalues of an Anharmonic Oscillator"

Moscow, Matematicheskiiy Sbornik, Vol 81(123), No 2, Feb 70, pp 163-175

Abstract: The article studies properties of the spectrum of the boundary-value problem

$$\varphi'' + [\lambda - x^2 - V(x)]\varphi = 0, \quad -\infty < x < \infty.$$

The principal result of the article is the relation

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USSR

K→STENKO, N. M., Matematicheskiy Sbornik, Vol 81(123), No 2, Feb 70,  
pp 163-175

$$\lambda_k = 2k + 1 + o(k^{-a}), \quad a < \frac{1}{2}.$$

where  $\lambda_k$  is the spectrum of the problem, numbered in ascending order. The author's conclusions are based essentially on methods developed by L. A. SAKHNOVICH.

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KOSTENKO, V. I.

SOI DPAS 59905  
9 SEP 93



UDC 621.395.528.533.164

PARAMETERS OF THE RT-22 WAVE TRANSMITTER SYSTEM AT  
WAVELENGTHS OF 3 AND 1.35 CENTIMETERS

Article by L. D. Babitskiy, N. I. Gritorenko, V. A. Franov, L. P. Kozin, L. A. Kostomarov, L. A. Litvinenko, L. G. Orlov, and V. G. Orlov of the Institute of Space Research of the USSR Academy of Sciences, Faculty of Technical Sciences, Institute of Radiophysics, Russian, Vol 17, No 5, 1973, submitted 3 Oct 1972, pp 575-579

A two-reflector antenna system in the 3-centimeter wave band was developed in 1968 in order to improve the accuracy of astronomical observations. The RT-22 radio telescope (RT) has a physical diameter sensitivity. It was found that its basic electrical parameters at 3.24 centimeters were determined. In developing the illuminating system of the RT-22, the operating experience of the RT-21 [Physics Institute, Leningrad, N. I. Ledev of the USSR Academy of Sciences] RT-22 was considered and certain changes in its system parameters were introduced. The diameter of the secondary reflector D<sub>2</sub> = 1.500 millimeters and the system's secondary focus was chosen as 200 millimeters from the vertex of the paraboloid with a view to increasing the gain in the millimeter waveband. These circumstances limited the longitudinal dimension of the radiator in the 3-centimeter wave band. The two-reflector irradiation pattern was calculated. The RT-22 was tried out on an analytical antenna.

The radiation patterns of the two-reflector irradiator in the 3 and 1.35 centimeter wavebands are shown in Figure 1. The irradiator's dispersion coefficient, computed per the radiation pattern, does not exceed  $\beta = 0.2$ .

Preliminary tuning of the antenna was done on the air, final tuning on radio sources of small angular size. A radometer with a parametric amplifier was used in tuning at the

USSR

UDC 681.385

SUZDAL', V. S., KOSTENKO, V. I.

"A Harmonic Voltage Converter"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzy, Tovarnyye Znaki, No 5, Feb 72, Author's Certificate No 327596, Division II, filed 29 Sep 69, published 26 Jan 72, p 168

Translation: This Author's Certificate introduces a device which converts harmonic voltage to pulse voltage. The converter contains a pulse shaper, a phase detector, a phase modulator and a differentiating network. As a distinguishing feature of the patent, the device is simplified and the stability and sensitivity are improved by making the phase modulator in the form of a slave multivibrator with output of the pulse shaper connected to its signal input. The output of the slave multivibrator is connected to the differentiating network, and the controlling input of the slave multivibrator is connected to the output of the phase detector. A reference signal source is connected to one of the inputs of the phase detector.

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USSR

UDC 621.316.722

MALIKOV, V. Ya., KOSTENKO, V. I.

"A Device for Automatically Eliminating Asymmetry of Thyristors Connected in a Bipolar Rectifier Scheme"

Moscow, Otkrytiya, Izobreniya, Promyshlennyye Obratny, Tovarnyye Znaki, No 5, Feb 72, Author's Certificate No 327553, Division H, filed 20 Jan 69, published 26 Jan 72, p 158

Translation: This Author's Certificate introduces a device for automatically eliminating asymmetry of thyristors connected in a bipolar rectifier circuit. The device contains sawtooth voltage shapers, an integral adder, a null detector for a DC component, a pulse-duration modulator and a power amplifier. As a distinguishing feature of the patent, displacement between controlling pulses is eliminated by connecting the null indicator for the DC component between the load of the power circuit and the input of the pulse-duration modulator. The pulse-duration modulator and amplifier are based on a single-channel circuit, while the sawtooth voltage shaper is based on a two-channel circuit.

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1/2 017

UNCLASSIFIED

PROCESSING DATE--090CT70

TITLE--FABRICATION OF PRODUCTS FROM KAPROLON BY A CENTRIFUGAL MOLDING METHOD -U-

AUTHOR--KOSTENKO, YU.N.

K

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (2), 32-4

DATE PUBLISHED-----70

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

TOPIC TAGS--CAPRONE, PLASTIC FABRICATION, MANUFACTURING METHOD, PIPE, CENTRIFUGATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1847

STEP NO--UR/0191/70/000/002/0032/0034

CIRC ACCESSION NO--AP0112831

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0112831

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CROSS SECTIONAL DIAGRAM OF AN APP. USED FOR THE MANUF. OF HOLLOW KAPROLON (1) PIPES AND BUSHINGS BY CENTRIFUGAL MOLDING AND ITS MODE OF OPERATION ARE PRESENTED. THE HEAT BALANCE OF THE MANUFG. PROCESS IS DISCUSSED. A REFINED EQUATION IS DERIVED FOR THE CALGN. OF THE I CONSUMED AS A FUNCTION OF THE PIPE'S DIAM. THE ADVANTAGES OF CENTRIFUGAL MOLDING ARE DISCUSSED.

UNCLASSIFIED

USSR

UDC 621.332.6

BOYCHUK, L. M., KOSTENKO, Yu. V.

"An Analog Computer for Finding the Extremum of Functions of Many Variables"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzy, Tovarnyye Znaki, No 4, Feb 72, Author's Certificate No 326590, Division G, Filed 16 Nov 69, published 19 Jan 72, pp 181-182

Translation: This Author's Certificate introduces an analog computer for finding the extremum of functions of many variables in the presence of restrictions. The device contains integrators to which a control unit is connected, partial derivative modules, functional converters, and a relay. As a distinguishing feature of the patent, speed and accuracy are improved by including first and second control level modules in the control unit. The outputs of the first control level module are connected together with the inputs of the partial derivative modules and those of a functional converter to the outputs of the integrators. The output of the functional converter is connected to the relay winding, and the switching contacts of the relay are connected in a circuit between the outputs of the partial derivative modules and the inputs of the first and second control level modules. The outputs of these modules are connected to the inputs of the integrators.

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USSR

UDC 681.332.4

BOYCHUK. L. M., KOSTENKO, Yu. V.

"An Analog Computer for Finding the Extremum of Functions of Many Variables"

USSR Author's Certificate No 326590, filed 19 Jan 72, published 21 Mar 72  
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 9,  
Sep 72, Abstract No 9B449 P)

Translation: This Author's Certificate introduces an analog computer for finding the extremum of a function of many variables in the presence of constraints. The device contains integrators to which a control unit is connected, partial derivative modules, functional converters, and a relay. To increase precision and speed, the control unit contains blocks of first and second control structures. The inputs of the first of these blocks are connected together with the inputs of the partial derivative modules; those of the functional converter, to the outputs of the integrators; the output of the functional converter is connected to the relay winding. The switching contacts of the relay are connected in the circuit between the outputs of the partial derivative modules and the inputs of the blocks of first and second control structures, whose outputs are connected to the inputs of the integrators. Four illustrations.

1/1

USSR

UDC 615.212.7:547.9137.074:543.544

CHICHIRO, V. YE., KOSTENNIKOVA, Z. P., and MEKHTIKHANOV, S. D., Moscow Central  
Pharmaceutical Scientific-Research Institute

"Densitometric Determination of Opium Alkaloids with Use of Thin-Layer Chroma-  
tographic Separation"

Moscow, Farmatsiya, Vol XX, No 6, Nov-Dec 71, pp 37-42

Abstract: Spectrophotometric determination of the principal opium alkaloids following separation in a thin layer of sorbent (and also on paper, in combination with use of densitometry), has been practiced for roughly a decade. However, quantitative densitometric determination following separation in a thin layer of sorbent has not been developed.

Using the Soviet-developed DI-3 densitometer, the authors made quantitative determinations of five alkaloids for tincture of opium (3.1% alkaloids) and opium powder (29.27%), arriving at the following figures: morphine, 0.98% and 11.46%; codein, 0.35% and 4.36%; thebaine, 0.14% and 1.69% papavarine, 0.28% and 3.26%; and narcotine, 1.32% and 8.5%. These figures are in close agreement with those obtained with use of the method prescribed by the USSR State Pharmacopoeia, 10th ed.

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USSR

CHICHIRO, V. YE., et al., *Farmatsiya*, Vol XX, No 6, Nov-Dec 71, pp 37-42

It was demonstrated that thin-layer chromatography and paper chromatography are of equal sensitivity, but that the interval of direct proportionality between concentration and the optical density of the alkaloids is much greater with use of the thin-layer technique (5-60  $\mu$ g, as against 5-25  $\mu$ g). A distinct advantage of thin-layer chromatography in the analysis of opium alkaloids is that it requires only a third of the time needed for paper chromatography. Full details of the laboratory methods used, along with graphic and tabular data from the results, are included in the paper.

2/2

USSR

UDC 669.15'295

YAVOYSKIY, V. I., KOSTEREV, I. B., AYYUB, A. A., and RASTORGUYEV,  
L. N., Moscow

"Activity and Concentration of Oxygen in Fe-Ti Melts"

Moscow, IAN SSSR, Metally, No 2, Mar-Apr 71, pp 50-57

Abstract: The deoxidizing capacity of titanium was studied by the method of electromotive forces and an indirect method based on study of the interaction of a melt with the walls of a crucible. The emf method allows the activity of oxygen in the melt to be determined directly. The indirect method has an advantage in the study of the deoxidizing capacity of strong deoxidizers, since the determination of very low concentrations of oxygen in the liquid ion, which is analytically difficult, is not required. The use of the two different methods increases the reliability of the results produced. The results indicate that the composition of the reaction products from the deoxidation of iron by titanium depends on the concentration of the titanium. Individual oxides of titanium exist over broad titanium concentration intervals.

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USSR

YABOYSKIY, V. I., et al., IAN SSSR, Metally, No 2, Mar-Apr 71,  
pp 50-57

The thermodynamic characteristics of equilibrium of the deoxidation reaction for titanium determined by the two methods agree well. As titanium concentration rises to over 1%, the activity of oxygen in the Fe-Ti melt increases. Based on experimental data, the interaction parameter  $e_0^{Ti}$  is calculated. The high value of  $e_0^{Ti}$  (-0.65 at 1600°C) indicates the strong influence of titanium on the activity of oxygen in liquid iron.

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USSR

UDC 669.15'295

YAVOYSKIY, V. I., KOSTEREV, L. B., AYYUB, A. A., and RASTORGUYEV,  
L. N., Moscow

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Moscow, IAN SSSR, Metally, No 2, Mar-Apr 71, pp 50-57

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74

USSR

YABOYSKIY, V. I., et al., IAN SSSR, Metally, No 2, Mar-Apr 71, pp 50-57

The thermodynamic characteristics of equilibrium of the deoxidation reaction for titanium determined by the two methods agree well. As titanium concentration rises to over 1%, the activity of oxygen in the Fe-Ti melt increases. Based on experimental data, the interaction parameter  $e_0^{\text{Ti}}$  is calculated. The high value of  $e_0^{\text{Ti}}$  (-0.65 at 1600°C) indicates the strong influence of titanium on the activity of oxygen in liquid iron.

2/2

KOSTEREV, N. I.

Biophysiology

SOIJPAS 55100

4 FEB 72

UDC 612.014.421.8:621.3.035.2

USE OF EMBEDDED ELECTRODES AND SENSORS IN CHRONIC EXPERIMENTS ON RATS

Article by N. I. Kosterev, V. M. Garin and N. I. Kosterev, Moscow, *Formi-  
SNEKAYA BIOLOGIYA* (Russian), Vol 5, No 6, 1971, submitted for  
publication 9 March 1970, pp 44-47

Abstract: This paper describes electrodes used to register the ECG and EEG, temperature sensors, a special harness fixed to the rat body immediately after operation, as well as procedures for preparing white rats for chronic experiments. The procedure and harness help to avoid destruction of wires by the animals and to prevent any complications in the postoperation period.

White rats are readily available and convenient objects for conducting large-scale chronic experiments. However, the absence of readily available and reliable instrumental methods for obtaining various kinds of physiological information limits the possibilities of researchers in prolonged observations of the state of these animals, especially under special conditions.

At the present time, both in the clinic and in experiments with large animals, embedded electrodes are commonly used for recording surface and subcutaneous electrocardiograms with wire leads and also using embedded radio transmitters or telemeters (A. A. Kiselev, et al., B. I. Kadykov and V. I. Baranin, Richardson). The use of surface electrodes and sensors during prolonged chronic experiments with rats is rather tiresome on the body of these animals. Presently existing embedded radio transmitters are also ill-suited for use on rats during prolonged experiments due to their insignificant power resources (Ye. B. Babakiy and V. V. Parin). Moreover, complex sensors, despite a number of advantages, cannot ensure the collection of individual types of sufficiently high-quality information.

Accordingly, the most acceptable method for obtaining the necessary information on the condition of rats in a chronic experiment still remains embedding of electrodes and sensors with wires. However, the use of this

USSR

UDC 621.311.22:621.311.18:681.142.001.24

KOSTEREV, N. V.

"Digital Computer Calculation of the Electromechanical Transient Processes During Power Supply Interruptions in the Auxiliary System of Thermal Electric Power Plants"

V sb. Probl. tekhn. elektrodinamiki (Problems of Technical Electrodynamics -- collection of works), vyp. 25, Kiev, Naukova Dumka Press, 1970, pp 101-105 (from RZh-Elektrotehnika i Energetika, No 4, Apr 71, Abstract No 4 Yel56)

Translation: A procedure is described for calculating the group run-out of asynchronous motors. A method of calculating the self-starting of asynchronous motors is indicated. A program is presented for calculating the electromechanical transient processes in the auxiliary system of thermal electric power plants on switching from the operating power to reserve on a digital computer. The bibliography has 11 entries.

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- 108 -

USSR

UDC: 621.373.531.2(088.8)

KOSTEREV, V. S.

"A Relaxation Oscillator"

USSR Author's Certificate No 269984, filed 13 Mar 67, published 4 Aug 70  
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G235 F)

Translation: This Author's Certificate introduces a relaxation oscillator connected in a squegging oscillator circuit. The unit contains a transistor whose base is connected to a varicap, and also a pulse transformer, a semiconductor diode and RC circuits. To improve the thermal stability of the frequency of self-excited oscillations, the second plate of the varicap is connected through a resistor to a DC voltage source, and through a capacitor to the secondary winding of the pulse transformer.

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USSR

WDC 621.373.431.2

KOSTEREV, V. S.

"Relaxation Oscillator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratnyye Tomarnyye Zhurnal, No 16,  
8 May 70, p 35, Patent No 269984, filed 13 Mar 67

Translation: This Author's Certificate introduces a relaxation oscillator constructed according to the blocking generator schematic and containing a semiconductor transistor the base of which is connected to a varicap, a pulse transformer, a diode and an RC-circuit. The device is distinguished by the fact that in order to improve the thermal stability of the autooscillation frequency, the second plate of the varicap is connected via a resistor to a constant voltage supply and via a capacitor to the secondary winding of a pulse transformer.

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USSR

UDC 621.43.011:533+621.5:533

KOSTERIN, A. V.

"Solution of Two Problems of Gas Jet Theory by the Method of the Two-Link Approximation"

Sb. aspirantsk. rabot. Kazansk. un-t. Matem. Mekhan. Fiz. (Collection of Postgraduate Papers. Kazan' University, Mathematics, Mechanics and Physics), Kazan', 1970, pp 60-67 (from RZh-Mekhanika, No 10, Oct 70, Abstract No 10 B359)

Translation: This article contains a study of two-dimensional problems of symmetrical collision of coaxial jets of different density in opposite directions in a medium with constant pressure and leakage from the vessel (the latter can also be considered as the problem of flow in a channel with a symmetrically located wedge). The currents in the xy plane correspond to halfbands in the plane  $\theta_0$  where  $\theta$  is the angle of inclination of the velocity vector to the x-axis,

$$s = - \int_{\frac{\chi-1}{\chi+1}}^{\tau} \sqrt{\frac{(\chi-1)/(\chi+1) - \tau}{[(\chi-1)/(\chi+1)](1-\tau)}} \frac{d\tau}{2\tau} = \frac{\chi-1}{\chi+1} \frac{v^2}{a_*^2}$$

1/2

USSR

KOSTERIN, A. V., Sb. aspirantsk. rabot. Kazansk. un-t. Matem. Mekhan. Fiz., Kazan, 1970, pp 60-67

The halfbands of the lines  $s = \text{const}$  are subdivided into two subregions in each of which the current function is found in the form of a series; the conditions of conjunction are given at the interface.

2/2

- 25 -



USSR

KOSTERIN, A. V.

UDC 533.6.011

"Sonic Flow Around a Wedge by the Kirchhoff Scheme"

Tr. Seminara po krayev. zadacham. Kazansk. un-~~iv~~ (Works of the Seminar on Boundary Problems. Kazan' University), 1970, No 7, pp 153-156 (from RZh-Mekhanika, No 10, Oct 70, Abstract No 10 B267)

Translation: This article contains an approximate solution of the problem of flow of gas jets around a wedge with sonic velocity according to the Kirchhoff scheme. The problem is reduced to the boundary problem for the current function in canonical variables. The domain in which the solution is found represents a seminfinite band. At the boundary of the domain, the current function is equal to zero with the exception of the part on the parabolicity line where it has a constant value. The domain is subdivided into two parts: in the one adjacent to the sonic line, the current function satisfies the Trikomi equation; in the other, which goes to infinity, it satisfies the Laplace equation. The

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USSR

KOSTERIN, A. V., Tr. Seminara no krayev. zadacham. Kazansk. un-t, 1970, No 7, pp 153-156 (Ircm aZh-Mekhanika, No 10, Oct 70, Abstract No 10B267)

solution is represented in the form of infinite sums of partial solutions of the Triкоми and Laplace equations the convergence of which is investigated. The solutions are given on the division line of the domains where equality of the current functions and their first derivatives is required. The possibility of extending the method to the case of a jet of infinite width is demonstrated.

2/2

USSR

UDC 551.501.8(124):551.510.52

SHUMILOV, I. A., KOSTERIN, I. N., and SMIRNOV, V. B.

"Side Propagation for Radio Waves Over Subauroral Ranges from Data of Tilted Probing of the Ionosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. I (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 456-460 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A345)

Translation: The basic characteristics of signal propagation characterized by the deviation of the direction of propagation from the great circle arc (side signals) observed in ionograms of tilted probing of the ionosphere in the Murmansk-Leningrad path, are described. Bibliography of four. A. L.

1/1

USSR

UDC 551.501.8(124):551.510.52

UYSTAVNOY, V. M., KOSTERIN, I. N., and SMIRNOW, V. E.

"Some Problems in the Use of Data for Tilted Probing of the Ionosphere in Selecting the Range of Operating Frequencies Over Subauroral Paths"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 448-451 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A343)

Translation: Some problems in the use of the data for tilted probing at a sliding frequency for choosing the optimal working frequencies in the subauroral Murmansk-Leningrad path are examined. The results of the tilted probing were used for prognosis of the radio communication under various conditions. Bibliography of four. A. L.

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ENGINEERING  
Aeronautical

USSR

UDC 533.6:621.4

KOSTERIN, V. A., DUDKIN, V. T., and FADEYEV, L. V.

"Effect of Air Bypass Aft of the Compressor Into the Jet Nozzle on Indicators of Gas Turbine Jet Engines"

Tr. Kazan. aviats. in-ta (Transactions of the Kazan' Aviation Institute), Vypusk (Issue) 114, 1970, pp 58-76 (from RZh-Mekhanika, No 12, Dec 70, Abstract No 12B482, by M. A. Peshkin)

Translation: The least-squares method, given several simplifying assumptions and hypotheses, was used to evaluate the effect that air bypass aft of the compressor into the afterburner chamber has on the performance indicators of turbojet engines, allowing for the work in the expansion of air and changes in gas enthalpy aft of the turbine. Calculation results are given as Mach number functions of the relative specific fuel consumption and thrust, for a 1% change in the heat release factor and a 1% change in the afterburner chamber pressure due to change in air bypass. Taking the energy of the bypassed air into account markedly improves engine indicators compared with the case when this energy is neglected.

1/1

USSR

YEVDOKIMENKO, A. I., KOSTERIN, V. V., Deceased

UDC 662.69:669.2

"Natural Gas in Nonferrous Metallurgy"

Prirodnyy Gaz v Tsvetnoy Metallurgii [English Version Above], Moscow, Metallurgiya Press, 1972, 240 pages.

Translation of Annotation: The scientific principles and methods are presented, apparatus and results are described from the application of natural gas to processes in nonferrous metallurgy.

Particular attention is given to the application of natural gas in such processes as charge and reflective melting, fuming of slugs and flame refining of copper. New research and operational materials are presented.

The book is designed for workers of scientific research and planning institutes, as well as engineering and technical workers of enterprises and other nonferrous metallurgy organizations. It may be useful to students at metallurgical colleges and technical schools. 87 Figures; 29 Tables; 92 Biblio. Refs.

Foreword  
Introduction  
1/6

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USSR

YEVDOKIMENKO, A. I., KOSTERIN, V. V., Prirodnyy Gaz v Tsvetnoy Metallurgii, Moscow, Metallurgiya Press, 1972, 240 pages.

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YEVDOKIMENKO, A. I., KOSTERIN, V. V., *Prirodnyy Gaz v Tsvetnoy Metallurgii*,  
Moscow, Metallurgiya Press, 1972, 240 pages.

Chapter II. Equipment for Combustion, Pyrolysis and Conversion of  
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UNCLASSIFIED  
TREATING OF REVERBERATORY AND ANODIC WIRE BAR COPPER SMELTING  
FURNACES WITH NATURAL GAS WITHOUT BIAS LIGHTING OF THE FLAME BY MAZUT  
AUTHOR--(02)--BYKHOVSKIY, YU.A., KOSTERIN, V.V. PROCESSING DATE--13NOV70

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(5), 18-20

DATE PUBLISHED-----70

K

SUBJECT AREAS--PROPULSION AND FUELS, MECH., IND., CIVIL AND MARINE ENGR,  
MATERIALS  
TOPIC TAGS--COPPER WIRE, SMELTING FURNACE, NATURAL GAS, PETROLEUM PRODUCT,  
DRYING OVEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3004/1918

STEP NO--UR/0136/70/043/005/0018/0020

CIRC ACCESSION NO--AP0132180

UNCLASSIFIED

CIRC ACCESSION NO--AP0132180  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. THE HEATING WAS COMPARED WITH HEATING BY NATURAL GAS WITH BIAS LIGHTING OF THE FLAME WITH MAZUT. A SPECIAL PILOT PLANT INSTALLATION FOR EXPTL. HEATING WITH MEASUREMENT OF HEATING EFFICIENCY IS DESCRIBED. ITS CAPACITY WAS 500 X PRIMES NATURAL GAS PER HR. BEST EFFICIENCY OF HEATING WITH GAS MAZUT WAS AT 40-60PERCENT MAZUT. VARIOUS GAS BURNERS TRIED SHOWED NO DIFFERENCE IN HEAT UTILIZATION. HEATING BY PURE NATURAL GAS IS MORE EXPEDIENT, BUT IT NECESSARILY REQUIRES A REDN. OF THE HEAT REQUIREMENTS OF THE CHARGE, E.G. BY REDUCING THE MOISTURE CONTENT OF THE INITIAL CHARGE.

UNCLASSIFIED

USSR

UDC 616.988.43

SALAZHOV, Ye. L., KOSTERIN, Ye. V., MISTAFAYEV, G. A., and LEHNDENKO, L. A., All-Union Institute of Experimental Veterinary Medicine

"Foot-and-Mouth Disease in Man"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 47, No 6, Jun 70, pp 87-90

Abstract: Two cases of foot-and-mouth disease in man were studied in Kostromskaya oblast in order to obtain data on the subtype (variant) of foot-and-mouth disease virus affecting man. Not much is known about the serum antibodies in patients suffering from the disease. In both cases, the same type and variant of the virus, A22, was responsible for the disease. Antibodies to this virus variant were found in the blood of both patients. These were the only two cases reported in humans in the oblast. Extensive measures to control the disease among domesticated animals and people were taken.

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UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--FOOT AND MOUTH DISEASE IN MAN -U-

AUTHOR--(04)--SALAZHOV, YE.L., ~~KOSTERIN~~, YE.V., MUSTAFAYEV, G.A., LEBEDENKO, L.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6, PP 87-90

DATE PUBLISHED-----70



SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FOOT AND MOUTH DISEASE, GEOGRAPHIC LOCATION, MAN, DIAGNOSTIC MEDICINE, ANTIBODY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/0419

STEP NO--UR/0016/70/000/006/0087/0090

CIRC ACCESSION NO--AP0126172

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 018

CIRC ACCESSION NO--AP0126172

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO CASES OF FOOT AND MOUTH DISEASE WERE DIAGNOSED IN 1967 IN KOSTROMA REGION. THE DIAGNOSIS WAS MADE ON THE BASIS OF EPIZOOTIC, ANAMNESTIC AND CLINICAL DATA. SICK ANIMALS SERVED AS THE SOURCE OF INFECTION: IN ONE CASE INFECTION WAS TRANSMITTED THROUGH MILK FROM A COW, AND IN ANOTHER, BY CONTACT WITH INFECTED ANIMAL. FOOT AND MOUTH DISEASE WAS DIAGNOSED BY EXAMINATION OF MATERIAL OBTAINED FROM SICK ANIMALS AND ONE OF THE PATIENTS; IN ALL OF THE CASES THE DISEASE PROVED TO BE CAUSED BY THE VIRUS BELONGING TO THE SAME TYPE AND OF THE SAME VARIANT, A SUB22, AGAINST WHICH ANTIBODIES WERE REVEALED IN THE BLOOD SERUM OF THE PATIENTS. FACILITY: VSESOUZNYIY INSTITUT EKSPERIMENTAL'NYIY VETERINARIY.

UNCLASSIFIED

1/2 058 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--SANITARY CHEMICAL AND HYGIENIC STUDIES OF GAS LIBERATION FROM  
POLYMER MATERIALS USED AS INSULATION -U-  
AUTHOR-(04)-GORODINSKIY, S.M., GAZIYEV, G.A., KOSTERINA, E.I., SEMENENKO,  
E.I.  
COUNTRY OF INFO--USSR  
SOURCE--PLAST MASSY 1970, (2), 71-4  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TOXICITY, INDUSTRIAL HYGIENE, INSULATING MATERIAL,  
POLYETHYLENE, POLYVINYL CHLORIDE, POLYSTYRENE CHLORIDE, RESIN,  
POLYCARBONATE RESIN, CAPRONE, EPOXY RESIN, PAINT, VARNISH, METHYL  
METHACRYLATE, CHEMICAL STABILIZER, REINFORCED PLASTIC, GAS STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/0664

STEP NO--UR/0191/70/000/002/0071/0074

CIRC ACCESSION NO--AP0119572

UNCLASSIFIED

2/2 058

UNCLASSIFIED

PROCESSING DATE--300CT70

CIRC ACCESSION NO--AP0119572

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TOXICITY AND ODOR OF SIMILAR TO 50 POLYMERS, E. G., POLYETHYLENE, POLY(VINYL CHLORIDE), POLYSTYRENE, POLYCARBONATE, KAPRON, EPOXY RESINS, PAINT AND VARNISH MATERIALS (I) (PREP. FROM STYRENE-ME AND METHACRYLATE COPOLYMERS) AND GLASS FIBER REINFORCED PLASTICS (II) WERE STUDIED AT MINUS 55 PLUS OR MINUS 5 DEGREES AND NORMAL PRESSURE. I AND II LIBERATED TOXIC SUBSTANCES AND HAD A PUNGENT ODOR. THE KINETICS OF GLASS EVOLUTION FROM POLYMERS INDICATED THAT PRELIMINARY HEAT TREATMENT AND VACUUM TREATMENT OF RAW MATERIALS OR FINISHED PRODUCTS REDUCED THE CONTENT OF TOXIC SUBSTANCES IN THE EVOLVED GASES. CHEM. MODIFICATION WITH STABILIZERS, HARDENERS, AND ANTIAGING AGENTS WAS MORE EFFECTIVE. MODIFICATION OF I WITH POLYETHYLENE POLYAMINE REDUCED THE CONC. OF THE EVOLVED EPICHLOROHYDRIN, WHEREAS PRELIMINARY HEAT TREATMENT LOWERED THE CONC. OF PHME IN THE GAS PHASE.

UNCLASSIFIED

USSR

UDC: 621.3.035.2

OSTROUMOV, YE.M., DEYEV, A.N., KOSTERINA, L.K., and SHARINA, I.L.

"Effect of Some Factors on the Physicomechanical Parameters of Graphitized Material"

Moscow, Tsvetnyye Metally, No 5, May 70, pp 62-64

Abstract: Investigations were made to determine the effect of additives on the course of the pitch pyrolysis process, using uncalcined coke as the filler, on the properties of graphitized material. The additives were: finely dispersed sulfur and  $FeCl_3$  (polycondensation catalysts),  $Pe_2O_3$  (cracking catalyst), and  $H_2O$ , an additive exerting an influence on the catalytic activity of the surface of the filler used and also impairing the wettability of the surface by pitch. The experiments were conducted with a filler predispersed to obtain -0.15 mm and -1.2-0.5 mm fractions. The coke-pitch composition was obtained with a laboratory mixer at 105-110°C. The composition of the coke-pitch mixture was 70% coke and 26% pitch. The pressing of coke-pitch billets (diameter -- 150 mm, height -- 170 mm) was done in a heated mold at a specific pressure of 400 milligram (force)/cm<sup>2</sup>. Their calcination was performed under identical conditions. Experiments revealed that the greatest effect was exerted by sulfur. Its introduction increased the strength and, to some degree, the elastic modulus of the material. Pechy had

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USSR

OSTROUMOV, YE.M., et al, Tsvetnyye Metally, No 5, May 70, pp 68-69

practically no effect as a condensing agent. The introduction of Fe<sub>2</sub>O<sub>3</sub> caused more drop in strength and also a tendency for a rise in the electrical resistance of the material. The addition of finely dispersed sulfur changed the characteristics of the "green" mass to a high degree; in particular, its plasticity dropped sharply, causing increased crack formation in pressed billets and, to a still greater degree, in heat-treated ones. From data on specific resistance and specific weight, it was postulated that Fe<sub>2</sub>O<sub>3</sub> has no effect as a graphitization catalyst or as an agent for increasing carbon material density. This is explained probably by specific properties of the structure-forming process in using uncalcined coke in the composition. It was also determined that the moisture content of the initial filler is a negative factor. It was postulated that the decrease in strength characteristics was due to the impairment of the moist coke wettability by pitch.

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Powder Metallurgy

USSR

UDC 669.018.4:669.78'6'2:669.295:541.118

BURYKINA, A. L., and KOSTERUK, V. P., Institute of Problems of Material Sciences, Academy of Sciences UkrSSR

"Study of the Influence of the External Medium on the Interaction of Silicon Nitride with Titanium"

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 73, pp 49-54

Abstract: The interaction of compact silicon nitride and titanium is studied under a vacuum of  $2 \cdot 10^{-5}$  mm Hg and in a medium of helium with a gauge pressure of 0.5 atm, and the interaction is also studied upon hot pressing of mixtures of the powders in the 1200-1600° C interval. It is established that, depending on experimental conditions, the reaction products are: titanium nitride and silicon, titanium silicides  $Ti_5Si_3$ ,  $TiSi_2$  or a mixture of the nitride and silicide phases. Reducing the pressure and intensifying mass exchange with the surrounding medium, like an increase in temperature, decreases the content of titanium in the reaction products. Hot pressing of mixtures of powders produces titanium nitride and silicon. The data produced agree satisfactorily with the thermodynamic analysis presented.

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USSR

UDC 546.27\*17.541.121.16

SAMSONOV, G. V., BURYKINA, A. L., MEDVEDEVA, O. A., and KOSTERUK, V. P.,  
Institute of Problems of Material Sciences, Academy of Sciences USSR

"Interaction of Boron Nitride with Transition Metals, Their Borides and  
Nitrides"

Kiev, Poroshkovaya Metallurgiya, No 11(131), Nov 73, pp 50-57

Abstract: An experimental study was made of the interaction of boron nitride with titanium, zirconium, hafnium, and with zirconium nitride and boride during hot-pressing of the powder mixture in the 1200-2000° C temperature interval. The results are discussed by reference to microstructures of hot-pressed specimens of the Ti-BN, ZrN-BN, Hf-BN, and ZrB<sub>2</sub>-BN systems. During interaction of boron nitride with metals, a mixture of nitride and boride phases of metals develops during which, with rising temperatures, the content of the metal nitride decreases. The interaction of boron nitride with zirconium nitride results in the formation of zirconium diboride at 2000° C. At this temperature, boron nitride does not interact with diborides of transition metals. Boron nitride is recommended for works in contact with refractory metals of group IV at up to 1200° C. Composites of diborides of transition

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USSR

SAISONOV, G. V., et al., Poroshkovaya Metallurgiya, No 11(131), Nov 73,  
pp 50-57

metals with boren nitride can be used at up to 2000° C. Six figures, one  
table, six formulas, 20 bibliographic reference.

2/2

- 16 -

USSR

UDC 531.43.

KOSTETSKIY, B. I., SAGACH, M. P., LAVRUK, V. I., and PETROV, I. F.,  
Kiev

"Contactless (Thermovisual) Method of Measuring the Temperature  
on a Sliding Contact at External Friction"

Moscow, Mashinovedeniye, No 4, Jul-Aug 73, pp 116-119

Abstract: The method and the installation for the contactless (thermovisual) measuring of actual temperatures (from 10-2000°C), originating on friction surfaces, are described. The results of experimental works in measuring temperatures of different pairs of metals under conditions of dry and boundary friction are reported. The dependence of the temperature change of the friction surface on the duration of the experiment and the influence of various lubrication media on the temperature of friction surfaces are discussed by reference to diagrams. The advantages of the thermovisual method, in comparison with other known methods, are indicated. Operation characteristics of the thermovisual installation and of a thermopair (Chromel-Copel) with galvanometer are presented. Six figures, one table, five bibliographic references.

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USSR

UDC 539.621

KOSTETSKIY, B. I., BARMASHENKO, A. I., and SLAVINSKAYA, L. V., Ukrainian Academy of Agricultural Sciences

"The Role of Crystal Structure and Orientation of Single Crystals in the Formation of the External Friction Process"

Kiev, Metallofizika, No 40, 1972, pp 24-27

Abstract: The principles of formation of the deformation constituent of an external friction force were investigated for four crystal structures (copper (f.c.c.), silicon (f.c.c.), zinc (HCP), and niobium (b.c.c.) in connection with crystallographic orientation. The relationship of friction parameters and plastic deformation process to crystallographic orientation was shown. The change in dislocation structure in the friction contact zone with the change of friction conditions was investigated. The diffraction pattern of layer deformation at the surface and subsurface zone of friction contact was shown. 12 figures, 1 table, 16 bibliographic references.

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1/2 037 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--DYNAMIC EQUILIBRIUM OF PROCESSES INVOLVED IN THE FRICTION AND WEAR  
OF METALS -U-

AUTHOR--(03)-ARUNOV, V.A., KOSTETSKIY, B.I., BERSHADSKIY, L.I.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, DOKLADY, VOL. 190, FEB. 21, 1970, P.  
1337-1339

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL FRICTION, WEAR RESISTANCE, ELECTRON MICROSCOPY, PLASTIC  
DEFORMATION, DYNAMIC SYSTEM, SURFACE AREA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1117

STEP NO--UR/0020/70/190/000/1337/1339

CIRC ACCESSION NO--AT0116583

UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0116583

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. EXPERIMENTAL INVESTIGATION IN WHICH THE SURFACE STRUCTURES OF METALS SUBJECTED TO FRICTION AND THEIR PARAMETERS WERE MEASURED WITH THE AID OF ELECTRON MICROSCOPY. THE ELECTROCHEMICAL POTENTIAL OF SURFACES DURING FRICTION, AND THE ELECTROMAGNETIC PARAMETERS OF THE SURFACE LAYERS WERE ALSO MEASURED. RELATIONS ARE OBTAINED WHICH DETERMINE THE NATURE OF OPTIMUM FRICTION AND WEAR PROCESSES. AN ANALYSIS OF THESE RELATIONS SHOWS THAT FOR GIVEN PARAMETERS OF THE MEDIUM AND MATERIAL THERE EXISTS A CERTAIN RANGE OF LOADS AND SLIP VELOCITIES FOR WHICH THE DESTRUCTION PROCESS ARE LOCALIZED IN THIN SURFACE LAYERS OF SECONDARY STRUCTURES (OF THE ORDER OF SEVERAL HUNDRED ANGSTROMS). WITHIN THIS RANGE, THE PROCESSES OF DESTRUCTION AND RESTORATION OF SECONDARY STRUCTURES ARE IN DYNAMIC EQUILIBRIUM; THE FRICTION SURFACES ARE IN A METASTABLE STATE, DUE TO DYNAMIC EQUILIBRIUM; THE PARAMETERS OF THE DYNAMIC EQUILIBRIUM AND METASTABLE STATES ARE DETERMINED BY THE LOADING CONDITIONS; AND THE STRUCTURAL CHANGES DUE TO PLASTIC DEFORMATION ARE LOCALIZED IN THIN SURFACE LAYERS.

UNCLASSIFIED



1/2 032 UNCLASSIFIED PROCESSING DATE--13SEP70  
TITLE--NORMAL FRICTION AND APPEARANCE OF DEFECTS IN MACHINES -U-

AUTHOR--(02)-KOSTETSKIY, B.I., BERSHADSKIY, L.I. K

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, MASHINOVEDENIYE, NR 1, JAN. FEB 70, PP 94-103

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL FRICTION, WEAR RESISTANCE, MACHINERY LUBRICANT, METAL SURFACE PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1180

STEP NO--UR/0380/70/000/001/0094/0103

CIRC ACCESSION NO--AP0103036

UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--19SEP70

CIRC ACCESSION NO--AP0103086

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE INVESTIGATES THE MECHANISM OF NORMAL FRICTION FOR THE CASE OF NONLUBRICATED SURFACES. HOWEVER THE MOST FAVORABLE CONDITION OF NORMAL FRICTION IS THE PRESENCE OF BOUNDARY LAYER OF LUBRICANT. THE CONDITIONS OF GRAIN ORIENTATION DUE TO DECONCENTRATION OF THE NORMAL LOADING THROUGH A QUASI ELASTIC LAYER OF LUBRICANT AND REDUCTION OF SURFACE ENERGY IN THE PRESENCE OF SURFACE ACTIVE SUBSTANCES ARE IMPROVED. THIS ALLOWS BROADENING OF THE RANGE OF LOADS AND RATE OF SLIP UNDER WHICH THE NORMAL PROCESS OF FRICTION TAKES PLACE. IN ADDITION, THE BOUNDARY LAYER OF LUBRICANT DECREASES THE RATE OF INFLOW OF OXYGEN AND OTHER CHEMICALLY ACTIVE COMPONENTS OF THE ENVIRONMENT INTO THE FRICTION ZONE WHICH IN TURN LEADS TO IMPROVED MECHANICAL CHARACTERISTICS OF SECONDARY STRUCTURES AND MINIMIZATION OF THEIR WEAR. ANALYSIS AND SYSTEMATIZATION OF THE BASIC CONCEPTS AND RESULTS OF EXPERIMENTS FROM THE VIEWPOINT OF SOLID STATE PHYSICS, THERMODYNAMICS AND MINIMAL PRINCIPLES, AND GENERALIZATION OF POSITIVE TESTING PRACTICES AFFORD THE MEANS OF SUBSTANTIATING THE EXISTENCE OF A UNIVERSAL MECHANISM OF NORMAL FRICTION. THE POSSIBILITY OF ESTABLISHING A RANGE OF CONDITIONS OF NORMAL FRICTION AND OF GIVING A QUANTITATIVE DESCRIPTION OF THE PROCESS WITHIN THAT RANGE IS SHOWN.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--NORMAL FRICTION AND APPEARANCE OF DEFECTS IN MACHINES -U-  
AUTHOR--(02)-KOSTETSKIY, B.I., BERSHADSKIY, L.I.  
COUNTRY OF INFO--USSR *K*  
SOURCE--MOSCOW, MASHINOVEDENIYE, NR 1, JAN. FEB 70, PP 94-103  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--METAL FRICTION, WEAR RESISTANCE, MACHINERY LUBRICANT, METAL SURFACE PROPERTY  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1986/1180 STEP NO--UR/0380/70/000/001/0094/0103  
CIRC ACCESSION NO--AP0103086  
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--19SEP70

CIRC ACCESSION NO--AP0103086

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE INVESTIGATES THE MECHANISM OF NORMAL FRICTION FOR THE CASE OF NONLUBRICATED SURFACES. HOWEVER THE MOST FAVORABLE CONDITION OF NORMAL FRICTION IS THE PRESENCE OF BOUNDARY LAYER OF LUBRICANT. THE CONDITIONS OF GRAIN ORIENTATION DUE TO DECONCENTRATION OF THE NORMAL LOADING THROUGH A QUASI ELASTIC LAYER OF LUBRICANT AND REDUCTION OF SURFACE ENERGY IN THE PRESENCE OF SURFACE ACTIVE SUBSTANCES ARE IMPROVED. THIS ALLOWS BROADENING OF THE RANGE OF LOADS AND RATE OF SLIP UNDER WHICH THE NORMAL PROCESS OF FRICTION TAKES PLACE. IN ADDITION, THE BOUNDARY LAYER OF LUBRICANT DECREASES THE RATE OF INFLOW OF OXYGEN AND OTHER CHEMICALLY ACTIVE COMPONENTS OF THE ENVIRONMENT INTO THE FRICTION ZONE WHICH IN TURN LEADS TO IMPROVED MECHANICAL CHARACTERISTICS OF SECONDARY STRUCTURES AND MINIMIZATION OF THEIR WEAR. ANALYSIS AND SYSTEMATIZATION OF THE BASIC CONCEPTS AND RESULTS OF EXPERIMENTS FROM THE VIEWPOINT OF SOLID STATE PHYSICS, THERMODYNAMICS AND MINIMAL PRINCIPLES, AND GENERALIZATION OF POSITIVE TESTING PRACTICES AFFORD THE MEANS OF SUBSTANTIATING THE EXISTENCE OF A UNIVERSAL MECHANISM OF NORMAL FRICTION. THE POSSIBILITY OF ESTABLISHING A RANGE OF CONDITIONS OF NORMAL FRICTION AND OF GIVING A QUANTITATIVE DESCRIPTION OF THE PROCESS WITHIN THAT RANGE IS SHOWN.

UNCLASSIFIED

1/2 040 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--MEASUREMENT OF ELECTRICAL RESISTANCE IN ORDER TO ESTIMATE THE  
PLASTIC DEFORMATION OF METALS UNDER EXTERNAL FRICTION -U-  
AUTHOR--(02)--KOSTETSKY, B.I., SHULGA, O.V.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (1), 108-109  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, MATERIALS  
TOPIC TAGS--ELECTRIC CONDUCTIVITY MEASUREMENT, PLASTIC DEFORMATION, METAL  
FRICTION, CRYSTAL LATTICE STRUCTURE, ALUMINUM, MAGNESIUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/1682 STEP NO--UR/0369/70/005/001/0108/0109  
CIRC ACCESSION NO--AP0129052  
UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129052

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHANGES TAKING PLACE IN THE ELECTRICAL RESISTANCE OF VARIOUS METALS, AL AND MG IN PARTICULAR, ON SUBJECTION TO EXTERNAL FRICTION WERE STUDIED WITH A VIEW TO USING SUCH MEASUREMENTS AS AN INDICATION OF THE DEGREE OF PLASTIC DEFORMATION (STRAIN) CAUSED BY FRICTIONAL PROCESSES. TESTS REVEALED A LINEAR RELATIONSHIP BETWEEN THE RELATIVE ELECTRICAL RESISTANCE AND THE LENGTH OF THE FRICTION PATH, THE EXTENT OF THE CHANGE IN RESISTANCE DEPENDING ON THE CRYSTAL STRUCTURE OF THE MATERIAL. IN GENERAL THIS METHOD PROVED QUANTITATIVELY SATISFACTORY FOR THE PURPOSE ENVISAGED.

UNCLASSIFIED

1/2 013  
TITLE--BREAKING IN OIL -U-

UNCLASSIFIED

PROCESSING DATE--30OCT70

AUTHOR--(OSI)-KOSTETSKY, B.I., SAVCHENKO, N.Z., KRAVETS, I.A., VOZNYUK,  
L.F., NATANSCH, M.E.  
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,579  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--03MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL PATENT, LUBRICATING OIL, MINERAL OIL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/0086

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0127713

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0127713

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OIL THAT REDUCES THE TIME REQUIRED FOR BREAKING IN ENGINES AND IMPROVES THE QUALITY OF THE SURFACES OF THE MOVING PARTS IN CONTACT IS BASED ON MINERAL OIL AND CONTAINS 0.5-1.5 WT. PERCENT O HYDROXYQUINOLINE AND 0.2 WT PERCENT OLEIC ACID.

FACILITY: UKRAINSKAYA ORDENA TRUDOVOGO KRASNOGO ZNAMENI SEL'SKOKHOZYAYSTVENNAYA AKADEMIYA.

UNCLASSIFIED



USSR

UDC 6.74

KOSTETSKIY, E. A., NAZAROV, V. D., SAPRYKIN, V. I.

"Application of Combinatory Methods when Analyzing Multiposition Interchangeable Codes"

Pribory i sistemy avtomatiki. Resp. mezved. nauch.-tekhn. sb. (Instruments and Automation Systems. Republic Interdepartmental Scientific and Technical Collection), 1971, vyp. 20, pp 87-89 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V567)

Translation: A mathematical model is presented for calculating the number of code combinations with constant weight as a function of the number of independent groups by which the sample is taken and the number of members of each group. An algorithm is proposed for constructing such codes on a computer. It is noted that the results of the calculations on the computer confirm the correctness of the developed mathematical model.

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USSR

UDC 615.771.8:593/594

BREKHMEN, I. I., GONENKO, V. A. and ~~KOSTENSKIY, E. Ya.~~, Institute of Biologically Active Substances, Far East Affiliates, Siberian Department, Academy of Sciences USSR, Vladivostok

"The Antiradiomimetic Effect of Some Compounds Extracted From Marine Invertebrates"

Leningrad, Zhurnal Evolyutsionnoy Biokhimi. i Fiziologii, Vol 7, No 5, Sep/Oct 71, pp 456-460

Abstract: The presence of natural antiradiomimetic compounds in marine invertebrates was investigated by preparing chloroform-methanol, methanol, and physiological saline extracts from 97 species of marine invertebrates representing 11 types and 17 classes, adding these extracts to suspensions of rat erythrocytes, and measuring their ability to prevent hemolysis by oxygenated oleic acid (added 10 minutes later). The highest antiradiomimetic activity was displayed by chloroform-methanol extracts. These extracts contained large amounts of glycolipids and phospholipids, including sphingomyelin and lysocithin, and almost no ninhydrin-positive unsaponifiable phospholipids. Certain fractions obtained from the extracts displayed greater antiradiomimetic activity than the initial total extract. The overall findings indicate that

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BREKHMEN, I. I., et al., Zhurnal Evolyutsionnoy Biokhimi i Fiziologii,  
Vol 7, No 5, Sep/Oct 71, pp 456-460

many of the phylogenetically younger marine invertebrates have a high anti-radiomimetic activity, which in some cases is greater than that of known synthetic antioxidants.

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